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The pulse of change : E-education and other reforming influences on vocational education and training

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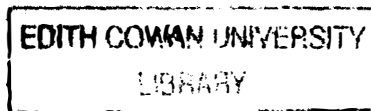
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**Edith Cowan University
Doctor of Education
Faculty of Community Services, Education and Social Sciences**

PORTFOLIO

**THE PULSE OF CHANGE:
E-EDUCATION AND OTHER REFORMING INFLUENCES ON
VOCATIONAL EDUCATION AND TRAINING**



**Robin Stark
2005**

USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

ABSTRACT

Reform has been a feature of the Australian Vocational Education and Training (VET) system for more than a decade. The Portfolio tracks the theme of reform through the sub-themes of e-education and globalisation, considering each as a set of changing hegemonic discourses that have redefined VET over the intervening years. Into this mix it is speculated a third sub-theme, that of social capital development, is now emerging. The new social paradigm however is likely to create new uncertainties and expectations in a system that struggles to cope with existing reforms.

VET institutions have been challenged by a multiplicity of influences that have shifted the role of teachers and pedagogy. Perhaps the most influential changes have centred on the implications of e-education, ICT technologies, globalisation and the call for high performance employees to drive the 'new' economy. Governments have responded by using education and training as a tool for achieving neo-liberal inspired economic outcomes. Training packages, knowledge technologies, innovation, productivity, competitiveness and marketisation have been some of the constructs used to mould the VET response.

A number of problems created by these reforms were identified for investigation in the Portfolio. They include;

- The absence of a defining pedagogical approach for e-education;
- Ensuring e-education is more customer focused;
- The absence of a curriculum tradition to underpin the new training package system;
- The imposition of a new role for VET teachers arising from the popularity of globalisation and neo-liberal ideology; and
- The reforms of the 1990s, born out of globalisation that may no longer be adequate in the 'new' knowledge economy.

In order to examine how the e-education sub-theme may be interpreted by an institution, and its resultant impact on stakeholders, a study of faculty perceptions at a College in the United Arab Emirates has been included. The college was chosen

because of its commitment to e-education and the technology rich learning environment provided.

VET institutions have responded to each of these sub-themes with changes to the role of teachers, more flexible learning strategies and new institutional arrangements. While greater emphasis has been given to quality, lifelong learning and workplace training, influences on the system have become increasingly aligned to meeting industry needs for human resources. For most of the last decade reform ideology has been designed to service the needs of human capital development, the most obvious manifestation of the globalisation discourse, at the expense of other considerations. With industry the dominant stakeholder in deciding how and what will be taught, the needs of the majority of VET learners who are not in work has received less attention. The result has been uneasiness at the delivery end where training professionals have felt disengaged from the policy process. It may be argued that the narrowness of contemporary VET thinking has led to an over dependence on an ITAB led training package system that fails to follow a curriculum tradition and speaks mainly for learners who are in employment.

The solution to the lack of balance in the present discourse is to suggest the introduction of a human and social capital development approach. This has been represented in the Portfolio as a new training paradigm. It is argued that a balance is needed if lifelong learning is to be sustainable and lead to adaptiveness in adjusting to a fast moving and complex work environment. The inclusion of social parameters may promote individual wellbeing. The notion of workplace development takes this argument to the workplace, redefining how skills may be used, organized and embedded in a broader set of considerations.

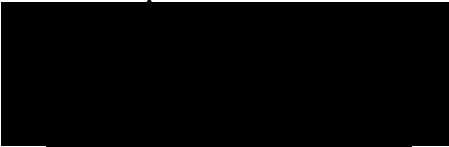
DECLARATION

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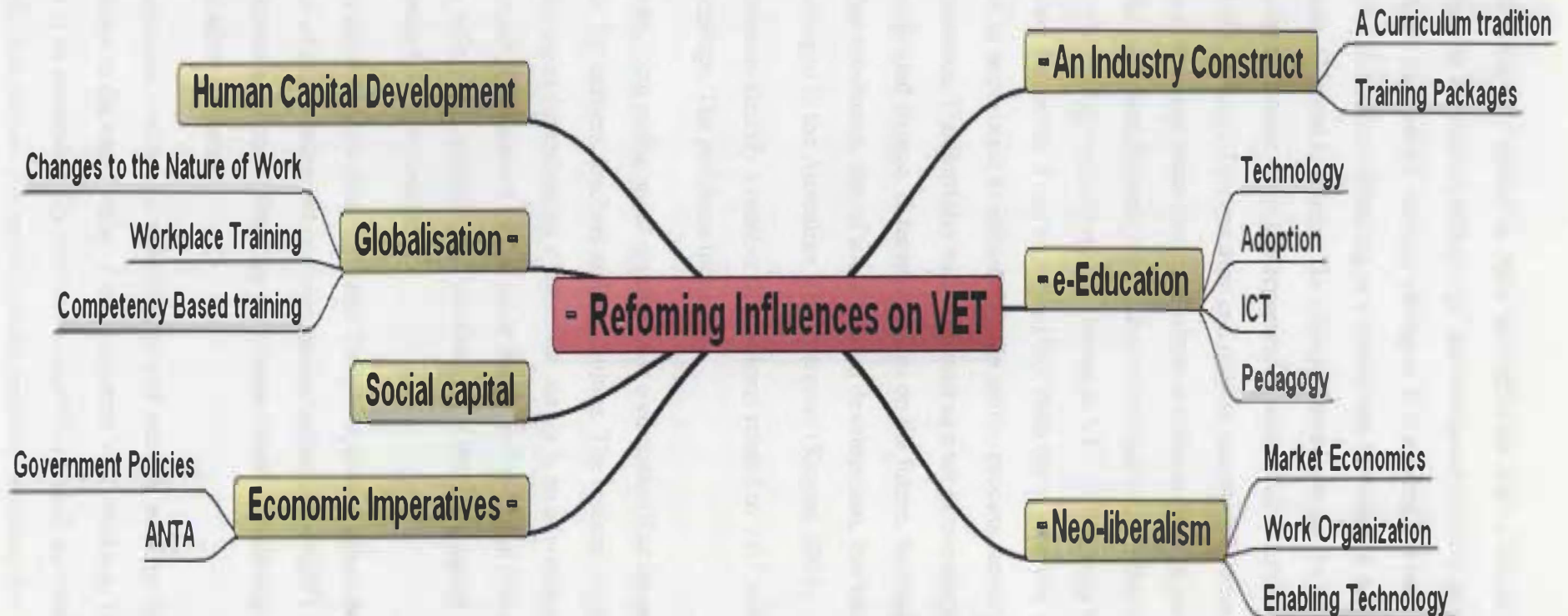
CHAPTER 1

INTRODUCTION TO THE PORTFOLIO

It is the contention of this Portfolio that there are at least seven significant influences that have or are transforming the Australian Vocational Education and Training (VET) system (Figure 1). At one end of the spectrum are the implications of e-education and technology on a functioning VET system that is characterized by organizational, economic and pedagogical transformations that in turn parallel the growing momentum of globalisation in its many forms. There are in fact few facets of VET work and community activity that have not been touched by change. VET has also become a major provider of global skills, satisfying the needs of not only individuals but also employers for high performing employees in a Reich (1991) tradition. It will be shown that VET itself has not escaped the persuasive influence of technology as its institutions and teachers have had to up-skill, reorganize their work and rethink the pedagogical basis on which programs are delivered. At the other end of this spectrum there continues to be the often-divergent ideological perspectives of an economic and/or social role for VET (Anderson, 2001). These influences are represented in Figure 1 as a set of ideologies that have transformed the VET system over the last decade. The economic dimension has come to dominate these changes and is often associated with neo-liberal directives that support an emphasis on competition, market solutions and meeting employer needs. These views have dominated the VET reform agenda for more than a decade, often at the expense of a community perspective. On this point Elson-Green (2003) notes that in comparison with the UK VET system, the value of a counter balancing social dimension to training has been slow to emerge as an influence in the Australian VET sector.

Figure 1: Ideological Influences on VET Reform

Notes: Figure 1 identifies seven influences that collectively have had transforming influence on the VET system during the last decade. At one level each influence is inextricably linked to the other and it is therefore not surprising to find common ideological themes emerge when such constructs are considered.



Reform has produced a VET system in 2004 very different from a decade ago. The classroom is often the workplace, technology has broadened delivery boundaries and curriculum has been replaced by training packages. It is against this backdrop that VET professionals find themselves adjusting to a sometimes bewildering array of changed circumstances. Of issue is whether the changes have been for the better in adding value to training outcomes or simply represent an uncritical acceptance of models from other VET systems. This question can only be answered by examining where the Australian system has come from and where it is likely to go in the future. In this context no one theme satisfactorily tracks the reform agenda that has reshaped VET since the mid 1990s. While collectively the theme of VET reform may be considered to dominate the sector, it can be argued that there are at least two sub-themes that stand out in importance as influencing the reform process, namely e-education and globalisation. The Portfolio will treat each as a set of overlapping influences that have affected change. In terms of a lens on the future, the final Chapter speculates on a further sub-theme, that of social capital development, that has not yet been widely acknowledged in the Australian VET literature (Kearns, 2004).

The Portfolio Chapters identify a number of problems related to VET reform and the uncertainties of change. The problems include;

- the absence of a defining pedagogical approach for e-education that integrates change processes for learners, teachers and institutions. The research literature is conflicting on this point dependent on whether the author is an advocate or dissenter. As a result, an argument can be made for greater focus on evaluating the quality, validity, reliability, strengths and weaknesses of the pedagogical paradigms embedded in such studies;
- how e-education can provide a more customer focused approach given the borderless nature of information and communication technologies (ICT). Too much attention however on the technology may detract from considering pedagogical and other concerns;
- the lack of a curriculum tradition to underpin the new training package system. This draws attention to the narrowness of contemporary VET thinking. The dominant theme is an occupationally oriented competency based approach that is aligned to specific jobs broken into specific tasks assumed necessary for

successful performance. Arguably, this is an artificial notion where the training under such regimes emphasizes on the job competencies rather than a blend of theory and practice evident in more traditional curriculum discourses;

- a shifting role for VET practitioners in response to economic imperatives set by governments. It may be argued that the traditional role of VET has collapsed under changes brought on by globalisation and neo-liberal ideology. Essentially the role has shifted from a sector that pursued social and educational outcomes to training more closely linked to human resource development rather than education. The issues this raises include:
 - to what extent can the system control the forces that are changing its role?
 - how to respond to rapid policy shifts?
 - how to ensure training meets the needs of all stakeholders?
 - how to respond to the needs of a knowledge-based economy? and
 - is the system adaptive enough?
- the ideology of human capital development, evident in the reform agenda of the 1990s born out of globalisation influences, may no longer be adequate in the 'new' knowledge economy. A new training paradigm that in addition embraces social capital influences is suggested. The concern however, is that the VET system may not have the capacity to implement the changes required. As Noonan (2003) puts it, the key question is whether or not the Australian VET system is poised to make the transition from a largely standards and qualifications based system, to a broader construct of workforce preparation, which subsumes, but goes much further than current approaches to knowledge and skills and the means by which they are acquired. Government policies provide an inconsistent guide to such a proposal, and are often driven by imperatives at variance with what has been referred to as social capital perspectives (Kearns, 2004). Some state policy documents, perhaps more so than those emanating from the Australian National Training Authority (ANTA), hint at recognizing the need for a 'new' training paradigm for the 21st Century (Kosky, 2002; Lomax-Smith, 2003). Adherence to the industry paradigm of the 1990s while questioned more often, still however dominates much of VETs policy thinking. The disengagement of VET

practitioners from many of the policy decisions that have shaped the system over the last decade encourages scepticism of the whole reform agenda. Arguably this is a weakness given much of the reform agenda remains incomplete or only partially implemented and therefore would benefit from the good-will of all stakeholders. This may ensure the transition to a new training paradigm will not only be slow, but also require determination of what are the appropriate policies to affect the transition? Whether the transition to a new training paradigm is couched as workforce development (Lomax-Smith, 2003) or social capital development the intent is to broaden the role of VET to encompass all the processes and structures by which workers develop their skills and capabilities, integrating formal and informal learning to enhance the capacity of employees to become part of a high performance workforce.

In attempting to address these problems Portfolio Chapters will:

- define the field of e-education putting a boundary around its influence on reform. At the same time, the status of current research and emerging organizational issues will be explored to inform a changed role for the VET sector;
- highlight the problem in seeking a pedagogical approach that integrates e-education;
- examine the integration of ICT and e-education into institutions with cross reference to an emerging e-education College (Chapter 4);
- report on a research study (Chapter 5) of teacher perceptions of the e-education notion at a VET college in the United Arab Emirates (UAE) where an attempt has been made to implement e-education as a teaching and learning strategy;
- further identify reforming influences by seeking to identify a curriculum tradition that may underpin the introduction of training packages as a new curriculum in the Australian VET system;
- link training packages to the impact of e-education technologies that in turn facilitate flexible delivery strategies and constructs such as competency based training.

- by reviewing a number of constructs that have contributed to reform, ratify the impact of globalisation on VET reform and relate this to the so called knowledge-based economy and the new skills needed by workers; and
- propose a new social paradigm for VET that integrates the various influences on reform (Figure 1). This may be considered to express a transition to workplace preparation that integrates technology inspired innovation and creativity that goes beyond conventional knowledge, to the “new knowledge society” that calls for high performing employees. The intent is to broaden the role of VET beyond its current human capital development perspective.

In the broadest sense, at least six categories of change may be identified as spawning transformational VET policies. Table 1 suggests that these policies can be linked to various constructs of reform, some of which find expression in the case study described in Chapters 4 and 5.

Table 1. A Matrix of VET Reform

Chapter	Transformational VET Policies	Impact on VET Reform	Implications for the Case Study (Chapters 4 and 5)
2 and 3	Broader delivery boundaries A new flexible delivery framework Organizational change Teaching practices Learner centeredness	- Technology solutions Borderless outcomes Any time, anywhere training Customer focus National standards ICT and new teaching and learning strategies Absence of a defining pedagogical approach	Development of the e-College notion A technology rich teaching and learning environment Focus on online learning Support for ICT Pedagogy interpreted in terms of learner centeredness
7	The innovation economy Human capital theory	Workforce preparation – a human and social capital approach	Traditional approach to workforce preparation The e-College

Chapter	Transformational VET Policies	Impact on VET Reform	Implications for the Case Study (Chapters 4 and 5)
			notion as a paradigm shift
6 and 7	<ul style="list-style-type: none"> - Knowledge economy - Support for competition - Training market solutions - An employer driven system - Human capital solutions - Quality assurance – AQTF - Performance based arrangements - Policy response to shifts in the nature of work - Workplace training - Competency based training - An industrially led training paradigm 	<ul style="list-style-type: none"> - Private training providers - Open training market - Demand driven responses - Training packages – a search for a curriculum tradition - New apprenticeship scheme - Modularisation - Flexible learning 	<ul style="list-style-type: none"> - Human capital development solutions – Emiratization - Traditional curriculum - Quality based on international benchmarking - Flexible delivery as e-learning
8	<ul style="list-style-type: none"> - A social capital role for VET - A new training paradigm 	<ul style="list-style-type: none"> - Workplace development strategies - Employability skills - Lifelong learning - Community networks 	<ul style="list-style-type: none"> - Lifelong learning strategies - Social capital is not yet a focus

In the case of e-education the concept of learning arrangements will be considered to range from class attendance, to learning in the workplace and online learning, often

referred to as flexible learning and variably defined as an approach that allows for the adoption of a range of learning strategies in a variety of learning environments that caters for differences in learning styles, learning interests and needs, and variation in learning opportunities (Flexible Delivery, 1992). This broad definition directs attention to the underpinning technologies that have transformed VET into a system that offers access to training where, when and how requested. This has constituted a paradigm shift in contrast to the more traditional approaches of the past. It will be argued that the absence of a pedagogical tradition has had the effect of slowing the uptake of flexible delivery reforms, how learners learn, how teachers teach and the organization of institutions. For example, while some argue the potential of ICT to transform learning has not yet been universally realized (Kearns, 2002), few would challenge the contention that ICT can broaden the boundary of VET and also be an influence on the systems reform.

When coupled with appropriate technology, e-education strategies are a powerful tool for a number of influential constructs including flexibility, learner-centeredness and knowledge management. The VET Policy Advice Discussion Paper (2001) broadens the argument by suggesting the take-up factors for such strategies include economic dimensions, the nature of the technology and competitiveness concerns, as well as social and cultural imperatives. Each of these issues will be seen to speak to a sub-theme of the Portfolio. These and other issues will be taken up in subsequent chapters as influential drivers of VET reform.

The issue of VET curriculum, that is central to reform, has evolved to be caught within a training package ideology that defines employment qualifications as competencies identified by employers. As purchasers of training and because of their privileged position, state governments and employers wield considerable influence in marketing and defining the content of training packages. This is assumed to result in training programs that reflect the current needs of the market. On one level, meeting needs in this way appears to be incontestable ground, but it may also be perceived as abdicating the interests of individuals or employees to capital. In this model, what constitutes useful knowledge is left largely in the hands of employers and the market (Brown, et al. 2002). Training packages may therefore be acting to provide a narrower vision of training than in the past and be denying learners the opportunity to accumulate knowledge and skills that can optimise their participation in the

workplace and community. Part of this problem may arise from the omission of a curriculum tradition that endorses content and not knowledge input, a notion explored under the heading of e-education and assessment in Chapter 2 and in Chapter 6.

Chapter 7 introduces the sub-theme of globalisation as further highlighting the importance of market economics and hence neo-liberal imperatives in driving influences that have shaped VET reform over the last decade. Although multi-faceted, the constructs of influence in this context have included the nature of work, technology and work organization. These trends can of course make it difficult to predict training demand placing new constraints on VET providers. As Brown, et al. (2002) points out, governments have devolved increasing responsibility for service delivery to providers while maintaining centralized control of training objectives and outcomes of service delivery via national standards, performance-based agreements and output-based funding regimes. VET has essentially become part of the rhetoric on globalisation, human capital development and the redefining of VET learners as human resources, as a means of ensuring economic well-being.

Brown, et al. also hints that globalisation has led to the notion of competency based training (CBT) becoming a driver of reform. Aimed at producing more efficiency and productivity, CBT is sometimes challenged on the grounds that it results in an artificial and disembodied aggregation of skill requirements based on the assumption of an ideal worker in the field in question (Boughton, et al. 2002). To overcome this potential weakness the Australian VET policy response has proposed allowing enterprises to outline their specific requirements, through workplace training agreements, an issue taken up in subsequent chapters.

VET is also caught up in redefining its role in the 'new' economy. In many ways this is derived from the transition occurring from an industrial to an ICT era (UNESCO, 2000) that now arguably includes the new directive of social capital development discussed in Chapter 8. Together with human capital development these influences may be referred to as drivers of the knowledge society. The preparation for this future society requires a fresh look at different elements of learning that may encompass, amongst other things, employability skills, an ability to access and analyse information, technology adaptability and transferable skills.

Definition of Key Terms

The following key terms are used in arguments presented in subsequent chapters.

VET

Maglen (1996) has defined VET as encompassing all educational and instructional experiences be they formal or informal, pre-employment or employment related, off-the-job or on-the-job that are designed to directly enhance the skills, knowledge, competencies and capabilities of individuals, required in undertaking gainful employment, and irrespective of whether these experiences are designed and provided by schools, TAFE or higher education institutions, by private training providers or by employers in industry and commerce.

e-Education

In its simplest form e-education has been defined (Feisel, 1999) as education or training delivered either partly or entirely through the use of an electronic medium. The underpinning technology may be regarded as the link between e-education and its subsets. This broad definition allows the inclusion of terms that include e-learning, computer based learning, computer aided instruction, online learning and so on. The underpinning technologies can include the use of laptops, the Internet, wireless technology, satellite broadcasting, audio and video, interactive boards, CD Roms and even TV. These technologies can be thought of as facilitating a synchronous or asynchronous approach to learning not possible in a traditional teaching environment. Embedded in the definition however is the pedagogical promise of e-learning to bring the classroom to the student rather than reliance on attendance for a pre-agreed block of lessons. This model is consistent with and can help to facilitate the emphasis now given to workplace training in VET programs. The simplicity of the definition is however evident when it comes to implicating teaching and learning and there is an undeniable need to also define a pedagogical approach that integrates change processes for the student, teacher and institution.

e-Learning

e-Learning refers to a range of applications and processes which use electronic media to deliver knowledge and information. It ranges from using a CD Rom in a classroom to wholly electronic approaches such as web-based learning, virtual classrooms and digital collaboration (DEFEEEST, 2003a).

Flexible Delivery

Flexible learning expands choice on what, when, where and how people learn. It supports different styles of learning including e-learning (<http://www.flexiblelearning.net.au>). Flexible learning is described as a learner-centred approach to education and training that covers a range of delivery modes, including distance education, mixed mode delivery, e-learning, self-paced and self-directed learning (DEFEEEST, 2003a).

ICT

The three components of Information Communication Technology (ICT) may be separately described (Woolley & Booker, 2002):

- Information is basically data, which with the addition of learning, becomes knowledge. It is based on the capacity to find, access, apply and transform information into new knowledge. The competencies learners require to make the transformation are often called information literacy competencies and include awareness of the need for information, the ability to critically analyse information and evaluate its usefulness and ultimately, to be able to apply the information, turning it into knowledge.
- Communication is the act of dialogue between peoples and cultures that takes on a new dimension when combined with ‘information’ and ‘technology’.
- Technology may not be limited to the Internet and can include CD ROM, video, television etc. Although the term ‘information technology’ does imply the use of the Internet and telecommunication networks. In education and training it is likely to fall into:
 - computer technology, computer based courses and use of various software applications; and
 - telecommunications software that offers distance courses, distributed resources, email and video conferencing etc.

Globalisation

Marginson and Considine (2000) have defined globalisation as referring to the growing impact of world systems of finance and economic life, transport, communications and media, language and symbols. The term is often linked to the so

called 'new' knowledge economy which in turn is often explained in terms of information technology and the economic developments that have ensued. The resulting changes have allowed people and ideas to move more freely around the world than ever before.

Knowledge in this context is often thought of as a commodity that is assumed to generate productivity improvements and innovation in products and services.

Neo-liberalism

In a VET context, the term neo-liberalism with its market focus may be defined as:

- implementing the rules of the market in delivering training programs;
- reducing public spending on education and training through leveraging greater commercial or fee for service activity;
- deregulating through opening the training market to competition; and
- introducing privatisation principles or allowing the entry of private investors into the training market.

Human Capital

The core thesis of human capital theory provided by Livingstone (1997) describes it as peoples' learning capacities which can be compared to other natural resources involved in the production process; when the resource is effectively exploited the results are profitable, both for the enterprise and for society as a whole.

Social Capital

Social capital is variously defined but may be thought of as representing the degree of social cohesion that exists in communities. It refers to the processes between people that establish networks, norms, social trust and facilitate coordination and cooperation for mutual benefit (World Health Organization, 1998).

Portes (1998) has described social capital as residing in social structures and relationships in contrast with economic capital that exists in bank accounts and human capital in peoples minds.

Workforce Development

Workforce development is a corollary to social capital being defined as those activities which increase the capacity of individuals to participate effectively in the workforce throughout their working life, increasing the capacity of firms to adopt high performance work practices (Noonan, 2003).

CHAPTER 2

A REVIEW OF LITERATURE

Chapter 1 identified seven broad parameters that have led to change in the VET system (Figure 1). In subsequent chapters these perspectives will be used to consider the transforming influences of the last decade and help decide a set of recommendations for moving VET to its next phase of reform. In beginning to unravel the drivers of reform this chapter comments on e-education and common research findings (Table 2) that may underpin the understanding of policy decisions, training arrangements and movement towards a new training paradigm appropriate for a post modern society.

Table 2. e-Education Parameters of a Changing VET System and an Illustrative Literature.

Parameters of a Changing VET Perspective	Illustrative Studies
e-Education	<p>Confirmation that e-education can add value to performance (NASBE, 2001).</p> <p>E-Education promises to bring the classroom to the learner (Owston, 1997).</p> <p>The new paradigm suggests the teacher is no longer the sole source of knowledge (Owston, 1997).</p> <p>Any time, any place, any path and any pace education and training (NASBE, 2001).</p> <p>e-Education may enhance customer focus (Hartley & Bendixen, 2001).</p> <p>Evidence that e-education technologies can support different teaching and learning strategies (Coley, Cradler & Engel, 1997).</p> <p>Wide uptake of flexible delivery strategies (Barker, 2000; Online Learning Australia, 2000).</p> <p>Technology may enhance learning outcomes (Jacobson & Spiro, 1995; Kulik & Kulik, 1991).</p> <p>Uptake of technology may be mediated by beliefs (Agarwal & Prasad, 1999).</p> <p>Technology as a cultural artefact (McOmber, 1999; Altman, 1990).</p>

Parameters of a Changing VET Perspective	Illustrative Studies
	<p>Internet is the most promising education and training tool for the new millennium (Windschitl, 1998).</p> <p>e-Education supports new forms of social interaction and productivity (McCombs, 2001b).</p>
An ICT inspired pedagogical rethink	<p>New teaching and learning strategies using ICT (Hamm, 2000; Duchastel, 1996).</p> <p>The relationship of ICT and deeper understanding in education and training (Lane & Shelton, 2001; Cordes, 1998; Going, 1998).</p> <p>ICT and constructivist learning (Howard, et al. 2001).</p> <p>Technology integration and its relationship to pedagogy (Pierson, 2001).</p> <p>Reach versus richness in the use of ICT (Weigel, 2000).</p> <p>Multimedia extends the richness of ICT (Jonassen & Reeves, 1996).</p> <p>ICT and 14 learner centred principles (McCombs, 2001b).</p> <p>Communities of learners (Stacey, 2001; Ragan, 1998).</p> <p>The uptake of ICT and its relationship to epistemologies and administrative support (Kagima & Hausafus, 2001; Maor & Taylor, 1995).</p> <p>Technology rich learning environments and the achievement of education and training goals (Tiene & Luft, 2001; Green, 1998; Simonson & Thompson, 1997).</p> <p>Teacher perceptions of ICT (Gallini & Barron, 2001; Lumpe & Chambers, 2001; Foegen & Hargrave, 1999).</p> <p>Student expectations of ICT (Green, 2000).</p> <p>Time as a barrier to ICT integration (Albright, 2000).</p> <p>Group response technologies may enhance learner engagement (Harrington & Quinn-Leering, 1996).</p>

e-Education: A New Terminology

Perhaps the most significant driver of change in VET has been the impact technology has had on the system. The concept of e-education, discussed in this chapter, is thought to capture not only the relevant technologies but also imply a pedagogical stimulus and other change processes (Table 1, P7).

While few would argue against the notion that the definition of VET in Chapter 1 suggests the system should provide the skills needed for economic viability (Gonczi, 1998), the path to take, perhaps because of a limited VET research tradition prior to the 1990s, has been debated for nearly two decades. Of issue in this chapter is whether e-education has transformational value in offering solutions to the dilemma of change or simply engenders an uncritical acceptance that fails to question the basis of whether technology adds significantly to education and training outcomes.

Arguably a weakness of VET reform in terms of e-education policy has been that research has tended to be drawn from elsewhere and implemented before an appropriate analysis of its impact in an Australian context has been undertaken.

Taking these concerns into account a contemporary e-education discourse must address why it has become a significant driver of change by asking questions such as;

- in a knowledge-based economy, do e-education strategies service learner needs more effectively than more traditional approaches?
- who should decide on new education and training strategies?
- how or indeed can an underpinning pedagogy be developed?
- what capacity is there for e-education to assist with training to meet the emerging social capital needs? and
- what should be the role of each stakeholder?

While these are only a selection of the issues that could be considered they reflect the uncertainties and complexities of a system that is being impacted on not only by technology but also by social and economic constructs. Because of their importance in understanding policies that have transformed VET, the later imperatives will be taken up in the discussion in Chapters 6 and 7.

If e-education as a term is too new to have attracted a significant VET literature much has been written about the technology underpinning a shift to an electronic approach to teaching and learning. Considerable literature also exists for subsets of e-education such as e-learning, computer aided instruction and educational technology, but much of it is anecdotal and fails to direct attention to organizational impact, a shortcoming evident in the case study and research described in Chapters 4 and 5.

In locating a definition of e-education it is essential to take a broad perspective given the speed of change and the varied ways technology is being interpreted in education and training institutions. e-Education's impact on the VET system has nevertheless been to transform the work of teachers, cause a rethink of their pedagogical approach and a redefining of how their role is organized. While couched as a literature review much of this chapter relates to findings that may be said to express the influence e-education has had on these reforms. The problem of debating its reforming influence however is the lack of a defining pedagogical framework that integrates these changing constructs for learners, teachers and institutions. The research literature will be shown to be conflicting on pedagogical issues dependent on whether the author is an advocate or dissenter. As a result, an argument may be made for greater research vigour in evaluating the quality, validity, reliability, strengths and weaknesses of the pedagogical paradigms embedded in much of the research referred to.

Why e-Education is Integral to a Debate on VET Reform

Figure 1 identifies e-education as a key sub-theme of VET reform. Its inclusion is validated in this Portfolio by literature that confirms it can add value to performance, offering anywhere, anytime options and support for a new teacher role. Many of the new flexible delivery options are also dependent on technology to enhance learning outcomes. Its potential for providing information on demand and a broader definition of customer focus are other attributes of importance.

In order to interpret the literature on current thinking and practices relating to e-education and VET, it is necessary to have markers or constructs that will delineate the landscape. The study in Chapter 4 by offering parameters of change within an operating VET system (Table 2, P15), provides a guide to what the constructs might mean operationally. The level of strategic planning, degree of infusion of e-education into courses, the impact on teaching and learning and organisational change were found to be central elements in defining the e-College landscape.

The study also appeared to confirm a belief that e-education can add value to performance by strengthening delivery flexibility. There was an apparent confirmation shared by students, faculty and management that the integration of technology into the UAE VET system was fundamental to preparing graduates who

would be high performing employees. At the same time respondents suggested that pedagogy and the absence of an overall strategic plan (Figure 2) were deterrents to successfully implementing an e-education approach. Without appropriate plans, procedures and policies to scaffold how e-education should be done, it was apparent that considerable confusion could develop that acted negatively on the whole enterprise. There was some evidence of this in the study manifesting as concern with the actual purpose of technology (Table 3, P75) and getting it to work seamlessly. As a result some perceived the e-education environment as largely an information delivery system, rather than an interactive environment. It might have been helpful to ask up front “why do we want to do this?” The answer might have led to a deep and critical assessment of what was driving the e-College notion and helped generate a sustainable vision that disarmed resistance to the concept.

The rising tide of using e-education and its associated technologies, particularly ICT in VET institutions, has meant that teachers have new information and communication tools to help them develop a host of new and innovative solutions. The assumption is that the outcomes will be more relevant and engaging for student learning but this is not always the case. This is particularly evident with online courses that are often portrayed as the ‘new’ thing in education and training with potential to replace the teacher. There is however, growing realisation that teachers are central to the learning process and that online courses have to be a high quality resource. Essentially they have their place but will not suit all learners or learning. In this context VET programs may be blended with online and other delivery modes to achieve competency outcomes.

There is little doubt that these changes inspired by technology have helped to reshaped the role of VET teachers. One impact has been the volume of conversational information, often in the form of text, the ‘new’ technologies may generate. This can overwhelm the teacher’s ability to respond. Adding to the difficulty is the potential for much of the communication to be unstructured in terms of what has gone before. Its asynchronous nature may also encourage learners to present every part of the work they have done, not only to the teacher but also to other learners. This causes time to become a key consideration and it is not therefore surprising that teachers in the Chapter 5 study brought this up as a key concern.

Developing the Debate

There is little doubt that e-education and the technologies that underpin it have transformed how education and training is delivered and how learners learn. For this reason, in order to be relevant the literature on e-education must go beyond simply evaluating computers as they extend the traditional classroom model to include interactive technologies. There is a requirement to include studies that address a broad spectrum of issues (Table 2, P15). For example, it seems inevitable that in addressing the changes inherent in a shift to new ways of teaching, institutions will become increasingly concerned with ideological issues such as implementing pedagogical changes that are consistent with e-education principles that in turn will lead to organizational realignment. For administrators e-education is especially challenging as it may require role changes directed towards setting new strategic directions for reform policies as diverse as flexible delivery and training packages that in turn represent a shifting role for teachers and new learning paradigms.

The Landscape of e-Education

Because of the newness of many e-education strategies, researchers need to consider adapting old or developing new theoretical frameworks that identify generalisable outcomes that achieve a greater transferability across the educational landscape. To facilitate this there may need to be more emphasis on larger studies and a mix of quantitative and qualitative approaches. There seems to be a trend in this direction, with some comprehensive studies particularly by government agencies and others in targeted areas (eg. Reid, 2003)). Much of the literature however, continues to report on limited qualitative, anecdotal and contextual research that sometimes has the effect of confusing rather than clarifying the e-education landscape (eg. McOmber, 1999; Windschitl, 1998; Salomon, 1991).

Pervasive as advocates of the new technologies may be in promoting new learning outcomes, it's really the improvement in communication and access to information that is driving much of the change in VET and the direction of new research. One of the challenges, as Hamm (2000) points out, is to not only set up a college for an e-education approach (case study Chapter 4), but also to figure out how to take advantage of technology without at the same time giving up what's best about traditional education, face-to-face contact between teacher and student. Hamm

expresses a concern that Web cultures for example may interfere with building face-to-face communities (communities of practice Pallas, 2001) because of their use of asynchronous modes. These views should be considered in the light of broader changes occurring in VET that call for a new training paradigm (Chapter 8) facilitated by technology solutions. Even though VET classrooms are increasingly in the workplace, face to face contact remains an important means of delivery. The inclusion of technology solutions in the 'right' hands however can clearly extend the richness, scope, effectiveness and innovativeness of teaching and learning.

e-Learning is already a widely used subset of e-education and part of its changing pedagogical landscape. It is often used to define the area of online delivery providing anywhere any time learning. There is a good deal of literature directed to e-learning programs, including stakeholder beliefs and the pedagogy that may underpin delivery (Schell, 2001), but these studies tend to be anecdotal and often fail to express an impact on all stakeholders in the VET sector.

It is interesting to note that the changes happening in education and training, reported in the literature, brought on by e-education have caused minimal public controversy. For example there are dissenters of the e-learning approach but they are hard to find (eg Moll & Robertson, 1997). In some ways this is surprising given the documented concerns of some researchers who point to issues such as the higher order skills needed by students, motivation and the asynchronous nature of new technologies (Schell, 2001). Because technology has become a widely held community expectation, it is as if students, teachers and administrators fail to recognise e-education as the change agent that it has become, accepting change without challenge. Educators on the other hand may feel more threatened than learners as they grapple with technology and the lack of a defining pedagogical approach. As Kuritoff (2000) points out, as a teacher of 20 years standing he suddenly feels vulnerable due to technology that he describes as making beginners of us all. This vulnerability is compounded by a new education and training paradigm in which the teacher is no longer regarded as the sole source of knowledge. Online delivery for example, shifts the role of teacher to what Owston (1997) calls academic guides and creators of learning experiences and managers of learning often on a one to one basis.

Participants in e-Education

For many schools, colleges and universities, participation in e-education, in particular e-learning, is no-longer debatable, it is already offering tangible benefits across a broad spectrum. At one extreme virtual classrooms can link students from remote regions or even other countries to engage in online courses that would not otherwise be available. In other words client groups have been broadened to include new training participants. At the other end of the spectrum, classrooms are becoming filled with multimedia opportunities that offer a much more flexible approach to teaching and learning. Arguably the e-learning subset of e-education is offering a new cultural dimension in widening the learning experience in a flexible delivery framework that offers quality courses that may not be available in any other format. The cultural perspective has many possibilities such as exposure to new learning communities, taking courses from more than one institution and customizing the most appropriate mix of learning modules. This is representative of a global impact e-education can have on VET as new training opportunities emerge for new employees, up-skilling of existing workers and reorganisation of institutions. The magnitude of change is illustrated by data from The International Data Corporation that shows the number of college students in the USA enrolled in distance learning will triple by 2002, reaching 2.2 million or 15% of all higher education students (Barker, 2000). The cultural, social and pedagogical implications of such a change have however not yet been adequately reported.

A further dimension to participation in e-education initiatives has been the potential to grow partnering arrangements between colleges, universities and industry. There are now many examples of agencies gearing up to provide content for e-learning programs, portals and learning management systems (LMS), with the goal of tapping into the growing worldwide market for e-education. Once set up the assumption is that LMS maintenance can be at minimal cost, but this is often an overstated position that has led to the demise of a number of large e-learning initiatives in the USA and elsewhere. For example, the United Kingdom e-University, NYU Online and the Open University of the United States represent agencies that have for various reasons failed. The problem with these arrangements is that there is often little consideration of the initial funding required in preparing quality material, their pedagogical implications and little or no research to underpin

what is offered. In order to reduce start-up costs many agencies have turned to off-shore sources for resource preparation (eg. India), where labour costs are low but the IT industry is advanced. For educational institutions there is a clear global goal of keeping costs low while distributing their services to a worldwide market (Barker, 2000), hence using off-shore agencies offers economic benefits. The issue for VET is to question the affect these changes are having on learning, the role of teachers and to determine whether the forces so unleashed can be controlled.

For students and institutions around the world e-learning promises borderless outcomes, a new flexibility in gaining skills and the prospect of qualifications from prestigious institutions as against settling for perhaps outdated or at best under resourced programs in the home country. This global perspective is very much an outcome of being able to shift delivery boundaries because of enabling technologies. The potential in a well run networked learning community would be to enable access to the best educational resources at any time and place (NASBE, 2001). The caveat however is that until researchers can demonstrate that e-learning is able to meet the needs of a knowledge-based economy, and how best to deliver Web-based instruction and relay this to teachers, realizing its potential is likely to be only partly achieved.

The Classroom

In terms of classroom teaching and learning e-education is said to offer greater flexibility to teachers and students but there is a need to confirm its value adding implications. A report by the NASBE (2001) describes the change as transforming education to give any time, any place, any path and any pace learning. While there are many institutions engaging an e-education approach, few are truly committed to its principles in the context of a well thought out strategy. This was clearly demonstrated in the Chapter 4 case study. There are of course exceptions such as at Carnegie Mellon University in the United States, where well thought out teaching and learning as well as an appropriate technology regime is in evidence, offering a wireless environment where students can take notebook computers or hand-helds wherever they go, connecting with faculty and fellow students via email, interactive class Web sites and libraries online. Some of the flexibility this approach offers is reported as an ability for Project teams to hold virtual meetings at any time of day or night (Hamm, 2000).

The case study Chapter 4 illustrates a similar arrangement to Carnegie Mellon but highlights the need to go further than simply a technology strategy. One persistent question is does e-education enhance achievement (Russell, 2001), and what are the ‘new’ outcomes? VET researchers have been slow to answer this challenge, that might be expected to confirm the value of a new training paradigm that encompasses not only technology outcomes but also teaching and learning perspectives. Research on this important issue is scant, anecdotal and often contradictory (NASBE). Studies carried out by the Centre for Children and Technology (NASBE – ref 15) for example, have reported that at least for students from low-income Hispanic families, access to e-education technologies results in higher writing and mathematics scores. As anecdotal findings these findings are important but inconclusive, conflicting with reports of other research in this area.

If little research exists to confirm technology makes a difference in achievement, a similar picture is evident in determining whether teaching changes when technology is used and how to manage the teaching and learning enterprise. What can be said with confidence is that the efficacy of the traditional model of learning in a classroom with its incumbent procedures is being challenged by technology. Models of workplace training that integrates technology solutions are being increasingly used in the Australian VET system to support initiatives such as the new apprenticeship scheme and the management of learning. Surprisingly however, little or no research appears to have been done to determine the value of e-education in workplace delivery.

The Boundaries of e-Education

The notion of boundaries has been used to define the uniqueness of VET in the post compulsory sector (Rushbrook, 1997). It could equally be useful in conceptualising the limit of knowledge and what should be included in the field of e-education as it impacts on VET reform (Table 1, P7). In this context the impact on the organization, pedagogy and policy parameters, the point at which research stops and popular theory begins might be considered. The term boundary is used here to define what is possible rather than any physical barrier. This should not imply the boundaries are fixed, quite the contrary, e-education strategies and their underpinning technologies are constantly changing introducing and impacting on new reforms and teaching and learning possibilities.

The definition of e-education (Chapter 1) gives a clue to its boundaries by suggesting that through electronic means technology promises to bring the classroom to the student. Owston (1997) has described this point as the promise of technologies such as the Web to free us from thinking of teaching as defined by the boundaries of classrooms and inherent time constraints, a notion that fits well with workplace training where teaching often involves a partnership between teacher and workplace learner, and often includes significant self paced material. The term implies more than just computers it also combines other electronic devices to extend the whole teaching and learning and administrative activity far beyond the classroom. It does however raise a raft of questions, some of which are currently poorly addressed as boundaries in the literature. For example, as already noted educators would like to know how technology should influence the pedagogical approach and how change brought on by e-education is best managed by administrators? Owston would also add other questions such as, is learning made more accessible and improved while reducing cost? The answers to these questions have the potential to provide a framework for beginning to define a pedagogical approach and administrative boundaries. Some of the difficulties however, in starting to better define a pedagogical approach is the anecdotal nature of research and the lack of a curriculum tradition supporting change.

Arguably the problem is in part that the technology has attracted too much attention at the expense of pedagogy. For many it is the technology, the potential of computers, the Internet and on-line courses that are at the core of the e-education boundaries debate but this fails to recognise deeper ramifications such as the issues described in the Chapter 5 study.

Terms such as flexible delivery anytime, anywhere learning, distributed and blended learning are just some of the terminology that has become part of the vocabulary of e-education, but they portray little about pedagogical or organizational issues. The rhetoric does however provide a vision that emphasizes the Internet as the most promising educational and training tool for the new millennium, with its new connectedness and accessibility to information as defining traits (Windschitl, 1998).

Essentially, researchers have been eager to report on computers and the Web as allowing students and teachers to concentrate on higher order tasks, gathering of information and transformations of data. For Windschitl, the pedagogical questions this raises still remain to be answered. For example, Windschitl questions what e-

education means for the role of teacher and administrator? What is the best approach for integrating the Web into classroom learning? What sort of support should teachers give to students engaged in Web-based learning and what assessment strategies are appropriate in judging learner performance? Some see the answers to these questions as perhaps making the biggest impact on education since learning institutions were introduced. Whatever the answer to these issues, it is clear that e-education is going to play an increasing role in meeting the global demand for high performing employees.

For the first time virtual institutions are possible, but of concern is can they deliver high performing employees? This does not mean that teachers will quickly be dispensed with in favour of technology solutions. In terms of VET reform, it may be argued that it simply extends the teaching and learning boundary to include computers, multimedia technology and the Internet as tools for changing student experiences inside and outside the classroom and into the workplace, while also allowing new strategies for managing learning to be enacted. While research supporting the efficacy of these changes abounds it remains largely anecdotal, often of a review nature and is mostly silent on pedagogical issues. For example, as Windschilt (1998) points out studies describing classroom activities and collaborative projects based on the Internet are common, but little attention is given to the type of learning that ensues from such experiences. The reasons for the apparent gap may relate to public euphoria with the new technologies, research interest in the technology itself and an expectation that learning related to technology use is a complex area to study and not quite as rewarding as evaluating the technology. To back this view, there is a plethora of non research based reports and reviews which circulate in the public arena giving high profile to e-education technology but little attention to its impact on organizations.

Conceptualising e-Education Technologies

McOmber (1999) suggests a useful conceptualising of technology by linking its definition to cultural considerations. The approach may be useful in further exploring the notion of boundaries for e-education as it provides a dimension that suggests research using interpretive methodologies should be included if we are to understand the use of technology in context. This is also consistent with a social capital dimension suggested as a parameter of a changing VET system (Figure 4, Chapter 8). The stance taken contends that technology is merely a reflection of a pattern of life or

is a cultural artefact enabling us to solve problems. Few studies discuss technology impact from this perspective, and it may therefore be of value to explore the cultural implications of e-education in terms of its influence on developing perceptions, values and beliefs as they come to play an important part in how successful technology implementation may be (Chapter 5). On this point, Clinton (1997) has described the Internet as a cultural artefact, which has the potential to reduce or eliminate inequalities among people and address other cultural issues. In line with Clinton's view, McOmber (1999) in discussing his notion of a cultural perspective refers to resources, tools, processes, personnel and systems as a package of cultural artefacts that produce change. Finding support in the Chapter 5 study, it may be further concluded that for students, teachers and administrators, perceptions of technology have important implications for willingness to accept and implement teaching and learning reform. It may be speculated that the same sort of outcomes would be true across all education and training situations.

McOmber (1999) attempts to explore the relationship between technology and society, where technology becomes part of a reflection of a pattern of life. The author concludes that it is no different in principle from other cultural artefacts and is in this sense representative of social conditions. The review provides a useful framework for understanding the beliefs of educators and others.

- It links technology with culture.
- By implying usefulness or otherwise in a social sense, the review places technology in a cultural context that could avoid the pitfalls of blind optimism or pessimism about a technologies future.
- It draws attention to the use educators and the public may make of a technology and the determination of choice. For example, in referring to the most recent developments in instruction such as workplace learning, e-learning, the Internet, multimedia and other new communication technologies, their use should imply a need for educators to be flexible and willing to change old ways for new approaches. Recognizing a cultural perspective for technology may be one dimension of flexibility. The weakness of this line of thinking is probably that it does not go far enough in terms of asking fundamental questions about locating e-education within the knowledge-based economy. It largely leaves unanswered concerns about how well technology facilitates the sort of information learners

need. For example while knowledge management, information retrieval and communication systems are clearly areas of strength, development of social capital and other cultural constructs may be poorly serviced by such medium. VET is really at an early stage of recognizing these influences on its future reform (Kearns, 2004).

To conceptualise technology in a cultural context also implies its usefulness or otherwise, helping to avoid the temptation to exhibit blind optimism or pessimism about a technological future (Marvin, 1988). The pessimistic views expressed in Chapter 5, may at least in part be accounted for by past experience of individuals, but may also be explainable in terms of cultural issues within the organization. A popular notion in analysis of rhetorical advocacy of technology is to overlook these issues and challenge only the autonomy of technology, treating its dependence on culture as an embarrassing fact concealed by declarations that technology guarantees the general welfare (Altman, 1990; Vickery, 1990).

How then can learners benefit from the integration of e-education technologies? Because funding is always tight in time of change, Hartley & Bendixen (2001) comment on the importance of knowing how learners can or don't benefit from technology use. Hartley and Bendixen identified three areas of useful research.

- Media studies
- Delivery methodology
- Learner characteristics

In calling for better conceptualisation of studies and comparison of groups to learn more about learner characteristics that make a difference, Hartley and Bendixen have focused on a more integrated approach, targeting learners, teachers and institutions. Each represents an important dimension in a VET context pointing to the need to know more about the implications of e-education on the functioning of the whole organization, including transformations that have occurred due to reform. The notion of the self-regulated learner (Ryan, 1984) may be a further dimension to explore in terms of adaptive ability in using new technologies once appropriate learning strategies have been developed. It would be surprising to find that all learners benefit equally from being exposed to using such strategies. While some research has been done to support the importance of outcomes based on 'learning style', more studies need to be directed to examining the link between gaining knowledge and its

relationship with computer-based learning. For example Jacobson and Spiro (1995) showed that there could be a pronounced effect in using media tools when computers are incorporated into the technology mix.

Few would argue against e-education's ability to offer an anytime, anywhere capacity as its strength resulting in a more customer focussed approach to education and training. Contrary to Hamm's (2000) concern of interference in building communities of learners, the 'new' technologies may turn out to be an enhancing tool in such practices.

One of the difficulties in researching e-education is that many of the outcomes remain contextual. Issues such as what can best be taught using computers and will it be cheaper, are likely to deal with a raft of localized variables. Ehrman (1995) believes that compounding the limitations of transferability is that research has often been deflected away from asking the 'right' questions to 'the rapture of technology'. Mesmerized, the focus is directed to individual pieces of software and hardware, individual assignments and occasionally, individual courses. The same issues arise in suggesting that not enough pedagogical studies have been undertaken, and that their number is outweighed by those directed to technology considerations because that's where the majority of researcher interest lies. The broader issues of what the new level of communication and information acquisition means for constructs of interest to the VET sector such as institutional competitiveness and social outcomes have not attracted the research attention they warrant.

An approach that could prove useful in seeking generalizations in the field of e-education is to review a range of studies for common themes. Such a focus would not ignore anecdotal research, but would embed findings within a broader research catchment. For example, Kulik and Kulik (1991) in reviewing a large number of Computer Aided Instruction (CAI) studies concluded that there is evidence of improved learning outcomes claiming findings such as up to a 20% decrease in time for students to complete a CAI course in contrast to a more traditional program. These findings contradict some anecdotal research on the use of computers in education and e-learning where an increase has been identified (Chapter 5), but hold greater prospect of confirming validity because of the diversity of studies examined. Inconsistent research findings of this nature point to the importance of context but they could be accommodated within the context of seeking common themes.

Frontiers of e-Education

The notion of frontiers of e-education conveys the concept of areas that not much is known about, areas researchers are working on or undertaking research in that have not been done before to reveal new knowledge. In examining Web based instruction for example, Mitchell, et al. (2001a) has used the frontier concept to map current thoughts on Web-based course delivery.

If there is a frontier for e-education, then it should refer to a balance of pedagogical, institutional, methodological and other technology implementation studies. Encouragingly, an increasing literature deals with the supportive relationship between technologies and how teaching and learning may be carried out (Harasim, et al. 1995; Paulsen, 1995). It is surprising however to find little research that considers technologies collectively other than in isolated cases such as classrooms of the future (Anonymous, 2001; Twente & Twente, 2001; Tiene & Luft, 2001).

It is probable that e-education technologies are well placed to support different sets of strategies in teaching and learning ranging from student centred methods and constructivist models of learning, to traditional classroom approaches (Berge, 1995a; Coley, Cradler & Engel, 1997) but this needs to be further tested by research. In spite of the continual inclusion of new technologies in e-education strategies, the reported effects of technology based instruction on course delivery remains contextual and anecdotal with few studies that seek to identify themes. Windschitl (1998) sees the problem as a failure to compare groups or undertake research with built-in controls of any kind, or in depth case studies in the interpretivistic tradition.

Much of the technology that is finding a use in e-education is relatively new and has not yet attracted significant literature on its teaching and learning implications. What there is tends to be descriptive in nature. Windschitl calls for a focus on studies that educators can count on to guide their pedagogical considerations, or in other words make teaching and learning more effective. The lack of a defining pedagogical approach for e-education that integrates change processes for learners, teachers and institutions is again a conclusion in Windschitl's comments.

The debate on the relationship between technology and pedagogy is likely to continue until more extensive studies are undertaken and the body of knowledge has reached a critical level. The generalizations that are likely to emerge will not just

relate to course design, curriculum matters and teacher preparation, but will provide deeper understanding of a raft of issues that are presently making students, teachers and administrators feel threatened because of the anecdotal nature of much of the present research.

Most who take on delivery of e-education initiatives feel challenged by the experience and in some cases threatened (Chapter 5). According to Mitchell, et al. (2001) what is often underestimated by teachers is how different the instructional environment is in the virtual world. For online delivery, it is a new set of environmental factors ranging from how to present material, to focusing on asynchronous learning. Given the increased pressure on teachers to learn more about new technologies, the literature commonly indicates that little time is left to test the new skills in classroom or workplace situations, and evaluate the impact on pedagogy before the technology has to be used (Coley, Cradler & Engel, 1997). Moves such as exploring the development of e-education delivery in terms of instructional design, what students need to know and the pedagogical skills required by teachers is often put on the backburner due to lack of time. Any endeavours to develop an e-education framework would need to take account of these areas of limitation.

Both state and federal governments, and ANTA policy represent a further dimension to the frontier notion of e-education. Such policy in dealing with technology often directs attention to the various modes of flexible delivery. ANTA and state training authorities are active in researching and undertaking field programs in this area, but have focused principally on the emerging technologies rather than issues of pedagogy, teaching and learning and organizational arrangements (OTTE, 2001). In a VET system dominated by industry interests, the difficulty of a flexible learning approach is that industry has largely failed to determine its strategic position on this issue, preferring to focus its training interests on economic imperatives the success of which is measured in terms of productivity.

In a research sense there is a reported lack of comparative studies to indicate the worth of participating in flexible learning versus traditional provision of VET programs (Kearns, 1997). On this point a study by Hunt and Stevenson (1997) concluded that a key learner success factor for encouraging higher order thinking, consistent with high performing employees, were arrangements where there were face to face sessions with teachers. This point has not been lost in the new apprenticeship

workplace training system where strategies generally include both on and off the job training sessions.

Surprisingly, ANTA's National Strategy for VET 2004-2010 fails to reaffirm the status of flexible learning as a key driver of future reform, the issues now being the placement of individuals and industry at the centre of learning by emphasising lifelong learning, innovation, community relationships and meeting client driven outcomes. At a state level, policies are supportive of ANTA's strategy but tend in addition to direct attention to flexible learning as a tool for gaining competitive advantage and access to new training markets. While industry may still be ambivalent on a flexible delivery strategy, it is yet to be determined whether learners prefer flexible learning in preference to traditional approaches or are coerced into acceptance simply because that is what's on offer.

There appears to be an underlying assumption that meeting the needs of learners should involve giving over as much control as possible to what, when, where and how learning is undertaken, but the response of learners to this notion is seldom asked, a point taken up in Chapter 5. The VET sector in general is still to recognise that the views of learners should be sought on this point. This is in spite of an extensive literature on the desirability of individuals taking charge of their learning through lifelong learning strategies that call for greater focus on the individual (Ryan, 2001). It may be assumed that an individual's development over time is central to achieving personal goals as well as social and economic outcomes, a theme that is returned to in Chapter 8.

Perceptions of e-Education

The literature on teacher perceptions, beliefs and attitudes in relation to e-education and its new technologies appears to be both extensive and descriptive of barriers or otherwise to its uptake. Findings from the Chapter 5 study confirm that teacher perceptions of e-education vary and are significantly influenced by past experience and management arrangements. As the interviews developed in the study, technology was identified as a significant agent of change in what happens in the classroom. A recurring theme was the need for managers to consider teacher beliefs, pedagogical approaches, organizational change and communication of the change

process to staff. There are many examples in the literature that point to similar conclusions (Boddy, 1997; Pierson, 2001; Gallini & Barron, 2001).

A study undertaken by Boddy (1997) endeavoured to determine what a group of educators in one sector of the field of tertiary education knew, thought and felt about new and emerging technologies. In addition the author sought to determine if the barriers to successful integration were related to the way in which they perceived technology. The instrument used for this quantitative study was a written questionnaire. Perhaps because the use of the Web was not fully developed in 1997, Boddy found that CD Roms and videoconferencing were perceived as the most useful tools ahead of WWW technologies. These findings may also reflect contextual bias or positive experiences with technology, or could be related to their wide presence in the domestic and business sectors. Notably in terms of barriers, lack of knowledge, equipment glitches and time also ranked high in this study as was the case in the Chapter 5 findings.

Perhaps of greater interest because of its relevance to the Chapter 5 study, is literature that seeks to identify instruments that measure beliefs and acceptance of technology. A number of sophisticated instruments designed to assess teacher context beliefs about using technologies in the classroom have been developed (Moore & Benbasat, 1991; Lumpe & Chambers, 2001). Lumpe and Chambers (2001) for example used existing research to develop their Beliefs About Teaching with Technology (BATT) instrument. The researchers used the test instrument to measure attitudes and behaviours of teachers undertaking professional development activities. Teachers were considered to enter programs with certain attitudes and behaviours that would be affected and modified by the professional development program. The assumption was that attitudes and behaviour of teachers would be modified by the program resulting in an affect on student learning when teachers returned to their classrooms. The study found fourteen categories of contextual factors impacting teacher beliefs about technology. Of particular interest in impacting on beliefs, because of its support for findings in the Chapter 5 study were resources, administrative support, technical support, planning time, time for students to use technology and connectivity. This is an important area of investigation because as Lumpe and Chambers have shown, beliefs are considered to correlate closely with change in behaviour. The BATT instrument was successfully tested by these authors

and appears to be a valid and reliable measure of teachers' context beliefs about teaching with technology and may be suitable for broader use in research.

Moore and Benbasat (1991) have also developed an instrument, one that measures user perceptions of adopting an information technology innovation that may also be useful as an instrument in e-education research. These researchers cite the lack of a theoretical base and the wide array of measures used by implementation research, without adequate theoretical and psychometric justification, as major causes for the incomplete state of knowledge in implementing information systems. Their research, developed from a literature review that showed most existing instruments at the time lacked reliability and validity.

Yet another theoretical model that has attracted wide use and measures user adoption of new technologies is the Technology Acceptance Model (TAM). Beliefs and attitudes represent significant constraints in TAM (Agarwall & Prasad, 1999). Agarwall and Prasad used the instrument to investigate what causes individuals to adopt new information technologies. They searched for factors such as personality, past experience and factors influenced by managers. These issues are thought to be central to understanding technology take up in e-education and were again consistent with the questions posed in the Chapter 5 study.

There is indeed a growing body of knowledge on determinants of computer technology acceptance and utilization among users (Moore & Benbasat, 1991; Mathieson, 1991; Taylor & Todd, 1995). The underpinning research in each of these studies is drawn from adoption and diffusion of innovations literature where perceptions about using a technology have been found to influence adoption behaviour (Moore & Benbasat, 1991).

Pedagogy

A lack of pedagogical depth in e-education integrating change processes for learners, teachers and institutions has previously been noted as a major theme running through much of the research considered in this chapter. There is a general belief that pedagogical comment is under represented or has been overlooked in favour of the underpinning technology of e-education and its use by teachers and students. As noted by Piotrowski and Vodanovich (2000) issues often centre on considering matters such as obstacles to teaching with the new technologies without searching for clues to

identifying best practice teaching using technology as a tool. As already noted, there are exceptions to this conclusion such as the work of Pierson (2001) who studied technology integration and its relationship to pedagogical expertise. Technology integration obstacles however are seldom conceived or researched as pedagogical in nature and accordingly are more likely to be defined in terms of institutional matters such as funds for resources, time for teachers to work with technology, technical or reliability issues or personal competence and attitudes. The literature that does focus on pedagogical issues is usually confined to the Internet as leading the new technology paradigm in classrooms and its use as a pedagogical tool (Andrew, Gosse, Gaulton & Maddigan 1999; Baker 2000). In the case of VET, the absence of studies directed to workplace training has led to a poor understanding of the technology's role and hence pedagogy, in such settings.

Pedagogical studies portraying the use of e-education technologies as tools in teaching and learning have perhaps not attracted the research interest the topic deserves. On this point Olson and Clough (2001) argue that developing deep and robust learning calls for serious study. The current status of such research may reflect a perception that considering teaching and learning outcomes is not quite as interesting as looking at the technology itself. Or put another way describing the technology and its uses may be considered more fashionable and exciting. The general availability of new and evolving technologies in the public arena may also have something to do with the drive to describe its customisation to educational settings at the expense of pedagogy.

It may be argued that e-education poses pedagogical challenges that need to be embedded within a wholistic approach to education and training (Figure 2). Failure to recognise the importance of such a strategic approach perhaps contributes to reluctance by researchers to consider the potential of technology tools in enhancing teaching and learning pedagogy. How pedagogical issues challenge a practicing teacher is portrayed strongly in the Chapter 5 findings. In the study a case is put for having more than the technology considered and that many of the elements expressed in Figure 2 must be present if the challenges of pedagogical change are to be realised.

One of the dilemmas in researching pedagogy in relation to e-education is the complexity of separating teaching and learning from technology and its contextual nature. The research design described in Chapter 5 may be helpful in this regard. In

reality it may be unhelpful to separate the two, suggesting both should be considered together. Deciding what is significant and which factors are useful however is a challenge that highlights this point and the potential for confusion in developing generalisable researched outcomes if the two are considered separately. The issue is further complicated by the tendency for researchers to evaluate both sets of variables as situations in a contextual sense using a selection of qualitative instruments with often small numbers of respondents with the expectation that transferable findings will emerge. The instruments used tend to be observation, interview and questionnaire based, asking teachers and others who use technology what their e-education beliefs are and its impact in their situation.

Even though there has been a reported shift in the focus of research in recent years (Hawkes & Combre, 2001) to looking more at evaluating technology as a tool, there are still no clear answers to what the investment means for student learning (Shnell & Farber, 2001) or whether there is an enhancement in student performance. Anecdotal studies support the improvement of teaching and learning through use of technology, but more often research is directed to issues such as enhancing student engagement (Foegen & Hargrave, 1999), how the instructor can incorporate technology into his or her teaching or changes to teaching practices in specific situations. These endeavours tend to be inconclusive, sometimes showing a change in one context and not in another. The importance of context is a major theme common to research, not only in this area but across most interpretistic studies. Like other authors Hawkes and Combre (2001) support this conclusion by commenting that the outcomes of technology use are dependent on the context in which the technology is applied. For example, some of their work in evaluating school technology programs found that a broad approach to effectiveness is required, one which considers many contextual factors, if valid and reliable themes are to be established.

e-Education and Assessment

The involvement of e-education in VET assessment strategies is a further area that has not received the research attention it deserves. In some ways this is surprising given the prominence of the new technologies in education and training, and the need to consider pedagogical and technological reasons for selecting the most appropriate assessment process. Hyde, et al. (2004) in highlighting this point conclude that few

studies have focused on assessment in flexible delivery and learning arrangements, and that this needs to be addressed as a priority.

The Australian Quality Training Framework (AQTF) dedicates standards eight and nine to requiring registered training organisations to adhere to the principles of validity, reliability, fairness and flexibility when undertaking assessments. Concerns however that the assessment system is too narrowly focused continue to be heard (Clayton, et al. 2004; Kearns, 2004). Arguably this is due to the changes inherent in shifting to a competency-based system within a training package dominated and industry driven delivery environment. It is argued by McKay (2004) that the present emphasis on competency-based training has repositioned the trainer's role to that of assessor and relegated the educator to the service of industry and bureaucrats. What counts as knowledge is defined in terms of what can be tested within a competency framework. A prime focus and criticism of VET professionals is often that there has been a shift away from any measure of 'deep thinking' in training programs. McKay suggests that the result is a de-skilling of the teacher's traditional pedagogical role and a VET discourse that favours a narrowly prescribed education and training system directed to work as the sole outcome worth consideration.

The success of VET's transformations (Table 1. P7) has increasingly been measured by stakeholder confidence that training delivers quality outcomes. It is not surprising therefore that assessment strategies are often identified as an area of concern when AQTF audits are undertaken (personal discussions with South West TAFE staff, Victoria). The introduction of AQTF standards has seen assessment terminology shift, with assessment validation adopted as the benchmark term to describe processes registered training organisations must have in place to ensure quality and consistency of assessments (Clayton, et al. 2004). It is this aspect of the new assessment scheme that underpins consumer confidence in the system.

It is in this context that e-education facilitated training presents new challenges for VET providers to come up with assessment validation regimes that comply with AQTF standards. Not only is validation a key concern, but consistency of assessment decisions must also ensure that assessors do not resort to a 'flick and tick' mentality that would undermine the usefulness of the new technologies as teaching and learning tools. If these matters are resolved employers can be confident that credentialing qualifications from training packages use consistent assessment processes, and there

is reliability in collecting evidence of having achieved competence in a particular task.

In line with these changes e-education has been used to create new models of VET delivery that have expanded the 'reach' of VET providers. Greater ICT use has provided the tools to reduce the need for face-to-face delivery facilitating greater use of self-paced or flexible delivery strategies. Flexible delivery implies greater individualisation in learning and suggests greater focus on a learner-centred approach (Hyde, et al. 2004). The technology is used in innovative ways to support assessment including email, preparation of assessed tasks and computer assisted formative assessments that may use multiple choice and matching type activities. The wide use of such strategies has brought with it many advantages, opportunities and challenges. The result has been an extensive literature describing technology enhanced learning environments as the new frontier in education and training.

Issues relating to e-education and assessment include a requirement to:

- review assessment strategies regularly to ensure they provide flexibility and are meeting the changing needs of stakeholders;
- evaluate the use of new technologies in the context of reliability and validity regimes;
- monitor the appropriateness of supporting technologies for the assessment task being undertaken;
- adequately communicate assessment strategies to all stakeholders;
- design processes that are engaging to learners;
- provide useful and timely support for the technology; and
- resolve authenticity and security arrangements, especially when using online delivery modes.

The emphasis given to online learning in recent years has made the resolving of e-education assessment issues a priority. Harper, et al. (2000) suggest that the major assessment tools in an online environment for both formative and summative assessments are often quizzes using multiple choice, short answers and drag and drop. While these strategies may be appropriate for the evaluation of some tasks their

limitations make it unlikely they can be used distinguish high performing employees. Other authors call for a balance of quantitative and qualitative approaches that could include open-ended portfolios, reflective journals, case based scenarios and collaborative projects (Kendle & Northcote, 2000). The benefit of broadening assessment tools is clearly to encourage learners to apply knowledge and skills to problem solving that reflects the real world of work. It may be argued that a broader assessment perspective would be particularly relevant to workplace training and wherever there is a large self-paced learning component. Arguably this perspective is currently poorly reflected in workplace training undertaken by VET providers.

If a limitation of e-education related assessment is an inherent difficulty in adequately distinguishing high performing employees there will be difficulty in measuring the proposed new social paradigm suggested in Chapter 1. For example, Strathdee (2003) points out that unlike economic capital, social capital is an amorphous multidimensional concept that cannot be directly measured. In line with this thinking it would be unlikely that assessment tools could ever be developed to evaluate such constructs. This is a view challenged by some who claim it is possible to achieve through careful design of multiple choice, chat room formats and bulletin boards, qualitative measures of critical thinking ability and other high order skills (Maor, 1998).

Organizational Issues

As technology pervades the classroom, there is a growing need to provide administrative leadership to see that it is integrated and that a planning process is in place to facilitate change (Kagima & Hausafus, research Chapter 5). Support for integration might be expected through professional development strategies, but the literature shows that such strategies are often missing from organizations working to introduce technology. There are of course exceptions where institutions have restructured academic policies, curricula, and delivery systems to enhance the use of new technologies as communication systems and agents of organizational change (Green, 1996).

It is surprising to find that despite the changes in schools, VET and universities brought on by technology, the affect on administration has been little explored. The challenges to educational leaders can be assumed to be both administrative and

pedagogical. Gurr (2001) for example, reports changes to the role of school principals brought on by technology uptake including the use of management information systems, a shift in leadership relationships with teachers, pedagogical facilitation, management of networks through knowledge and development of new administrative practices.

Other authors such as Collis and Peters (2000) point to research that shows many educational organizations are currently making a commitment to concepts such as flexible learning, distance learning, e-learning, virtual campuses and other innovations requiring substantial investment in time by administrators. Managers are having to change their role as they come to set strategies to include these and other innovations in the teaching and learning environment. Unfortunately, as Collis and Peters (2000) point out, in many cases the reality in organizations may not match the vision held by administrators. Virtual universities have sometimes turned out to be WWW sites offering an email option and flexible learning turns out to be a course syllabus available online rather than triggers for new innovative delivery strategies. They go on to point out that organizations may announce their strategies but do not necessarily know how to translate them into observable practice. The Chapter 4 case study reports similar realities arising in Chapter 5 when a strategic perspective on implementing e-education initiatives was lacking. The study showed how things can come unstuck when there is a mismatch between strategy or vision and staff beliefs that present barriers to achieving many of the outcomes planned by administrators.

In terms of providing leadership in a technology environment, Chin and Hortin (1994) reinforce the importance of commitment from administrators. This they suggest can be manifest through policy, planning, procurement, professional development and personnel support. The Chapter 5 study again shows that even when management commitment is high, there are other ingredients that must be present to ensure a shared vision and the lowering of barriers.

The acceptance of technology is yet another organizational issue for managers. Research by Agarwal and Prasad (1999) on new technology adoption, provides a useful model for identifying management action that can facilitate technology acceptance. As might be expected, they suggest managers should look to selecting individuals who have familiarity with technology, those who are high educational achievers and have prior experiences with technology introduction, to act as

‘champions’ in order to cascade knowledge and enthusiasm to others. Staff with such profiles are assumed to hold positive beliefs about new technology and be willing to pass their know how on to others. For managers, even if technology is initially well accepted, the pressing question is how to diffuse technology to the rest of the organization. Agarwal and Prasad suggest the creation of a learning culture by encouraging experimentation and giving support to ‘champions’ in order to promote the process. They point out however that commitment to self-learning requires an incentives system to instil motivation. Simply providing professional development opportunities is seldom enough, there usually needs to be incorporation of technology exploration time into performance measures and timetables.

One approach to developing a shared management vision of e-education is provided in a study by Simpson (2001) who describes how management at Douglas Mawson Institute, a TAFE college in South Australia, were involved in determining what effects organisational attitudes towards technology have on its uptake. Simpson discusses the use of research utilizing a Work-based Learning Model as the change agent for managers. Thirty-six managers undertook work-based research on e-learning by choosing their own online course that simulated student conditions of learning. The group met regularly to share and reflect on experiences. The aim was to determine if manager attitudes towards flexible learning could be shifted so that the change became embedded into future strategic planning. This was seen as a way of influencing the workplace as it changed to an e-learning organization. The project was designed so that participants experienced the same barriers as regular students. While there was no single research instrument used, there were measurable outcomes at the end of the process. The barriers encountered were those often reported in the literature, technology glitches, difficulties with enrolment procedures and other work commitments. As is often observed with regular students, a mid semester break also introduced a degree of lethargy in getting started again, triggering a number of drop outs from the program. The greatest challenge in delivering in this e-education mode was keeping participants progressing and motivated. Highlighting these and other difficulties expressed in the research, more than half the participants had dropped out at the end. The way in which change was measured in the group is not reported but interestingly, there was opportunity to gather considerable data during informal and formal online chat sessions that indicated there had been a shift in participant attitudes

The Work-based Learning Model and similar studies appear to offer a potential strategy for workplace and organizational change which could be developed into a qualitative research framework, that might be applied to address some of the knowledge gaps in what affects attitude change in teachers, managers and organizations.

A Summary Perspective

Because e-education represents a major reforming influence on VET (Figure 1), this chapter has reviewed selected literature that gives insight into the boundaries of the term and the frontier of research knowledge. A number of themes have been identified that confirm many of the findings that are expressed in the Chapter 4 and 5 reports.

The questions posed at the beginning of the chapter (p15) have only partly been addressed in the literature cited but will be further explored in subsequent chapters. The major weaknesses in the literature partly accounts for the failure to adequately answer the issues raised. These weaknesses include:

- the anecdotal and contextual nature of much of the research;
- too much attention on the technology;
- few studies that focus on organisational impact;
- a poor pedagogical framework for e-education;
- an absence of studies that show consistent improvement in effectiveness and achievement when e-education strategies are included; and
- few studies that examine e-education in the context of workplace training

Given the anecdotal nature of research, there is a strong case for encouraging studies that search for common themes. More in depth comparisons of groups may also provide deeper insight into issues such as what can best be taught using computers and is there a 'best' approach for integrating the Web into classroom learning? There is also a suggestion that research using instruments that seek to measure beliefs and perceptions regarding technology may be useful. This follows from the assumption that attitudes and perceptions correlate with technology uptake and student achievement.

The lack of direction for pedagogical considerations has been a repeated theme in this chapter. Although the chapter has identified a number of authors who are addressing this issue, the single most limiting factor in developing a consistent pedagogy is the contextual nature of research. Windschitl (1998) suggests that until substantial research is undertaken leading to confirmation of a pedagogical approach, there is unlikely to be clear answers to fundamental questions such as does the investment in e-education and its new technologies mean better student learning?

It may be because of some of these reasons that teachers are still failing to take full advantage of e-education's potential to enhance teaching and learning. Some would suggest that current practices provide insufficient incentives for teachers to optimise available resources in preparing individuals to learn in resource rich environments (Chapter 5, Reigeluth, 1988). It seems reasonable to assume that with ample resourcing the main obstacles to e-education are in the hands of administrators and teachers to solve. Teachers however appear mainly concerned with issues within their domain such as saving time and having time to experiment with new practices in order to develop new skills (Chapter 5). On this point Collis and Peters (2000) conclude that no matter how familiar teachers are with new technologies, time is not saved. These authors further report that problems relating to lack of 'fit' with a teacher's usual way of working is also a frequently mentioned barrier to technology use in education and not problems with the technology itself. This notion of 'fit' and its relationship to professional development may be an area worth exploring.

Beliefs appear to be a further powerful tool in technology uptake. If the experience of teachers and students is that technology is full of glitches, the perception may be one of ineffectiveness and frustration. Rosow (2001) uses the example of inadequate software to illustrate this point. The author suggests that much of the software available to students for online support is nothing more than old-fashioned rote learning lessons and not engaging enough to be widely used. If this is so, it represents a serious impediment to growth of e-education and e-learning in particular.

As a final point, it is worth restating that there often appears to be a mismatch between management's perception of what e-education can do and what teachers and learners believe to be the case. Propelled by the growth of information systems such as the Internet and its enabling technologies, teachers often perceive a disparity

between what management wants and the realities of delivering teaching and learning programs, an argument taken up in Chapters 4 and 5.

Conclusion

This chapter in identifying the reforming influences of e-education, attempted to review the literature in relation to seeking a defining pedagogical approach. It is clear that the environment of education and training is changing rapidly, particularly as a result of the introduction of new media in the form of digital resources. Propelled by the growth of information systems such as the Internet and enabling technologies, teachers and administrators will increasingly be called on to integrate such capabilities into their role.

It was thought useful to consider e-education in at least two ways, boundaries of knowledge and frontiers of researching new knowledge. This was followed by a literature review of teacher perceptions, beliefs and attitudes to new technology, as these factors represent major themes present in much of the discourse in this field, and may give some lead to pedagogy. As determiners of success or otherwise in implementing a technology strategy, many of the issues discussed were also present in the Chapter 5 study. Several perspectives were identified as underpinning the implementation success of e-education. Of prime importance were teacher perceptions, pedagogy and institutional change. These constraints to varying degrees are the focus of much of the research in the field. In many cases however studies are small scale and contextual offering little opportunity for generalization.

CHAPTER 3

EDUCATION AND TRAINING BECOMES BORDERLESS

Introduction

ICT presents education and training organizations with both challenges and opportunities. Many institutions around the world are grappling with how to use technology to enhance the teaching and learning environment. Perhaps for the first time VET institutions face the possibility of borderless education and training with a resultant emphasis on providing a more customer focused approach and all that this entails for teaching and learning, and VET reform (Table 1, P7). It is the potential of borderless delivery that perhaps raises most concern. How should education and training delivery, using ICT be structured to service clients with diverse needs and aspirations? Too much focus on the technology clearly would risk distracting attention from researching pedagogical concerns. One of the dilemmas for VET in an ICT driven world is how to handle the volume of information and communication. For the first time teachers and students can share all of their work, While this may have positive outcomes, it has the potential to generate ‘communication noise’ to the extent of inhibiting real learning. At the same time the new technologies open opportunities to service students that were closed to an institution in the past, to develop new constructivist approaches to learning and to provide services in a more efficient and effective manner. The problem for ICT based delivery is that social and community needs are changing, not least of all the notion of lifelong learning and learning on demand has gained prominence. In this chapter it will be suggested that not enough attention has been given to social context and hence the type of learner who will benefit from an ICT approach. This may have profound implications if the assumption is that ICT will deliver ‘better’ learning, teaching and institutional arrangements. In many ways VET institutions have been left to interpret their own response to these issues without much guidance or prevailing framework.

A Defining Theme

The theme of this chapter defines the influence of ICT on education and training, as a subset of e-education. ICT’s impact and interpretation will be used to legitimate the cross-referencing in Chapter 4 to an emerging e-College in the United Arab

Emirates. As a term, e-education has previously been defined as inclusive of delivering educational activities using electronic media and its impact on education and training (Feisel, 1999). ICT clearly sits within this definition and is commonly used to define a set of technologies built around networked computers, the Internet and online delivery.

Scope and ICT as a Change Agent

Given the vastness of ICT literature, the chapter focuses on what is known in a number of key areas that are currently of concern to educators and trainers. Along with cautionary comments from some authors, various approaches to technology integration are identified. A number of representative reports are used to focus attention on research perspectives such as the concept of richness and student engagement as approaches to ICT studies. Because of its currency in VET reform, virtual learning will also be discussed with special attention to multimedia and rethinking a pedagogical approach.

An investment in educational technology is often considered synonymous with change and the assumption that the underlying leadership is progressive, innovative and visionary. The lack of critical reflection however may be a worrying outcome, especially if descent is viewed as heresy. Clearly the use of technology in VET does suggest change, a positioning for the future, but it often fails to give a clear picture of the future to educators and trainers perhaps because too much is expected of the technology and too little emphasis is given to broader pedagogical issues. An illustrative case was the introduction of laptops at Humber College in the United States where a decision on the future of learning had been made without pedagogical consideration, only to be cancelled later, mainly on pedagogical grounds (Learning Technologies Report, 1999). It is easy to see how those engaged in the teaching and learning process could have become dazzled at Humber with the speed and nature of technology change and its evident potential, without giving due consideration to other implications. For educators, technology may be seen as a change agent, an opportunity to do things differently, especially where reliance on traditional revenue sources has become unreliable or no longer viable. Technology can sometimes be seen as an attractive economic proposition. Competitiveness and alternative teaching and learning strategies however can sometimes cloud the need for reviewing roles and the appraisal of teacher and learner expectations. It is in this context that the role of

teachers and administrators of education and training organizations might be expected to change as technology becomes more widespread. This is a notion taken up in the research described in Chapter 5.

Elsner (2000) sums up this view of the education landscape in an ICT age, by pointing out that in a rapidly evolving education marketplace, a term often used to imply change, college leaders striving to maintain a technology edge must sort through rival views of the future to remain viable. In riding the technology wave, Elsner suggests one of the lessons to be learned is the importance of looking beyond artefact and glamour to the broader learning assumptions and implications connected with our use of technology. The need to review our relationship with technology may therefore be considered a theme impacting on many issues and practices in education and training and in organizations themselves. The issues may include pedagogy, curriculum development, administrative arrangements and teacher preparation.

A Global Perspective

The global perspective offered by ICT provides the possibility of cyber-freedoms (Elsner, 2000) or a model that fits with a notion of constructs of globalisation where:

- borders between states are redefined;
- the importance of nation states may be challenged;
- individuals are more empowered; and
- the authority of states is redefined (particularly influenced by the Internet).

A key element of cyber-freedoms, and how some of the above features evolve, will be connectivity and bandwidth, described by Kelly (1997) as the essential currency of the cyber-future. The future may in this context be defined by billions of connections, either wired or wireless, connecting everything from home appliances to networked computers. In such a world Kelly predicts the Web will play a major part as traditional boundaries between training objectives become blurred. Just what this will ultimately mean for learners, education and training, can only be guessed at this stage.

The broad response from VET to these global changes has been to use ICT to broaden its reach in actively seeking new client groups. In embracing anytime, anywhere training there has been a rethink by educators of what it means to offer flexible learning and its capacity for more effective learning. The work of Jacobson

and Spiro (1995) concludes this is the case when information is presented in a format that allows for multiple perspectives, links concepts and stresses the ‘web-like nature of knowledge’. ICT is ideally placed to provide learning in this format.

Constructivism and ICT

Constructivist learning models are well established in the ICT literature. Many studies report teachers in favour of adopting constructivist delivery approaches (Reigeluth, 1989), but unsure of where to begin (Howard, et al. 2000).

Understanding what teachers believe about the nature of knowledge and learning and how their epistemologies affect their interpretation of curriculum and approach to teaching gained increasing research attention through the 1990s (Clark, 1988; Lyons, 1990; Pajares, 1992; Hofer & Pintrich, 1997). These studies indicated that teacher epistemologies impact on the use of teaching strategies such as problem solving, their openness to alternative student conceptions, their students’ and their students’ use of higher level thinking skills (Hashweh, 1996; Maor & Taylor, 1995; Martens, 1992; Benson, 1989). A notable absence in these investigations is any reference to teacher impact on adoption of technology, but epistemological beliefs no doubt similarly play a role in utilising e-education tools in training delivery.

The reason why epistemological belief research has become important may lie in the increasing use of constructivist learning models in education and training (Yager, 1995). These models are usually thought of in terms of emphasizing creation of active learning environments, which in turn promote critical thinking, discovery and collaboration, traits likely to be increasingly valued in the workplace. A number of researchers report that ICT software provides enabling tools that can be applied to building learning communities making learning more effective and assisting in implementing a constructivist learning approach, outcomes that may at least in part be due to teachers having sophisticated epistemologies (Maor & Taylor, 1995). There is also evidence that technology can be used to create a culture that supports student motivation, learning and achievement, while also supporting the teachers’ need to be a learner (McCombs, 2001b). Developments in software technologies and Web based capabilities have begun to provide more sophisticated opportunities for developing critical thinking, discovery and collaboration skills in learners that were not available in the early 1990s. Maor and Taylor (1995) however, suggest that having effective

technologies is not the entire answer and that success may be partly dependent on teachers developing sophisticated epistemologies.

Howard, et al. (2000) report that teachers in their study were in favour of adopting constructivist instructional approaches, particularly those which incorporated the advantages of new computer capabilities. As is often the case the authors selected a group of exemplary teachers chosen on the basis of qualities other than their instructional philosophies. The group was exposed to new technologies; in this case, communication packages, multimedia tools, authoring software and computer based curriculum resources that could be used in constructivist methodologies. Overall the results indicated that a constructivist approach to training teachers could produce epistemological change in line with constructivist philosophies. Because of its importance in the Case Study Chapter 4, it would be useful to know if outcomes in relation to student centeredness could be encouraged in a similar way. How long the change lasts after exposure to training was however left unclear. Interestingly, change as a result of training was relatively rapid (4 weeks), indicating that epistemology may be a less stable trait than previously thought, casting some doubt on the durability of change. In the Howard, et al. investigation teachers learned about constructivism by ‘doing’ constructivism and through discussing, what worked best. The researchers felt that this approach had a powerful influence on the process of epistemological change, sending a message to those engaged in professional development activities that even fundamental teaching beliefs could be changed by professional development activities. As with all interpretivistic studies, a cautionary note was introduced by suggesting the outcomes may have been dependent on content and context, calling into question not only the effectiveness but also the transferability of findings.

It is worth noting that in terms of teacher preparation, it is argued that teachers cannot be expected to integrate technology and develop constructivist-learning environments if they have not practiced the associated skills during their own training. Putnam and Boko (2000) argue persuasively for including the sort of learning environments that teachers will encounter in teaching, while they are learning to teach. They thus indirectly support the importance of being able to influence teacher epistemology development during teacher training and through professional development activities.

Technology Integration

There is an extensive but anecdotal literature around technology integration issues. Some studies report unsatisfactory ICT integration by teachers, suggesting that there are barriers that can prevent, or slow the uptake of such technologies. In the main however, findings are encouraging. Kagima and Hausafus (2001) in addressing barriers, point to research highlighting the critical role played by administrative leadership in providing the environment for the integrative process to progress. Key factors seem to be the support given to staff with in-depth professional development and the availability of technical support. Research also points to the importance of administrative support, the need for restructuring academic policies, curriculum and delivery systems as cornerstones for enabling educators to connect with learners in using emerging ICT systems (Albright, 2000; Green, 1996). There is also some emerging research that reports an expectation amongst students that there will be a technology component in their courses, even if this is simply a Web-page linked to the syllabus, course resources and facility for contacting their instructor (Green, 2000). These findings are consistent with the case study research reported in Chapter 5.

A Changing Landscape

Researchers often report on a changing learning landscape in terms of integrating new technologies to provide more meaningful learning. Tiene and Luft (2001) in commenting on a study of technology rich classrooms from different school districts, identified better individualized learning activities, students working more on projects of interest, improved student interacting and enhanced cooperative learning as a result of technology integration. Teachers found that material could be presented in a more dynamic way and that teaching was more effective and student learning was enhanced. As this study shows, the challenges educators often face with integration is to decide what will work best in their context and what pedagogical changes are required in other situations. In a recent publication, Jonassen (2000) argues for the use of computers in education to support meaningful learning by careful contextual selection of computer applications as mind-tools for engaging and enhancing multiple forms of thinking in learners. The literature suggests that carefully selected and used digital technologies can introduce many promising improvements over traditional modes of teaching and learning (Green, 1996; Green, 1998). There are of course other

authors who claim, citing relevant research, that the opposite is true and that the above claims are based on anecdotal evidence that fails to control variables. This may also simply be highlighting the importance of getting the pedagogy right

There is a growing literature (Kagima & Hausafus, 2001) that concludes computer related technologies can help facilitate major changes in the way teachers teach and the way students learn. There is research that points to technology as a good tool in assisting educators to tailor effective educational resources for a diversity of learning styles, cultural differences, skill levels, motivations, disabilities and educational objectives. For example, Simonson and Thompson (1997) have found that computer applications can be used successfully to help educators focus on active learner-centred activities so that instruction is more directed to facilitating learning. In implementing this model, which is consistent with McComb's (2001b) view that ICT can be used to support learner-centred principles and a constructivist approach, the educator becomes a resource available to learners, who in turn become active participants in the learning process. In a model of increasing learner-centeredness, the educator adds to a student's study resources by providing explanations, references and learning reinforcement. Research suggests that the inclusion of additional e-education tools can extend the delivery options of teachers and learners, and may also encourage further learner participation in constructing their own knowledge in an active learning regime.

Much of the literature supports the above model of integration as it clearly leads to, or has the potential to enhance relationships, interactivity and the sharing of information, an outcome consistent with social capital development (Chapter 8). Other results of technology integration have also been identified, such as exposing educators and learners to multiple viewpoints, broader global perspectives and new opportunities for personal construction of knowledge (Kagima & Hausafus, 2001). Findings from other studies report greater faculty student interaction made possible by technology, resulting in enhanced learner empowerment and responsibility for constructing a personal meaning of knowledge, which in turn, influences the quality of learning (Khan, 1997). Some researchers however, signal a cautionary view in drawing attention back to the importance of the teacher as central to success in the integration process. In acknowledging the role of technology in enhancing active learning, Albright (2000) and Kelsey (1997) believe that evidence points to the role of

educators as central to the adoption of technologies in the classroom if for no other reason than teachers may be in the best position to facilitate relationships through the formation of communities of learning.

A focus on integration is also considered important because educators who are comfortable using e-education have been shown to model positive outcomes and attitudes towards technology to learners (Taylor, Torrie, Hausafus & Strasser, 1999; Cherio, 1997). Some common findings from integration investigations include:

- the use of ICT results in enhancement of communication and engagement of students;
- a belief that technology may act as a catalyst for rethinking established approaches towards delivery and pedagogy;
- difficulty in defining structures that support asynchronous and synchronous interactions; and
- the important role of technology in encouraging alternate student learning environments.

These studies also allude to the need for further research to examine instructional processes and learning outcomes that distinguish environments where technology is used. They also point to a need to design and evaluate models for investigating instructional processes, and social and cognitive dimensions of learning. In other words, there is a belief that not enough research has yet been undertaken on the nature of learning that makes learning in technology rich environments different from more traditional settings. This view was certainly evident in the study reported in Chapter 5.

Adoption of Technology

The task of persuading educators to replace familiar teaching strategies perhaps honed over many years, in favour of integrating ICT as tools can be daunting (Hope, 1998). Teachers will in many cases need to be convinced that using ICT is more efficient and effective. This point was evident in the case study research (Chapter 5) where there was a reluctance to embrace the same vision of change held by proponents of technology, even in a technologically rich learning environment. The reasons for slowness in adopting technology was not so much related to negative perceptions, but centred on time to become familiar with technology, time to prepare material, the additional time for students to cover a given segment of work and

technology glitches. Time is in fact the single most mentioned barrier to integration and is often cited by authors (Albright, 2000; Leggett & Persichitte, 1998; Knupfer, 1993). Many authors report faculty who have expertise, access, and resources, but lack time to participate in staff development activities and try out the new technologies tend not to implement technology in their teaching.

A further perspective of technology adoption is provided by Green (2000), who found that recognition and reward is essential for those who take up technology, a point widely ignored, especially when it comes to early technology adopters, and their inclusion in institutional faculty development plans. Green suggests that educators who spend a great deal of time experimenting and integrating technologies may even be disadvantaged or overlooked for promotion, or worse still, be taken for granted and their efforts ignored.

Changing Perspectives

It has been evident for some time that computers can change the way teachers teach and the learning process (Swan & Mitrani, 1993). There is general research supporting the notion that ICT can assist the reaching of educational goals through facilitating (Peck & Dorricott, 1994):

- individualization;
- an increased proficiency in accessing, evaluating and communicating information;
- increased quantity and quality of learner thinking and writing;
- improvement of learner ability to solve complex problems;
- increased global awareness;
- the creation of opportunities for learners to do meaningful work;
- access to higher level courses;
- feelings of comfort with ICT tools; and
- enhancement of productivity and efficiency of institutions.

Having identified the above characteristics as the benefits of integrating ICT, the next step may be to select the technology that can ‘best’ assist with the pedagogical approach being used. Witherspoon (1997) provides a list of useful questions that might be asked to aid the pedagogy selection process.

- Relative advantage – is it superior to other techniques?
- Compatibility – is it consistent with the user's prior experiences and values?
- Complexity – is it difficult to understand and use?
- Trialability – can it be trialled?
- Communicability – how easy is it to explain to users?

While Witherspoon's questions were developed to help decide on adoption and use of technology in a particular organizational setting, it may have wider ramifications in education and training institutions. It is possible that these sorts of questions are not asked often enough by educators, resulting in poor technology selection, a somewhat blind acceptance of technologies value and therefore limited integration.

Approaches to ICT

In considering ICT and its use in education and training, there is a real danger of starting from a premise that the value of the new technologies is self evident (Kerr, 1991), and that all concerned will want to naturally change the way they operate to take advantage of new educational applications. The problem with this argument is that there are literally hundreds of published studies on educational effects, but due to difficulties in quantifying variables, few are able to identify a definitive type of learning that technology 'best' enhances (Johnson, 1996). Even more of an issue in education and training is that unquestioned acceptance probably deflects the focus away from a pedagogical rethink. This is in spite of growing research that indicates we now have a deeper understanding of how to maximize the benefit to learners through a variety of technology-rich educational environments. Thus, technologies usefulness is becoming better researched and less reliant on self evidence (Wellburn, 1996).

Most current literature is positive about ICT and e-education as a means of enriching and enhancing the achievement of contemporary education and training goals. Goals might include the development of a range of learning outcomes leading to developing the skills to live productive lives in a global, digital and information based environment (Riel, 1993; Dwyer, 1994) a human capital approach. Other authors such as Johnson (1996) allude to studies that support similar notions of educational goals that lead to better citizens, better consumers, better communicators, and better thinkers. The work of Reil (1993), and Means and Olson (1994) relate these

ideas to educational reform and the conviction that new technologies are now being applied to a more appropriate model for education, one that fits a global perspective. At the same time however, McKenzie (1995) provides a warning about getting too carried away with the research to date, pointing out that much of the research into student learning with ICT has examined performance on what he calls 'lower order' or basic skills with few studies directed to 'higher order' skills. In some cases, as Watson (2001) found, in a study of school environments, there are also often insufficient opportunities to apply the ICT skills learned in separate ICT classes, to work in other subjects, limiting the transferability of findings.

Parker (2000) in describing ICT as a manifestation of learning technologies, advises caution in interpreting research findings by reporting a confusing picture of what is presently known about its education and training implications. For example Parker directs attention to research that shows an enhancement of learner motivation and engagement, particularly for groups that have become disenfranchised from mainstream education, a view challenged by Hartley and Bendixen (2001), who report ICT only relevant for enhancing the achievements of more able students. There is even a view that the advent of digital resources may lead to less effective learning, perhaps even exaggeration of the digital divide between rich and poor, metropolitan and rural, female and male (Watson, 2001) mainly based on inequitable access to technology.

ICT and Administrators

In order for ICT to be successful, it is suggested that administrators need to provide significant support (Dwyer, 1994). Assistance should include a commitment to e-education and providing associated resources, flexible scheduling, new assessment strategies and new working arrangements (Figure 2).

In reporting research on the effect of ICT on school principals, Gurr, et al. (1999) reports that technology has had a profound impact on their work. Nearly all of the 21 public school principals interviewed for Gurr's study, indicated that technology had drastically changed the way they work to a point where they would not be able to do the job without ICT. The principals felt they did not need to be experts, but needed to know what was available, how it might be used and where to get advice on issues. Integrating ICT had facilitated the development of new work arrangements and

improved in some cases, old work patterns. Gurr found that principals often felt they were able to choose when and where they worked, with many choosing to use laptops to facilitate out of hours work. It is interesting to note that most principals felt that the changes brought on by ICT had not however resulted in freeing up time, but that the work had simply changed.

Although the introduction of computerized management systems is reported as a major influence on changing the work of administrators (Gurr, 1997), there appears to be little literature that assesses the impact of management systems on pedagogy or the education and training process.

In an online capacity, administrators may need to rethink a more flexible management approach to issues such as workloads, counting and registering learners and other administrative tasks (Schrum, 1998). Teaching online relative to traditional delivery, often requires more time for preparation and sometimes delivery. Answering emails, managing information and responding to student postings are just some of the ways teaching online can alter the pedagogical approach. Other key administrative issues relate to access, bandwidth, assessment techniques, technical support and professional development. Often these considerations fail to be given the importance they deserve because administrators focus too much on the potential for revenue raising and being more competitive in the marketplace (Phelps, et al. 1991) rather than how the teaching and learning can be more effective.

Richness

Richness in learning can variably be defined but is satisfied, according to Weigel (2000), if learning leads to deep engagement, draws on what is already known, prompts thinking and produces understanding. There is increasing evidence that today's technologies are well placed to support greater depth of learning, by making the 'right' connections, providing search capabilities, encouraging engagement, individualizing activities and providing a process for accessing deeper understanding (Marchese, 2000).

Unfortunately the influence of richness characteristics is not always considered in research. Weigel (2000) believes that many studies reveal an emphasis on what the author terms 'reach' in the technology scramble without a corresponding drive for richness. Put simply, this translates to research attention being given to advancing

knowledge of servicing anywhere, anytime learners at the expense of 'learning'. It may be that this emphasis is partly behind the 'no significant difference' claim in comparative studies where ICT has been included in classrooms and compared to traditional approaches (Lowe, 2001). Weigel's concerns go further however, suggesting that in many comparative studies, the reality of ICT implementation being examined is little more than an exercise in looking at the posting of an enhanced syllabus on the Internet which includes delivery content, reading assignments, practice tests, discussion groups and use of email to respond to student questions without much examination of the learning taking place. Clearly, such a scenario is unlikely to lead to the depth or richness Weigel proposes, or the learning outcomes identified by Marchese (2000). Informal discussions during the data gathering process for the Chapter 5 study indicated that for many teachers their notion of online content was one of reach rather than richness.

Perhaps activities that could be envisaged as leading to richness should include the teacher acting more as a facilitator of learning, using the Internet to develop higher order thinking, engaging learners in teacher sponsored online research projects that might include the use of online data bases and a plethora of hyper links to useful sites. Windschitl (1998) and Owston (1997) view the Web as capable of engendering deeper learning, but they express concern that there has not been large scale research to conclusively describe such learning environments.

Facilitation of Student Engagement in Using ICT

There is now a growing body of research that supports the relationship between student engagement and academic achievement (Greenwood, 1996; Greenwood, et al. 1984). The factors that enhance student engagement in an ICT rich learning environment do not however seem to have attracted strong attention. There are anecdotal reports that point to this as an important topic for consideration. For example, Foegen and Hargrave (1999) in studying lecture based instruction, identified student engagement enhanced by using groupware technologies that facilitate collaboration such as email, electronic discussion groups, computer mediated communication systems and computer conferencing (Harrington & Quinn-Leering, 1996).

The ability of groupware technologies to raise student engagement is generally supported in the literature. Important research findings, which have been shown to impact on student engagement in such settings, include:

- findings that pedagogical issues in addition to student engagement must be addressed when using group response technologies;
- the use of group response technologies challenges the instructor's conceptions of lecture-based instruction, resulting in increased attention to and heightened knowledge of student learning;
- group response technologies often present an instructor with a need to decide on whether to go forward with new content or to address student misconceptions;
- the technology provides the instructor with real-time data about student learning, reducing in some cases the level of comfort for proceeding, thus changing instructional practices;
- opportunities to provide individualized instruction; and
- providing greater opportunities for the instructor to focus more attention on student learning without compromising efficiency.

One of the benefits of a groupware approach may prove to be that it enables all members of the group to respond simultaneously with analysis by a single user. Research by Crain (1994) and Tjaden and Martin (1995), however, failed to show that groupware technology offered a significant increase in student learning. Other research (Hayden, Gersten, & Carnine, 1992) has shown that while enhanced achievement cannot always be shown, teachers coached to use groupware systems altered their teaching style to produce increased teacher student interaction, questioning and feedback. While these studies are inconclusive, they do point to a promising research area. Outlook and Web Ct for example are often used to support workplace training activities but it would be useful to know whether achievement of learners is enhanced by their use.

ICT research thus appears to support the enhancement of collaboration and interactions when a groupware system is used. Olson and Bly (1991), in reporting on studies of geographically dispersed groups, showed that by using ICT, learners can be brought together successfully, irrespective of location, to collaborate on tasks,

particularly if appropriate groupware software is employed. As previously noted, the education literature is now beginning to recognize the potential such software may offer in learning situations (Shrum, 1998). Previously, the main use of groupware has been in synchronous decision making in business settings.

A Cautionary Perspective

There is a cautionary voice in the literature that warns that technology may not deliver the learning outcomes expected. Olson and Clough (2001) have concluded that in many ways, technology can exacerbate current problems in education. These authors point to the poor job technologies such as audiovisual strategies, multimedia material and computers do in making apparent and correcting students' misconceptions, developing deep reflection and the promoting and understanding of complex content. Even worse, they report it sometimes undermines 'serious' learning.

Olsen and Clough go further by pointing to an emerging attitude among students, that education should be enjoyable and entertaining. They claim the cause for this shift in attitude can be levelled at technology, which is perceived as not only a path to entertainment, but also a means of avoiding spending time on dull and tedious tasks. Postman, as far back as 1985, warned that the use of technologies in education was teaching students that learning is a form of entertainment, or more precisely, that anything worth learning can take the form of an entertainment. This view sees one outcome of technology use as students acquiring the belief that learning should not be a struggle and that 'good' teaching will make learning enjoyable and easy. While these views are sparingly supported in the literature, it does point to the possibility of serious unintended outcomes for technology enriched learning environments.

The notion that technology use should link closely with scaffolding a student's cognitive understanding is an identifiable theme in the literature. Almy as long ago as 1966 concluded that having students engage in operations without the underpinning mental preparation tends to erect knowledge superstructures that crumble under the slightest cognitive stress. Cognitive stress can be manifest through isolation leading to frustration when something does not work out (Hara & Kling, 1999) and there is no one to turn to for help. These authors allude to the danger of technology becoming something that circumvents the learning intended. It would be even more serious if technology in these circumstances reduced motivation to learn complex content.

While the work of Hara and Kling refers to distance education, it does reinforce the importance of the teacher in a technology facilitated learning environment to at least be on hand to address frustrations. The evidence on this point supports the notion that teachers are the most influential factor in educational change, a finding that is not new (Duffee & Aikenhead, 1992; Fullan, 1991; Good & Brophy, 1994). Put another way, commentators support the view that the principles of effective teaching are not changed by the presence or absence of technology (Eisner, 1985). From the perspective of richness of learning it may be argued that it is possible to have effective teaching in terms of content or other domains, but faulty learning processes when technology is present.

In providing a further cautionary view, Olsen and Clough (2001) believe that just because technology permits particular activities to be done in a certain way, does not mean that is how it should be done. The key questions to be asked include deciding whether the use of technology is a 'better' way of attending to issues such as questioning prior ideas, comparing alternative solutions, grappling with new experiences, making new connections and analysing whether prior connections make sense. In other words, does it add value to what a teacher is doing? Consider how often comment is made that email can enhance keyboarding and print based communication skills, but leads to reduction in skills such as speaking, listening and writing. It is essentially these skills that ESL teachers are good at developing, often in learning environments that do not rely heavily on technology and it may therefore be inappropriate for them to be asked to change their teaching strategies from a more traditional model of teaching. Essentially ESL teachers would need to consider carefully, how technology adds value before promoting its use at the expense of face-to face teaching. Taking the argument further, teachers in other situations may believe conceptual understanding is best achieved as an interactive operation with the engagement of students' in developing meaning based on shared ideas. This level of learning, offering questions, supporting non-verbal cues, responding to students in ways that promote further thinking and keeping students engaged may in this context be regarded as part of good teaching. In the hands of the 'right' practitioners, there is evidence that the new technologies can operate well in these domains, but there needs to be a commitment to change on the part of teachers. For example, appropriate incorporation of Internet chat facilities can clearly lead to highly interactive situations

but the teacher remains the most important resource in providing an enriched environment if learners are to remain engaged.

Oppenheimer (1997) goes a step further by questioning the efficacy of promoting expenditure on ICT in schools, pointing to situations where other school programs of equal importance may suffer. While acknowledging research that shows improved achievement, Oppenheimer argues that the focus has gone too far too soon, citing the anecdotal nature of technology research in classrooms as evidence of a fundamental weakness in reporting results. Oppenheimer suggests that even when meta-analysis studies have been done, they frequently lack the necessary scientific controls to make solid conclusions possible. Worse still, Oppenheimer believes the circumstances of research are often artificial and not easily repeated, results therefore often lack reliability and may not control influences such as differences between teaching methods and content. If these variables are left uncontrolled, Oppenheimer suggests comments and conclusions may consistently be unreliable and overstated.

One further issue in concluding technology to be 'good' or otherwise in teaching and learning, is the practice of researchers to categorise respondents as being 'luddites' or technophiles. In presenting a cautionary perspective, Postman (1995a) takes up this theme by describing the difficulty of taking a middle position when it comes to technology. The author suggests that research may only recognize two camps, those who champion technology in the classroom and labelled 'technophiles', and those who oppose its inclusion, who risk being labelled 'luddites'. Young (1998) believes that many who criticize technology have too often been dismissed as obstructive to progress, rather than an essential component of establishing a balanced pedagogical view. Authors who have taken up this cause, include Hara and Kling (1999) and Cuban (1998) who argue for a more critical attitude in the literature, or that a rush to positive judgements concerning computers and Internet access may create classrooms that are rich in technology but low on educational substance. For many technophiles, substance may translate to supplying 'richness' by an emphasis on changing pedagogical approach to incorporate technology as an enriching tool. Those who favour a cautionary approach would probably add the need to demonstrate that changing pedagogy in a technology rich environment must also be shown to add value to teaching and learning (Fraser, 1999).

ICT and e-Education Uptake

Despite the touting of ICT and e-education benefits evident in the literature, there is likely to be a resistant teacher group who oppose the uptake of technologies related to the Internet/WWW in classrooms. Of interest is their reason for resistance. Coley, et al. (1997) are not surprised that this should be the case given evidence that teachers who embrace technology must rethink their teaching and raise their IT skills, usually without any additional time allocation. As late as 1999 Becker, in a nationwide study of teachers, found up to a third did not use the Internet/WWW at all in their classrooms, with a further 40% admitting to only occasional use. In a further study, Wiesenmayer and Meadows (1997) in addressing the use of technology in classrooms, suggested that Internet research and training had to become more pedagogically directed rather than focusing on issues around assessment and anecdotal evidence of success.

Interestingly, staff development does not always appear enough to ensure technology uptake, and indeed, may have its own barriers to achieving targeted goals. Topp, et al. (1995) reported findings that teachers who knew very little about the medium of the Internet/WWW use before undertaking professional development activities, often knew little more after completion. In another study Watson (1993) comments that those who spearhead the adoption of technology change may inhibit their colleagues because of the perception that innovators are mavericks different from themselves. This is reported by Watson as a credibility gap that can act as a barrier to cascading skills to colleagues. As Watson (2001) suggests, this may mean that the more committed an individual is to change, the less effective the outcomes may be in getting others to follow. If this finding is widespread it has ramifications for the adoption of ICT that often uses in-house professional development to cascade skills and create enthusiasm within institutional communities.

E-learning

Reported widely in the literature, the technologies underpinning the virtual world are providing the opportunity to rethink a model of learning that integrates ICT and e-education tools into education and training. Because of the technologies involved, virtual learning is now a reality, emerging as online delivery or as it is often called e-learning. These technologies enable the learning process to occur in theory, quite

independent of time, place and even education and training institutions. The advent of ICT as supporting technologies, can therefore potentially create a classroom not only at any time and place, but also has the potential to develop collaborative work environments in almost any geographical location. These parameters explain some of the enthusiasm for ICT expressed in the case study in Chapter 4. Importantly, although cost is a contested area, virtual delivery may also eventually prove to be more cost effective, a point that has not been lost on educators and is often touted as an incentive. For example, Perraton (1994), in examining the cost of distance education using ICT in 16 tertiary institutions around the world, concluded that the cost per student is lower when compared to traditional delivery.

One of the significant advantages of virtual learning for learners is the ability it gives to take control of learning and access courses that would not otherwise be available (Berman, 1999). As previously noted, educators often see market share in an ICT world as facilitated by the new technologies and no longer limited to a particular geographical area or national boundary. This has the potential to greatly expand access to clients who may be targeted sometimes for the first time. Marketisation strategies, at least in part has driven the rapid development of online programs.

Berman (1999) in describing a virtual learning environment with enriched curriculum, access to new technologies and a bank of online courses concluded that teaching in Internet-based programs is very different from traditional teaching. For example, courses need to be well structured to promote engagement with content and teachers need to be online ready to facilitate and deepen the threaded dialogue when required. Interestingly, Berman notes that there is often a trade-off between students feeling isolated in the electronic environment, with the online domain being free of social history and peer pressures. The asynchronous approach in Berman's project removed the threat of dominance by one or more class members. Other conclusions from Berman's review include:

- the danger that online instruction can become too text oriented and dry, with implications for engagement and motivation;
- the quality of the virtual experience depends on the level and frequency of interaction among students and between students and teachers;
- a shift to administration online requires a structure that supports effective

administrative leadership; and

- a lack of immediate feedback from teachers and other students can become important.

While Berman's review provides useful insights into one approach to learning, the author would probably agree that we are still at an early stage in knowing how 'best' to integrate virtual programs to gain effective learning outcomes. At the same time, new technologies are likely to see virtual instruction extended and become more accessible in a global sense, thus adding to the urgency to know more about this type of learning environment.

E-learning as a New Learning Environment

Online learning provides a new dimension to the traditional distance learning model of VET. Whereas distance learning in the past was often based on corresponding with an instructor, Internet technologies offer the opportunity to expand the model through enhanced communication, interactivity and collaboration (Schrum, 1998a). It is worthwhile to consider what it is that is different about online programs and what are the challenges and benefits it offers. In an early review of online learning, Harasim (1990) summarized the characteristics of online courses as:

- place and time independent;
- many to many communication;
- collaborative learning; and
- dependent on text-based communications to promote thoughtful and reflective commentary.

These categories should be reflected in any pedagogy developed to support online programs. In terms of challenges, Wiesenbergs and Hutton (1996) point to:

- increased time for delivery of online courses. Lieblein (2000) reports that it takes at least 30% longer to cover course material online;
- encouraging students to become independent lifelong learners; and
- findings that online learning is most effective for well motivated students (Shrum, 1992).

Reid and Woolf (1996) describe the benefits of online delivery as leading to:

- enhanced accessibility;
- greater learner control;
- heightened communication;
- access to worldwide resources; and
- heightened potential for student-centeredness.

Collectively these imperatives provide a global context for considering the e-College vision for a new learning environment described in Chapter 4. Liu (1991) draws attention to the potential of ICT to change behaviour when used in online programs. They have identified change in informal and formal talk and an individuals' loss of identity and individualism, as characteristics of an online learning environment. The important message is the suggestion that there are a new 'set of rules' that govern interactions between learners and learners and teachers in online programs. For example, learning when to overlap in a computer sense, a process that is learned early in normal verbal communication, may assume new significance in establishing relationships in online communities.

Student Assessment

The e-learning environment, as noted in Chapter 2, requires a flexible approach to assessment. The process should take into account the outcomes sought from the training program and the needs of all other stakeholders. It is unlikely however that the tools chosen will be unique, but evolve from reformatting strategies successfully used in past contexts. Common methods suggested by Kearsley (2002) include responding to assignments, multi choice exercises and exams via email. Other forms use quizzes or tests that may be automatically scored when completed with immediate return. More sophisticated strategies might use the accumulation of journals or portfolios and chat room formats to evaluate progress. An extension of these strategies would be the inclusion of problem solving regimes using tools such as Internet researching and group work to test deeper understanding.

A weakness of overemphasising the softer assessment tools such as multi choice and quizzes is that they are mostly suited to recall of content rather than identification of how knowledge and skills may be used. The e-learning environment however, lends itself to a broader approach. In this context it may be argued that the new technologies give teachers the option of recording and codifying all interactions that

occur within learning communities, giving greater ‘reach’ to assessments that utilise ICT’s. It is now possible to record and search for the use of certain terms and concepts in the body of recorded responses. The challenge is to incorporate such capabilities into assessment and to give some sort of weighting if and when a given concept is used during an e-learning activity.

The e-learning environment encourages teachers to be innovative in drawing assessment tasks from traditional settings and reformatting them so they work for an e-education supported experience. The evaluation process will typically be formative requiring familiarity with learner development throughout the learning program, particularly if group work is included in the assessment regime. The use of e-education technologies should facilitate an early teacher awareness of learner confusion or misunderstanding of concepts that is often a precursor to success in e-learning activities.

From the perspective of constructivism the e-learning environment can encourage knowledge construction, especially if competencies are designed to build on one another through a hierarchical arrangement, as is often the case in gaining real-world experiences. The assessment of such learning outcomes would need to be based on learner ability to model their world, solve problems and predict outcomes consistent with their own cognitive development. Such a scenario would encourage thinking, reflection and the application of concepts. Many assessment strategies in an e-learning environment, notably online delivery, fail to take this deeper step, relying on read, viewing and listening to material before being called on to complete an assessment task. The result is often a distinct separation of content and assessment rather than embedding the two in an engaging way that encourages learners to apply what has been learnt to real world contexts.

Paradoxically, the new technologies make it easier to embed assessment strategies within the education and training process. An integrated approach for example could ask the learner to predict solutions to a problem that matches concepts learnt. The strength of ICT’s is the ability to provide immediate feedback on the learner’s conceptualisation and capacity for applying learning to problem solving situations and take remedial action if required.

Perspectives on Multimedia and Cognitive Tools

Given the growing importance of multimedia technologies in learning environments, it is worth reporting on a number of perspectives expressed in the literature. Research findings generally support the view that our knowledge of the difference multimedia makes to learning is also at an early stage of development. Jonassen, et al. (1999) notes that despite multimedia's popularity, research supporting positive effects on learning is limited. Provenzo, et al. (1999) on the other hand, predicts that the promise of multimedia or hypermedia has just begun to be explored. Its potential is reported as greatly enhanced when used with other computer-based technologies.

Siegle and Foster (2001) argue that multimedia and presentation applications can be used to promote a constructivist approach to learning by encouraging complex interactions between learners and content. There is also some evidence in the context of cooperative learning and problem solving, that presentation applications (eg. Power Point) may facilitate the development of research skills. If it could be shown conclusively that these findings consistently encourage deeper learning when multimedia technologies are present, it would be a significant breakthrough.

There is no doubt that virtual learning can be extended by the inclusion of interactive multimedia technologies, particularly those that can represent ideas in an array of formats (Hedberg, 1997). By organizing options and the underlying knowledge structures, Hedberg believes ICT technologies coupled to multimedia, allow learners to create their own meanings and understandings rather than depend on learning environments developed by their teachers. With access to visual display, technology information resources, databases and multimedia capabilities, learners have for the first time the tools to explore and create their own learning space. Schank and Cleary (1995) in arguing strongly that this presents a new approach to education and training, believe the new technologies are well placed to support learners in pursuing their own interests and questions. They support the view that the overall ICT effect is to encourage a new level of richness in the learning process.

These views are consistent with a constructivist learning tradition that sees learners actively constructing their own knowledge. As cognitive tools, multimedia technologies can assist learners organize, restructure and represent what they know.

With this in mind, Jonassen and Reeves (1996) have identified from the literature the following key principles that appear important in multimedia design.

- The effectiveness of cognitive tools is greatest when applied to constructivist learning environments.
- Cognitive tools empower learners to design their own representations of knowledge, rather than the absorbing of knowledge representations perceived by others (usually teachers).
- The application of cognitive tools to tasks or problems should be situated in realistic contexts with results that are personally meaningful for learners.

Hedberg (1997) puts these principles into perspective by stressing that cognitive tools or technologies to support learning can only be utilized to their potential if the learning environment is described and the integration of technology is based on research. Interactive multimedia developers need to not only incorporate these tools, so extending how knowledge can be represented, but include them as scaffolding for student use in their learning. The challenge, as Hedberg perceives it, is for researchers to advise developers of educational software products on ways to include cognitive tools in the conceptualising of their learning environments. This would lead to more effective support for learning and the redefining of what ICT can offer learner directed learning.

Researchers are already attempting to narrow the gap between learning environments embedded in commercial interactive multimedia packages and the development of research based environments that will enhance learning (Schank & Cleary, 1995). There are in fact, many examples of these sorts of developments. The package Bio-World is one example, in this case, providing an interactive learning environment based on learning theory, designed to support scientific reasoning skills in high school students. It also integrates a variety of tools to assist in scaffolding scientific reasoning (Lajoie & Greer, 1995). In using this package, learners are directed to justify hypotheses, organize, categorize and rate evidence while assembling a summary argument on topics being studied.

For some learners our expectations that they will succeed in using hypermedia to enrich learning may be too high given that it provides a degree of discretion, which may not suit all learners, particularly those at the lower end of the learning spectrum.

Learners who are having difficulty in a more traditional setting may be set for definite failure in an environment based on a high level of learner independence and problem solving capabilities. Hartley and Bendixen (2001) conclude we need to know more about the characteristics that distinguish those individuals who are likely to be successful from those who are less likely.

Even the much touted notion of ICT and multimedia providing greater flexibility in learning settings, and hence that it facilitates certain qualities of learning, may be questioned on the basis of being an outcome of epistemology positioning. It may be that certain epistemological beliefs constrain opportunities to learn. Jacobson and Spiro (1995) used a hypermedia technique to measure epistemologies and found that students with simple knowledge epistemology beliefs had difficulty with the non-linear and multidimensional nature of an ill-defined hypertext system of learning. The explanation of these findings might rest with considering certain epistemology as correlating with a less adequate approach to learning. According to Schommer (1990), beliefs on fixed ability as a determinant of success leads learners to believe that more effort does not deliver more learning. On this basis it is clear that we cannot assume that when more learning tools are available, as in introducing multimedia, the result will engender the expected positive outcomes on learning. It may in fact just be a different set of learning outcomes that is encouraged and not a richer experience.

ICT and Rethinking a Pedagogical Approach

It is too early to define an ideal pedagogical approach to online learning, or a dominant arrangement in using ICT in education and training. Of the many arguments presented by researchers, the most persuasive may be the view that online courses offer a better learning model because learners play a greater role in the learning process (Lieblein, 2000). As if to underline the importance of pedagogical considerations, Lucas (1996) rather controversially suggests that using ICT for the first time creates a potential to render a live transaction between teacher and learner obsolete. What research is showing however, is that pedagogy that integrates ICT should not only deal with skills development, but also generate deeper understanding of knowledge and learning (Lane & Shelton, 2001), and that the teacher has an important role in this process. On this point Cordes (1998) and Young (1998) found that developing desirable qualities such as a passion for learning or life long learning is significantly influenced by student and instructor relationships. In an online context

this translates to establishing new types of communities, where to know students only as email addresses would be inappropriate pedagogy if the intention is to engender deeper learning.

The literature suggests that, as in any learning environment, the teacher using ICT will need to make some pedagogical decisions regarding goals of the course. The salient questions in this regard, such as the purpose of the course remain universal and should be asked before moving to establish a pedagogical model suited to ICT assisted learning. Duchastel (1996) provides a useful approach by extending the traditional teaching model to one better suited to using ICT in online instruction. This author argues for moving from static content, to specifying goals to pursue; one answer, to accepting a diversity of outcomes; re-representing knowledge, to requesting production of knowledge; evaluating at the product level, to looking to the task level; individual efforts, to building learning teams; one classroom, to encouraging global communities. By focusing on interactions, media tools and learner support systems, Ragan (1998) adds further perspectives to Duchastel's list. Ragan believes that without 'quality' instructional interaction, decisions on technology may be made without enough consideration of the benefit to learners. As a final point Ragan stresses that if learners feel they are part of a community of learners, they are more apt to be motivated, seek solutions to problems and succeed.

While these perspectives on ICT assisted learning are fairly well established, perhaps the most promising outcomes of integrating ICT into learning environments lies in the potential it has to change social context inside and outside learning situations by creating communities of learners. For example, Stacey (2001) found that small collaborative groups were conducive to establishing social presence, something that may be lost when the group gets too large. The teacher's role in setting up the online learning environment, establishing communities and modelling the processes of projecting social presence and responding to other supportive needs is generally believed however to be central to success.

The teacher's role in the transformation model of ICT assisted teaching is clearly one of change. For the newly initiated, given that the context will be new, a period of experimentation is likely, before the most appropriate pedagogical approach is found.

Conclusion

This chapter supports the notion that ICT and e-education are having a profound influence on the changing roles of learners, teachers and administrators in education and training institutions. There is a plethora of ICT and e-education literature that points to change and the ‘best’ approaches to take in integrating technology into the learning environment. The problem is that even though ICT and e-education literature is extensive, much of the evidence is anecdotal, context based and directed to the unquestioning embrace and promotion of technology (Lane & Shelton, 2001). As Windschitl (1998) sums it up, technology tools can spur pedagogical changes but the utility of such change must be measured ultimately by the impact on student learning. It is in this context that Windschitl believes there needs to be a better understanding of the relationship between technology, pedagogy, project oriented curriculum and learning. There is also evidence that backs up the claim that technology is well placed to facilitate a constructivist approach to learning but the commentary is still at an early stage in guaranteeing the resultant learning is ‘better’ and ‘richer’. Consistent with McCombs’ (2000) constructivist perspective, learners now have access to technology that can enable them to make more of their own education and training decisions. For example future decisions on how, when and where, and in some cases what to learn are likely to be increasingly made by learners. This encourages the view that teachers can no longer be expected to know everything of value to students, but with the aid of technology, they can hope to guide learners to the information they seek, be discerning in collecting what is useful and skilful in discarding what is not. Many studies confirm this evolving view of integrating ICT as part of an e-education approach (Wellburn, 1996; O’Donnell, 1996).

What then can be concluded about the value of technology in learning? The answer to this question is inconclusive at best. Studies have shown that technology has a positive impact when appropriate software is used. Few critics refute positive research results but may criticize the way technology is used in classrooms, the technical expertise, preparedness of students and teachers, and the cost of acquiring technology. There are also studies that show learning enhancement when ICT is used for problem solving and is focused on real world situations requiring local and global collaboration. There is little doubt that specific skills are enhanced by technology use, such as the quality and quantity of writing. In the final analysis results of research

reinforces the importance of searching the literature for consistent themes to underpin classroom implementation strategies.

This chapter has supported the view that much of the new perspective on learning has to do with constructivism, the notion of lifelong learning, and anywhere, anytime connectivity (Sinitsa, 2000), views that are surprisingly consistent with the VET reform agenda outlined in Table 1 (P7). For many learners, Internet connectivity may be the single most important activity they undertake each day, which in turn, may come to shape their thinking about their daily lives and relationships to what goes on around them (Turkle, 1995).

CHAPTER 4

A CASE STUDY:

THE EVOLUTION OF AN E-COLLEGE AS A LEARNING PRODUCT

Introduction

The direction of the last chapter was to establish a researched knowledge base on the use of ICT and e-education as facilitating tools in VET learning environments. Some parameters that are different in such an approach were described as constituting a new learning paradigm (Table 9, P161). In alluding to the importance of knowing more in this area, McCombs (2001a) points out that in order to take advantage of the tremendous opportunities the new technology mediums offer, a sound research and knowledge-base is needed that can serve as a framework and guide for establishing and implementing curriculum, assessment strategies and pedagogy. In other words, a knowledge-base should provide a strategy for integrating ICT and e-education tools into learning systems. As McCombs rightly points out, the emerging technologies are beginning to dominate thinking and practice across all education and training sectors, including VET. There is evidence emerging however, that the success of the change process, brought on by attempting to integrate technology, will be dependent on incorporating sound learning principles. McCombs argues strongly that the learning process should be based on learner-centred principles, a position also taken up by other contemporary authors (Gallini & Barron, 2001). Research is beginning to support the view that the diverse technology tools available to educators (eg. electronic whiteboards, chat facilities, Internet search engines, multimedia tools etc.) are conducive to supporting new forms of social interaction and learner productivity (Schrage, 1990) on VET systems.

Not only are many of McCombs (2001b) conclusions consistent with research identified in Chapters 2 and 3, but the author's learning framework has embedded within it 14 learner centred principles (Table 3, P75). Each principle is based on current theories of learning, including constructivism and social constructivism. Amongst other inclusions there is recognition that learners construct their own meaning and goal based understanding of content or experience in undertaking

learning activities. McCombs also describes a raft of learner centred teacher practices that in turn, affect pedagogy and learning outcomes.

McCombs (2000) defines learner centred as a perspective that couples a focus on individual learners – their heredity, experiences, perspectives, backgrounds, latents, interests, capabilities and needs – with a focus on learning – the best available knowledge about learning and how it occurs and about teaching practices that are most effective in promoting the highest levels of motivation, learning and achievement for all learners.

Abu Dhabi Men's College (ADMC) in the United Arab Emirates (UAE), was chosen as a case study in order to examine how e-education, ICT and learner centeredness may be interpreted by a VET institution (Table 3, P75). ADMC has for sometime had a commitment to incorporating the principles of these entities into the organization. As a VET College of the Higher College's of Technology (HCT), ADMC graduates gain employment across various industry sectors including Business, Engineering and the Oil Industry. Over the last decade there has been a drive at ADMC to use e-education strategies as a tool in transforming the work of teachers and the opportunities offered to students. The new approach is viewed by management as a means of gaining recognition, both nationally and internationally, for leadership and best practice in technology solutions. In this context, since 2000 ADMC has incorporated ICT and e-education strategies under the collective term, the e-College.

Abu Dhabi Mens' College: an e-College

These days, ADMC interprets its Mission as providing graduates with knowledge, the IT skills required in an e-World and the development of positive lifelong learning attitudes. In order to achieve the associated goals, the College took the path of evolving as a 'technology rich' learning environment and has taken on the mantle of a learner centred institution (Table 3, P75). As well as taking note of some of the findings expressed in Chapters 2 and 3 McCombs (2000) learner centred framework will be used as an evaluative tool to examine the e-College notion as a learning product. As will be seen, the interpretation and implementation of McCombs (2001b) perspective on constructivism and learner-centeredness in a technology rich learning

environment, is not as strongly embedded in the College's notion of shifting to an e-College as might be expected.

ADMC's technology focus is evident from it being the first College regionally to introduce laptops and wireless technology for all its learners. The level of Internet connectivity, use of electronic boards, multimedia in all classrooms, and the way the College community approaches the teaching and learning process bares testimony to a clear ICT and e-education approach. For learners and teachers, this has translated to a paradigm shift, affecting nearly every College activity.

It is important that teachers at ADMC shift from a traditional approach to learner centred learning because it is the preferred model of learning not only promoted by ADMC, but the system of colleges it belongs to. The College allows a fairly broad notion of learner-centeredness, considering it a continuum ranging from individualized student learning plans with learners developing and planning their curriculum, to teachers planning the course curriculum from the perspective of adapting to the preferred learning style of learners (Lahiry, 2001). Although extreme interpretations of learner-centeredness can probably be found at the College, teachers are likely to take a 'conservative' approach with ensuring students pass the end of semester exam the major driver. Conservatism is partly explained by the diversity of ethnic backgrounds teachers are drawn from. Most teachers if asked would probably suggest that learner-centeredness at ADMC is interpreted as more to do with a pedagogical approach, where teachers plan the curriculum and guide learners over time to take responsibility for their own learning. The current placement of ADMC along this continuum however is characterized by considerable teacher intervention and guidance in the learning process. The cross curricular skills being encouraged at ADMC might be described as directed towards independent learning, critical thinking, problem solving, self directed learning and the development of lifelong learning skills.

ADMC's vision of an e-College began to evolve in 1999 when a decision was made to use laptops as a tool for creating an anywhere, anytime learning environment. At the same time, College staff began building a Student Information System (SIS) directed at not only automating learner and teacher access to information, but also at providing a platform for launching online courses, student email, student information and community and employer access to information. The next step towards an e-

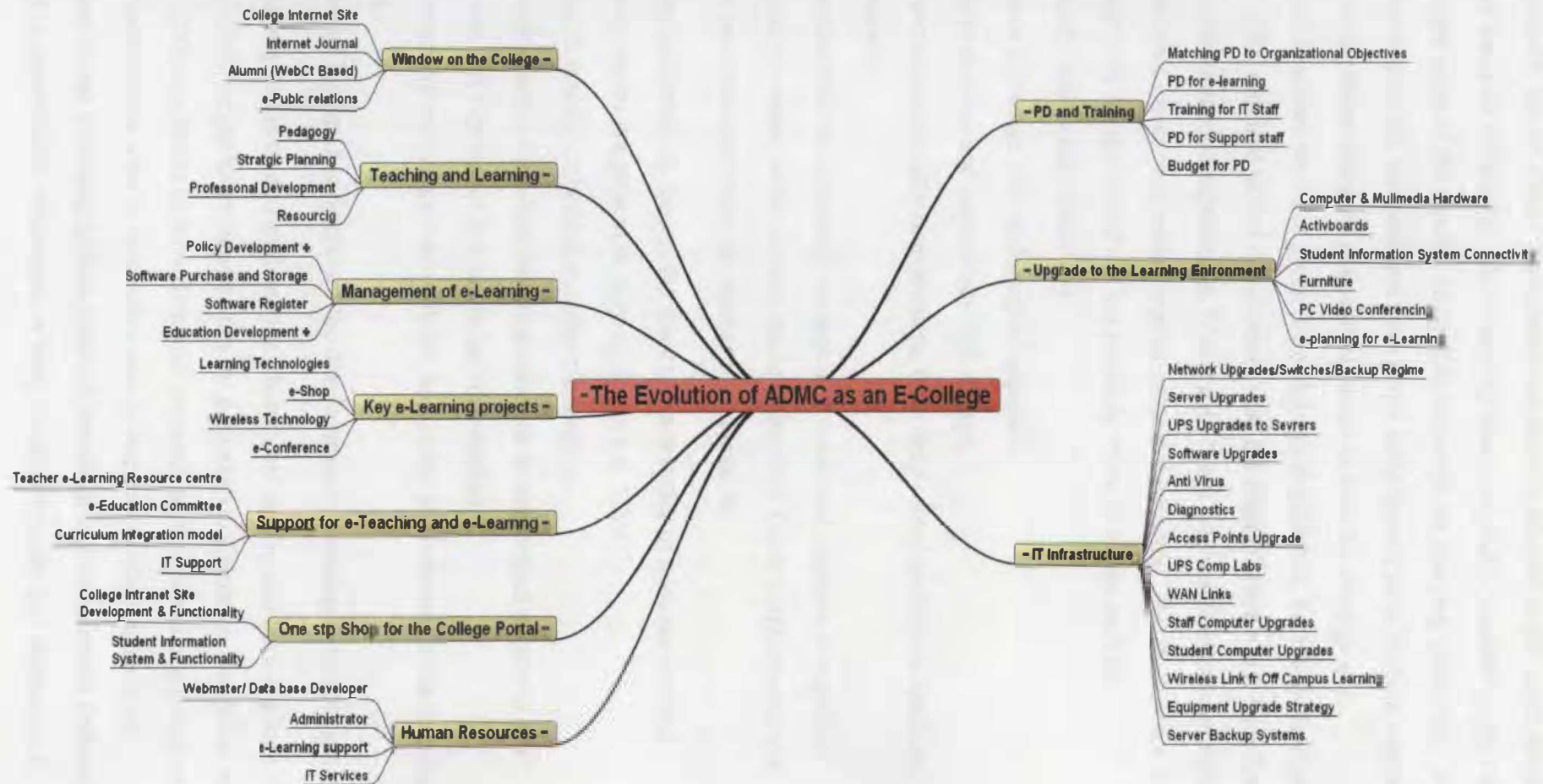
College was the realization that a number of initiatives needed to be coordinated and progressed concurrently. To achieve this purpose, an e-Committee was formed with representation from all areas of the College community and a brief to scope what had to be done. The areas identified included:

- IT infrastructure;
- management of e-learning;
- professional development;
- human resources;
- key e-learning projects;
- upgrading the learning environment; and
- support for e-learning and e-teaching.

The complexity of conceptualising and implementing the shift to an e-College model can be gauged from Figure 2. Providing an appropriate IT infrastructure was an essential starting point and by 2001 this had largely been put in place. Other components of the model were variously implemented by 2002.

Figure 2. The Complexity of Conceptualising an e-College at ADMC

Notes: Figure 2 illustrates the complexity of ADMC's notion of an e-College. The model suggests that a focus on technology is not enough to ensure success. Pedagogical issues and the management of the e-learning environment are also essential constructs.



Unfortunately, the e-College implementation process faltered at this point due to an exclusive focus on technology and e-learning outcomes and a resultant neglect of other important areas of the model. As a result, although the learning philosophy was stated as learner-centred, and teachers were given some license as to the best way to deliver curricula, there remained major weaknesses in how the strategy was implemented. Teachers were not given the pedagogical guidance, time allowance and technology skills required to feel comfortable with the change process and therefore did not feel encouraged to experiment. Worse still, many teachers continued to follow a fairly traditional linear progression regime in their classrooms. The reasons for this lack of uptake may be speculated on, but probably relate to issues such as:

- uncertainty with using technology;
- reluctance to change their pedagogical approach;
- no time to develop and experiment with change;
- many teachers, especially non-Western, have deep rooted traditional teaching backgrounds;
- a perception that the constructivist approach would not translate to expected learner achievement which in turn, might affect their future employment; and
- student perceptions of what the teacher role should be.

Based on constructivist theory, the basic characteristics of a learner-centred learning environment are present to varying degrees at ADMC.

- Learning is usually embedded in authentic contexts.
- The development of life-long learning concepts is encouraged as part of self-awareness and experience in knowledge construction.
- Most programs encourage responsibility and active participation in the learning process.
- Introducing laptops has facilitated the development of learning communities.

A useful way to vision and evaluate the educational system and the e-College product at ADMC might be to view it from the perspective of balance, described by McCombs (2001a) in terms of three domains: personal, technical and organizational. McCombs laments that what is most often seen in learning environments is an overemphasis on the technical domain (content, standards and assessment) followed by attention to organization (allocation of time, decision making and structure). In

order to create a balanced approach this often leaves the personal domain (the needs of individuals, learner connectedness, development of relationships, learner isolation and establishment of meaningful learning communities), without the attention it deserves. ADMC is probably a classic case of imbalance with emphasis on technology and organization, evident in almost all areas of College activity. The introduction of ICT and e-education was in many ways done ahead of concern for professional development, pedagogical considerations, identifying the needs of individuals and establishment of learning communities. At best, this resulted in long lead times before teachers and learners became competent to take advantage of what new technology was offering as a learning tool. Predictably, if McCombs balanced domains approach had been the principle applied, the e-Committee would have addressed its list of priorities (Figure 2) and the uptake of technology would have been facilitated. Even after three years of resourcing, a walk through the College corridors often revealed few classrooms in which the available technology was being used to its potential. There would of course be notable exceptions where teachers had re-examined their pedagogical approach and successfully integrated technology into the learning environment. For other teachers, the integration process will be slow, even though they might be found using technology in ways they would not have envisaged in the past. This is not to say the desire to change and develop new teaching pedagogy is absent, but simply attending professional development opportunities may not necessarily lead to confidence in integrating technology. The process takes time to experiment with and gain the necessary level of confidence (Chapter 5). Importantly, the question of whether ICT makes a difference to achievement and the learning of learners has not yet become a high priority at ADMC.

The Learner-Centred Perspective and ICT at ADMC

With the inclusion of technology, McCombs (2001b) set of implications of a learner-centred perspective (Table 3, P75) may be a useful way to further conceptualise or measure the success of an ICT learning environment. Broadly McCombs has identified six areas of implications for an ICT learner-centred framework.

- Building ways to meet learner needs for interpersonal relationships and connections.
- Finding strategies that acknowledge individual differences and the diversity of learner needs, abilities, and interests.
- Tailoring strategies to differing learner needs for personal control and choice.
- Assessing the efficacy of technology to meet diverse and emerging individual, learner and learning community needs.
- Building learning institutions as learner-centred networked learning communities.
- Expanding collaboration to transform current educational systems.

Table 3 is an attempt to take these broad implications and use McCombs (2001b) 22 subsets to map ADMC’s progress in using the e-College notion as a learning product.

Table 3: Implications of an ICT Learner Centred Framework Mapped to ADMC’s e-College Notion.

Implication (McCombs 2001b)	ADMC Status
1. ICT may support a constructivist approach. Traditional educational systems are characterized by sequential learning, rote activities and a focus on developing linear skills.	1. Learners enter ADMC from a school system, which is very traditional in approach. New arrivals encounter ICT early, embedded in a ‘quasi’ constructivist approach to teaching.
2. New technologies support electronic learning and networked learning communities.	2. Learners at ADMC are introduced to electronic learning, networked learning and become members of learning communities from day 1. Each student is required to obtain a laptop. Information is only provided in digital format.
3. Technology makes it possible to support complex non-linear learning, connecting individual learners, learning and change across traditional boundaries of teacher, student institution, classroom and communities.	3. Online learning has become part of all learning at ADMC, supporting a non-linear approach. Connectivity across boundaries is evident and encouraged.
4. Web-based learning communities can transform thinking and practice beyond traditional models and boundaries.	4. The intent at ADMC has been to encourage borderless communities. Web Ct as the platform and Internet tools allow collaboration across communities and colleges. Online learning has been introduced for 20% of each student’s

Implication (McCombs 2001b)	ADMC Status
	<p>program. Students work on problems in groups or individually anywhere around the College. The Internet is widely available as a learning medium. Lifelong learning is a stated aim of the College, along with developing self-direction and critical thinking skills.</p>
<p>5. Learner centred electronic learning environments turn all participants into learners, transforming the novice to expert as tasks and goals change.</p>	<p>5. The College has not been particularly effective against this implication due to barriers such as time. Even with extensive professional development, teachers may not feel comfortable with using technology. The process of change is often incremental. The introduction of laptops has facilitated transforming the novice to expert.</p>
<p>6. Boundaries are limited only by imagination and need for access to expertise as change occurs in response to dynamic objectives.</p>	<p>6. Teachers and learners have had to make the transformation to ICT. Objectives in terms of curriculum are often slow to change. Time is probably a strong barrier against this implementation.</p>
<p>7. Content is digitally constructed and customized for individual learner needs, abilities, interests, goals and other characteristics.</p>	<p>7. Customisation may occur at the class level but probably little at an individual level. A rigid curriculum probably discourages meeting individual characteristics.</p>
<p>8. Concepts of 'just-in-time learning' and 'learning anytime, anywhere' describe the dynamic learning environment.</p>	<p>8. The introduction of laptops and wireless technology is a feature of the dynamic learning environment at ADMC.</p>
<p>9. Web-based learning communities revolve and evolve around inquiry-based learning tasks.</p>	<p>9. Technology has enabled teachers to regularly use Web-enhanced inquiry based learning inside and outside classrooms. Groups working on tasks is a common site in the LRC, and at other College locations. These outcomes give meaning to learning communities around the College.</p>

Implication (McCombs 2001b)	ADMC Status
10. Practices integrate learning and motivational strategies creating self-directed learners.	10. Development of self-directed learning is a College goal, but learners have been slow to develop the enabling skills. Those that have often exhibit enhanced motivation. The self-directed use of technology may not lead to deep learning. The same Internet site opened several times may simply represent the same learning repeated.
11. Students are involved in co-creating instruction and instructional experiences with their 'teachers' and others in their learning environment.	11. Project work may represent co-creating instruction. This may be a higher order skill and not easily identified in an environment with a structured curriculum. Courses at ADMC seldom have inbuilt flexibility to encourage innovation.
12. Practices address both community and individual personal needs.	12. Development of life-long learning skills and technologically skilled graduates is part of the College's Mission. Practices are designed to encourage these outcomes. Employers usually express positive sentiments about attitudes of graduates.
13. Curriculum is customized based on pre-assessment and ongoing assessment data.	13. Learners are streamed according to a pre-assessment strategy. Learners are directed towards certain programs based on assessment data. In this sense, curriculum is customized.
14. Curriculum is flexible and dynamic with minimum of structure.	14. Curriculum is structured and geared to an exam-based model. There have been notable examples of flexibility but the benchmark is always an exam process.
15. Curriculum goals are negotiated between all learners in the community.	15. Except for some action based learning initiatives, this implication is not evident at ADMC.
16. Curricula dynamically change with each new group of students, based on needs, interests, goals etc.	16. There are few examples where the curriculum is changeable. The exception may be Independent Learning modules.
17. Curriculum accommodates teachers as learners and learners as teachers.	17. Not evident at ADMC except in select areas such as Independent Learning modules and some project work.

Implication (McCombs 2001b)	ADMC Status
18. Student-designed assessment and feedback loops are present at the individual and group level.	18. Not evident at ADMC.
19. Feedback is available for student review 'on call', for self-evaluation of progress.	19. Feedback on progress is automated, provided digitally. Self-evaluation is built into online courses.
20. Feedback is available for others to see when students are 'ready' to submit work.	20. May be available for online courses but is subject to teacher decision.
21. Feedback provides ways for students to remediate and enrich their knowledge and skills in areas of choice.	21. Laptops and online courses make it easier for teachers to provide more remediation and enrichment. It is probable that enrichment is limited to how individual teachers interpret their role and the amount of time they are prepared to give to such activities.
22. Flexibility and adaptability are central design features.	22. Flexibility is a goal in the design of ADMC's notion of an e-College, but constraints due to curriculum, time and other characteristics limit its effect. A structured curriculum, assessment based on an exam system and teacher performance process are probably working against flexibility and adaptability.

If we assume McCombs (2001b) implications of an ICT learner centred framework, reflects an accurate set of descriptors, Table 3 (P75) reveals a mixed audit against ADMC's e-College notion. A major constraint in adopting a learner-centred ICT facilitated learning environment at ADMC has been the absence of a learning theory declaration, whether it be behaviourist, cognitive or constructivist based. The curriculum is structured, often inflexible and linked to an assessment system that schedules up to 250 exams each semester as the benchmark of learner achievement. This leaves little scope for negotiating with learners on ways to construct their learning. The introduction of online courses and ICT into teaching and learning may prove to be an important step in allowing learners to take more control of their learning, reduce the emphasis on exams as assessment tools and the impetus for teachers to become more constructivist in approach.

While formative assessment strategies are widely practiced in the HCT, there is strong reliance on summative assessment at the conclusion of each program. The danger in this arrangement is the often cited potential of overlapping the summative process with assessments of the same body of knowledge and skills previously tested in the classroom. An alternative assessment process at ADMC might be to provide opportunities for learners to articulate their thinking about the concepts learnt in the classroom as part of a new approach to evaluating learning. Less reliance on a summative approach would also encourage greater integration and coverage of content in the assessment process. Such a shift would also suggest a better alignment with ADMC's notion of an e-College.

Overall the notion of an e-College as a learning product is supported by a "rich" ICT and e-education presence at ADMC. The product would be substantially improved however through attention to balancing McCombs (2001b) three domains with a view to reducing the inflexibilities and rigidities evident in the system.

Conclusion

It may be concluded from this comparison that the imperatives in the Australian VET system are quite different to those found at ADMC (Table 1, P7). There is no emphasis given to workplace training (new apprenticeship system) or a competitive training market. At ADMC the focus on technology and e-learning is perhaps, as in Australia, a response to globalisation and a belief that this will give graduates a competitive edge in the national and international marketplace. Part of this response is due to the country's reliance on foreign expertise and the desire to Emeratise the workforce. The approach amounts to identifying human capital development as a national priority. Although much of the Australian VET reform agenda is therefore a poor fit in this environment, it should not be surprising to find that CBT, training packages, innovation and the new training paradigm (Table 9, P161) have not yet found a place in the ADMC model.

CHAPTER 5

FACULTY PERCEPTIONS OF E-EDUCATION: A NEW TERRAIN

Introduction

As already noted in Chapter 2, e-education is not a widely used term and has not therefore attracted a significant literature. Much has however been written about the underpinning technology as teaching and learning everywhere moves towards incorporating electronic medium in one form or another. In this chapter the terrain of e-education and its impact operationally on a VET system, will be mapped through the eyes of five College Faculty. Their perceptions will be used to confirm the conclusions from Chapters 2 and 3 and as a guide to the affect e-education (defined in Chapter 1) is having on planning, pedagogy, and management at Abu Dhabi Men's College (ADMC) in the United Arab Emirates. This interview based research study may also act as a pointer to other studies in the area. It will be argued that at an institutional level, faculty perceptions of e-education are influenced by and impacted on by strategic planning, pedagogy, classroom management, resourcing, professional development and the College's management in general (Figure 2). Findings suggest that the way e-education as a reform is introduced affects the level of its success in implementation (Table 1, P7 and 9, P161). Concern regarding the reliability of technology in supporting e-education initiatives was also found to contribute to negative perceptions. How faculty developed their perceptions was assumed to be associated with past experience and beliefs defined by ideas individuals were committed to for one reason or another as core values. Loucks-Horsley, et al. (1998) have described such beliefs as shaping goals, driving decisions, creating discomfort when violated and providing the stimulus for ongoing critique.

e-Education in VET

The study of a functioning VET e-College system in the UAE might be expected to share many transformational changes with its counterpart in the Australian system (Table 1, p7). The mapping of common and divergent themes in Table 4 (p87) suggests that the common link between systems has been reform inspired by technology. This is perhaps not unexpected in the context of a changing VET landscape inspired by globalisation (see Table 6, p112). The e-College notion at

ADMC appears to use technology to service a strong community commitment to producing graduates with the skills to be the high performing employees of the future. In the Australian context community the notion of linking technology and VET graduates to employment outcomes is less defined, although it might be argued that in the Australian context government policy is more likely to suggest that technology solutions will lead to a more innovative workforce.

Table 4: A Comparison of Common and Divergent Reform Themes in the Australian and UAE VET Systems.

Common Themes	Divergent Themes
<ul style="list-style-type: none"> - A search for technology solutions. - Technology and globalisation leads to borderless outcomes. - Customer focus is based on new forms of communication and information sharing. - Support for ICT. - Flexible delivery. - Absence of a defining pedagogical approach to e-education. 	<p>Workplace training facilitated by technology is a growing focus of the Australian VET system.</p> <p>VET delivery in Australia is based on training packages.</p> <p>Very strong commitment to online learning in the UAE.</p> <p>VET delivery in Australia is supported by national standards (AQTF).</p> <p>Lifelong learning strategies are more defined in the Australian VET system.</p> <p>Human and social capital development is more integrated in the Australian VET system.</p> <p>Commitment to the e-College notion is viewed as a paradigm shift in the UAE system.</p> <p>The notion of a competitive training market is immature in the UAE system.</p>

If the ideological influences on VET reform in Australia (Figure 1) are compared with the UAE context, a ready observation is that e-education, globalisation, economic imperatives and human capital development have been the key drivers of change in the Australian system. The present study may therefore be considered timely in addressing the role of faculty perceptions of how well the e-College model has worked in an operating VET system. Research suggests that teacher perceptions

can be a barrier to technology acceptance and hence affect the success of implementation (Boddy, 1997; Pierson, 2001; Gallini & Barron, 2001).

In this study the technology related to e-education is considered to be inclusive of not only online learning and its associated ICT, but also laptops, the Internet, wireless technology, satellite broadcasting and Web casting, audio and video, interactive boards, TV and CD ROM's. These technologies have supported e-education at ADMC and can be linked to facilitating new synchronous or asynchronous approaches to learning not possible with 'traditional' teaching. Embedded in e-educations definition however is the promise of being able to bring the classroom to the student rather than reliance on attendance for a pre-agreed block of lessons. As Barker (2000) puts it, the dream of the educational technology revolution is to increase access to high quality instruction and content while enabling students, at whatever level, to fulfil their maximum potential. From a teacher perspective the definition links electronic means with education, implying the need for new pedagogical approaches to teaching and learning. There is therefore an underlying need to define a pedagogical approach that integrates the change process for students, teachers and the institution, but this as indicated in Chapter 2 is often slow to develop (Piotrowski & Vodanovich, 2000). This has been the case at ADMC, a factor that may be considered a weakness compared to the Colleges e-education discourse. Educators are not easily swayed from tried and tested teaching and learning strategies perhaps trialled over a working life. This could help explain some of the limited technology uptake rates reported in the literature (Gallini & Barron, 2001). There is evidence that for technology to be widely accepted by teachers they need to believe that using technology adds value and is therefore more effective than familiar methodologies (Hope, 1998). It would be wrong of technology proponents to simply assume that VET teachers will share their vision of technology, which adds to the imperative to work on teacher beliefs as part of any technology implementation strategy. Several researchers report support for this view by stating that the acceptance of new technology does not occur necessarily as a matter of course (Abou-Dagga & Huba 1997; Kelsey 1997; Leggett & Persichitte 1998). Barriers cited often include time, lack of institutional support, lack of technological competence, attitudes and working habits. All of these limitations were present or hinted at by interviewees in the present study.

The profile of ADMC suggests a learning environment that aims through the integration of technology, to develop students as lifelong learners. The approach to teaching and learning has consequently been significantly influenced by an e College strategy that has led to a paradigm shift impacting on all College activities. The vision for ADMC is to use e-education to shape student experiences in ways that reflect changes occurring nationally and internationally. The purpose is to prepare graduates who can become part of the ‘new knowledge society’ and play a lead role in the UAE’s development.

Theoretical Perspectives

The interview questions were designed to identify whether e-education technologies were supporting new forms of social interaction and learning outcomes at a VET college in the UAE. A theoretical basis for such a proposition is provided in Figure 2 that suggests the complexity of what needs to be in place if the notion of an e-College is to be successfully implemented. As previously noted, McCombs (2001b) implications for an e-education framework (Table 3, P 75) when mapped against the e-College notion at ADMC resulted in poor matching of descriptors arguably because the constructs of Figure 2 were only partially in place. The study aimed to confirm this conclusion and determine if e-education has had transformational impact through offering solutions to the dilemmas offered by change.

The literature cited in Chapter 2 was particularly relevant to this study. For example, Boddy’s (1997) finding that barriers such as lack of knowledge, equipment glitches and time to become familiar with technology, ranked high in developing negative perceptions, could be discerned in this study. Similarly the literature on belief development (Lumpe & Chambers, 2001) was relevance in terms of its correlation with change in behaviour in the classroom. Findings from Agarwall and Prasad studies is also relevant as it relates past experience and management factors as possible influences on the development of technology perceptions in VET settings.

The literature often supports an e-education approach because it is assumed to be more relevant and engaging for learners, keeping them in step with the changes that have already reshaped much of contemporary society (Mitchell, et al. 2001a; Harasim, et al. 1995; Schrum, 1998a). Research findings on the effect of technology on pedagogy and the teaching and learning process is still however sparse. This is

particularly so when considering the perceptions teachers have and how they develop their attitudes to technology. Preskill (1988) notes that teacher uncertainty towards technology and hence their perceptions of technology, is often based on a lack of knowledge and on the fact that using technology such as computers always requires change to established regimes. This view is evident in Boddy's (1997) comment that knowledge of computers influences teacher attitudes to computers and their use. The context of past experiences must also be an influence on how teachers react to new technology especially if they believe it has been imposed upon them with little or no consultation. This point may account for some of the negative perceptions expressed in the study. Brennan (1991) has categorized negative factors as, lack of long range planning, teachers not being included in the decision making process, lack of training in methodologies and limited time. Time and support have long been reported as key factors in developing positive perceptions of technology (Fulton, 1988). The inevitable conclusion that may be drawn from these considerations is that not enough research has been done on the impact of computers, Web-based learning and pedagogical issues arising from the change to an e-education approach. These themes were well represented in the discussion of e-education and ICT in Chapters 2 and 3.

Pervasive as the new technologies are in promoting new learning strategies it is really the improvement in communications and access to information flow that is driving change and the direction of new research. Windschitl (1998) concludes much has been written about how the Web is being utilized for learning, but what is needed now is to answer some of the critical questions such as do students do better using new technology and if so how? How does it change pedagogy? Hamm (2000) on this point notes that it's one thing to wire up a university or college for e-education, but another to figure out how to take advantage of technology without giving up what's best about traditional education or face to face contact with teachers.

These concerns are illustrative of the diversity of challenges faced by VET institutions that try to implement technology solutions

As previously noted the changes happening to education and training reported in the literature (Rose, 1999; Windschitl, 1998), and brought on by e-education have caused minimal public controversy. Chin and Horten (1994) appear to shed some light on this by pointing out that teacher beliefs and actions largely conform to the structures, policies and traditions of the world around them, in this case a world which

might expect VET institutions to be incorporating the same sort of technologies which are impacting society. There are dissenters of this view but they are hard to find (Moll & Robertson, 1997). In some ways the lack of a dissenting group is surprising given the well documented concerns of some researchers who point to issues such as the higher skills needed by students, motivation effects and the asynchronous nature of new technologies (Schell, 2001). The arguments used however are often couched as self-evident and may therefore account at least in part for this apparent conundrum. Educators themselves however report feeling more and more threatened as they grapple with technology and pedagogical issues that flow from it.

Chin and Hortin (1994) found that the impact of managements approach to technology often correlates with the level of teacher support. The current investigation touches on this issue, but the evidence suggests the formation of teacher perceptions and their subsequent take up of technology is a complex matter. While outside the scope of this study, some researchers identified in Chapter 2 and 3, have developed useful instruments for measuring perceptions for using technology innovations that may be useful in measuring teacher beliefs and the effects of transformation strategies (Benbasat & Moore; 1991, Lumpe & Chambers, 2001)

Agarwal and Prasad's (1999) study used a technology acceptance model (Chapter 2) to determine the factors influencing an individual's beliefs about an information technology innovation. Their findings suggest management should focus attention on the development of beliefs. This work reinforces the view that those who have greater prior experience with similar technologies are likely to have more positive beliefs about new technologies. The Model is useful as it measures perceived usefulness or the degree to which an individual believes that using a particular system would enhance his or her job performance. The perceived ease of use is included as the degree to which an individual believes that using a particular system would enhance performance and be free of physical and mental effort. A finding in this study is that incorporating a learning culture into the organization is critical for technology acceptance. The message here is that managers can attempt to change beliefs about technology but need first to shift organizational culture in ways that encourage individual learning and experimentation.

A Methodological Perspective

The interviews for this research were designed to provide a framework in which interviewees would express their understandings in their own terms. In addition the questions asked were categorised to illicit faculty perceptions of e-education and the affect it was having on teaching and learning. Because of the small number of interviewees it was also decided to ask a set of open-ended questions in the hope that this would solicit as much detail as possible and encourage a diversity of responses. Ultimately the study was intended to establish a baseline from which to consider what VET institutions should do in terms of planning and developing policy to help drive the acceptance of e-education solutions.

In taking an interpretive approach to the research questions, the study is progressivist in recognising the influence of the researcher and concluding it a positive feature, which added to internal validity. There was a social perspective in the relationship between the interviewer and interviewees that was assumed to have had a positive affect on responses because of common understandings of College arrangements. The interviewer and interviewees had been known to each other for at least three years prior to the study. While this may be regarded as a positive arrangement it may also be recognized as a possible source of bias in the study.

Data for the study was collected from five faculty in a College of the Higher Colleges of Technology (HCT) in the United Arab Emirates. All faculty were invited to participate in the study. In April 2002 the researcher forwarded an email to all College teaching staff inviting them to volunteer for interview. A brief email message introduced the project and the researcher. Eight responses were received from which five were selected for interview and three were rejected on the basis of length of time in the College. Even though the sample size was only 5, the researcher was satisfied that they were a representative sample of staff because they were drawn from each of the three major study areas of the College and their technology levels ranged from low to excellent. Those selected had to have had at least three years College service. The five chosen were drawn from General Education, Business and Engineering. Each faculty had similar status within the College structure, being employed as teachers in their areas of expertise. The College had a teaching staff of around 100 and therefore the sample represented approximately 5% of faculty.

Responses to the interview questions were interpreted in the light of the interviewee's understanding of the issues in the organization and perceptions discussed. The interviewers working role may be interpreted as a form of participant observation facilitating at least in part to a deep understanding of meaning and context for comments on experiences, thoughts, feelings and perceptions made during the interviews. According to Smith (2002) this form of research has the potential to provide the most realistic picture possible of the complexity and dynamics of the events being studied. It might be further argued that events can best be interpreted in the context of the culture and language of participants. In this study a further strength may be the absence of any doubt in the interviewees mind as to the role of the interviewer in the organization. The interviewer however remained aware of the need to avoid affecting the events being described by interviewees.

Interview Design

Copies of the interview questions were emailed to the five faculty a week prior to their interview date to allow them to become acquainted with the issues to be discussed. Except for one interviewee, there was no evidence of prior preparation of answers. A copy of questions was also available at the interview (a copy of the interview protocol is provided in Appendix A).

Six categories of concern were identified from the literature review and formulated into a set of questions for trialling with a College supervisor. Questions were intended to be open ended and addressed faculty perceptions against strategic planning, pedagogy, the change process, resourcing, professional development and organizational development. Interviews were conducted during April and May 2002. Each interviewee was asked to approve the taping of the interview that was planned to last approximately 30 minutes. In order to check validity and provide a measure of data triangulation, transcripts were prepared from each interview and returned to interviewees for written comment and checking. Within a week of the interview, perceived discrepancies in the transcripts were checked against interview tapes and adjustments were made where necessary. The analysis of data was intended to inform College administrators on faculty perceptions and organizational issues impacting on the implementation of the College's e-education strategy. The College chosen for study (ADMC) has a strong commitment to resourcing technology and e-education as an imperative (Table 3, P 75). The College had recently established an e-Committee

to manage and direct the diverse elements of implementing its e-education strategy. The elements decided on included, upgrading the learning environment, IT infrastructure, e-learning, professional development, management issues, e-education projects and teaching and learning (Figure 2). With a long-standing commitment to e-education it was assumed staff and students would share the perception and resolve of College management to e-education outcomes.

The interview session began by asking the interviewee to identify their skill level on a five point scale from low to excellent. The five faculties exhibited a spread of skills and knowledge in the use of educational technology. The sequence of questions shown in Appendix A, were then asked. The researcher and interviewees were all well known to each other creating a relaxed interview environment that was conducive to a free flow of responses, often of a confidential nature. When compared to supporting statements in the literature the researcher was confident that this factor added to the external that added to the external validity of the study.

The relationship between the researcher and respondent was that of a manager as at some stage all interviewees had reported to the researcher as a College Head. The influence of this relationship was found to have had a positive effect on the willingness of respondents to be open and frank with their comments.

The questions posed by the study were:

- What perceptions do faculty have of e-education?
- What do faculty know of the College's strategic plan for e-education?
- Is e-education perceived as changing teaching and learning at the College?
- How is e-education at the College perceived in terms of strengths and weaknesses?
- Is professional development at the College perceived as supporting e-education?
- Do faculty perceive a need to change the College's organization as a result of its focus on e-education?

Analysis of Data

The interviewee responses were analysed for common perceptions against the six identified categories of strategic planning, pedagogy, change process, resourcing, professional development and organizational change. By sorting responses in each

category, similarities and deviations in perceptions were identified. The data yielded a spread of interpretive comments with many common themes.

The interview technique of defining a set of open-ended questions with clear focus on perceptions set the boundary of the study. The categories approach delineated the study resulting in few irrelevant or wayward statements.

A Definition of e-Education and the College's Strategic Plan

There was wide variation when respondents were asked to define e-education. Definitions ranged from a perception of the term as electronic education through the use of laptops and computers to incorporating Internet, email and online learning. Two respondents believed the definition should include material preparation and its availability on the College Network. Only one faculty referred to alternative examples of electronic technologies such as soft-boards, videos and television. The researcher believes that faculty' perceptions and experience of e-education was a central influence on the direction of responses to this question.

Responses indicated that staff knew very little about the College's strategic plan for e-education. A typical response was, ... 'there is no strategic plan. It all seems very ad hoc. I don't know much about the details or how they intend to actually go about this'(personal communication, May 7, 2002)... These sorts of responses reflect a level of disengagement with the College's stated goal of becoming an e-College. Other gaps in the e-education plan that were identified included:

- A management gap between what was being said and what was actually being done... 'there is a gap in the management thought process. Suspicion that there isn't a strategic plan' (personal communication, May 6, 2002).
- Teacher inability to develop instructional material.
- Inadequate time allocation
- The lack of involvement of faculty in setting e-education goals
- Reluctance by some teachers to use technology in the classroom... 'teachers don't know what's expected of them' (personal communication, May 7, 2002).

One faculty concluded that the strategy for e-education was not in fact pedagogically sound. Lack of knowledge of the College's strategic plan for e-education probably accounts for many of the negative perceptions.

Pedagogy

In general, faculty believed that students were becoming more ‘savvy’ with technology but in learning they need a lot of guidance. They also believe technology encourages learning outside the classroom giving students the responsibility for managing their own arrangements. There was a belief, that students only become engaged in e-education initiatives when the process is driven by teachers.

Even though professional development was considered adequate, there was concern expressed about getting material from the College Network. How material is used however seemed to depend on what was being taught, a teacher’s preferred methodology, their epistemology and how and what a teacher felt comfortable with exploiting in the classroom.

Faculty reported e-education strategies seemed to give a new dimension to assignment work through access to material researching on the Internet. At the same time technology was sometimes perceived as distracting students from their task, eg. laptops that all students were required to purchase, could be seen as a novelty. Students are generally encouraged by technology, particularly computers, as an instrument of learning. ... ‘they seem to derive enjoyment from them’ (personal communication, May 7, 2002). There were comments relating to technical barriers, ... ‘problem is they waste time... with regard to pedagogical barriers you cannot make the assumption that e-education methods or use of computers in education are necessarily the best way of reaching an educational goal’ (personal communication, May 6, 2002). Although often negative, interviewee comments did not preclude the conclusion that e-education was being seen as presenting an alternative.

The common thread expressed several times, was that with e-education, learners become more responsible for their learning and increase their computer skills. Of concern however, was the coverage of a lot less content. This was perceived as caused by:

- the technology itself often being slow;
- the time to upload material;
- the rate of data transfer;
- technology glitches; and
- classroom management issues.

The demand on faculty time was reported as significant, particularly for English

teachers where ... 'we have had to become technology teachers' (personal communication, May 5, 2002).

Strengths and Weaknesses

The major sentiment expressed regarding strengths was that technology is generally available and there is a commitment by the Director to implement e-education solutions. There was also a belief that backup and technical support availability was good. The student horizons for learning were regarded as enhanced. The enthusiasm of students was considered indicative of acceptance at least for laptops.

Most felt that in introducing new technology time was the greatest weakness. There was an expectation that the added work would be done in addition to a busy teaching load. ... 'for online delivery there was not enough discussion of why we need to develop courses from scratch... expectations on faculty too high in terms of time and skills' (personal communication, May 5, 2002). There was a perception that management has been hasty in implementing change, 'right this is a great idea, let's do it, without having thought it through with regard to implications' (personal communication, May 6, 2002). A further concern was an assumption that e-education was a good thing and could be implemented for all teaching and learning situations. ... 'language teaching is by its very nature, fluid, dynamic, changing and interactive ...there are certain aspects of language that cannot be dealt with utilizing an electronic medium. ...in other words don't prescribe a percentage application of e-learning, as management often pushes, it won't work' (personal communication, May 7, 2002). A further concern was ... 'having to use laptops and electronic boards ...when it maybe far more effective and quicker to be giving out a piece of paper for students to work from' (personal communication, May 6, 2002). The time students take to complete an electronic based task was reported as generally taking longer.

Resources

The physical resources at the College were considered more than adequate to support e-education initiatives. Staff need, however, to be given time to develop material and learn new skills. ... 'providing resources is not the total issue, staff must want to use them. Support from the IT Department must be provided as quickly as

possible, this can be a problem as on occasions they are run off their feet' (personal communication, May 5).

Professional Development

The issue of professional development drew a number of insightful responses, but there was a general feeling that the College's focus on professional development was supportive of e-education needs. Some typical comments included, ... 'teaching should be a greater focus. ...some teachers are developing online material without the supporting pedagogical skills to develop it. WebCt material requires proper lesson plans, use of assessment instruments and so on. ...there is a need to decide how to facilitate learning in an online environment which may be threatening to some. ...we're being asked to adopt what is really quite a different role here and I don't think there's been enough debate and openness about it' (personal communication, May 5, 2002).

The need for identifying a block of time for professional development was a clear concern. ... 'it's no good just saying to people they have to come up to speed. ...you actually need to provide incentives and time' (personal communication, May 7, 2002).

An often cited reason for the College introducing an e-education focus was to direct students towards becoming independent learners. Respondents believed that the College students ... 'come from an intensely conservative school system. ...here we are sort of projecting them rapidly into the new technological age. ...independent learning seems to have developed a worth and value of its own which might be seriously questioned. ...there is a time in everybody's life when they are ready for independent learning and it's part of an educational continuum. ...it's not something you suddenly learn, it's really something that you gradually prepare for' (personal communications, May 5, 2002).

Organizational change

In the context of organizational change, there was a belief that policy was concentrated in a small group and overall the strategy needed a model. Releasing some staff from teaching as e-education champions, could help cascade skills and help train others. Some respondents commented that ... 'what's missing is telling how it is going to be done. ...what's the long term plan. ...where is the College going. ...what are the specific individual roles of people. ...like many people, I don't really

feel I know what's going on, and that would seem to suggest there is an element missing' (personal communications, May 6, 2002). Others felt disengaged but knew that faculty were doing things. ... 'but you don't know why they're doing it or how it fits into the bigger picture' (personal communications, May 5, 2002). Essentially, these perceptions portray a belief that no one has knowledge of the whole thing. Respondents reported that they felt that much that is done is reactive rather than proactive.

Other Comments

The commitment to technology may have a flow-on effect in preventing a teacher using simpler approaches, that they believe work better, such as an activity based on pencil and paper. In addition, its ... 'not just enough to put material on the College network, it has to look good. ...and I'm not good at that. ...if we don't embrace e-education, we're going to be negligent. ...so, I think we really have to do that, but I wonder about the timing and the pedagogy' (personal communication, May 7, 2002).

Discussion

e-Education was not an easy term for faculty to define and they generally perceived the term according to their experience of technology, which was currently impacting their teaching and learning activities. The lack of a consistent definition was surprising given the term simply associates the word education and electronics and that the College held a major international conference on e-education in April 2001 (e-Education Without Borders). This Conference was attended by three hundred academics and students from around the world and engaged most faculty in one way or another in the lead up and management of the event. Only one interviewee expressed an e-education definition in line with Feisel (1999). This lack of a consistent definition may account for some of the disengagement comments encountered. For example, if a respondent equated e-education with online learning their perceptions were significantly influenced by their experience in that area.

The focus on online learning responses was understandable given the College managements desire to have all students doing at least one course per semester online. Most faculty were engaged in preparing material to meet this target. The belief that these e-education activities would add value to the teaching and learning process was

however not mentioned which seems surprising given the emphasis currently being given to e-learning courses.

Comments in this study were sometimes at odds with the literature. Some researchers have for example reported online learning as value adding in the sense of faster learning, lower costs and greater accountability combined with the ability to adjust to change (Baker, 2000). As previously stated, the College's stated aim of online learning is to develop its students as lifelong learners. At least one interviewee expressed scepticism of this notion as a goal, a view supported by researchers such as Rose (1999).

The College management had considered a strategic plan for e-education through its e-Committee (Figure 2. P77) but most faculty were not aware of it or had only vague notions that some staff were working on something. The most advanced areas of implementing the Strategic Plan were online course development, infrastructure planning and a student information system. Faculty generally knew something about these activities, but did not relate them to the overall College plan. The e-Committee had mostly management members but the sub-committees included faculty. There was strong evidence that most faculty perceptions manifested as a feeling of disengagement from the implementation of e-education and that things were ad hoc. It was clear that the e-Committee was not filling the gap perhaps because it had not been allowed to evolve far enough (Chapter 4). At the same time all interviewees seemed eager to know more and saw their lack of knowledge as a gap. The research also pointed to poor communication as the primary cause of many negative perceptions of how e-education was being implemented. Interviewees clearly did not know what the "big picture" for e-education was, leading to denial from some that a plan existed. As expected faculty were also concerned that a pedagogical framework had not been established and saw this as a priority.

Ultimately the goal of an e-education strategy must be to provide technology solutions that are perceived as being as routine as traditional delivery methods. Should this situation be achieved controversy regarding advantages and disadvantages would disappear, perceptions would be positive and the institution would have settled on a pedagogical approach supported by staff. Ideally allocating time to e-education activities and giving adequate resources should be deemed a normal commitment to teaching and learning.

The notion that e-education technologies are a better approach can clearly be challenged. Mitchell, et al. (2001a) points out technologies in and of themselves are not the principal factors in determining learning outcomes. More important are the pedagogical skills of the instructor using the technologies, the motivation of the learners, the instructional content, and the integration and implementation of the technology itself. All of these areas may provide fertile ground for further research. Most importantly when teachers are not given time to explore new pedagogical approaches and experiment in teaching situations, it may not be reasonable to expect them to have positive perceptions of their experiences. Coley, Cradler and Engel (1997) support this position suggesting that teachers need time to effectively assimilate technologies such as web-based approaches.

While students appear to develop computer skills faster, a serious weakness identified in this study was the finding that faculty saw e-education as slowing content coverage. This was a surprising comment as the contrary position, that learning is speeded by up to 20%, is often cited in the literature (Chin & Horten, 1994; Madsen, Grozik & Biro, 1992). This apparent contradiction may be related to teachers not having had enough time to experiment with new pedagogical approaches, prepare appropriate material or that students like teachers need to be prepared for a shift to new technology. Comments like, English teachers having to become technology teachers perhaps gives insight to this issue.

The issue of communicating the College's e-education strategy was a recurring theme throughout the interviews. The researcher believes that faculty perceptions often reflected a lack of knowing the big picture. Expressions such as ... 'management has been hasty in implementing change... point to communication barriers. One interviewee summarized this issue by saying ...there's an element missing ...messages float around and people will say 'I'm doing a web page'... 'Oh really, I'm also designing a page'... 'Oh are you, what's it for'?.. People are doing bits and pieces but you don't know why they're doing it or how it fits into the bigger picture' (personal communication, May 6, 2002). This supports the belief that in an environment of change communicating what's going on and bringing staff together to share experiences should be given high priority by management or whoever is coordinating activities.

The resources at the College were generally considered more than adequate, with mostly positive perceptions recorded. The technology perse was not therefore considered a determining factor in teacher perceptions. Most faculty saw technology as adding value to the teaching and learning process. They were more concerned with pedagogical issues sequencing the introduction of technology, knowing the big picture, the time available to learn how to use technology and develop material and transferability to other teaching and learning situations.

Faculty perceived the College's professional development (PD) effort as largely meeting their e-education needs. A commitment to PD is often reported as a major constraint in moving education towards new technology (Lee, 2001) and it was notable to find that this was not the perception in this study. A need for PD to focus on the effect of e-education on pedagogy remains however an often reported need. The speed of change and the possibility that new technology inclusions in education are just around the corner as issues such as cost of computer power and bandwidth are resolved (Baker, 2000), point to the urgency of directing efforts towards studies of pedagogical issues.

There are clearly many matters raised in this study which need to be addressed, but as one interviewee summed it up, ... 'we will be negligent if we fail to embrace e-education.' (personal communication, May 6, 2002).

Conclusion

Findings from this study reinforce the belief that teacher perceptions of e-education vary and are significantly influenced by past experience and management arrangements. Patterns that emerged tended to support the literature on teacher perceptions of technology. The lack of a clear pedagogical approach by teachers and administrators however is a major concern and represents the single most urgent area of research need. Unlike studies reported elsewhere (Kerr, 1991), the faculty in this study generally perceived technology as a significant agent of change in what happens in the classroom. Faculty reported however, that they suffered from disengagement in the institution's strategic approach to e-education that manifested in a belief that what was going on was ad hoc. At the same time, faculty generally, regardless of their IT expertise, supported the need for integrating e-education into the teaching and learning process. For management a recurring theme in this study was that when

implementing e-education strategies, it is not enough to have a strong commitment to change. Consideration needs to be given to faculty beliefs, pedagogical approaches, organizational arrangements, communication of change and processes to keep staff engaged.

The researcher believes that the College studied may be somewhat atypical because of the pervasive presence of technology; hence the findings may not be readily transferred to other situations. There are clearly some unique characteristics about the College not least of all teacher access to resources and the commitment of management to implementing e-educational change. Some of the most pressing issues emerging from this study are:

- time to plan, learn, experiment and prepare material;
- communicating an institutional strategic plan; and
- the disengagement between management and faculty.

Faculty were supportive of technology but their perceptions and attitudes were negatively impacted by their experiences. Sammons (1994) refers to this as a need for faculty to be able to grow into multimedia. The onus is on managers to find ways to allow this to occur, even if it means their role changes. There is some evidence of this reported in research by Gurr (2001) in which he describes the affect of ICT as changing the way principals see their leadership, communicate, and establish patterns for selecting staff who have ICT knowledge.

It appears that it is critical when integrating change to have a strategic plan understood by staff and a clear framework before deciding to implement technology. Ideally, in the case of e-education, the process should start with identifying whether technology is going to add value to the teaching and learning process. Students and faculty should then be engaged in familiarization with the technology long before it becomes part of the teaching and learning environment. Only then should management contemplate implementing an e-education approach.

CHAPTER 6

VET REFORM: A HISTORY AND SEARCH FOR A CURRICULUM TRADITION

Introduction

e-Education and ICT literature was singled out in Chapters 2 and 3 as drivers of VET reform and confirmed in Chapters 4 and 5. Subsequent Chapters will return to the broader perspectives of divergent ideological influences on reform represented in Figure 1. This chapter begins this approach by directing attention to where the Australian VET system has come from, highlighting the shift to training packages and flexible delivery as elements of a ‘new curriculum stance’, that is changing the role of teachers. The link between VET and e-education is identifiable in the support technology gives to reform constructs such as flexible delivery and competency based training.

One perspective on the last two decades of VET reform suggests that one or more stakeholders, at the expense of training professionals, have ideologically driven the process. If this is so it raises the question of who the key stakeholders have been, and what influence they have had on the reform process, in particular VET curriculum? The argument will be made that a major outcome has been training packages, the contested new basis of curriculum in the post modern era do not represent a new tradition but borrow from a long line of curricular thought stretching back to at least Dewey. These issues will be explored in the context of a curriculum tradition, an epistemology of reform, and the impact of training packages and flexible delivery.

If as Smith (2002) contends, training packages in the VET system are a new form of curriculum, the problem is to locate their development in a curriculum tradition that identifies their influence within the reform agenda. The literature is not of much help on this point, having little to say about the origin of the post-modernity, sequential means ends logic of work based modularised, competency based training that has come to be a signature of training packages. Such thinking now dominates contemporary VET delivery. The problem is the narrowness of this thinking with its theme of an occupationally oriented competency based approach aligned to specific jobs that are in turn broken into specific tasks thought necessary for successful

performance (Grubb, 1998). The problem with training in such a scenario is the emphasis it gives to on the job competencies rather than a balance between theory, or underpinning knowledge and practice delivered perhaps in the context of on and off the job training. Modularisation may contribute to the problem by offering training as a sequence of fragmented skills specific to an enterprise and at best appropriate at a moment in time. There is clear contradiction here with the notion of generic competencies, changing work patterns, the call for a multi-skilled workforce and employment where traditional job descriptions are becoming extinct. It is argued that isolating tasks ignores settings in which work takes place, notably the dimension of teamwork, cooperation and relationship formation, a notion seldom given serious consideration in training packages. This may prove to be a serious omission that impacts on an individual's ability to understand the work environment, respond to problems and generate creative solutions. These parameters will be explored further in Chapter 8.

Globalisation, the changing nature of work and the knowledge economy, are some of the contemporary constructs that have come to influence VET curriculum over the last decade. It may therefore be too early to expect a curriculum tradition to have emerged that can take into account the impact of these changes. In this context it is not surprising that there has been a need for a high level review of training packages commissioned by ANTA (2003b) only seven years from their inception. Although it appears not to have been attempted in the literature, the following argument suggests that it may be possible to identify 'general' curriculum theory to underpin a respectable status for the present training package system.

In Search of a Curriculum Tradition

Arguably the influence of curriculum theorists such as Bobbitt (1924) and Schwab (1978) is a good place to start. For example Bobbitt in referring to objectives, identified them as the knowledge or experience that an individual is assumed to need to be a productive member of the community. This may be consistent with the notion of competencies and their elements that underpin the structure of training packages under a competency based training (CBT) regime. The problem here is that VET policy tends to ignore the need for generic competencies in training package development and therefore fails to incorporate Bobbitt's community perspective.

In broadening the curriculum boundary to recognizing both formal and informal experiences, Bobbitt might also have been referring to on and off the job experiences evident in the contemporary traineeship system that is now a conspicuous part of VET delivery. Mechanisms exist to recognize a range of contexts for gaining both formal and informal competencies, including Recognition of Prior Learning (RPL) and exemption arrangements.

Due to its behaviourist approach a Tyler (1949) legacy may also be assumed in competency based curriculum (Grubb, 1998). If the four questions commonly referred to as Tyler’s rationale are evoked, then training packages that follow a planned set of experiences based on modules, appear to follow a similar regime (Table 5).

Table 5: The Tyler Rationale and VET Reform

Tyler Question	VET Reform
1. What educational purposes should be sought?	1. Qualifications against industry standards and training plans.
2. What educational experiences map against purpose?	2. Module competencies.
3. How can educational experiences be organized?	3. Training packages and training plans.
4. How can the attainment of purposes be determined?	4. AQTF compliance assessment strategies.

It is in this context that Tyler would probably agree with the tenet that what is taught should be responsive to local conditions and tailored to the achievement of objectives and learning experiences demanded by the community. Broadly in the case of training packages this translates to meeting employer needs. In the workplace, VET teachers plan training outcomes by choosing, in consultation with employers, the sequence of competencies to be achieved, and the qualification to be gained. This appears similar to a planned set of outcomes and experiences that both Bobbitt and Tyler would recognize. For example Bobbitt’s curriculum would describe a series of ‘things’ learners must do and experience to develop abilities that make up, ‘the affairs of adult life’, and to be in all respects what adults should be (Bobbitt, 1924), a notion not too dissimilar to the stated rationale of training packages. Essentially the rationale was to provide a system that could be used as a tool linking skills needed by industry

with the outcome of training (Allen Consulting Group, 1994). The gaining of competencies was envisaged as qualifications and a set of assessment strategies against which success could be measured. As part of an industry driven system training packages were not envisaged as a curriculum substitute, but a set of guidelines to be interpreted by teachers in accordance with client needs, their point of entry and skill capabilities.

Training packages as a new curriculum system are not usually thought of in terms of a traditional curriculum that takes account of individual needs. Some would describe them as little more than Taylorist job descriptions (Smith, 2002), which at best, provide curriculum scaffolding, with little concern for underpinning knowledge. Their workplace design characteristics, in neglecting non-workplace learners and the individual, may be questioned on the basis of Bobbitt's view of curriculum that calls for rectifying the deficiencies of knowledge and skills preventing an individual from being a 'useful' employee. This issue at the same time cuts to one of the essential issues of contemporary VET debate, namely the role the sector should assume.

In taking Bobbitt's notion further, in the world of training packages VET practitioners are often engaged in assessing sets of competencies to identify deficiencies. The VET teachers' role has come to include development of training plans, RPL and repair of gaps or deficiencies in skills identified by employers. The emphasis on repair is in tune with a social re-constructivists view that social needs, in this case those of the employer, should be met over individual priorities (McNeil, 1977). This again highlights a deficiency in training packages; a failure if it is a curriculum, to service broader social outcomes and meet the long term needs of individuals. McNeil goes further on this point, arguing that curriculum may be conceptualised as a technological process for producing whatever ends policymakers demand. In the case of training packages, this perspective provides little comfort to anyone who may challenge the system, and appears to accept and even encourage abrogating the role of content definition to system proponents other than training professionals, further aggravating the debate on an apparent imbalance of involvement of all stakeholders in curriculum development.

Schwab (1978) provides yet another perspective arguing for curriculum intervention by a set of experts who would carry out regular reviews. Training packages are in fact reviewed every three years to ensure currency, but contrary to

Schwab's concept, there is a purposeful avoidance of including training professionals by assigning the work to Industry Training Advisory Boards (ITABs) and industry representatives. Some would argue this weakens the process, especially if the intent is to create high performance workplaces (Grubb, 1998). The problem is that in the absence of training professionals and learners, skills for short-term gain may dominate at the expense of knowledge essential for mobility, relationship development and promotion. Schwab's model suggests a more inclusive representation, with knowledge experts drawn from a wider field to fix areas of concern. The author also appears to be arguing for a more reflective analysis of curriculum issues than is currently the case with training package reviews.

In summary, curriculum theorists appear to provide a basis for suggesting underpinning curriculum theory does exist to scaffold training package development, but that it has been largely ignored in the literature. This deficiency may in part explain the controversy that has persisted since their inception in 1996. With this in mind the next section asks the question, what has been the impact of an industry dominated VET curriculum, and what concerns do professionals in the sector express regarding the resultant curriculum change? In order to seek answers to such issues it is necessary to place the notion of reform in an historical context.

Vocational Education and Training Reform: An Historical Perspective

The traditional Australian public image of VET is that it provides learners with the knowledge and skills to service specific employment roles. From this traditional trade 'type' view of VET, dependent on where the term is used, the sector has evolved to mean different things to different client groups. Influenced by Government policy and industry input, the most important debate on role over the last decade has centred on, should VET be considered to only train for work related outcomes or service more holistic educational outcomes? If the former were the case, a large number of VET participants who seek to gain non work-based outcomes would be excluded. The groups excluded might include general education learners; those who seek to improve their literacy and numeracy skills, language learners and aspirants to higher education through pre-preparation courses.

The debate on a more liberal VET perspective began in 1973 when the new Labor Government appointed the Australian Committee on Technical and Further

Education, known as the Kangan Committee. The Committee argued for a broadly based education and training sector rather than its traditional vocational skill focus (Smith & Keating, 1997). Faced with an identity problem the VET sector has over the intervening years continued to debate its role. It is therefore not surprising to find the sector even today unsure of its role, and where it should sit in the education and training arena. This uncertainty continues highlighted by the recent debate on VET Associate Degrees and the focus on knowledge versus skills delivery in training packages.

It was in the early post Kangan period that the VET sector began to attract more Government attention, becoming increasingly defined as a sector separate from the management of schools. This has been described by Smith & Keating (1997) as a period when VET became linked in most states to employment and labour market portfolios that in turn found expression in the reform agenda.

Since the publishing of the Kangan Committee findings, external stakeholders, including Federal and state governments and industry, have come to play an increasing role in determining VET objectives and outcomes. Predictably, the result has been to produce a system where learning is largely prescribed by others and often remote from VET delivery (Brown, Anderson, & Rushbrook, 2002). As might be expected, this has not sat well with those with long careers as teachers or VET management and has tended to encourage the perception that experience and professionalism is undervalued.

Perhaps the most divisive issue however has been the introduction of a competitive market driven VET system. Following attempts by Dawkins (1988) to create a more industry responsive VET through introducing competition and marketisation, such notions became important elements of the reform platform in the 1990s. Authors who have questioned the wisdom of this approach (Peoples, 1998) often point to the VET system as having become an education and training system designed by industry to meet their narrow economic objectives and therefore increasingly run along commercial lines. Arguing for balance, Peoples (1998) makes the point that various VET interest groups have competing needs, and that the system should be considered a community resource with a focus bigger than the interests of any one stakeholder. Responsibility for promoting the introduction of a competitive VET market rested with the Deveson (1991) and Allen Consulting Group (1994)

Reports. The arguments used at the time assumed that community, employer and employee interests were consistent. Peoples argues that this is not always the case as employers tend to view training as a means of meeting their immediate needs, while employees are likely to be interested in other issues, such as transferability of qualifications and recognition of prior learning (Kinsman, 1997). In Peoples (1998) view, turning VET to a market driven sector was ideologically driven and implemented without appropriate input from all stakeholders.

Gonczi (1999) takes the competitive market debate further by suggesting that there is something strange about policy which subsidizes private providers to supply courses in conditions and with infrastructure often inferior to that available in public funded VET institutions, most notably TAFE. The public training institutions remain by far the largest student contact hour providers in VET. In Gonczi's view it is inappropriate for the reform process to encourage industry to become Registered Training Providers (RTO's) in direct competition with public funded training institutions. If the motive was to reduce cost it is unlikely to do so given the public investment in TAFE, and may, as Gonczi (1999) and Peoples (1998) suggest, simply be an ideologically driven notion.

It is no accident that reform of the VET system since the mid-1980's has closely tracked Government policy and changes in Australia's economic well being. The integration of national market economies and a breakdown of economic boundaries are just some of the global forces that have impacted on Federal Government policies toward control of Australia's economic destiny and the building of a more productive culture (Sobski, 1995). Economic issues such as the Federal Government's commitment to full employment and the shift to a free market agenda through deregulation of trade, labour markets and financial systems have been other elements of Government policy mirrored in VET reform since the mid 1980's.

In line with other Government agendas, the VET model has involved reining in expenditure, corporatising, restructuring, and encouraging competition from private providers (Green, 1997). While this realignment was underway, several reports through the 1980's and early 1990s helped define Government policy and fuel public debate about what the VET role should be in the twenty first century (Carmichael, 1992; Mayer, 1992; Finn, 1991).

ANTA

From a Federal Government perspective, taking over the VET system has always been attractive, offering advantages in terms of speed of response to shifts in economic policy. Unable to establish a Federal VET system due to the reluctance of some states, the Government in 1994, as a compromise, responded by setting up the Australian National Training Authority (ANTA) with responsibility for establishing amongst other things a national VET system, a competitive training market and a VET system strongly linked to industry. As a result, much was devolved to agencies such as ANTA and ITABs that became the drivers of change. As will be seen an important additional responsibility of service agencies such as ITABs at national and state level has been the inclusion of competency standards and training packages. While this occurred, objectives and the prioritising of programs, continued to be guided by state ministerial policy. At the Registered Training Organisation (RTO) end of the spectrum of training responsibility, a level of autonomy emerged in defining how funds were spent, but each state funding authority exercises considerable leverage by linking contracts to purchase training to performance outcomes.

Establishing ITABs in the late 1980's was an important initiative as they were set up to facilitate Government policy towards industry involvement in training issues. Often run by training specialists they have come to be the developers of the training 'response' based on industry-defined needs. For example work on competency standards and training packages, now the basis of almost all VET program delivery, is largely undertaken by ITABs. Over the last decade Government policies have fostered this outcome with the aim of increasing the amount of training sponsored by industry (Dawe, 2002). This in turn has been reflected in the direction of training reform and the enhanced role-played by ITABs. Some would suggest that this has been at the expense of VET providers.

Perhaps the most important reform however has been the introduction of market drivers into the VET system, described by Dar and Gill (1998) as an attempt to shift VET deliverers from being suppliers of training to industry as buyers in the market place. As Goozee (2001) points out the establishment of ANTA resulted in a series of policy directives in this area that resulted in opening training to competition. This shift has been augmented from time to time by other market initiatives such as competitive tendering, introduced by the states as a means of increasing commercial

activities in VET institutions and encouraging new entrants. Later seen as inefficient, tendering out training has been dropped in almost all areas.

Globalisation

Of further issue has been the impact of globalisation on the manageability of VET institutions. The loss of Federal Government control of Australia’s economic destiny in a globalised sense has created a more volatile labour market requiring constant adjustments as economic imperatives shift. This has resulted in changes to the distribution of labour across industries and work practices. For example, traditional sectors such as agriculture and some manufacturing are no longer the large employers that they once were. They have been overtaken in terms of employee numbers and economic contribution, by service industries, notably hospitality. These factors, if poorly predicted, tend to undermine the Government’s ability to respond to skill shortages and make quick VET policy adjustments. In real terms, changing the focus of training can be a drawn out process, as evidenced by several years being required before training packages had covered most industries. With few real options the Federal Government has often used ‘skills formation’ as a process for making economic adjustments (Brown, Anderson, & Rushbrook, 2002). In a sense VET is now seen as a mechanism for adding value to labour, the unit of productivity, and the means of creating social and human capital, although training providers often feel marginalized from decision making in these areas (Marginson, 1993).

Here and in Chapter 7 various perspectives on globalisation’s impact on VET will be discussed. Some parameters of change brought on by global influences are illustrated in the literature of Table 6.

Table 6. Perspectives on Globalisation a Changing VET System and an Illustrative Literature.

Parameters of a Changing VET Perspective	Illustrative Studies
VET as a provider of global skills – high performance employees.	<ul style="list-style-type: none">- Globalisation and human capital theory (Victorian Department of Education and Training, 2000).- A changing pattern of work (Streumer & Bjorkquist, 1998).- Casualisation of work reduces training

Parameters of a Changing VET Perspective	Illustrative Studies
	<p>commitment (Buchanan and Watson, 2000).</p> <ul style="list-style-type: none"> - A VET response to the economic narrative of globalisation (McIntyre & Solomon, 1999). - Accrediting informal learning in the workplace (Hawke, 2000).
Economic imperatives as drivers of VET reform and the rise of neo-liberalism.	<ul style="list-style-type: none"> - Neo-liberalism and VET reform (McBride, 1998). - Neo-liberalism and reengineering training outcomes (Seddon, 2000a). - Knowledge as the currency of human capital development (Livingstone, 1997). - Knowledge solutions to economic needs (Peters, 2002). - The knowledge context and meeting stakeholder needs (Hall, et al. 1999). - Harnessing VET to economic outcomes (Anderson, 2004).
A shifting role for VET.	<ul style="list-style-type: none"> - What teachers do and where training takes place has changed (Anderson, 2004). - The role of VET and globalisation imperatives (Hall, et al. 2002; McIntyre & Solomon, 1999). - Technology and training packages and teacher role (Brennan, et al. 2001). - Building communities of learners (Freeman & Capper, 1999).

Allied to the reforms taking place in the VET system and to some degree driving it, has been a transformation of the nature of work. It was evident by the mid 1980's that economies based on Taylorist work principles were no longer appropriate. This in Australia led to award restructuring that often resulted in restructured awards linking training, skills and wages. In essence worker career paths became linked to training, assessment and the gaining of appropriate qualifications. The industrial relations led work changes impacted on the training reform process resulting in demand for training rising significantly in the decade between 1985 and 1995 (Smith & Keating, 1997). Arguably a refocusing into workplace training and initiatives such as the New Apprenticeship System grew out of this shift in emphasis.

Work has also changed in another dimension. The labour market has shifted from the notion of permanent work to an increasing acceptance of part-time or casual employment where an employee may change jobs more regularly. Again the impact on the VET system has been an increasing demand for training particularly in the workplace. For example there is now an emerging expectation that even with part-time work there will be access to training. For the individual training has gained greater urgency given that a career is increasingly likely to be across several unrelated work situations (Dwyer & Wyn, 2001).

The introduction of competency based training (CBT), in the late 1980's, was an underpinning reform which made it possible to standardize skills and qualifications, creating the environment to talk about training market reforms and a system of portable qualifications. This was followed by a myriad of initiatives such as modularising courses and restructuring to focus on training labour on and off-the-job, according to agreed industry or enterprise based competencies. Out of this sequence of reforms evolved the present training package, flexible delivery and traineeship system, with its government subsidies and learners learning new skills based on an industry agreed training plan for each employee.

A National Training Reform Agenda: A Post Modernity Approach

Formulated between 1985 and 1995 the National Training Reform Agenda (NTRA) was a set of decisions made by Federal, state and territory ministers in response to global influences that in turn moulded the principles on which the present VET system is built. While there were many milestones the major outcomes were to:

- reach agreement on a national training system;
- set national objectives, principles and methods;
- open the training market to competition and market forces;
- introduce greater quality assurance;
- enhance training relevance;
- set a framework for portability of qualifications;
- establish a process for recognition of prior learning; and
- encourage flexible articulation pathways between education, training and industry.

In the late 1980's NTRA initiatives were fuelled by reforms taking place in industry and reports that spoke of the need to create a 'training culture' in Australian industry. Governments' saw the NTRA as a way of promoting an industry driven approach to training. The underlying assumption was that a training culture in industry would help overcome Australia's declining competitive position in relation to other OECD countries (Sobski, 1995). At the time, industry, especially small to medium sized enterprises, typically relied on the external labour market for skilled labour as opposed to training their own labour. If there was a training strategy, the size of the enterprise was largely the determiner of commitment (Gonczi, et al. 1995). Importantly by 1991 the direction of industrial relations had shifted to enterprise bargaining where enterprises negotiated directly with their workforce on pay and conditions, often linked to training outcomes. As might be expected not everyone supported the training culture emphasis inherent in the new arrangements. For example Brown and Evans (1994) argued for Government policy that would encourage an education and training commitment from employees that was not tied to salary, rather than a strategy that was employer led, universal and often outside core industry business. This notion pursued the view that vocational training should serve to broaden job prospects and facilitate lifelong learning, rather than train for narrow job specific outcomes. This point will be taken up again in discussing training packages.

The NTRA really cleared the way for industry to have greater influence over and ownership of the training process, including content of courses, delivery and the nature of outcomes. VET deliverers continued to see their role marginalized and eroded over the intervening years.

Governments and ANTA appeared to shift the reform process in the mid 1990s away from a focus on a training culture to fostering a vigorous training market. One reason for this shift was probably the limited commitment of industry to NTRA initiatives, viewing them as excessively bureaucratic and a Government imposed set of activities and policies with a framework which was not obviously relevant to business priorities (Sobski, 1995). Essentially industry saw the agenda as a set of rules rather than products and services that could add value to the operation of industry. It is not surprising then that the NTRA fell from the VET discourse by 1997 subsumed by other Government and ANTA initiatives.

The establishment of ANTA in 1994 largely excluded VET providers from decision making, but has been one of the more lasting initiatives of the NTRA. ANTA was really a Government attempt to link employers and unions, not as advisors, but as an integral element of the executive management of the VET system (Dar, & Gill, 1998). By incorporating employers and unions, ANTA became effectively a tripartite authority. In pointing to the weakness in the system Goozee (2001) argues that since ANTA was established VET professionals have continued to be distanced from any real involvement in national policy development. The flow-on effect as Goozee sees it has been a slower than expected adoption of many reform policies by VET deliverers and a general perception that their voice is not heard.

The impact of ANTA on VET however continues to be profound. Smith and Keating (1997) describe ANTA as part of a dynamic system but overly complex and subject to Federal intervention whenever the Government wishes to change direction. Not surprisingly there can be contradictions in a system that excludes some stakeholders from policy development and aims to be industry led, client focused, flexible, responsive and concerned with access and equity issue. Not all stakeholders place equal priority on each of these domains, opening up the possibility of inconsistent interpretations and practices (Allen Consulting Group, 1994., CEDA, 1995., Taylor, 1996)

A Contemporary VET Discourse

Some of the recent outcomes of VET reform have their roots in some of the previously described initiatives that began more than a decade ago (Farrell, 1999). As the reform process has evolved there have been at least three constructs of change that have had transforming influences on curriculum and how it is delivered in the VET system.

- Training packages
- Flexible delivery
- Teacher role

Training Packages: A Debate Around a New Curriculum System

Following reviews of the national training system in 1994 and 1996 (Allen Consulting Group, 1994; Taylor, 1996) major changes were introduced into the VET system, namely the New Apprenticeship or Traineeship System and the National

Training Framework. Under these arrangements national industry competency standards were developed by industry (mostly by ITABs) to provide the basis for training packages that in turn began to appear from 1997 endorsed by the National Training Framework Committee (an offshoot of ANTA) and made available to providers of VET programs. Training packages as sets of industry competencies were developed by ITABs as a means of ensuring the competencies delivered by VET institutions were industry relevant. Boorman (2001) points out that it is this privileging of workplaces in the discourse that appears to be the major problem in the smooth operation and wide acceptance of training packages. At a philosophical level Boorman suggests that many professionals in the VET system will never accept the sole purpose of VET is to train for specific workplace tasks.

Because of this industry bias, the path to training packages has not been smooth and there are many in the VET sector who believe packages have not been a 'fit all' solution to Australia's training needs (Sobski, 1995). Authors such as Collins (1993) were early detractors of the underpinning CBT discourse, concluding that there was a danger that such a training model shifted the balance of power in the wrong direction, into the hands of those who defined the competencies, notably ITABs, thus threatening crucial educational endeavours. The Allen Consulting Group (1994) also questioned whether CBT should be applied to all training programs as large sections of VET delivery are not industry based or delivered to individuals in the workplace.

Because of its implications for the way VET teachers work and the shift in how learners learn, perhaps no other reform issue has been as contentious as introducing training packages as a reform. The implications for teachers has been particularly significant, a view supported by Lowrie and Smith (1999) who found that as with other innovations such as CBT and ICT, teacher knowledge and experience influences the extent to which they are prepared to support change. A 'no choice' acceptance by bureaucrats and an assumption by policy makers that it can be made to work educationally, has characterized the training package approach from proponents. Perhaps reflecting the lack of a curriculum tradition, Lowrie and Smith found that with training packages teachers were often more concerned about educational issues and were suspicious of their introduction as innovation because of the perception they are inconsistent with sound educational practice.

Smith (2002) has gone so far as to describe training packages as the basis of a new curriculum system in VET delivery, but warns some commentators and curriculum writers see them as an extension of economic rationalist ideology into education. The evidence for this view is drawn from their rigid procedural and structural inflexibility. Composed of industry competency standards, assessment guidelines and a set of qualifications set by the Australian Qualification Framework (AQF) their delivery, contrary perhaps to their advocates view, is portrayed as a one model fits all regime.

In terms of learning theory, training packages although they define outcomes and not the process of learning, appear to align with a constructivist approach (Dawe, 2002). For example proponents see training packages as emphasizing problem solving and learning taking place within a particular context consistent with McCombs (2001) description of constructivist learning strategies (Chapter 3). VET teachers however argue that training packages do not generally deliver graduates able to reflect critically, think, carry out research tasks and be self-directed learners. This may be because these skills are not industry priorities but are often seen as essential by VET professionals (Down & Stewart, 2001).

Training Packages: Case Studies

In a case study highlighting some general concerns VET professionals have with training packages Wheelahan (2001) describes the Community Services Training Package. This Package represents a shift from a previous social action community development curriculum approach, to a flexible service delivery welfare oriented approach. VET professionals see the inherent qualifications flexibility as a two edged sword, arguing that the nine levels in the Package allow a trained age care worker by selection of modules, to obtain a high level child care qualification with minimum study. Flexibility in modules selected can also mean that learners in the same course may not be exposed to exactly the same learning outcomes with different providers. By questioning assessment rigour Wheelahan suggests that there will be a variation in delivery of underpinning knowledge and skills from one deliverer to another. There is real danger Wheelahan suggests, that some will resort to a 'flick' and 'tick' approach to assessment, especially when resources are tight, collecting a minimum amount of evidence of competency. This raises yet another issue that of comparability of similar qualifications across training packages. For example is a Certificate IV in IT

equivalent, in terms of skill level, to a Certificate IV in Meat Processing, or does it matter? There is no evidence in the literature that this issue has been investigated.

Fragmentation of learning into a list of competencies is also a criticism sometimes levelled at training packages. In the Textile, Clothing and Footwear Training Package there are sixteen sectors covering everything from dry cleaning operations to footwear repair. As well as selecting from other training packages there are around 300 units of competency in this Package from which a training program can be selected. The new Automotive Package will have even more, nearly 1000 units. Some would argue that work should not be fragmented to this extent, warning that it tends to trivialize the work environment running the risk of counting all work activities as competencies suitable for inclusion in a qualification (Hunter, 2001). In addition it may be false to conceptualise work as a sequence of competencies to be learnt rather than a performance continuum. Fragmentation may also imply to employees that you only need to achieve a minimum of parts to achieve the whole, a view strongly refuted by Down & Stewart (2001).

The degree of interpretiveness is also an issue with training packages (Stowell, 1995). The modularised 'curriculum' does not necessarily have to align with a competency standard. This is because competency standards are a statement of what learners need to know and do in the workplace, whereas the curriculum is an organized program of training and assessment that equips learners with the knowledge and skills enabling them to understand and perform workplace tasks. The inference suggested by Stowell (1995), writing before training packages were developed, addresses a general criticism often heard regarding a lack of commitment to broader skills and understandings which are not necessarily work related. Developers of training packages would however argue that there is no intent to draw on traditional curriculum and the ability to select units of competency from different packages provides scope for including the broader level of coverage suggested. In the end, the inclusion of this dimension in training packages has to be left to the discretion of teachers to ensure an appropriate educational experience is included in a learner's training program suggesting this may be an area of weakness.

Deconstructing Training Packages: A Social Paradigm and e-Education

Training packages are such a central tenet of VET reform it is incumbent to examine how well the new paradigm and e-education have been integrated into the teaching reality. To illustrate this point the Film, Radio and Television Training Package has been selected as it might be expected, because of its technology bent, to encompass e-education elements readily in preparation for the ‘new knowledge society’. Table 7 (P 115) reveals that descriptors of the new social paradigm in VET (Table 9, P161) links closely with the framework of the Film, Radio and Television Training Package.

It is also possible to point to a number of instances where the training package descriptors integrate with elements of an e-education approach. In particular, the inclusion of e-education affords the opportunity for VET organizations to select flexible and innovative delivery strategies that service a diversity of learner, industry and community needs. Characteristically a mix of traditional elements such as face-to-face teaching, workshops and remote delivery utilise e-education technologies such as video conferencing and Web based programs. The Film, Radio and Television Training Package (Table 7, P 115) also has provision for an apprenticeship approach that incorporates workplace delivery workshops, flexible delivery strategies and technology mediated communication solutions.

In contrast to the Fordist training model evident in early training packages, the Film, Radio and Television Training Package features multi-skilling as a means of broadening the range of skills offered in qualifications. While shifts in technology may be the driver for this response, there is also a recognition that provision of specialist skills is in high demand. Flexibility in selecting competencies is assumed to service these potentially contradictory aims.

What appears to be emerging strongly in the Film, Radio and Television Training Package and other training packages is a commitment to providing an adaptable workforce that possesses employability skills that will lead to measurable advantages in a knowledge-based global economy. This will include the capacity to use ‘new’ technologies in innovative ways, the ability to apply technology solutions in solving problems and the accumulation of knowledge applicable to new information systems as they evolve.

Table 7: The Mapping of New Paradigm Criteria to Descriptors in the Film, Radio and Television Training Package and e-Education Strategies.

Criteria for a New VET Paradigm	Descriptors from the Film, Radio & Television Training Package	e-Education Integration Elements
Demand driven approach	<ul style="list-style-type: none"> - Identifies industry growth through to 2008 with demand for specialist skills. - Marked shift from full-time to part-time employment 	<ul style="list-style-type: none"> - Technology change has led to structural re-alignment of training in this industry.
Learning for employment	<ul style="list-style-type: none"> - Strong focus on orienting training to industry structure. - Recognition that multi-skilling provides new opportunities for employees. 	<ul style="list-style-type: none"> - Shift to digital technologies places greater emphasis on gaining skills through utilising e-education technologies. - A key competency is the capacity to apply technology, combining the physical and sensory skills needed to operate equipment with the understanding of scientific and technological principles needed to explore and adapt systems. - Multimedia technologies are seen as encouraging Australia's competitiveness.
Lifelong learning	<ul style="list-style-type: none"> - Emphasis on ongoing training and skills development to attract able entrants to the industry. 	
Integration of education and training	<ul style="list-style-type: none"> - Qualifications are confined to providing: <ul style="list-style-type: none"> o Occupational positions in the industry; and o Competencies that are aligned to work - Lack of theoretical content is evident. This is manifest as the absence of a prescribed curriculum. 	
Multi-skilling	<ul style="list-style-type: none"> - Recognises the need for multi-skilling personnel but focuses on providing specialist skills. 	

Criteria for a New VET Paradigm	Descriptors from the Film, Radio & Television Training Package	e-Education Integration Elements
Decentralised system	<ul style="list-style-type: none"> - Qualifications can be gained in a variety of settings, both on and off the job or at an RTO site. 	<ul style="list-style-type: none"> - Facilitated by e-education technologies, eg On Course at South West TAFE (Victoria)
Balance of human and social capital	<ul style="list-style-type: none"> - Recognises the influence of economic circumstances manifest through the impact of globalisation - The need for innovative workers is recognised. 	
Formal/informal knowledge construction	<ul style="list-style-type: none"> - Emphasis is on formal knowledge construction. - Learning pathways include recognition of prior learning. 	
Innovation and generic skills	<ul style="list-style-type: none"> - Recognises that training should be part of developing Australia as an innovative nation. - Creativity, flair, flexibility, determination, dedication and the ability to work as part of a team are attributes required at all levels of employment. - Qualifications can be delivered in flexible formats so long as AQTF requirements are met. 	<ul style="list-style-type: none"> - Priority is given to e-education technologies as a means of encouraging innovation. - e-Education facilitates innovation and customer focus because of its anywhere, anytime flexibility. At the same time new proposals for communities of practice are encouraged by enhanced collaborative opportunities.
Partnership focus	<ul style="list-style-type: none"> - Perhaps most evident in new apprenticeships where entry is Certificate IV in this training package. 	

Criteria for a New VET Paradigm	Descriptors from the Film, Radio & Television Training Package	e-Education Integration Elements
Employability	<ul style="list-style-type: none"> - Qualifications service industry skills but also offer skills needed in other industries. Some of the key competencies include employability strategies. - Capacity to communicate effectively. - Capacity to plan and organise work activities. - Capacity to interact with other people including working within a team. - Capacity to apply problem solving strategies. - Provides a social capital context. 	<ul style="list-style-type: none"> - Recognises the need for technological knowledge and skills as a basis of employability.

Flexible Delivery: A Reform Strategy

The long history of flexible delivery in VET reform has meant that it has become firmly entrenched in the VET discourse as a construct of change. As far back as 1992, flexible delivery was defined as an approach which allows for the adoption of a range of learning strategies in a variety of learning environments to cater for differences in learning styles, learning interests and needs, and variations in learning opportunities (Flexible Delivery, 1992). In contrast with most other initiatives of the training reform agenda, this definition clearly places the needs and interests of learners at the centre of the learning process above those of industry and VET providers (for a more recent definition see Chapter 1).

This early definition of flexible delivery emphasized a range of client oriented learning strategies linked to a variety of learning environments. As a reform its early aim was to increase access, give choice and provide flexibility to delivery. The delivery modes promoted included self-paced and technology mediated programs. Flexible delivery however is inevitably linked to e-education and ICT that has resulted in a broadening of its definition. In this context the arguments and limitations discussed in Chapters 2 and 3 are relevant in providing scaffolding for describing the

role flexible delivery has played in VET reform. At one end of the spectrum is the discourse on online programs, ICT and pedagogy. Typical classroom arrangements lie at the other end of the spectrum but may also include a raft of e-education technologies that have changed the teacher role. Somewhere in the middle are more traditional distance learning, blended programs that may include some attendance in class. In this context teachers have had an epistemological rethink imposed on them, a process that has included defining a relationship with technology, redefining the nature of their work and reworking the role of vocationalism.

By 1997 flexible delivery reform had evolved to emphasize training and assessment in the workplace, and delivery of training to industry when and where it is needed. The inclusion of more and more sophisticated technology options has boosted the scope of flexible delivery but it has become harder to define. It may not indeed be appropriate to describe or attempt to rigidly place boundaries around the term. As Tella (1998) rightly points out, if you rigorously define it, it is no-longer flexible.

The new training package concept with its on and off-the-job industry assessment, could be viewed as an example of the new flexibility expected of VET teachers (Smith & Keating, 1997) and an extension of the notion of flexible delivery. Distributed learning is a further term sometimes used to describe such flexibility. Its characteristics suggested by Tella include a learner centred approach to education and training that integrates a number of technologies to enable opportunities for activities and interaction in both asynchronous and real-time modes. This is a blended model that includes choosing appropriate technologies to augment traditional classroom delivery; self paced learning and distance arrangements. Tella suggests this gives teachers flexibility to customize the learning environment and to facilitate the diverse needs of individuals in the most appropriate manner

The evidence for flexible delivery broadening the reach of VET programs is persuasive. This consideration is reflected in the concept of availability of learning opportunities when, where and how required by learners. New technologies are providing VET institutions with the means to reach out to learners anywhere and at any time they want to learn. In this context flexible delivery has been a boost to participation in VET programs. For example Thornton and Young (1996) in discussing a CBT Wool-classing course point to learners who indicated they would not have undertaken the course under traditional delivery circumstances. There is

every reason to suspect that these findings are widespread amongst VET learners. Hedley (2001) has gone as far as to suggest that the ability of VET providers to respond to and participate in training reform may be contingent on their flexible delivery capabilities. Recognizing the importance of flexible delivery, many providers have responded by establishing flexible delivery departments that engage in developing material that may be used in a range of delivery modes including self-paced and online programs. From an industry perspective these types of initiatives may help meet the challenge providers encounter in delivering in the short time allocated to a module, the quantum of experience employers may look for to enable employees to hit the ground running (Vananasi, 2001). Flexible delivery in this context is linked to global influences and may be regarded as a tool in bridging the gap between nominal training hours for a module and providing enriching experiences.

The flexible delivery debate inevitably attracts attention to e-learning and related technologies (Chapter 4). The definition of e-learning is often inclusive of a wide set of applications and uses of electronic media to deliver VET programs (FLAG, 2001), a view consistent with the definition of e-education in Chapter 1. It can include computer-based learning, Internet-based learning, virtual classrooms and digital collaboration. Kerrey, et al. (2000) in their research identified the promise of e-learning and the Internet as centring learning around the learner, and therefore perhaps supporting the extension of e-learning beyond formal VET programs, and into filling some of the omissions in a VET system that arguably gives too much attention to providing narrow employment related skills. At the same time Kerrey, et al. cautions that flexible delivery modes, should not be seen as the panacea for all delivery shortcomings. For example, VET learners do not always have access to the Internet in the workplace or at home, especially if their location is remote. For example Manktelow (2001) found that 15% of Australians living in rural and remote areas still do not have any access to the Internet. Of equal importance may be, although not mentioned by Manktelow, differences in learning styles appropriate to learners in the VET sector. It would be useful to know more about the type of VET learners who will do well in an online or flexible delivery environment. It is possible that many VET learners who have had limited success in a traditional learning system

would be less likely to succeed with flexible delivery that included self-paced and online modes, but would respond well to other learning strategies.

From an institutional perspective, the literature suggests the take-up of flexible delivery is driven by overlapping reform (Table 1, P7) factors including economic, technological and competitiveness, as well as social and cultural concerns (VET Policy Advice, 2001). The issue of competition and being seen to be keeping up, is often very real for VET providers resulting in a broad take-up of flexible delivery strategies. As noted previously many VET institutions have responded by establishing flexible delivery centres in the belief that this will provide an edge in competing with other providers. Farrell (1999) supports this view by suggesting that a driving force in the adoption of technology solutions by providers is the need to be competitive with other institutions. Tella (1998) and Bates (1996) encourage VET providers to take up the technology option in order to expand and support reform options, but not as a driver of the learning process.

The reform agenda more than a decade ago set new expectations for VET that could only at best be partially met by traditional curriculum delivery methods. With its emphasis on place, time and form that best fits the learner, it is not surprising that flexible delivery has in some ways been utilized to realize some of the expectations of the reform process and bring about the improvements in productivity demanded by governments (Flexible Delivery, 1992). This may account for its enduring inclusion in the reform discourse.

The Teacher's Changing Role

The role of VET teachers has shifted as the events of the reform process have unfolded and the implications of globalisation have taken hold. Until the mid 1980's almost all of a VET teacher's working week was spent in face-to-face delivery. This changed as industry assumed greater influence over content and delivery. While VET teachers have always enjoyed a diversity of roles, managing teaching and learning no longer adequately describes their activities. What has evolved is a new more comprehensive notion of teacher role that may be described as:

- managing teaching and learning;
- resource development;
- administrative tasks;

- assessing competencies;
- program development;
- industry visits and off campus teaching;
- system wide liaison and projects;
- facilitating; and
- marketing

The teacher has become a specialist in flexible delivery facilitation, an educational manager and a designer and developer of curriculum and resources (Mitchell, Young, & Wood, 2001b). With these shifts in role teachers have become workplace trainers, developers of learning materials and facilitators of new technology. More specifically VET teachers can find themselves working in new situations where there are few pedagogical guidelines, with a curriculum that provides at best a scaffolding of content. Brennan, et al. (2001) on this point concludes that technology and training packages are forcing VET teachers, in the absence of an established pedagogy, to ask some hard questions about the effectiveness of reform, even when used in traditional classroom settings. The paradigm shift for teachers has been from a role as expert content providers to creating and supporting learning communities.

Visit VET institutions these days and it is likely that teachers will be found engaged in discussions, simulations or away managing the learning of trainees in the workplace rather than teaching in a traditional classroom. For many VET teachers the change in role brought on by training reforms has been an unsettling experience. Their age profile, averaging around 45 years, means that many have witnessed the sequence of change over the last decade and have had to cope with not only a shifting role and discourse but also the introduction of training packages and new flexible delivery strategies without first becoming comfortable with the changes proposed. For some this has translated to teaching in unfamiliar environments, scepticism, a perception of inadequate consultation and a belief that their expertise and experience is undervalued (Wheelahan, 2001).

One of the underpinning aims of the reform process has been to develop a VET system that responds rapidly to the external environment, but this has created unfamiliarity and uneasiness amongst teachers. Change has necessarily relied on teachers and managers showing commitment, flexibility and understanding as valued

qualities. Freeman and Capper (1999) see successful educators in this environment as those who can build caring communities of learners and match content to the learner context. DeVries and Tella (2000) would add another dimension noting that even seasoned teachers need to be well prepared professionally, particularly in flexible delivery pedagogies. Atkinson (1999) for example found that e-learning programs could be more sophisticated and taxing on teachers than other learning modes. The inference is that in order to be a successful VET trainer reform has created new skill requirements in curriculum development, instructional design, production, pedagogy and teaching and learning management that has not always been recognised by policy makers or in professional development strategies.

Finally it is worth noting that VET teachers remain concerned about the quality of education and training as a result of the reform process. In particular, they worry about issues such as the adequacy of training packages, virtual models of learning, their own skills and an ever-increasing workload brought on by change (Farrell, 2001).

Conclusion

It is now possible that education and training content can be mediated by sources other than teaching. The continued adoption of e-education technologies is part of this process and is having a profound impact on content and how teaching occurs. This destabilising influence on traditional curriculum promises, as the boundaries of information shift, an ongoing re-evaluation of the role of the teacher and what counts as content. Training packages might be seen as an outcome of some of this pressure on teaching and curriculum to change.

The VET role debate is not new. As Brown, Anderson and Rushbrook (2002) point out on the one hand the vocational education dimension is emphasized by those who contend that VET is about the holistic and integrated development of underpinning knowledge and broad-based transferable skills, not only for work but also for life. On the other hand, training advocates tend to emphasize that VET should address itself exclusively to the acquisition of a relatively narrow band of employment-related or job-specific skills and competencies. The position taken however is likely to depend on whether the advocate is from government, industry, the VET sector or some other community group. Until recently the vocational view

was probably dominant, with most VET educators, other than trade teachers, taking the broader perspective, perceiving their role as providing a balance of knowledge, theory and industry skills. The dominance of industry over the last decade has largely been unchallenged resulting in an ongoing debate on how the balance should be interpreted.

The lack of emphasis on underpinning knowledge, commercialisation, non-involvement in policy development by training professionals and reliance on workplace curriculum are arguably the VET teachers' greatest concerns with training packages and training reform. These issues coupled with what teachers perceive as an absence of reflective-ness and critical approaches to learning often see teachers pessimistic of the whole reform notion. This perhaps relates to the literature having little to say about an underpinning curriculum tradition, a reality that only reinforces teacher concerns.

Unlike other education sectors an outcome of VET reform has been to give over important determinations about curriculum to industry interests. There are of course those who would argue that industry relevance is VET's strength in that it gives learners access to industry skills and qualifications that have monetary value and portability in the labour market (Stevenson, 1994a). Others view this as giving too much power to employers and the marketplace in deciding what constitutes useful knowledge and perhaps denies access to skills associated with social change and other imperatives (Brown, Anderson & Rushbrook, 2002).

What seems to be missing from the reform discourse is consideration of 'rich' behavioural skills and learner input. The way VET programs are arranged these days, especially traineeships, leaves little room for incorporating the views of learners, broader work related skills and non-work understandings. The modularised curriculum in training packages struggles to provide this as it tends to follow a linear modernist approach, proceeding from industry objectives to selection of learning experiences, their organization and assessment. The question of whether these and other factors are an inherent weakness of the VET system and training packages remains largely unanswered in the literature.

In returning to the theme of this chapter it is clear that governments and industry remain key stakeholders in the VET system and that reform continues to be largely

driven by their influence. There is however a need to re-examine reform strategies and work towards establishing a curriculum tradition based on theorists in the field.

Perhaps Schwab's model provides a starting point by asking where is it failing, what are the gaps and how might they be fixed? There is little comfort in reforms that fail to question these fundamental issues before proceeding. Failure to do so weakens the argument for change and opens up the reform to challenge. The controversies surrounding training packages and flexible delivery are evidence of such outcome.

CHAPTER 7

REFORM AS A CHALLENGE TO THE ROLE OF VOCATIONAL EDUCATION AND TRAINING: PERSPECTIVES ON POLICY AND GLOBALISATION

Introduction

This chapter introduces the relationship between the globalisation of VET and its reform (Figure 1). As a sub-theme of reform it is argued that global education and training reflects societies increasing understanding of the interrelatedness and interdependence of the physical world (VET Policy Advise, 2001). While the VET notion of globalisation is usually linked to a human capital dimension, there is now a call to broaden the scope of training to include preparing the knowledge worker who are needed to service the ‘new economy’. The assumption is that there are economic, social and technological dimensions that have underpinned developments in VET (Mason, 1998). Recognizing this broader context to reform is essential in terms of understanding national policies towards the sector.

When linked to ICT developments, globalisation provides a powerful argument for extending the ‘reach’ of VET. Meeting learner needs with the promise of anywhere anytime training is increasingly the way of doing business in VET. Universal access however to the full suite of new learning technologies that underscore this offer, is still not a reality for all and remains a challenge for policy makers. The real issue for VET is how to develop and implement policies that not only meet the needs of all stakeholders, but also enhances the take-up of flexible learning utilizing the opportunities ICT offers. VET has not yet fully realized the advantages this broader ICT driven knowledge flow can bring to the system.

Intrinsically linked to globalisation, it was seen in Chapter 2 and 3 that ICT is having a far reaching impact on policies and practices, the nature of teacher work and the content of programs. Coolahan (1998) views the global effect as shifting policy from a focus on technology to providing lifelong learning opportunities and the needs of individuals. While this is barely discernible in the Australian VET system, what can be said is that the knowledge-based economy means that sustainable economies are likely to continue to reshape their VET systems to support new ways of working and the incorporation of new technology solutions wherever appropriate (Del la Harpe, 2001).

As already noted, since 1985 the Australian Vocational Education and training system (VET) has experienced an unprecedented period of uninterrupted reform. In this context a key problem for VET practitioners has been that Government policy in response to economic imperatives has continued to shift the role of the sector at an ever-increasing pace. In addition, the speed of change has often challenged the ability of an arguably under resourced system to work through new processes quickly enough to meet the emerging needs of industry and other stakeholders. This chapter argues that while the ‘reach’ of the system has been enhanced, the traditional role of VET has collapsed under the pressure of neo-liberalism, replaced by a narrowly focused, firm specific training regime that is characterized by constant change. What’s missing is a true tripartite partnership between government, industry and training providers if a more effective system is to be developed. In the broadest sense, the role of the system has changed from a sector that pursued social and economic outcomes through education, to training more closely linked to human resource development than to education (Seddon, 2002b; Hawke, 2000; Kangan, Report 1974).

Neo-Liberalism Takes Hold

The term neo-liberalism defined in Chapter 1, has crept into the VET discourse as a description that encompasses a set of economic policies that have increasingly impacted on the sector since the mid 1980’s (Seddon, 2000a; Martinez & Garcia, 2000). The general characteristics of neo-liberalism have been described as a desire to intensify and expand the market, by increasing the number, frequency, repeatability and formalisation of transactions (Treanor, 2003).

Historically VET reform appears to have tracked the growth of neo-liberal ideology fairly closely, particularly since 1990 when State and Federal Governments agreed to form a national training market (Anderson, 1997a). As a result TAFE, the largest VET provider, was no longer seen as a sector of educational provision as envisaged by the Kangan Report of 1974, but a publicly funded agency alongside and in competition with private providers. Over the next decade the inclusion of neo-liberal ideology was evident in policies that saw the system transformed by:

- introducing private providers to compete with TAFE for public funding;
- introducing industry based training packages as the new form of curriculum;
- a national recognition and qualifications framework;
- introduction of fees;

- promotion of workplace training (new apprenticeship scheme);
- the introduction of international students;
- leveraging commercial activity (recurrent funding declined);
- the corporatisation of TAFE;
- introducing competitive tendering;
- introducing user choice;
- introducing competency based training (CBT); and
- the introduction of the Australian Quality Training Framework.

Arguably in each case the shift in ideology involved has been underscored by neo-liberal ideology (Figure 1).

Seddon (2000a) describes the outcome of reform as generating a decentralized market driven VET system with substantial central regulation through yearly state government purchaser agreements. In many cases however, the impact of reform has been problematic for VET professionals mainly due to the perception that there has been a lack of consultation. Why then has this been allowed to happen? Bourdieu (1998) may provide part of the answer in suggesting that neo-liberalism draws its social power from the political and economic power of those interests it expresses. It is as if neo-liberal policies have acted to achieve their influence by assuming the acceptance of pre-determined thinking amongst VET professionals. The prevailing notion of training this generates amongst policy developers, is an almost self-evident acceptance of its contribution to economic productivity. Hursh (2001) concludes that governments do this almost by stealth, governing without necessarily specifying what must be done. Policies are presented as requirements or standards, as rational and non-controversial, while providing a limited range in which they must be implemented. Arguably, in this way policies have increasingly intruded into the working lives of VET teachers without much input from them as stakeholders.

It would seem no accident that VET reform has mirrored the Federal Government's development of neo-liberal economic policies, which have led to a re-interpretation of training in terms of human capital theory over the same period (Ferrier & Anderson, 1997). This dependence on human capital theory has been mirrored elsewhere in Western VET systems and may be regarded as an area of policy migration and borrowing (Livingstone, 1997). Perceived as a sluggish economy in the

early 1980's the nation is now generally regarded as having a knowledge-based integrated global economy, one in which the Government pursues policies to reduce tariff barriers, deregulate financial markets and encourage foreign investment (Shar & Maglen, 1998). Training is thought to have played a significant role in this success by following policies derived from the Dawkins (1988) and Carmichael (1992) reports.

There are however a number of major dilemmas the Australian VET system has had to address in supporting a neo-liberal approach. These include:

- To what extent can the system control the forces that are changing its role?
- How to respond to rapid policy shifts?
- How to ensure training meets the needs of all stakeholders?
- How to respond to the needs of a knowledge-based economy? and
- Is the system adaptive enough?

A Crisis of Role

While debate on the role of VET has raged for two decades, it has been brought into sharp focus by the reform process. The argument will often centre on an identity crisis influenced largely by globalisation forces through their impact on the economy. Seddon (2002b) points out that VET policies that might have been appropriate in a post industrial economy, were considered by the 1980's to be outdated and unable to deliver on the economic reforms needed for the 1990s and beyond. The underlying assumption was that the role of VET would be best placed to meet the new challenges if it reflected those changes. Flexible delivery, a competitive training market, user choice, training packages and new apprenticeships, are some of the reforms that arguably flowed from this assumption.

A changing role is a problem for VET institutions because of the uncertainty it engenders. Viewed as change, uncertainty has been fuelled by a raft of policy decisions that may be categorized to include (Figure 3):

- Policies born out of state and Federal Government imperatives that in turn have been influenced by global factors;
- The education and training agendas of many stakeholders;
- Locating VET within a competitive training market;
- Changes to the nature of work;
- The introduction of workplace training;

- An under-funded system; and
- Industry and community expectations.

The notion of creating a competitive training market in response to economic imperatives has also been controversial, challenged by some commentators on the grounds that it does not serve the needs of all stakeholders. For example, perhaps of greater concern in regional areas is the impact training has on economic development (Noble, et al. 1999). VET may be a major economic contributor to rural and remote communities both in dollar terms and as a maintainer of youth within the region. The notion of thin markets is also a powerful influence on providers in regional areas with competitiveness being more of a force for discontinuity of supply than might be the case with metropolitan providers. In thin markets, even reducing a program can make it unviable and alter the balance of programs on offer (Yates, 2000). Noble, et al. (1999) reports that analysis of NSW data revealed that none of the twelve administrative regions in the State were without numerically thin markets and that even at a State level, thin markets may exist in some industries.

What has emerged in VET institutions has been a discursive response to many of these issues, staff uncertainty and difficulty in managing VET's new role. It is sometimes even unclear who VET should serve. For example, at various times it has been argued that VET should serve the political and economic interests of the nation, be an instrument of employer interests or be a provider of vocational education as part of the education sector. Many would argue for emphasis on employer interests, or an industrial paradigm linking this to economic imperatives and the need for Australia to be globally competitive (Seddon, 2002a). There are also those who would argue for return to a more traditional VET role, a state funded education and training system that meets community as well as educational and vocational needs. There is little empirical evidence however that one or the other position should be supported.

First flagged in the Deveson Report (1991), some commentators argue that free market forces are best placed to decide VET's role, and that reforms simply reflect the autonomous change inherent in being an integrated market economy (Kenway & Langmead, 1999). In the broadest sense the Deveson Report recommended:

- a national training market;
- introduction of competency based training;
- a national framework for accreditation; and
- a unified entry level training system.

While often repackaged, these constructs have remained the cornerstones of VET reform and have led to a new and changing role for the sector.

Reform however has also had its detractors, those who argue against the effectiveness of much of the training offered by VET in its new role. They point out that raising employability and productivity as a result is far from certain (Scott, et al. 1998). Much of the debate stems from criticism of the quality and need for entry level training done in the workplace, where it is noted many new jobs have been created in sectors that have not been affected by labour-saving technology advances that might have been expected to leverage greater training effort. This has tended to concentrate training effort at the lower end of the spectrum, in Certificates I, II and III, so that these programs attract a significant slice of funding. Increasingly completed within the traineeship system, much of the training does not involve new learning, but the endorsement of existing skills. On these grounds the training effort might be challenged by employers in terms of its worth in improving productivity. Worryingly Ashton and Green (1996) in questioning these issues, conclude that there is little evidence that earning power, productivity or employer profit is necessarily enhanced by training.

As Yates (2000) points out, the training market has been increasingly de-regulated on the assumption that market forces, rather than the policies and priorities of governments will drive appropriate investment, new delivery entrants and economic outcomes such as productivity gains. This does not mean that governments have lost control of the national policy, but there is growing evidence of the autonomous nature of change and the influence of supranational bodies such as the IMF and OECD on such policies (Pickersgill, 2001; Hollingsworth & Boyer, 1997).

A Debate Around Human Capital Theory

Adding to the debate Livingstone (1997) reminds us that for a long time human capital theory guided the assumption that the 'amount of learning' was linked to individual well being, productivity and macroeconomic growth. In Australia Hall, et

al. (2002) reports that productivity improvement has come largely from the more intensive use of existing labour resources rather than from major upgrading of labour's capacity to perform at a higher level of skill. Just how far this form of productivity gain can be pushed is debatable, but may account for the popularity of lower level VET certificate qualifications in the work force. Often glossed over in policy formulation, these issues in the end may determine whether Australia can attain the goal of becoming a knowledge-based economy. Hall, et al. suggests this will not occur unless the VET system is geared more towards delivering higher level skills. Australia is reported as doing poorly on these sorts of labour market measures, with as already noted, industry growth dominated by low skill jobs (ABS, 2000)

Livingstone (1997) also points out that underemployment of credentialed knowledge is a further challenge to these assertions. Under-employment defined by Livingstone as individuals who can't find a suitable job, or are in work outside their credentials. Livingstone reports 50% of North American workers underemployed in terms of their knowledge credentials. This situation is likely to be mirrored by Australian employee figures. Performance gap, the difference between jobholder knowledge and the knowledge needed to do the job tells a similar story. These trends are in stark contrast with the growth in knowledge available to the community due to expansion of organized education, ICT and informal learning. Perhaps the problem is the wrong kind of knowledge is being accumulated, the jobs are not there or employers simply fail to value the 'new' knowledge in productivity terms.

In Australia, while enrolments in VET have risen sharply, it appears that human capital issues have not been widely debated perhaps because of a steady growth in average income, rising employment levels and a growing shortage of skilled labour. There are however, signs that public funding of VET could in future be closely tied to priority training areas in an attempt to avoid under employment. This would seem to be something of a contradiction to promoting an open training market where VET institutions and the market place determine demand. In Victoria a framework for prioritising will be implemented in VET from 2005 (VTA, 2004), a development that will no doubt be watched with keen interest by other states. While this may become a common response to increasing demand in particular areas of the workforce, it brings with it new constraints on providers and may have little immediate effect if there is already surplus human capital.

Arguably, rethinking the impact of human capital theory as a precursor to economic wellbeing has played a major role in VET reform. Indeed, reshaping the economy through ‘more training’ was a government ideology as far back as the Dawkins Report (1988), a view that continued to underpin policy for more than a decade. By making training more relevant to work, introducing lifelong learning and focusing on the impact of globalisation, advocates have reworked human capital theory to a point where it now dominates VET thinking and policy.

The next part of this chapter will look broadly at the key issues impacting on a changing role for VET, contending that policies in response to globalisation have been a significant influence on how the system has interpreted its role. Arguments will be made for policy making at national and supranational levels, and how this has influenced VET reform. The chapter then discusses some of the issues around the role globalisation has played in reform, and finally there is an examination of a number of constructs that arguably have, and continue to influence the ‘new’ role of VET.

Policy Making and VET Reform

Arguably both State and Federal Government’s have followed neo-liberal ideology in mapping a new role for VET (Figure 3). In this context, the fundamental question asked is what have been the influences on the various strands of policy and how well founded have they been? An underlying assumption is that, as in other national VET systems, in Australia, external convergence factors have influenced the changing policy landscape and role of VET. In arguing for an external influence McNeely and Cha (1994) view national policies as often grounded in world-level ideology and organizational models and directives rather than internally differentiated political, economic and social factors. In following a similar theme Taylor and Henry (2000) examined the role of the OECD as a policy convergence agency, arguing that such organizations are integral to the process of educational globalisation, acting as platforms for sharing information and legitimising policy (Dale, 1999). The argument does not imply a uniform policy among OECD members, but points to inherent convergent processes that serve to influence national policy agendas.

In the Australian context, reform in the VET system has been influenced by a number of reports that in the main reflect and give credibility to neo-liberal agendas (eg; AGPS, 1992 & 1991). In many cases their arguments portray convergent policies

of supranational agencies as diverse as UNESCO, the World Bank and the OECD. These agencies express a common ideology on many issues, including linking human resource development to global economic wellbeing (Taylor & Henry, 2000; Dale, 1999). For example, in a recent OECD report (2003) the adult learning policies and practices recommended, include incentives for individuals to undertake training, adoption of educational programs to fit the unpredictable schedules of learners and provision for improving the quality of programs. Interestingly, many of these notions, notably incentives, flexible delivery strategies and quality standards have been part of the Australian VET system for some time and may represent convergent perspectives where Australia has actually played a significant role in establishing supranational policies.

The global VET discourse stemming from the convergence debate is often equated to human capital theory, workplace training or lifelong learning (Taylor & Henry, 2000). It is argued by McNeely and Cha (1994) that convergent policy of these constructs has arisen somewhat autonomously from the sharing of national information which in turn has given rise to a variety of international organizations through which the global flow of information and influence has become increasingly regular and standardized. The argument suggested points to operational arrangements, content and process recommendations over time becoming embedded in the ideologies these agencies promote and that they have therefore become the carriers of global policy perspectives. In effect it is argued convergent constructs influence supranational agencies, combining widely held views amongst public servants, policy makers and advisers, a group Sklair (1996) has called 'globalising bureaucrats'. In suggesting that such groups hold broad neo-liberal views, Sklair concludes their ideologies are dispersed widely influencing both 'above' and 'below' the nation state, and may reach as far as employers and labour.

At the national level, policy-making presents a complex picture. Taylor and Henry (2000) in a discussion of policy making, put this view in perspective by referring to spheres of influence of complementary and contending local, national, supranational and global political forums. They note that the associated agencies are often centres of ideological struggles that sometimes work in contradictory directions. In this context Hirst and Thompson (1996) conceptualise, spheres of influence as operating 'above' and 'below' the nation state. National policy directions are seen as increasingly

influenced by supranational agencies operating ‘above’ the nation state and a mélange of locally based community groups, non-government organizations, and private enterprises operating ‘below’ the level of the nation state. Drawing an analogy this offers a useful conceptualisation of the array of local agencies influencing Australian VET policy. For example, the Australian National Training Authority (ANTA) and industry organizations, often with conflicting agendas, may be considered to operate at the lower level.

Flowing from this view, but seldom examined, is how globalised themes become institutionalised within the nation state. In the case of the OECD this may in part be answered by viewing the agency as a testing ground where nation members vie for influence, an arena for gaining credibility for political policies and a platform for sharing best practice ideas. Dawkins, the Education Minister and Treasurer in the late 1980’s, used the OECD in just this way to promote and legitimate his policy prescriptions for education and training and microeconomic reform (Taylor & Henry, 2000). The neo-liberal policies of the OECD and the notion of human capital, were used as a tool to credential his national education and training policies, shifting the role of VET in Australia towards a human resource paradigm, a focus that has never really stopped influencing VET reform. By the early 1990s, the associated policies had triggered a national training reform with outcomes underpinned by:

- competency based training;
- a diminished role for state funding of VET; and
- competitive tendering and a more market driven system.

VET institutions have been leveraged ever since to respond to each of these reforms by transforming program content, teaching practices and learning strategies.

Dale (1999) suggests that the notion of convergence and how influences are translated into institutional effect is more complex than represented here, but supports the view that globalisation mechanisms in general operate differently from other influences on national policy. Because they derive from external sources, their scope is policy, goals and procedures, their power is diverse and they are not sourced to individual states. Dale’s argument hinges on the notion that globalisation diminishes the nation state as the ultimate focus of viability over a range of policies. Hence it may be assumed that the globalisation viability test of policy may be at a supranational level. If this is so, then we are dealing with a new and complex

phenomenon that will continue to shift the role of VET as the Government's policies come to increasingly reflect global influences and its economic imperatives necessarily change.

Ratifying Globalisation's Impact

In a useful conceptualisation, the forces of globalisation impacting on VET are described by McIntyre and Solomon (1999) as the bringing together of various narratives, which it is suggested, collectively encourage governments to change to new sets of imperatives in order to be competitive. The authors argue that the VET policy environment can be seen as a weaving together of these various narratives or discourses as forces of globalisation and reform. They provide a brief categorizing of their notion of narratives as three globalisations, economic, political and cultural. Economic globalisation is considered to be the narrative of global capitalism, competition, corporate change, capital movement and labour deregulation. This is the narrative of ICT and the knowledge economy, and has particular relevance for the role of VET being seen as a player in the new economic order (Kenway & Langmead, 1999). The political context includes the spectrum of supranational agencies that collectively express a neo-liberal influence on education and training reform. Their main influence is described by McIntyre and Solomon (1999) as representative of a global policy hegemony. Development of human capital through these policies points to VET reforms such as user choice, workplace training, industry input and competition as trademarks. The final category promotes the new social order, transfer of people across borders and information exchange (Rizvi & Walsh, 1999). The typical policy response of VET to the 'new order' has perhaps been to embed strategies such as flexible delivery and interconnectedness of learners into the teaching and learning experience. More will be said of this last category in Chapter 8.

Much of the discourse on globalisation that stresses economic dynamics suggests it has been internationalised and is dominated by uncontrollable market forces (Hall, et al. 1999). It may be argued that the primary role of economic and perhaps VET policy in this environment has been to identify and accommodate these forces. Sentiments such as these are widespread, not only in the literature but also in publications of governments and other agencies. The writings of Reich (1991) have been most influential in identifying economic imperatives and linking them to VET reform. His book *The Work of Nations* argues for trans-nationals being non-national

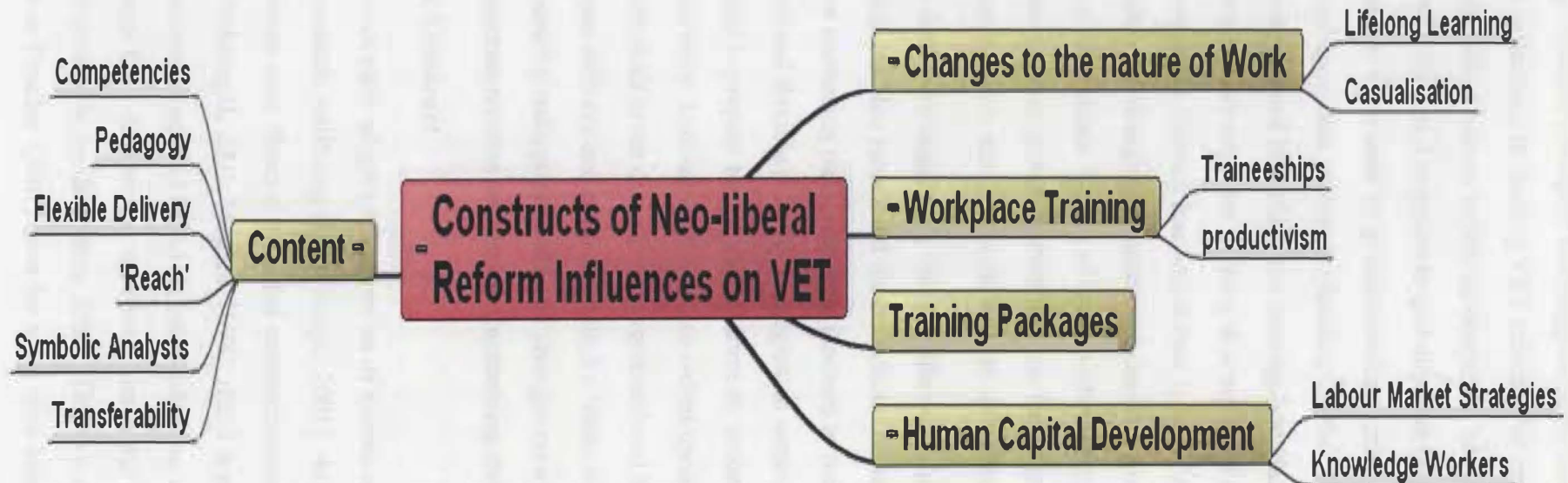
in allegiance, traverses of borders and able to challenge national economic strategies. While this is a common theme, the consequences for the workforce, and predictions for training, are significant. Perhaps Reich's most important perspective however relates to the type of worker who will be most in demand in the future. Describing the group as 'symbolic analysts', he visions them as a new class of worker associated with the emergence of the 'knowledge economy'. The IT specialists of the future may fall neatly within this category. The valued skills of such workers are seen to include problem solving, problem identification and strategic thinking abilities. Reich argues that a challenge for VET is to produce as many of these workers as possible as a means of attracting trans-nationals and capital into the economy, but the dilemma here is that the human capital approach is more of an international perspective that is often at odds with the 'here and now' profit motives of local industry.

Constructs of Influence and their Ambiguities

While many issues around VET reform remain contentious it would be wrong to assume an equal linkage to neo-liberalism. Certainly much of the reform agenda appears to have been significantly influenced by the market metaphor characteristic of a neo-liberal paradigm and its resultant human capital perspective embedded within labour market strategies (McBride, 1998), but the depth of influence varies. What can be said is that many current VET constructs appear to have arisen from changes in global workforce patterns that have become more evident over the last decade and have resulted in promoting a system described as constrained by productivist assumptions and the need for economic growth (Anderson, 2004). Australia is not alone in this regard. Priestley (2002) for example notes that the impact of globalisation on processes of reform has seen a high level of policy migration and policy borrowing amongst Western countries as they seek to introduce neo-liberal reform based on production and consumption. The constructs of neo-liberal reform are illustrated in Figure 3.

Figure 3. Constructs Arising from the Influence of Globalisation on VET Reform.

Notes: Much of the VET reform agenda over the last decade appears to have been influenced by constructs of a neo-liberal paradigm. This view underpins the importance of marketisation as a manifestation of globalisations influence on the VET system.



There is clear evidence emerging that suggests some neo-liberal constructs have been particularly influential in shaping VET reform. For example the notion of knowledge as the basis of human capital development has gained wide acceptance (Livingstone, 1997). Sold as a response to globalisation forces, changes to work practices has similarly been used by governments as a means of bringing forward new social, political and economic outcomes (Seddon, 2000a). In a broader sense neo-liberalism is also implicated in shifting the training boundary towards workplace training as an attempt to re-engineer training as a means of shaping behaviour in terms of economic growth. The lifelong learning debate is really an attempt to introduce policy with the intent of changing community behaviour but not perhaps to enhance the life chances of individuals. Critics of the neo-liberal perspective would suggest that in a competency based system crafted towards industry benefiting the productivity gains accrue to employers rather than individuals.

Seddon goes further by suggesting that neo-liberal influences have not only re-engineered training but also broadened the boundaries of traditional education and training at an ever increasing pace, requiring teachers to rethink parameters such as pedagogy, content and flexible delivery strategies, in some cases without the necessary lead time to prepare resources and come to understand the nature of change impacting on their work. Institutions have been called upon to redesign responsibility arrangements, with staff lower down in the organizational hierarchy being asked to manage off campus delivery and content through a 'new' training package curriculum framework that usually undergoes significant changes on a three-year cycle. It is no wonder that sometimes reforms are seen as fragmenting traditional ways.

The Knowledge Construct

Australia was an early adopter of the notion of human capital development linking knowledge to economic wellbeing (De la Harpe, 2001). As far back as the 1980's Government policies were directed to global competitiveness and the creation of human capital (Pickersgill, 2001; Maglen, 1998). But it is not only governments that perceived an economic construct based on knowledge and skills, employers and employees, perhaps from different perspectives, also came to seek knowledge solutions to their economic needs (Peters, 2002). This is not surprising given economists such as Drucker (2001) have for some time been pointing out that the next

society will be built on knowledge as a key construct with knowledge workers the dominant group in future workplaces. For VET, the challenge is to not only decide the role it can play in encouraging such outcomes, but also the knowledge content that will be valued in this future context.

Support for the concept of the knowledge worker is widespread (Blair, 1998; Reichs, 1991). The Victorian Department of Education and Training (2000) for example summed up the general acceptance of human capital theory by singling out globalisation for special attention in its 2000 Corporate Plan. Attention was directed to the changing structure of industry, the nature of work and the social impact of human capital as drivers of change. Each of these categories was seen as impacting on the skills and capabilities needed in the workforce of the future. An outcome for the Victorian VET system has been policies directed at increasing the choice of VET providers available to employers, workplace training, quality initiatives and the leveraging of institutions towards greater commercial activity. Commentaries at both state and Federal levels since 2000 generally support this theme (Kosky, 2002; ANTA, 2004)

In a knowledge context, there is still debate about how well training services the needs of each stakeholder (Hall, et al. 1999). Governments are generally committed to encouraging spending on training based on the assumption that investment in worker training is an indicator that employers see value in closing the knowledge gap, and that this will eventually show up in productivity, profits and competitiveness. It is curious in this context to note that in contrast with the growth in government initiatives, employer expenditure on training has actually fallen in Australia over the last decade (Pickersgill, 2001; Yates, 2000). Except where government incentives are involved, Hawke (2000) reports the trend is for employers to spend less on direct training. The reason for this may be that employers have been quick to see serious problems in attempting to determine direct benefits of spending on education and training. This does not suggest benefits are not present, but does imply that economic growth is multifaceted and often based on imprecise measures that question the confidence industry might have in spending more on training. Ashton and Green (1996) conclude that training for all workers may in fact be undesirable on cost benefit grounds. They argue that many jobs, especially at lower income levels, do not warrant formal training or education because employee prospects are unlikely to be

enhanced unless the jobs themselves are altered, such as when value is placed on new skills. Osterman (1995) also challenges the link between national economic growth and training, calling the evidence inconclusive. Even the link between availability of skills as a factor in attracting foreign investment is questioned in terms of its influence in comparison to political and market access issues. Worse still there appears to be little evidence supporting more education and training leading to higher profitability (Scott, et al. 1998; Ashton & Green, 1996), although employers may simply not have found reliable ways to measure its effectiveness as an investment.

The Impact of the Changing Nature of Work

A shift in the nature of work will inevitably impact on the role of VET. There is an increasing commentary supporting the argument that the nature of work has changed significantly over the last two decades in terms of how it is organized and what employers expect of employees (Streumer & Bjorkquist, 1998). But it is not only that work has changed, the key problem Yates (2000) argues, is a bottleneck at the growth end of the economy and redundancy at the declining end. This has created Yates suggests, a mismatch between those with old and new job skills. This was particularly evident in the early period of VET reform when the work issue that dominated was enterprise re-engineering and workforce downsizing. Yates reminds us that many workers in industries such as utilities and banks, particularly at lower income levels, suddenly found their old industrial skills were no longer in demand. Often VET was seen as a 'second chance' provider, servicing what were assumed to be new sets of skills valued by industry. While downsizing has never really gone away, what has emerged in the last decade has been more of a re-alignment through hiring new categories of employees while dropping others. For many workers this has translated to a new meaning of 'career', one that may span multiple careers (Yates, 2000). With career shifts and technology change, the notion of introductory training being sufficient for a lifetime of work has been supplanted by the notion of lifelong learning. While VET is in a strong position to service the training needs of a lifelong learning approach, the dilemma is to develop policies and processes that can adequately support the new work paradigm. These will take time to evolve.

A shift in the nature of work, how people are employed and work practices, is also increasingly evident in large sections of the Australian labour force (Hall, et al. 2002). Manifest as a rise in non-standard forms of employment, there have been significant

implications for VET, not least of all the growth of new apprenticeships or traineeship programs. Given the significant role of employers in such programs this tends to contradict the previously stated view that the last decade has seen a declining level of employer involvement in training. It may however reflect realignment away from more traditional training such as trade apprenticeships and greater dependence on employer incentive schemes to drive training. Although based on somewhat dated data (ABS, 1997), Hall, et al. (2002) reports that the vast majority of traineeships involve ad hoc acquisition of narrow on-the-job task specific skills. More recent ABS figures (2000) also appear to confirm a trend towards employers not providing any training unless incentives can be accessed. This may be associated with the ongoing growth in casual labour and reluctance for employers to release employees for training. ABS (2000) figures confirm that by 2000 less than half the workforce was employed on a fulltime permanent basis, and that the trend to casualisation, where training commitment is assumed less likely, is occurring across a wide spectrum of industry sectors (Buchanan and Watson, 2000).

Wheelahan (2003a) argues that where employers do acknowledge the need to train casual workers, there is a growing emphasis on development of personal attributes such as work ethics, client focus, occupational health and safety and interpersonal skills. These are acknowledged as skills likely to be sought after by service industry employers. They are also likely to be useful to individuals because of the mobility of casual workers.

For VET a significant outcome of the shift to non-standard work appears to be a trend to transfer the cost of training from employers to individuals (Hall, et al. 2002; Vanden Heuvel & Wooden, 1999). This is challenging in a number of ways, including the use of training packages that are designed for employment but delivered to largely unemployed clients, and a shifting of training cost to stakeholders least able to pay for training. There is also a risk in such a scenario that self-funding can increase what Livingstone (1997) calls underemployment or labour resources that are under-utilized with respect to an employee's qualifications and skills.

What then should the VET system be responding to? McIntyre and Solomon (1999) would argue for the economic narrative of globalisation as it changes the nature of work, re-emphasizing competition, deregulation and the knowledge economy. The notion that neo-liberal themes are behind the changes to work

practices, clearly calls for a new response from the VET sector in terms of the skills to be mastered. Evident features of this shift might be workers organized around teams rather than departments; decisions made in team settings as well as by management; all employees as quality controllers; flexible processes and an understanding of work; a performance based appraisal system; and enhanced communication opportunities. The response of employers to work changes has been to direct VET, through training packages, to deliver enterprise specific competencies. Designed to provide industry defined workplace specific skills, it is argued by providers that training packages offer little that facilitates the 'new' training needs (Yates, 2000). The challenge for VET is to play a key role in not only creating knowledge organizations through skills formation, but to also balance training for personal development, and generic competencies, skills that will equip workers to be more employable, offer transferable skills and be able to effectively participate in decision making processes.

A Workplace Training Construct

By 1988 the Federal Government had introduced the Training Guarantee Levy legislation requiring employers to contribute to the training of their workforce. Already the notion of a knowledge-based economy was evident in Government policy although the real motive for change was based on a belief that VET was too inflexible for its key role in building economic competitiveness. Industry in turn was putting pressure on the Government to develop policies to support workplace training as a way of gaining training relevancy for their dollars spent. Based on a French model, the strategy was not particularly successful in meeting training needs and was quickly abandoned in favour of workplace training based on the new apprenticeship incentive scheme. While these policies contributed to a changed role for VET they also added to a level of confusion as to how to respond to the new set of circumstances. Hawke (2000) points out that traditionally VET had never accredited informal learning on the job. This Hawke suggests changed along with the reform as new value was placed on workplace training. McIntyre and Solomon (1999) note that the focus of change mapped similar trends in other OECD systems but stemmed also from industry criticism that many VET programs were irrelevant to 'real' work.

Concurrent with the rise of these neo-liberal economic and human capital views, Anderson (2004) concludes that productivism described by Giddens (1994), has become linked to an ethos in which work as paid employment, has been separated out

from other domains of life for special attention. Giddens conceptualises productivism as illustrative of this point noting that the needs of industry have taken precedence over all others with paid employment displacing the alternative training in human values and vocationalism. This shift in values is said to go as far as defining whether or not individuals feel worthwhile or socially valued. Anderson (2004) argues that VET viewed as an instrument of such economic outcomes and a major supplier of human capital, has been increasingly harnessed to the logic of an economic perspective and tied to industrial production. The flow-on effect is to strengthen the conclusion that the role of VET is to promote economic growth, service the human resource needs of employers and enhance productivity through making employees more employable and productive. Viewed in this context it is no wonder that much of VET's reform policy agenda, linking training and economic production, goes unchecked as if its outcomes are self-evident (Marginson, 1993). The basic assumption is that constraint versus growth arises from deficiencies in the nation's human resources. If fully developed through VET programs it is assumed that productivity will increase leading to economic wellbeing (Anderson, 2004).

The new apprenticeship scheme and recognition of prior learning has given credibility to the new emphasis on recognizing in terms of productivity, competencies gained in the workplace as a source of human capital. The real change however has been in the role of the VET system, what teachers do and where training takes place. New apprenticeships are workplace based, involving a set of competencies undertaken on the job where teachers complete assessments when and where required, so that trainees may never be on campus. Managing this shift has had both positive and negative outcomes. On the positive side, teachers are likely to be more in touch with industry, gaining a better understanding of training needs and are therefore more likely to form positive relationships with employers. The cost however, lies in the need for developing quality learning resources, realignment of infrastructure, travel, and new work arrangements for teachers. While the outcome can be categorized as change in content and process, new apprenticeships encourage employers to use VET trainers to solve their human resources problems while teachers and VET institutions are leveraged to take up a competitive training market approach, partnering arrangements with employers and new pedagogical approaches to teaching and learning (Anderson, 2004)

If the description that workplace training is a key construct of VET reform is warranted, it may be argued that policy decisions in this area have been employed to support the view that workplace training is a solution to a set of problems that are strategic to employers. In this context it is appropriate to ask whether this represents a paradigm shift in the role of VET and to what extent the transformation has been nested in globalisation imperatives (Hall, et al. 2002; McIntyre & Solomon, 1999; Scott, et al. 1998). While the issue may be debated, McIntyre & Solomon provide a clue by describing workplace training policies in terms of a local working out of globalisation's impact, more flexible institutional arrangements and training for more adaptive workers. Institutions are largely left to develop their own policy interpretations towards training, so long as they meet the stringent quality and funding guidelines set by funding agencies. Institutions in developing workplace training strategies, are also encouraged to take a more entrepreneurial stance than in the past, capitalizing on notions of market forces, user choice and competitiveness.

The real issue however is how to interpret workplace training as a policy solution to problems around making the Australian VET system, as McIntyre (1999) puts it, more responsive to the economic imperatives of governments and industry. At an institutional level it may be felt that workplace training has been hoisted on VET by governments with particular economic and political agendas and by industry to solve their productivity needs, without appropriate input from providers. In this context VET struggles to respond to policy shifts by redefining the teaching role and where and how training occurs.

Content as a Construct

The debate on content calls for its inclusion as a construct of VET reform as it attempts to address the dilemma of meeting the needs of all stakeholders (McIntyre, 1999). Content is of particular interest because of its relationship to the way work is changing under the influence of globalisation and the debate around generic versus workplace skills. Dependent on the stakeholder concerned, the debate is likely to centre on how far to emphasize competency requirements in the workplace versus general knowledge and personal skills. Employer bodies generally claim that unless competencies are learnt in the world of work and reflect what an employee does, they have little relevance (Confederation of Australian Industry, 1991). For many training professionals this represents a very narrow view of the education and training

enterprise that challenges their professionalism and ability to broaden the 'reach' of VET.

For some time in response to new work arrangements there has been a call to broaden the breadth of worker knowledge and skills (Hawke, 2000). Australian employers are beginning to argue for employees with an appropriate mix of skills and knowledge (Yates, 2000). They are also reported to increasingly value a wider set of skills such as literacy, numeracy, self-confidence, adaptability, problem solving capacity and communication skills. Yates points out that the dilemma for VET is that it can't afford to focus just on delivering industry specific skills and neglect generic competencies, the ability to collect and analyse information, communicate ideas, work in teams and the exhibiting of technological literacy. These are the sort of skills Reich (1991) spoke of as symbolic analysts, those employees likely to be increasingly valued in the future.

Adding a further dimension to this discussion, research by Maglen and Shah (1999) has shown that along with service industry jobs, the demand for conceptual skills has grown steadily in the Australian economy. The issue for VET is not only the problematic nature of teaching conceptual and intellectual content but also whether these can be transferred between contexts, an increasing requirement, given that a future career may involve several unrelated work situations. While the literature appears divided on whether all learners will acquire the necessary transfer skills, Misko (1999) suggests that even if generic skills and knowledge are taught, the outcome is uncertain on this point. Moreover Hawke (2000) has reported the ability to undertake conceptual problem solving may develop late in the learning process, if at all. While employers may increasingly be calling for workers with transferable skills between work contexts without retraining, VET must decide the initial training content that will service transferability and encourage lifelong learning.

Training Packages as a Construct

Described in Chapter 6, training packages have become a symbol of neo-liberal reform, the knowledge debate and a key area of disagreement and transformation (Yates, 2000). They provide a perspective on policy change that has affected what teachers do and where they teach. Introduced in 1997, much of the early criticism of training packages centred on content and the neglect of underpinning skills and

knowledge (Smyth & Bennett, 2003). Nevertheless, they have become the prescribed form of program provision in the VET sector. It may be argued that emphasizing enterprise specific qualifications as they do overlooks their purpose from an employers perspective, namely their impact on productivity and profit. Indeed it may make little difference to an employer from the perspective of profit, that each worker and workplace task correlates to a competency to become a qualification element.

The impetus for training packages derived from the perceived need to link the interests of employers and workers within a flexible system that could give all workers access to nationally accredited qualifications, within the confines of meeting enterprise needs. A significant outcome of the arrangement appears to be that the system has created an ethos of learning in labour and access to formal recognition of skills in areas not previously serviced. If this is the case then they should also be seen as having encouraged the notion of lifelong learning in the Australian workforce. The broad change suggested by Smyth and Bennett (2003) however is that training packages have become a tool supporting a demand driven versus the previous supply driven system.

It is not surprising that training packages continue to attract both detractors and supporters. Those who argue against the present format often do so from the perspective that training packages are prescriptive and have atomised training into a list of competencies that invite a tick and flick response. As already noted VET deliverers are often not keen on training packages because of the belief that one model fits all, and the focus on assessment rather than learning (Yates, 2000). On the other hand, proponents, both inside and outside the VET system, point to the flexibility and portability of qualifications as major achievements. They argue that the competencies are general enough to support transferability from one employer to another. It's also argued that training packages have had a highly relevant and flexible impact on VET programs, meeting the needs of both learners and employers (Smyth & Bennett, 2003). There is an underlying assumption in this argument however, that the needs of employers and workers are the same, which is not necessarily so. Wheelahan (2004) suggests that industry needs are for certain specific skills and just in time training, while individuals, particularly in casual employment need skills to manage their learning and work careers, and to contribute to their communities. It is the contribution to the community that will be explored in Chapter 8.

There is also a lingering debate on whether training packages provide a too narrowly defined program of learning, based solely on what is required for a particular enterprise. Given that training packages have been around since 1997, there is some evidence that this criticism is finally being addressed in the ANTA 2004 review of training packages. Smyth and Bennett (2003) in conceding that the early packages were largely industry driven initiatives designed with scant input from VET providers, suggest this is not now the case. There is however still variation in the model used to draft training packages, so that any move to broaden their scope to include more stakeholder participation, underpinning knowledge and targeting of individual needs could be assumed to be positive.

There is little doubt that training packages have provided access to qualifications for virtually all workers. Whether this is facilitating a knowledge-based society and lifelong learning is challenged by those who believe the system is narrowly designed to service the needs of a particular workplace and that transferability of skills, a necessary outcome, is difficult to show empirically (Wheelahan, 2003a). Perhaps more serious is Wheelahan's conclusion that their use strips knowledge from learning in VET, resulting in impoverished learning, which if true would run counter to developing life-long learning skills and question VET's ability to service in anyway the need for 'symbolic analysts' described by Reich (1991).

Conclusion

This chapter started with the problem that VET practitioners are faced with a continually changing role for the sector. In examining this issue it is clear that globalisation along with technology needed by future high performing employees, is having a significant impact on policy in the sector and that the influence may be being played out through uncontrollable market forces (Figure 3). It may also be readily concluded that proponents of neo-liberal economics have promoted much of the wisdom on globalisation and its impact. This led to identifying a number of constructs that are inherent in VET's role change. Importantly content is included as a construct with the influence of e-education evident in driving its key elements of flexible delivery, symbolic analysts and competency training. The resulting impact on policy has been to accommodate these forces by arguing for reform such as training for the 'new' type of worker assumed to be valued by industry and portrayed by Reich (1991) as 'symbolic analysts'. The weakness in this argument is its tendency to be futuristic

in the sense of requiring investment now for a workforce in the future. Industry in contrast is more likely to take a 'here and now' attitude aimed at maximizing productivity and profits. It was concluded that VET policy clearly needs to be located in a broad perspective, one that placates the 'here and now' while also responding to the challenges of the future.

Education and training policy has also been used to proclaim the intrinsic value of human capital. Scott, et al. (1998) contend that this rests on a series of assumptions around the value of training, which when viewed in proper context are less than convincing. For example, it may be argued that human capital has not had as big an impact as predicted and has become largely an ideology to legitimate certain constructs and policy formulations of VET reform and the 'new' economic order.

The chapter reports a complex picture for VET, brought on by multiple and competing stakeholder interests, national policies and priorities, and the complexity of having a national training system (Yates, 2000) with state funding bodies whose policies are not always consistent with national directives. This is nowhere clearer than in arrangements for new apprenticeships where institutions develop their own policy interpretations supported by Federally funded industry incentives, and are audited by their state system for compliance. Born out of recognizing prior learning and on the job training, the outcome has been seen by some as compromising the quality of training and its value to learners (Pickersgill, 2001). Yates reminds us that new apprenticeships have gained a significant role in training so now may be a good time to ask whether the model is appropriate for the future. Chapter 8 by evaluating the inclusion of social capital, takes up this theme in proposing a new paradigm for education and training.

Of greatest urgency in a national system is to have a clearly defined role for VET within a true partnership of stakeholders, not a quasi system as at present where one or more agency dominates. Yates in arguing this point calls for a system that takes account of national and local needs. In other words a system where states and territories determine the best ways to implement broad national priorities agreed to cooperatively by government, industry and training providers. This notion is hinted at in the 2002 Victorian Ministerial Statement, which portrays VET no longer as a skill formation and second chance agency, but part of what Seddon (2002) has described as an agenda shift from 'safety-net to springboard'.

CHAPTER 8
THE PULSE OF CHANGE: A NEW PARADIGM FOR VET

Introduction

The underpinning sub-theme outlined in this chapter is that social capital development is a new focus for VET, and that its origins derive from changes that are driven by the systems response to constructs of globalisation. It is argued that VET sits at the crossroads of this new direction of reform with the ideology of human capital development evident in the 1990s no longer adequate in the ‘new’ knowledge economy (Chapter 1 definitions). A training paradigm that in addition embraces social capital influences and recognizes that both forms of capital development are necessary to sustain communities and economic wellbeing is proposed. Government policies provide an inconsistent response to the paradigm proposed, and are often driven by imperatives at variance with a social capital perspective. Even so, there are signs that VET literature and government commentary is beginning to reflect the new perspective, but its take-up will be slow until industry recognizes its value. Some commentators however question VET’s ability to deliver on such outcomes given the difficulty in measuring success and an ingrained industry paradigm (Kearns, 2004). Table 8 suggests there is an emerging literature that supports the inclusion of social capital inclusion

Table 8. The Addition of Social Capital as a Parameter of VET Reform and an Illustrative Literature.

Parameters of a Changing VET Perspective	Illustrative Literature
A social capital dimension	<ul style="list-style-type: none">- The contribution of VET to social capital (Kearns, 2004).- The importance of including social capital development (Hyland, 2003).- Social capital and the ‘new knowledge economy’ (Billet et al. 1999).- Competitiveness and social capital (Giddens, 1998; Fukuyama, 1995).

Parameters of a Changing VET Perspective	Illustrative Literature
	<ul style="list-style-type: none"> - Social networks and connectedness (Strathdee, 2003; Seddon, 2002a; Rogers, 1995). - VET's credentials for delivery on social capital development (Pickersgill, 2001). - An ideological approach to VET reform may exclude social capital development (Kenway, 1999).
A new training paradigm	<ul style="list-style-type: none"> - A 'new economy' discourse (ILO, 2000). - Lifelong learning (Clutterbuck, 1996). - ANTA's national strategy (ANTA, 2003a). - Workplace development as the industry context of social capital development (Lomax-Smith, 2003). - A reconception of knowledge in the workplace (Guile, 2002). - Individualism versus employer driven training (Taylor & Henry, 2000). - Social capital development encourages innovation (Marcean & Manley, 2001; OECD, 1999). - Emancipatory politics and life chances (Kenway, 1999). - Life policies as a new dimension (Kenway, 1999; Rogers, 1995).

The coalescing of social and economic policy perspectives is increasingly said to drive economic progress and community well being (Kearns, 2004). This view is not new having been part of OECD (2001a) and World Bank (2001) commentary for some years, but it has been slow to emerge in the Australian VET discourse. Layered on the human capital argument, social capital is thought to facilitate a community with enhanced potential for growth, competitiveness and economic performance. ANTA in its National Strategy to 2010 while still deeply steeped in human capital ideology is showing signs of finally recognizing the importance of these new parameters (ANTA, 2003a). The commissioning of a recent paper to identify the contribution VET can make to social capital development in communities (Kearns, 2004) is one sign of intent to give this area greater attention in the future.

The new social paradigm (Table 9, P161) portrays a transition to workplace preparation that goes beyond conventional knowledge and skills development to integrating technology inspired abilities that will prepare innovative and creative workers. This suggests a broadening of the current role of VET to a system that embraces the influences identified in Figure 3, which includes an e-education approach.

Perhaps because of the diverse constructs that may be of influence, determining how social capital should be interpreted in a training context and how such knowledge can be accumulated, presents a challenge for VET (Figure 4). Cameron (2000) on this point describes its impact as ranging from technology and the role e-education can play, to social and economic change, arguing that it can speak to general public concerns such as political issues, policy formulation and activism. As well as describing shared norms and values the concept appears to marry the many ways people cooperate and work together to achieve common goals (Fukuyama, 2002). Fukuyama paradoxically points out that education and training is an area where governments perhaps have the greatest direct ability to generate social capital, by transmitting not only human capital but also social capital in the form of social rules and norms. The Saguaro Group (2000) go further in advocating 'civics' education, including the teaching of higher level communications skills, not only in schools but also in the workplace and for youth who have dropped out of school. While this may represent one way to move the agenda forward, there appears to be a need to formulate a framework for social capital development, if its inclusion is to have relevance for learners and employers. Importantly authors such as Fukuyama also draw attention to social capital as a key ingredient in not only economic development but also stable liberal democracy.

An ANTA Interface With Social Capital

There is growing research evidence that points to the importance of including social capital development in the way individuals acquire knowledge, skills and values particularly when undertaking VET programs, in the workplace, where learners are often seeking entry to communities of practice to gain cooperative outcomes (Hyland, 2003). Morris (2001) reinforces this view by reporting similar conclusions from a study by Toms, et al. (1999) that showed the learning process to be complex and inclusive of informal learning, often in the workplace, the home or community,

that contributed a substantial proportion (up to 70%) of an individual's learning. Interestingly while formal VET learning was valued in the study, subsequent non-credentialed informal community or work place learning was reported as also highly valued by respondents but seldom included in evaluating education and training assessments.

Newcomers to the workplace are said to participate not only in productive activities but also in a community of practitioners, both of which might be considered important in developing high performing employees. Lave and Wenger (2002) conclude that participation within a workplace community changes the direct involvement of individuals in activities, which in turn develops understanding and knowledgeable skills. This perspective clearly has implications for VET, calling for greater emphasis on learner participation skills in the culture of communities of practice. In this context Hyland (2003) argues for workplace learning that not only fosters occupational knowledge consistent with human capital development, but also the inclusion through workplace practices, culture and mutual learning, a focus on social capital development. There is doubt however that the outcomes based characteristics of training packages and their qualifications, although perhaps appropriate for job specific competency training are structured to deliver in their present form, the means of achieving the attitudes and qualities associated with Hyland's notion of social capital development. Trialled in the UK, Hyland consistent with the views of the Saguaro Group (2000), proposes a possible solution, the movement away from sole reliance on competency ideology based strategies, towards including over-arching certificates and diplomas that incorporate wider interests, citizenship studies and broader vocational qualifications alongside occupationally specific training. While this may be a move in the right direction the alternative may be to modify the modular training package system to ensure that modules chosen maintain a social capital development perspective.

If there were to be a change in training packages in the way suggested, ANTA with a significant interest in ensuring they work, would need to be convinced as to the efficacy of the change proposed (Wheelahan, 2003a). The current High Level Review of Training Packages (ANTA, 2004) commissioned by ANTA, offered an opportunity to establish an interface between social capital inclusion and economic imperatives, but instead tended to be a re-affirming of existing assumptions and imperatives. In

some ways this is a surprising outcome given ANTA's National Strategy for VET 2004-2010 calls on the system to integrate social, cultural and sustainability imperatives in assisting communities deal with change and encourage innovation. The Review appears to pull back from the National Strategy to once again restate the human capital perspective.

Somewhat disappointingly the Review is ambiguous in referring to knowledge workers as a critical ingredient of economic success but has nothing to say about social capital inclusion. The response of changing employer expectations is described as combining technical skills with greater emphasis on cognitive and behavioural skills. What this means in terms of future training package design is left unclear, as is any prospect of change to behavioural skills. Employers as the designers of training packages have traditionally been inconsistent in identifying the behaviours and attributes they value (ACCI, 2002), but have in the past included commitment, integrity enthusiasm, reliability, work ethic, motivation and adaptability as important behavioural traits. VET institutions have been reluctant to refer to these attributes on the grounds that they have not been directed to do so and as skills are difficult to assess. It would therefore have been useful for the Review to address this issue with a strategic framework that could be used to drive change across the VET system. It might have been assumed that the nature of competence would have been rigorously debated but this does not appear to have occurred. While acknowledging the need for a broader concept than the ability to perform workplace tasks, the Review fails to clarify further than a promise to re-think assumptions about work performance, knowledge and skills, teaching and learning and assessment.

While any proposal to broaden the notion of competence would be welcome, the continuance of a rather narrow workplace specific view of training packages and knowledge appears to put aside promoting a model of social capital development and instead largely reinforces the old assumption of enterprise based qualifications as a path to enhancing productivity and the knowledge economy. This conclusion is readily drawn from the Reviews suggestion that education and training needs to be linked more specifically to wider human resource management strategies promoting new approaches to job design and work organization that explicitly support business strategies.

Although it appears there is a long way to go before the barriers to social capital inclusion are overcome, the above argument suggests the debate has begun and hints at further changes to the role of VET. Barriers however include a largely industry driven system that is not yet convinced, or in some cases aware of the value adding achievable from social capital inclusion. The problem as Wheelahan (2003a) sees it is that the interests of employers and learners are not identical. It has always been difficult to get industry to invest in training and believe in social strategies such as lifelong learning because of the difficulty of directly translating the outcomes into productivity gains. Until social capital is understood as a value adding addition industry is likely to largely ignore its inclusion.

At a government level the imperative while economic, is beginning to be seen as enhancing the opportunities of individuals to become innovative in order to sustain national competitiveness (Kosky, 2002). It may be speculated that social capital development will eventually be viewed as a driver of such outcomes. The inclusion of lifelong learning highlights VET's challenge in training workers for the 'new economy' (see Chapter 1 definitions) and to do the things technology cannot easily do such as encouraging workers to become adaptable, innovative and able to form productive relationships. This shifts the discourse towards focusing on individuals rather than the broader issue of enterprises, the knowledge economy and technology (VET Policy Advice, 2001).

A New Social Capital Perspective

What does VET reform have to say about the inclusion of a social capital perspective? While the last two decades might be considered reforms formative years, the present shift in socio-economic ideology portrayed in publications from agencies such as the OECD (2001b) and Kosky (2002), appear to call for VET to redefine its role once again. It may be argued that the inclusion of social capital is poised to become a driver of future role change and reform.

The Innovative Community

As the previous Chapters have indicated, through the 1990s government interest in training translated into new strategies for centralism, administration and a prescriptive system that assumed it could use market mechanisms to achieve economic imperatives (Chapters 6 and 7). As a result VET was significantly decentralized

although state-funding bodies maintained considerable control through purchaser and provider agreements. National frameworks for flexible delivery, competency based methods (CBT), qualifications, accreditation and quality (The Australian Quality Training Framework – AQTF) are some of the reforms introduced to provide scaffolding for change. In addition, a competitive training market was established by broadening the definition of provider to include non-TAFE as well as TAFE institutions. Aimed at creating greater efficiencies, the intent included transferring some of the cost of VET from the public to the private sector (Deveson, 1991). For more than a decade VET policies and public funding strategies were dominated by this neo-liberal imperative. Many argue the narrowness of this approach has been its failure to recognize a broader role for VET (ANTA, 2004; Lomax-Smith, 2003; Kosky, 2002). Surprisingly a number of recent VET reports go further than ANTA in describing the changes needed as a social capital construct, with a common theme of social inclusiveness as a means of creating an innovative society where knowledge not only has an economic dimension, but also a concern for community well being (Lomax-Smith, 2003; DEFEEST, 2003a; Kosky, 2002).

It may be further argued that the reforming influence of CBT has at best been appropriate in providing routine skills called for by industry, and has underpinned human capital reforms, but is no longer adequate in the ‘new’ global economy. Billett, et al. (1999) suggests CBT is incapable of providing social capital with the flexibility and adaptability required in the workplace of the ‘new knowledge economy’. Worse still, capturing these attributes in a training package, behavioural objectives based system may be impossible. Billett, et al. conclude that a measurable behavioural approach detracts attention from the social capital development perspective, skills that will increasingly be called for, underpinning performance, attitudes and values of workers in the future. While VET has a long history of contributing to these types of skills through its community programs, a social capital focus calls for a framework that could include:

- norms and values in the workplace;
- lifelong learning strategies;
- approaches to employability;
- innovation and creativity in using ICT; and
- social relationships.

It may be argued that each of the above entries can contribute to social capital in workplaces, community well being, and hence influence economic sustainability. For example the employability traits of individuals have been singled out by Kearns (2004) as loyalty, commitment, honesty, integrity and reliability, the type of qualities industry is increasingly seeking in employees (ACCI, 2002). Kearns hints at drivers that could promote the new approach to social capital inclusion.

- A changing pattern of work, family and community connectedness.
- Shifts in values and social engagement.
- A worsening interface between economic progress and social functioning.
- Disengagement from the knowledge society.
- Access to lifelong learning.
- The ability of workers to generate innovation.

The vision this engenders is an innovative community with caring well-informed members, who project a sense of citizenship. The new model suggests a more diverse VET, a system that supports partnerships, networks and relationship building. In this scenario VET teachers are not seen as simply disseminators of established knowledge and skills, but actively engaged in integrating social capital strategies.

Social Relationships

There is support also for linking social capital to economic prosperity in the ‘new economy’. Both Giddens (1998) and Fukuyama (1995), argue that economic competitiveness is in part aligned to social capital, describing trust as the most important characteristic of competitive enterprises. The associated skills are seen as encouraging the formation of networks in both industry and communities. These commentators argue that networks are arguably the single most important construct on which social capital is built. The value of networks lies in establishing social relationships that are usable in making an individual a more valuable commodity in the labour market (Bourdieu, 1997). The challenge for training providers in facilitating these outcomes is to raise the profile of relevant social skills and find ways

to ensure they are integrated into training packages within a system still aligned to human capital development.

To realize the benefits of social capital Foley and Edwards (1999) call for a wider enabling context. VET through its traditional involvement with industry, the community and other stakeholders, is strategically positioned in the education and training market place as an institution capable of value adding to human and social capital outcomes. There are a number of examples where this can already be seen to occur. The traineeship system which places teachers in touch with employers and employees as well as community and government stakeholders resulting in an enhanced potential to impact on community well being is a case in point. The VET in schools program is similarly placed to provide social capital development through encouraging student connections with workplaces and a closer relationship between teachers and industry. Success is measurable in terms of relationships, networks established and an enhanced likelihood skills offered will be those valued by employers. This is a practical example of how VET working with schools can not only facilitate human capital formation, but also through brokering relationships, work to enhance an individual's value as a commodity in the labour market.

Networks are also conceptualised as positive in terms of encouraging social capital development through innovation in education and training (Rogers, 1995). Networks allow effective relationships associated with learning to occur informally, often beyond the reach of government policy (Golding, 2004). Through collaboration, individuals are advantaged by being 'better connected' (Strathdee, 2003) and able to negotiate a way through decisions, or as Golding (2004) suggests, learning is enhanced by becoming community owned. The process is evident in programs that foster partnerships, programs such as TAFE innovation initiatives that in Victoria allow some Government funded training to be converted to special projects that encourage community partnerships that target particular local needs. This is an example of how social capital may develop through bringing learners, providers, industry and community agencies together to work on specific tasks. These types of relationships are consistent with sustaining innovation, creativity and alternative learning practices (Seddon, 2002a).

VET Ideology Old and New

All Australian governments since the mid 1990s have pursued the creation of a national industry driven VET system, one based on a competitive training market. Although the terminology may have changed, the ideology has hardly shifted over the intervening years. The system is still often used as an instrument of micro-economic reform as was the case throughout the 1980's and 1990s. A refusal to contemplate a wider vision and adherence to an industry paradigm is so engrained that policy makers rarely engage VET professionals or challenge underpinning assumptions. This is often seen as a weakness of VET reforms (Ryan, 2001), and has led, as Wheelahan (2003b) and Viviani (1998) suggest, to many VET professionals remaining sceptical and disconnected from much of the policy formation process.

Although in all states variances of a decentralized system exist, Federal Governments and ANTA, largely in the absence of any coordinated dissent, have been able to implement national policies binding on all states and territories that effectively has marginalized any social capital debate. Central agency ideology, whether it be from ANTA or state funding agencies, is perhaps best seen in arrangements that drive institutions towards commercialism. By plateauing public funding provision, institutions continue to be leveraged by funding agencies towards commercial growth to cover cost increases. Arguably as a result a user pays philosophy and loss of user choice of training provider, has become increasingly evident as state governments strive to contain the cost of an ever increasing demand for publicly funded education and training. In Victoria there is a move to increasingly prioritise training in line with industry perceptions of need that may see social capital initiatives further marginalized.

The Australian Quality Training Framework (AQTF), introduced in 2002 as a variant of TQM, is a further example of institutional accountability, an ideology of control that steers VET further towards the interests of employers (Kenway, 1999). Complex and expensive, the standards by calling on providers to respond to a central agency, work against decentralization resulting in a narrowing of the scope of VET to simply responding to processes that have little to do with the quality of content. This again moves attention away from a social capital dimension. Arguably, AQTF is answering to an economic construct, one that tends to undervalue social outcomes in favour of human capital.

Of issue is whether the ideology of industry relevance that began these reforms more than a decade ago has gone too far. Is it time to renew a more traditional perspective of education and training, one that is inclusive of transferable social and generic skills for the public good? Put simply, the present system of enterprise specific behavioural competencies and short stand-alone training modules in their present format, provides little evidence of integrating social capital development strategies.

Of further concern, given policy is largely in the hands of agencies such as ANTA, is the role VET should play in influencing policy towards social capital development? Pickersgill (2001) goes so far as to question VET's ability to operate in this arena and deliver on a new set of social outcomes given the unfinished status of many earlier reforms, the level of scepticism and present policy assumptions based as they are on human capital imperatives. Pickersgill argues that the linkages VET traditionally enjoyed with the community were damaged by reform, replaced by an ideology of neo-liberalism as the driver of policy development that in turn has limited the ability to broaden the vision. Traditionally training needs and demand were expressed directly to providers through industry and community liaison, and their program responses. Reform on the contrary, Pickersgill argues has tended to channel demand through increasing layers of federal and state representation, Industry Training Advisory Boards (ITABs) and bureaucratic agencies such as ANTA, resulting in scepticism from many stakeholders.

Corporatisation and Competitiveness: A Question of Compatibility

There is evidence that corporatisation and competitiveness became the pre-eminent ideological basis of VET reform in the 1990s (Kenway, 1999). The assumption was that corporatisation of VET was a rationalization that would facilitate reform. It was assumed that deregulating the training market under the guise of gaining efficiency and a competitive market would be 'good' for the system. As already noted it was Dawkins (1988) back in the late 1980's who argued that TAFE was not delivering skills to enable industry to participate competitively in a global sense. Driven by an assumption that quality, efficiency and productivity would flow from change, the notion of a competitive training market has been a contested term ever since (Saggers, et al. 2000). All of this of course has come at a cost, notably an increase in bureaucracy, a loss of VET participation in policy formulation and

arguably a resultant decline in teacher connectedness. It also inevitably calls into question whether these reforms are compatible with establishing a broader social capital development agenda.

Government entry into the competitive training market has so far been to set the market rules, establish a qualifications framework, correct market failures and protect the consumer (McBride, 1999). Supporters of corporatisation argue competition is the most efficient way to sell the resulting training commodity. At first sight there would appear to be little compatibility between this neo-liberal view of training and social capital development but as already noted, social capital theorists point to a growing interest in the coalescing of economic and social policies to drive economic and community well being (Kearns, 2004). In this debate, commodity is interpreted as modules of training that individuals are encouraged to purchase under the assumption it will enhance employability and earning power. It is argued by commentators such as Kearns that this definition, unless balanced in terms of integrating the various forms of capital, will not lead to economic well being.

It may be argued that government policies that pursue the corporatisation of VET often do so at the expense of developing social capacity. Although an extreme case, the Queensland Coalition Government policies before it lost power in 1999, presents one end of the corporatisation spectrum. At the time, there was a proposal to virtually corporatise TAFE institutes, establishing Business Boards with wider powers than the traditional institute council. The Boards were envisaged as controlling expanded business activities under an institute Chief Executive Officer. There was even provision for establishing limited liability companies, raising the spectre of full or partial privatisation. In contrast, labour governments, now in each state, appear more hesitant on deregulating training and have pulled back from taking a radical neo-liberal path, instead, favouring policies that seek a balance of industry, community and institutional interests (Kosky, 2002).

The Federal Government rather belatedly has begun to move towards allowing the penetration of social capital development perspectives into VET's corporate policies (ANTA, 2003c; Kearns, 2004). Recent state policy documents, and to a lesser extent ANTA, have supported the idea of balancing neo-liberal commentary with building community capacity. This may indicate a softening of policy towards commitment to balancing the disparate forms of capital development and the promotion of qualities

such as social connectedness, reduction of social exclusion and perhaps inequalities inherent in a less flexible neo-liberal approach (Strathdee, 2003).

As a final comment, the apparent contradiction in the competitive market debate is that VET institutions, particularly TAFE, due to government control, are not free to operate as businesses to the extent policy would suggest. In the case of TAFE, the largest VET provider, institutions are being leveraged towards looking more and more like businesses but without the freedom to operate this suggests. Seldom recognized by policy makers this point (Viviani, 1998) has often resulted in the removal of many key processes that can underpin business success. It is difficult to escape the conclusion that an ideology of commercialism necessarily reduces VET's capacity to address traditional social obligations because of its poor immediate return on investment and resultant miss-fit with a business model. The flow-on effect is that institutions may be encouraged to abandon a social commitment model, and accept economic rationalist solutions with their emphasis on efficiency, user pays and privatisation philosophies.

A New Reform Paradigm: Broadening the Scope

When social capital is considered in the workplace it begins to provide a powerful tool for suggesting a new training paradigm that potentially broadens the scope of VET. In the workplace social constructs may search beyond the 1990s training model of task specific competencies, to preparing workers who are better equipped to address a range of social, economic, technological environmental and cultural issues as they move through their working life. In this context it may be argued they are also likely to be more productive, innovative and able to transfer skills from one work setting to another.

Following this theme, the new paradigm (Table 9) identifies a shift from a neo-liberal hegemony, to constructs that may contribute to social inclusion strategies in a new economic context. The proposal also encourages a balance between recognizing formal and informal knowledge that is likely to characterize training in the future.

Table 9. The Characteristics of a Shift from an Old to a New Social Paradigm in VET.

Old Paradigm	New Paradigm
Supply driven approach.	Demand driven approach.
Training for employment.	Learning for employment.
In service training.	Lifelong learning.
Education and training separate.	Integrated education and training.
Specialized skills.	Multi-skilling.
Centralized system	Decentralized system.
Policy and delivery dominated by government and industry.	Market driven policy.
Human capital approach.	Balance of human and social capital.
Formal knowledge construction.	Formal and informal knowledge construction.
Focus on core knowledge.	Innovation and generic skills.
Enterprise focus.	Partnership focus.
Employment.	Employability.

Amongst the characteristics of the ‘new paradigm’, the notion of employability has become fashionable and widely accepted in the ‘new economy’ discourse (ILO, 2000). Social and interpersonal skills involved in communication, decision-making, teamwork and adaptability, positive attitudes and behaviours, are thought to lie at the core of a focus on successful employment. Creativity and innovation are considered opportunities arising as a result of developing these qualities (ILO, 2000). This does not of course downplay the importance of occupational skills, but they may be formulated as part of preparing individuals for employment mobility. Not surprisingly, this line of thinking is inconsistent with influential industry lobby groups such as the Australian Chamber of Commerce and Industry (ACCI) who continue to commit strongly to a neo-liberal perspective (ACCI, 2003). Such employer groups legitimately voice enterprise and sector concerns, and influence policy and governance accordingly. They do not however, speak for the 70% of VET’s 1.7 million Technical and Further Education (TAFE) enrolments who are not employed.

If employability is a central tenet, what should the response of VET be in delivering training against the new paradigm? One suggestion is to balance the different categories of knowledge and map this into an individual's lifelong learning profile. This approach might be considered during the individual's initial training program and be reviewed regularly as a lifelong process (Clutterbuck, 1996).

ANTA's National Strategy for 2004-2010 (2003a) might be expected to give guidance on the broader scope for VET in the new paradigm, but while it contains reference to strengthening VET's contribution to communities, it is short on detail. Just what contribution a renewed interest in social outcomes might take is therefore unclear. While inferring new policies will be enacted to strengthen the capacity of VET to partner with local agencies and industry networks, the strategy surprisingly lacks a definitive statement on social capital. It is also uncertain whether ANTA would entertain community outcomes being promoted through the training package model or via new policy arrangements.

ANTA and industry advisory bodies are clearly committed to the training package system and see them as supporting the 'new knowledge society'. This at the same time is symptomatic of a system that is not only reliant on an industrial model of production but still holds on to a narrow atomised task oriented training tradition rather than embrace new thinking around employability and other elements of social capital development. The unintended outcomes might be to derail the integration not only of e-education technologies but also the new social paradigm (Table 9, P161).

In line with this view the Portfolio recommends that the new social paradigm (Table 9, P161) should be used not only to inform training package development but also to provide a framework for a fresh look at VET policy. The old 1990s paradigm that drew attention to human capital development and constructs of globalisation is arguably inadequate and should be replaced with a VET model that not only incorporates social capital constructs but also:

- looks beyond training for employment, to learning for community renewal in the context of a 'new knowledge society';
- moves beyond training packages as a 'fit all solution';
- avoids rigid structural and procedural regimes;
- emphasises technology solutions;

- moves to constructivist approaches;
- encourages self directed learners; and
- resists fragmentation of learning.

Integrating Social Capital

The notion of social capital is not new to VET, having been evident in policies as far back as the Kangan Report of 1974. The Report outlined a broad educational provision to support the social and cultural development of communities and individuals. The recent moves already noted of social development and innovation initiated by the states seems to re-instate this focus, and offer VET a distinct role in meeting the social goals set as outcomes (Kosky, 2002; Lomax-Smith, 2003).

The Kosky and Lomax-Smith reports give prominence to innovation, perhaps because it is recognized that it underpins what Morgan and Rees (1998) call the associational capacity of industry; its capacity for striking cooperative relationships between management, the workforce and other partners in order to raise productivity. In this scheme, capacity refers to building relationships which may be applied across a variety of situations, which in turn are said to support innovation.

If development of social capital in communities is part of the new training paradigm, workplace development has been referred to as its integration into an industry context. Defined by Lomax-Smith (2003) as activities which increase the capacity of individuals to reach their potential and participate effectively in the workforce throughout their working life, workplace development is thought to increase the capacity of industry to adopt high performance work practices. The Report, *Skills for the Future the Final Report of the Ministerial Enquiry in South Australia* acknowledges this as a shift towards competitiveness (Lomax-Smith, 2003). The commentary contains a broad directive for VET to incorporate social capital as a strategy for 'the new economy'. In Victoria, *Knowledge and Skills for the Innovative Economy* (Kosky, 2002) argues a similar theme highlighting the value of relationship management, entrepreneurship and the ability to harness new knowledge. Although the evidence of a link is problematic, both documents assume industry will wish to embrace work practices that encourage social capital development as a means of raising productivity. Even though these are acknowledged policy documents, in Victoria and South Australia, VET has not yet implemented or embraced the

significance of what is proposed. This may be due to employer failure to recognize the productive value of social capital and VET's reluctance to assign significant resources to such areas because of the significant rethink of delivery strategies involved.

While the Lomax-Smith and Kosky policy documents are framed to encourage a shift in VET practices towards social capital development, they portray an anecdotal and opportunistic approach rather than a clear commitment to a new paradigm. The absence of an implementation framework may be attributable to the legacy of competency training and the human capital emphasis of the 1990s. VET policies also tend to be underpinned by fairly rigid AQTF and training package protocols that may be further constraints on a paradigm shift. The inevitable conclusion is that VET policy documents often fail to relay a strong commitment to change and this has been interpreted in this case as a weakness in resolve to strongly pursue social capital initiatives or a broader scope for the VET system (Noonan, 2003).

Perspectives on Change: A Diffusion of Reform Influences on Social Capital Development

Chapter 7 pursued the notion that certain VET reforms had assisted in developing a knowledge economy (Rooney & Mandeville, 1998). This chapter has continued this theme by exploring some aspects of VET reform that may be influencing the implementation of a social capital agenda (Figure 4)..

Figure 4. Diffusion of Constructs Influencing VET Reform and a Social Capital Agenda

Notes: There is evidence that the future of VET reform is likely to be framed by social capital constructs. If this is true, the previous emphasis on human capital as a means of developing a knowledge-based economy will see new influences emerge to refocus how employers leverage productivity.



The following constructs have been selected because of their role in the new paradigm and for their potential impact on VET's ability to deliver social capital outcomes.

- Marketisation
- Lifelong learning
- Technology as innovation
- Social partnerships

Marketisation: A Deregulated Training Market and Social Capital

As already noted, the origin of marketisation in VET can be traced to the Deveson Report (1991) that recommended a move to an open and diversified training market with providers drawn from both the public and private sectors. Deveson also called for a training partnership between government and industry. The associated reforms, perhaps for the first time introduced economic rationalism and its resultant values into VET. The resulting deregulated training market has possibly been the most divisive aspect of VET reform, resulting, as Seddon (2000b) points out, in users being able to select the VET provider who seems to best match their perceived needs, but with sometimes negative outcomes as providers undercut each other in vying for delivery contracts.

The VET system has several features that call into question its market credentials. Firstly, marketisation in a neo-liberal context aims to make VET more effective but there are at best few quantitative measures that unequivocally identify the expected efficiency. Some would argue the evidence is embedded in the development of a National system of standards, qualifications and advisory structures (Pickersgill, 2001), but the link is far from being established. Sheer numbers of institutions and size might work against the notion of efficiency given that the training dollar then becomes divided in too many ways in a system of providers characterized by small institutions often located as industry Registered Training Organizations (RTO's) that exhibit varying administrative responses. The AQTF, a system that monitors processes, perhaps comes closest to providing an efficiency measure but it is largely silent on quality of content. Secondly, with more buyers and sellers of the training commodity, there should be a drop in unit costs. Again there are few signs of this happening in an expanding market. Those who have tried have only succeeded in

creating debt. Finally, a marketing framework might be expected to allow institutions to operate independent of outside policy control. This is not generally the case as competition for training delivery continues to be influenced by priorities set by governments. In summary, there is insufficient empirical evidence either to support or refute claims that increased competition produces significant benefits (Anderson, 1997b).

Of issue however is what marketisation has meant to VET? This remains something of an open question requiring further investigation. With around 75 TAFE providers and more than 5000 non-TAFE providers in Australia (Smith, 1999), the entry of schools, universities and private VET providers has arguably blurred the edges of the marketisation debate (Saggers, et al. 2000). In order to survive in a marketised VET environment, the number of TAFE colleges has shrunk, with amalgamations into super colleges, while the overall number of providers grows steadily. There is no real consensus on whether this formula produces greater efficiency and effectiveness, or just represents a system out of control.

The notion of a training market remains contentious in terms of its meaning and whether it can assist in implementing a new training paradigm inclusive of a social capital agenda. The link between marketisation and social capital is tenuous at best but there are studies that have theorised social capital may be an important precursor for developing human capital in individuals and other economic imperatives (World Bank, 2002; OECD, 2001b) and that this is best done in a free market environment. It is in this context that policy towards marketising the VET system might be considered an influence on a social capital agenda. Reform policy in education and training may not however, need to articulate social capital language for there to be an influence on change. For example, legislation to establish Local Learning and Employment network (LLEN) agencies across Victoria while focused on economic imperatives also portrays a social capital development interpretation in terms of being an opportunity to enhance such outcomes in partnership with VET institutions.

Workplace Training

Currently the training market is more or less tuned to meeting the needs of employers and the knowledge economy. What it lacks is a knowledge framework inclusive of social contexts that would expand and disseminate a 'new economy'

notion of knowledge (Rooney & Mandeville, 1998). Indeed market economics may work against social inclusion when knowledge becomes too aligned to meeting the goals set by economic rationalism.

In a review of how knowledge might be reconceived in the workplace, Guile (2002) proposes re-conceptualising it as a balance between social and enterprise skills. Guile distinguishes between generic skills used successfully in solving routine problems in the workplace and those that are contextual, social and creative in fostering innovation. Such a balance of skill categories may be what is called for to underpin employee value in a traditional Reich futuristic 'new knowledge economy' model (Reich, 1991; Guile, 2002).

There are however few signs of widespread inclusion of these ideas in current training strategies. For example the New Apprenticeship Scheme, based on training packages, is conceived as servicing routine problem solving skills with little hint of recognising the need to include a workplace development discourse as outlined by Lomax-Smith (2003). Before this can be changed, training package designers would need to recognize workplaces as varying in terms of resources, values and procedures, but rich sources of social capital learning.

Undervaluing the workplace as a source of social learning narrows the purpose of the training market to narrow workplace skills. In order to broaden the vision, the concept of communities of practice may be useful as it describes activities that generate networks, that share a common commitment to solving problems or possess a similar knowledge base. Rooney and Mandeville (1998) emphasize that workplace communities refers to a broader notion than simply considering employees. It describes workplaces as sites of knowledge transfer and innovation within and outside the enterprise. The community is also said to coalesce around such things as personal networks and professional associations, outcomes which may only have indirect relationship to enterprise work practices. There is little sign that VET trainers have considered exploiting these networks in a training context to enrich the workplace training undertaken.

Social Inclusion

Marketisation versus social inclusion policies may be divisive in terms of parameters likely to be pushed by industry (Anderson, 1998). Those who oppose the

market view would regard the influence wielded by industry in setting the VET reform agenda and its enterprise specific training as a weakness that leaves little room for including new reforms, unless championed by employers. Industry groups such as the ACCI on the other hand, would point out that members have committed significant resources to continuously improving and informing the national training system to ensure it continues to meet current and future needs of employers, and see their influence as the strength of the system (ACCI, 2002). The ACCI, in taking a traditional neo-liberal stance, advocate VET activities and funding should be aligned to market needs and linked to outcomes, particularly employment of entry level trainees and progress towards higher qualifications for existing workers. These views leave little room for a social inclusion agenda. The weakness in this industry approach is that it does not speak for the 70% of VET learners not employed and gives no hint of progressing beyond the human capital context.

Constraints on a Deregulated Training Market

The ability of the VET system to market its activities successfully have arguably been negatively impacted on by reform. There are intrinsic structural arrangements that work to overstate the system's ability to confidently sell itself. Worse still, policy changes continue to transform the way training is done, to a point where outside the system, few may understand the training process and constraints that add to costs. The complexity of the AQTF system is one example of a complex policy shift that inhibits VET's ability to respond. At the same time, governments' often overstate VET's entrepreneurial credentials and its ability to respond, using this as a basis for under-funding the sector. Adding the new dimension of social capital development may lead to further marketing difficulties and highlight VET's inability to respond.

Lifelong Learning

The concept of lifelong learning has been transformed over the last decade, emerging aligned to economic imperatives (Clutterbuck, 1996). Clark (2000) has described the re-emergence as supporting the interrelatedness of education and economic competitiveness, and a renewed reference to its social and economic transformational capacity. The new discourse however, does not derive directly from a revival of the 60's and 70's social obligation perspectives expressed in the lifelong education and social engineering policies of the 1974 Kangan Report on VET, but

from government and employer interest in ‘new economy’ imperatives and technology based industry interests. What this means is, there has been a redefining of who controls the lifelong learning agenda. In this context, distinct views are discernable in lifelong learning rhetoric, between those supporting the needs of the individual and market advocates promoting economic rationalism, training as a commodity and productivity. Although government and industry, remain major players many more stakeholders now have an interest in lifelong learning than was the case previously.

Lifelong learning for workers has been arguably impacted on by globalisation, new technology and the changed nature of work described in Chapter 7 (Ryan, 1999). This has led to a broader vision of the term by agencies such as the OECD (1996a) where it is portrayed as inclusive of, not only keeping current, but also learning to be adaptive as a result of a social capital agenda that is linked to enterprises becoming high performance workplaces (OECD, 1996b). The old notion of lifelong education with its sequential spells of education and work is replaced by learning embedded in the workplace. Kearns (1999) identifies the characteristics necessary in such workplaces as needing to offer a:

- rich information environment;
- wide diffusion of learning; and
- culture that values learning.

The most obvious conclusion to draw from the lifelong learning notion is that it should refer to maintenance of currency in an era where career change, mobility and demands on personal development are likely to be the norm. The inclusion of social capital development aims to encourage ‘high performance’. In reality, some VET reforms such as training packages appear to work against these sorts of outcomes. For example, the New Apprenticeship System, an area of growth perhaps at the expense of traditional trade apprenticeships, emphasises broad on the job competencies with little recognition of the need to deliver the deeper learning evident in traditional apprenticeships that is called for by the new training paradigm (Table 9, P161).

Conceptually the term lifelong learning is often used loosely in a narrow sense as commodity, product and habit of learning throughout life aimed at improving knowledge, skills and competence (VET Policy Advice, 2001). Such a general definition fails to provide a framework for moving the notion ahead and makes it

difficult, Sanguinetti (2000) argues, to know exactly what is being proposed. The growth in the ICT sector certainly lends urgency to framing strategies to ensure a culture of lifelong learning develops in the workplace to act as a catalyst for innovation and human capital development. There is little doubt however, that a social imperative is also increasingly being applied to the term, one that ANTA might have been expected to have followed up on in the National Strategy 2004-2010 (2003a). Surprisingly, while acknowledging the importance of lifelong learning, it failed to provide any real policy framework for its implementation. The previous strategy was also silent on this important construct (Ryan, 1999; ANTA, 1998). The omission can only be explained by the ingrained nature and ongoing commitment to the narrow industry doctrine of vocational competencies and a human capital agenda

Following the same theme, there is a literature tradition that supports the view that developing individuals over time is a key element in securing not only personal goals, but also social and economic outcomes that benefit the enterprise, society and the nation (Billett, et al. 1998). Long recognised in international forums on lifelong learning the individual is rarely consulted in the Australian VET system on the assumption that, the interests of learners and employers will be consistent (Golding & Volkoff, 1998). Taylor and Henry (2000) in pursuing this argument, propose that the new education and training paradigm (Table 9, P161) should focus more on the individual, on capacities to realize the potential of the global information economy and contribute to employment, cultural issues, democracy and social cohesion. They see such policies as an almost utopian social reform, a transition to a 'knowledge society' in which equal opportunities are available to all, access is open and all individuals are encouraged and motivated to learn throughout life.

Innovation

Because it offers the ability to flexibly engage audiences and requires sharing of information, innovation as an ideology is often linked to advances in ICT (Kosky, 2002). Kearns (2004) believes that ICT's capacity to facilitate social capital programs also makes it a suitable instrument for fostering innovation. Advances in ICT have certainly allowed VET to innovate and broaden its market penetration, accessing groups who would otherwise not seek training because of personal constraints and other factors. Chapters 2 and 3 addressed the implications of ICT on new learners and

its capacity to offer flexible learning options regardless of time and place that may accommodate work and personal commitments (Curtis, 2003).

It may be argued that innovation has become the new currency of economic performance, international competitiveness and a driver of VET reform (Trood, 2002; Kosky, 2002). Many policy commentaries reflect this wide acceptance as almost a panacea for moving forward (Lomax-Smith, 2003; Kosky, 2002; Trood, 2002). It is argued that innovation can be encouraged by the inclusion of a social capital context (OECD, 1999; Marceau & Manley, 2001) because it fosters social networks and the sharing of information. Supportive of this view, Cairney (2000) describes innovation as a dynamic social process of continuous, day-to-day improvement in products and services involving complex interactions inside organizations and in networks. The impact of work practices, qualifications and attitudes is still being determined in this context but appears certain to also positively in fostering innovative approaches. The challenge for VET is how to encourage these outcomes and assist in the creation of innovative communities in workplaces. It appears that there is a rich discourse on this issue but that little has been done in real terms regarding its implementation other than to register an interest.

If VET is to assist in generating innovation in the way Kosky's (2002) commentary suggests, then the meaning of innovation must be broad (Pickersgill & Walsh, 2003). In addition to knowledge and skills acquisition, Pickersgill and Walsh view innovation developing out of complex interactions between many individuals, organizations and environmental activities in the workplace. The model suggested recognizes in the workplace, factors such as people interactions and engagement with each other and the texts and technologies of employee work as contributing to innovation (Wenger, 1998). If this model can be confirmed, VET should be well placed due to its networking capacity, to facilitate workplace innovation through promoting social learning in organizations. VET could use its community links and relationships not simply to supply knowledge and skills, as is the norm at present, but also act as a conduit for diffusing innovation and technology as a means of raising the competitive success of enterprises (Lomax-Smith, 2003).

Interpersonal networks are an acknowledged way of successfully diffusing information and innovation within and across groups. According to Trood and Gale (2001), the role of interpersonal networks in diffusing innovation cannot be

underestimated. Networks can provide a sense of belonging, trust and the sharing of beliefs which Trood and Gale believe, aids the innovation process. VET policy makers have not yet recognized or worked out a way of using the potential of networking in the process of learning and innovation adoption. At the same time networking is used widely by VET practitioners to:

- inform colleagues;
- liaise with industry and learners;
- link with community groups; and
- inform on new technologies.

Of course VET is not at the sharp R&D end of the innovation spectrum, but it can arguably under-score success. Giddons (2000) and Latham (2001) conclude that successful enterprises are increasingly operating in environments that rely on financial, human and social capital to generate innovation. By accepting a role in this process, VET is challenged to develop policies that will result in innovative approaches to processes and products by its graduates. In addition to the model suggested by Pickersgill and Walsh (2003), one approach might be to expose undergraduates to social capital through appropriate teaching practices, flexible delivery and workplace learning. Marceau and Manley (2001) broaden the argument by pointing out that the innovation performance of an economy depends not so much on how specific formal institutions perform, but on how they portray interactions within as elements of a collective system of knowledge creation and its use, and on their interplay with other social institutions.

Social Networks: Emancipatory Politics

Although it has ebbed and flowed, state funded education and training has a long history of distribution and redistribution of life chances (Kenway, 1999). The 'new' social paradigm (Table 9, P161) implicitly draws attention to such issues as inequality, disengaged groups, marginalisation and exclusion of social groups. In this arrangement the term emancipatory politics may be useful in scaffolding social capital development. The term, coined by Giddens (1991), is a generic outlook concerned with liberating individuals and groups from constraints that may adversely affect their life chances. Giddens argues that emancipatory politics seeks to shed the shackles of past tradition and custom, permitting a transformation of attitudes towards the future. It also seeks to eliminate inequalities, barriers that restrict individuals from achieving

their goals. It seeks to allow individuals to gain control over workplace circumstances. The term suggests an individual who lacks an understanding of work, or its 'nature' can be socially disadvantaged, especially if workplace norms and values are embedded within a traditional and historical exercise of arbitrary power (Kenway, 1999). VET policy makers have not given this notion much formal prominence, probably because of the attention given to market ideology, that as already noted often directs policies towards growth and structural reforms at the expense of meeting individual needs.

It would clearly be difficult to translate some of these concepts into training packages that are based on competency standards and a behavioural framework, but as Shreeve (2002) notes graduates now require a broader portfolio of technical, social and personal skills than the more job-specific skills that were emphasised in the past. Their one model fits all human capital approach is of little help given the assumption of suitability for those in or out of work, whether training is on or off-the-job, for entry level qualifications or up-skilling (Wheelahan, 2003a). This model that has little to say about employability or liberating individuals from life chances constraints. This leaves little room for a social paradigm that calls for redefining flexibility in meeting individual needs and a new commitment to social success.

If there was a commitment to emancipatory politics principles, VET may, through recognizing the richness of the world of work, be persuaded to redirect some of its attention away from measuring human capital and into social capital issues, (Kenway, 1999). This would, as Casey (1995) suggests, mean understanding work in educational, social and cultural terms, and in addition recognizing equity as broader than certain 'equity groups', in essence embracing relationships that liberate all individuals. A starting point would be to incorporate the implications of emancipatory politics into all on and off-the-job workplace training.

While VET has a tradition of removing employability barriers and lifting individuals into higher income brackets through training, retraining and up-skilling programs, Kenway (1999) describes another perspective on the emancipatory model. The author suggests a second type of scaffolding should be present to address other potential barriers, that of 'life politics' concerned with understanding existence in terms of living in a post traditional, globally interdependent order. Rogers (1995) has described the term as coping with social alienation, anxiety, isolation and separation

from resources to assist in building a full and rewarding working life. In other words, what was previously fixed by nature and tradition is now subjected to questioning and decision making. In questioning basic awareness, this notion takes social capital development to another level, a natural corollary that has not yet entered the VET discourse. It aims to allow individuals to make reflective judgments and analyse before decision-making. Issues as diverse as OH&S and globalisation could readily fall within the life politics domain. Not surprisingly due to assessment difficulties, these quantities are usually avoided in training that commonly deals with content as workplace competencies and 'job' performance, rather than any notion of decision making at a life politics level.

There are clearly multiple factors that may impact on enhancing life chances. Pinning down VET's role in this regard is not as clear as it might first appear, but education and training has a social obligation to help learners deal with the problems associated with the altered context of a working life, one increasingly impacted on by global events (Kenway, 1999).

Conclusion

In the context of a new training paradigm (Table 9, P161), this chapter has outlined an additional sub-theme that implies a new role for VET. Often described as social capital development, the issue is whether the system can broaden its scope to address the ill-defined parameters of the resultant change. The chapter argues, adding social capital would require commitment from policy developers and transformation of a system based on industry derived competencies, to one that balances the inclusion of new social imperatives.

It may be a tall order to expect VET to include a new social paradigm that questions commitment to pedagogy and policies that have become ingrained in the system's human capital response.

A challenge for VET providers is also how to build yet another dimension into the finite training time available for the quantum of knowledge and skills employers are seeking. It is in this context that e-education and especially ICT because of its asynchronous structure, can perhaps play a lead role infilling the gaps created by the speed of change and the introduction of yet another training paradigm. Approaches that embrace accessibility through anytime, anywhere and any pace training arguably

give a competitive edge to providers able to take advantage of technologies capabilities.

The argument for including social capital within the orbit of VET is compelling. As the OECD (2001a) points out, there is now a realization that building human capital in communities requires the addition of social capital to underpin economic and social wellbeing. Nowhere can communities or organizations be considered to operate in a social vacuum, a factor that VET policy developers will need to note in the future as they map what it means to be competent.

Commentary on developing an innovative and creative workforce in recent policy documents encourages the view that policy towards social capital is changing (Kosky, 2002; Lomas-Smith, 2003; ANTA, 2003b). The call for the inclusion of social capital by whatever name, while still acknowledging the importance of training markets and other reforms can be heard in these documents, although they are often thin on detail. They typically contain a lifelong learning intent and broader social and community building strategies but fail to operationalise policy into a delivery framework.

One problem is the present structure of training packages. They offer little assistance to learners not in work and are not designed to deliver on workplace development in the way suggested in this chapter. Employers as the drivers of training package content have not yet made a significant commitment to social capital perspectives, perhaps because of differing views on what it is, how it may operate and who it applies to or whether it should be called a form of capital at all. With wide commitment from policy makers and employers to a one model fits all training package framework, widening parameters to include a social paradigm may prove daunting (Ryan, 1999).

The chapter also acknowledges several constructs that have been part of VET reform and represent a diffusion of influences in establishing a social capital agenda. They may ultimately define whether the VET system has the capacity to implement the inherent changes required, but at the very least they suggest the need for ANTA to develop a framework that recognizes the place of social capital development in any future reform of VET.

CHAPTER 9

KEY RECOMMENDATIONS FOR FUTURE VET REFORM

The ideologies of VET reform since the late 1980's have been characterized by at least two traditions, namely e-education and globalisation. To these two may be added a third, that of social capital development, but its inclusion has not yet been confirmed. The Portfolio has followed these traditions as sub-themes of reform considering each as a set of changing hegemonic discourses that have defined VET over the intervening years.

The most urgent task however is to examine the accumulated VET literature in an attempt to identify common themes that may be used to drive future reforms. In this context VET's most distinguishing characteristic when compared to its post-compulsory partners – universities – is its privileged relationship with industry and provision of operative, middle-level and non-university vocational training (Rushbrook, 1997). While industry has gained a pre-eminent influence among stakeholders, each has differing needs that must be serviced by the sector. In this context VET's niche is not only to meet industry needs but also to service non-university, trade bound and other learner groups.

The Portfolio identified a unique set of boundaries and barriers that tend to distinguish VET from other post-compulsory providers. Having been shaped by industry organisationally, philosophically and pedagogically VET occupies a different space to other sectors (Moran, 1994). As ideology has shifted under the various reform agendas, so have the boundaries that define the sector. New emphasis for example has been given to e-education, human capital development and training packages (Figure 1).

The following recommendations emerge from the Portfolio.

e-Education

If the 1990s can be said to have emphasised technology there now appears to be a discernable shift to questioning e-educations affect on the education and training enterprise. While this appears a self-evident approach for future research, it is difficult to know what to look for because of the multiplicity of variables involved. The

underpinning technologies have been extensively examined and clearly offer new opportunities for learners and teachers that are procedural, pedagogical and cultural, but affects on learning and other constructs are harder to determine.

What then is the vision of e-education? The most ubiquitous answer to this question is that technology now offers the possibility of not only education and training on demand but also replacement of older training traditions that previously connected learners and provided the means of sharing information. The contradiction in the connectedness conundrum is that e-education appears to favour autonomy and to be at odds therefore with the notion of establishing relationships. The new connections are perceived by some however as providing a ‘better’ connectedness and the option of developing new communities of practice. Others lament the loss of past control and experience discomfort with the transition to new traditions.

Recommendation 1

In reviewing the extensive literature on e-education and its implications for future change within the VET system, priority needs to be given to evaluating the quality, validity, reliability, strengths and weaknesses of the pedagogical paradigm embedded in findings.

Recommendation 2

Virtual training arrangements must include innovative delivery strategies.

Recommendation 3

Given the speed of change and the varied ways technology is being interpreted in education and training institutions, it is essential that a broad interpretation of e-education is applied.

Recommendation 4

By conceptualising technology as a cultural consideration, the boundary of e-education should be extended to include interpretistic studies of perceptions, values and beliefs. These constructs will play an important role in future VET reform and the success of technology implementation strategies.

Recommendation 5

In order to make education and training more effective when e-education strategies are included, teachers need to be guided by common research themes that portray the most appropriate pedagogical approach.

Recommendation 6

In order to facilitate technology acceptance, managers should look to selecting individuals who are familiar with technology, are high achievers and have previously introduced technology in order to cascade knowledge and enthusiasm to others.

The ICT Perspective

The literature suggests that the integration of ICT into education and training has usually been done without appropriate focus on pedagogical issues. For example, the inclusion of computers have been considered a stand-alone technology that requires only basic computer literacy skills to integrate its use, but this is seldom the case. The real learning gains may only begin when the impact of tools such as the Internet are understood and are included in the broader curriculum. There are perhaps three general principles to guide the integration of technology.

- Research suggests a positive impact on learning only occurs under specific conditions.
- Because research findings are usually defined for specific conditions careful interpretation should be undertaken before attempting to integrate technology.
- The impact of technology on learning is dependent on the way it is to be used.

Collaborative projects and constructivist pedagogy are further suggested perspectives on integration. Barriers may include providing teachers with the time to become innovative and familiar with the technology. It is clear from the case study Chapters 4 and 5, that even with the best intention, an e-education strategy can come unstuck.

Recommendation 7

The decision to introduce ICT solutions to VET programs must be predicated on establishing pedagogical strategies.

Recommendation 8

Attention needs to be given to social context in terms of the type of learner who will benefit from an ICT approach.

Recommendation 9

The VET system needs to use ICT as a tool to broaden its 'reach' in actively seeking new client groups.

The e-Education Organization

Few would argue with the notion that to live and work in an ICT dominated world, learners need to graduate with competencies, knowledge and beliefs that will enable them to participate fully in the workplace and within the society in which they belong. Focusing on the technology is not enough however if learners are to become critical thinkers, problem solvers and able to analyse, interpret, evaluate and apply information to various contexts. This raises pedagogical issues for VET that will require changes to the way teachers teach, how learning occurs and the training organization. The tools of e-education are useful in this regard so long as they service the different learning styles of individuals, connect all learners to information and teachers are given the time to become familiar with their use.

e-Education challenges the teaching role and VET organizations in a number of ways including how to:

- redefine curriculum;
- keep up to date with technological developments and their implications for education and training practice; and
- make the pedagogical change from teacher to facilitator of learning.

Recommendation 10

Implementing e-education strategies requires:

- a clear pedagogical approach;
- the communication of change to keep teachers connected;
- new organisational arrangements; and
- time to plan, learn and experiment with technology.

Recommendation 11

Teachers need to be allowed to grow into e-education.

A New Curriculum Tradition

As a replacement for a defined curriculum tradition, training packages appear to have been designed to express three principles (Brown, Anderson & Rushbrook, 2002).

- Relevance as competencies around the world of work that reflects the influence of industry on a marketised national VET system.
- Responsiveness as a reflection of the current and changing skills and knowledge called for in the market place.
- Uniqueness as the boundaries that define the VET sector.

The weakness of this approach accounts for some of the controversy around training packages. For example there is a general belief that VET has given over its interests to employers and that training packages are not friendly to off-the-job and on campus learners who make up the majority of VET participants. Hence for all learners training packages do not define what constitutes useful knowledge. Brown, et al. argue this can deny learners access to the knowledge and skills to actively participate in workplaces and their social contexts. It was proposed in Chapter 6 that many of the characteristics of training packages are consistent with the work of curriculum theorists and with the ‘right’ application could be useful in validating many of the contentious shortcomings in using them as a ‘new’ curriculum.

Recommendation 12

Because of the absence of a defined curriculum, there is a need to identify a curriculum tradition that validates the strategy of using training packages in place of a more traditional curriculum.

Recommendation 13

Flexible learning strategies should be used to provide an anytime, anywhere option for workplace training.

Recommendation 14

e-Learning should be used to facilitate some of the omissions of a VET system that concentrates on providing narrow employment related skills.

Recommendation 15

Taking into account learning style, those VET learners who will do well in an online flexible learning environment should be identified.

Recommendation 16

Evaluation of successful teachers in an e-education/ICT environment should be based on those who build caring communities of learners and match content to learner context.

Recommendation 17

Policy makers need to recognise that the role of VET teachers has changed in relation to curriculum development, instructional design, production, pedagogy and teaching and learning management.

Recommendation 18

VET programs need to incorporate the views of learners, broader work related skills and non-work understandings.

Globalisation and its Training Perspectives

Perhaps the most influential outcome of globalisation on VET has been the use of human capital theory as an economic construct. Governments have become predisposed to using education and training as a tool for ensuring participation in the new global economy. This has become a powerful driver for the sector's reform over the last decade. Knowledge technologies, innovation, productivity, competitiveness and marketisation are just some of the constructs singled out for special attention.

One of the enabling features of globalisation has been the reduced cost of communication and the new opportunities for sharing information that has arisen out of developments in ICT. The emergence of rapid technological change means employees must cope not only with shifts in the nature of work, but also a need to learn continuously throughout their working life. VET institutions have responded with changes to the role of teachers and more flexible learning strategies. For

example, distance learning has given way to anytime, anywhere arrangements and new workplace delivery strategies. More emphasis is placed on quality, lifelong learning and industrial relevance, constructs that have at least in part been possible due to ICT developments.

With a high ICT uptake, a characteristic of the VET system has been:

- a rapid increase in ICT based teaching and learning arrangements;
- new emphasis on applying appropriate pedagogical approaches;
- a rethink of an appropriate teaching and learning paradigm that aims to create a high performance workforce; and
- a review of institutional competencies to deliver on a new training paradigm.

Global factors may be viewed as an ongoing influence on content and design of VET programs. This conclusion suggests that for each stakeholder the VET system has a different role. Employers may see role in terms of productivity while employees will view the accumulation of skills as flexibility in changing jobs and taking advantage of economic opportunities.

It may be argued that the missing link in a global argument is a social capital perspective that balances technical skills with interpersonal, relationship and employability capacity. A new emphasis on social capital skills would facilitate lifelong learning and adaptiveness to coping with a fast moving and complex working environment.

Recommendation 19

In an environment where VET reform is increasingly influenced by globalisation it is important that policy shifts take into account the needs of all stakeholders.

Recommendation 20

If a more effective VET system is to evolve, one that meets economic and social needs better, then a true tripartite partnership between government, industry and training providers needs to be formulated. In other words, a system where Federal, state and territory governments determine the best way to implement broad national priorities agreed to in consultation with industry and training providers.

Recommendation 21

The influence of globalisation and the integration of technology in training reform suggests the need for a new framework for lifelong learning.

Recommendation 22

If there is a need for future employees to have transferable skills, VET policy makers must decide the initial training content that will facilitate this outcome and encourage lifelong learning.

Recommendation 23

VET policy needs to be located in a broad perspective that placates the ‘here and now’ while also responding to the challenges of the future. Broadening the ideology to include a social capital framework would be a useful starting point.

The Social Capital Perspective

There is an emerging realisation of the link between economic growth and social capital. In this scenario a productive economy is based not only on knowledge and skills but also social parameters, connections and cohesiveness leading to individual well being. Critical employability skills increasingly include creativity, innovation and critical thinking.

The notion of workforce development takes social capital into the confines of the workplace relating skills to the way they are used, how work is organised and points to skills being embedded in a broader set of considerations. The concept involves extending VET to include the diverse arrangements within the workplace in which skills are developed, integrating formal and informal learning (Table 9, p161).

Recommendation 24

In order to move beyond the narrow industry paradigm of the 1990s it is proposed that education and training balance social and human capital development. This outcome might be achieved by formulating a new training paradigm that would aim to provide high performance workers for the ‘new’ knowledge economy.

Recommendation 25

By rethinking the ‘richness’ of the world of work VET may be persuaded to redirect some of its attention away from a mindset on measuring capital outcomes. A

strategy might be to incorporate the implications of emancipatory and life politics into all on and off-the-job workplace training.

Recommendation 26

VET policy commentary should recognise the place of social capital development in future reform. This might be facilitated by establishing an appropriate framework, that directs attention to:

- norms and values in the workplace;
- lifelong learning;
- employability;
- innovation and creativity in using ICT; and
- social relationships.

A Final Comment

Although there are still many gaps, the Portfolio has demonstrated the richness of research and constructs that have and are shaping the VET system. This constitutes a source of information, advice and views that may be utilised to shape recommendations for future reform agendas.

The Portfolio began with the proposition that there have been at least seven influences that have reshaped VET over the last decade (Figure 1). At various times each has dominated the reform agenda but the notion of a global knowledge-based economy has seen a coalescing of their impact. Collectively they are having an integrated impact on policy formulation creating a system that continues to be in transition. For example, while human capital theory has held prominence for more than a decade, there is evidence that social capital development is becoming a mutually reinforcing construct that will gain wider emphasis in the future. This is despite the deeply rooted belief among many policy developers that VET's key role is to contribute to national economic performance through its impact on human capital development. The theory assumes that economic performance is simply enhanced by the level of skills, knowledge and innovation in the workforce. While the link with social capital seems self-evident there has been a slow response from industry and VET providers.

At the same time VET is confronted with a technological revolution and demand for institutions to become more competitive in the training market. These issues have challenged how programs are delivered, the basis of curriculum, the role of teachers and how institutions are managed.

The inescapable conclusion is that VET will continue to be reformed under the guise of economic imperatives or the need for community well being, but whatever the outcome the result will inevitably be a more complex system. The appointment of a Federal Minister for Vocational Education and Training points to VET again being at the crossroad of change. As the Portfolio is being drafted, change in direction can be seen in the proposed abolition of ANTA in 2005. While unclear on detail, ANTA responsibilities are likely to pass to the Department of Education Science and Training and hence Federal control. In addition, 24 Australian Technical Colleges are planned as a Federally funded addition to the training market, once again pushing the boundaries of VET in yet another direction.

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Interview Questions

Introduction

1. How long have you been at ADMC?
2. How would you describe your skills in educational technology? L L M M H E

Strategic Planning

3. What do you understand by the term e-education?
4. What do you know about ADMC's Strategic Plan for e-education?
5. What are the gaps in ADMC's e-education plan?

Pedagogy

6. What affect is e-education having on teaching and learning at ADMC?
7. What affect is e-education having on students at ADMC?
8. What student learning barriers are caused by e-education?

Change Process

9. What are the strengths of ADMC's e-education approach?
10. What are the weaknesses of ADMC's e-education approach?

Resourcing

11. What are your views on the resources at ADMC to support e-education?

Professional Development

12. What are your views on ADMC's professional development activities in relation to e-education?

Organizational Development

13. What organizational changes would you like to see in support of e-education at ADMC?

Other Issues

Are there any other important issues regarding e-education at ADMC that you would like considered?

Excerpts from Personal Communications

How long have you been at ADMC?

I'm in my 9th year.

How would you describe your skills in educational technology on a scale from low, low to medium, high, excellent?

Probably the lower end. Obviously one has become increasingly aware of the central focus of technology in education in practical terms and actual classroom applications.

In terms of strategic planning, what do you understand by the term e-education?

I suppose just the furtherance of educational goals by electronic specifically through....

What do you know about ADMC's strategic plan in e-education?

That's definitely more difficult. I think possibly because most decisions made at this college are very and one tends to terms goals the college states it is endeavouring to meet. What is this strategic plan beyond saying that it is trying to becoming a world leader, trying to make programs and stuff. I don't know much about the details or how they intend to actually go about this. It all seems a bit higgeldy piggeldy to me to be honest.

That actually leads into the next question which is what do you see are the gaps in ADMC's e-education?

The major gap is I have never personally been asked or been part of any attempt to rationalize e-education as a goal itself. It's been presented in the form of something de facto necessary de facto desirable, and because of that I don't think people were given the opportunity... for themselves not in fact pedagogically sound.

E-education having teaching and learning at ADMC.

I think that's quite a hard one to answer for me personally because for me personally it's been extremely limited because I have not to date had a class, for example, which has had laptops, which is rather a prerequisite for use of internet. So that's been a kind of practical limitation for me personally. As far as other people are concerned, I think it's certainly had some impact. I think people are aware that this is the direction that the administration intends to go and they're scrambling around trying to come to terms with it, trying to understand it. But what they're not being asked to do is to rationalize it for themselves, that seems to be an issue.

Students.

I think again this is more rather heresay more rather for me personally. I get the feeling that students, if you were to be totally simplistic, I think the students by and large seem to be quite happy to use the computer as an instrument of learning. They

seem to derive enjoyment from it. They seem to think that it is preferable on the whole to paper based learning, and preferable to sort of teacher centred learning or the old talk and chalk, or whatever. I think it certainly has its merits, but I don't think that the detail of it has been thought through properly. I know this from what a lot of people have said to me, how they're sort of scrambling about asking the question, "well, e-education's all very well, but how do we implement it, what does it mean in practice, how do we actually get there?" If we're talking about doing exercises, tasks whatever, well what makes it more meritorious to do that on a laptop as opposed to sitting with a pen in a classroom.

What about the learning barriers? Are there any barriers that you perceive?

There are certainly technical barriers. In what limited use I've made of these things there have been a lot of technical problems which have resulted in a wastage of time. I certainly think there are potential pedagogical barriers as well. You cannot make the assumption that e-education or the use of computers in education are necessarily the best way always of keeping an educational goal, it may not be the case, and there's no research that I've read that points towards it being so.

What are the strengths of our e-education program?

Well, I suppose the one that would immediately come to mind is that it's a very big world out there. The internet world. There's a massive, massive volume of information to sift through, so from the students perspective, the possibilities and the horizons for learning are infinitesimal. But I think the downside is that because it's sort of wholly and totally disorganized, the internet after all is not a centralized structure, it's a totally labyrinthal almost anti-functional phenomenon in its way. So who and how is all this going to be guided so that it makes sense to people, especially people in a college like this who are of very limited academic ability and whose political horizons are narrow to say the least. So I would have thought in fact that a culture like this that their limitations if anything were more severe despite the advancements and the technical knowhow that's available.

Weaknesses of e-education.

Again, I'm probably just retracing what's been said before. I think there's a lot of staff here who are in a way rightly suspicious about the speed with which this is all happening. It's as if somebody just turns around one day and says, "right, this is a great idea, let's do it," without actually having thought it through in detail what the implications are. I think also there's another dimension of this that there are some programs, courses, subjects, topics which lend themselves much more readily to being put on line say. With language which is what I'm concerned with. Language is by its very nature, fluid, dynamic, changing, interactive. You can't put a language.... There are certain aspects of language that cannot be dealt with through an electronic medium. Some aspects can, but many cannot. And it's things like this I think which are making some people a little wary.

What about resources at ADMC in support of e-education?

I don't think these can be faulted. This is probably one of the most technically advanced colleges that I've ever seen. Resources are excellent. I don't doubt that the

potential is here. If that is the route along which we want to go, but again I mean that would always be my concern, is that the tools are here and they can be made to be used. But do we want to use them?

Professional development. How adequate are professional development activities in relation to e-education?

I think by and large the college has tried fairly hard to bring all to focus attention on the various things that need to be learned. Perhaps at the end of the day people come here to teach a certain subject or to be managers, administrators, whatever. We're being asked to adopt what is really quite a different role here and I don't think there's been enough debate and openness about it.

That's a good point.... applies a role.....to everybody, demonstrators, teachers, students...

Yes, and again if I could just add to that. I think what a lot of people forget is that a lot of the students coming here. They come from an intensely conservative... I mean one might almost say backward educational system in many respects. And here we are sort of projecting them into this sort of new technical age. I'm not sure... It's going along the same route of independent learning. Independent learning seems to have developed a worth and a value of its own, which I would seriously question in this particular environment. I would very seriously question it. There's a time in everybody's life when they are ready for independent learning and it's a continuum, it's not something you sort of suddenly leave one day and embrace the next. It's something that you gradually become prepared for.

I agree with you entirely, but that's the reason it's been given for why we're going to online learning, to turn these students...

It's a chicken and eggs situation.

What organizational changes would you like to see in support of e-education? Would you like to see a bigger emphasis on the IT role supporting e-education the different areas... sorts of different ways... organize a college which says

This is all kind of based on the premise though that we're passed the discussion stage, this is something that's going to happen, this is a fact, and what is everybody's role in it. Well, for one thing I don't think anything like enough has been done to determine just how this whole e-education business fits into specific program areas. So one thing I would see which I think is missing from the organizational structure as far as I know is that of teaching people or telling them if that's how it's going to be done, just exactly what the long terms plans of the college are, where the college is going, what the specific individual roles of people are. Has it been decided for example there are going to be certain people who are going to be involved in this kind of thing, are we going to have little teaching teams, or whatever. Like many people, I don't really feel I know what's going on, and that would seem to suggest that there's something inherently weak, there's an element missing. There's these little messages floating about and people will talk, "I'm doing a web page." "Oh really, I'm designing..." "Oh are you, what's that for?" I've signed this contract, a separate contract to write a course for this. So people are doing little bits and pieces here and there, but you don't

know why they're doing it or how it fits into the bigger picture. I sort of get the feeling that no-one's perhaps explicitly got their hands on the whole thing. Maybe because it's a it doesn't exist, which I would truly understand.

Is there any other important issue that we haven't

End