

**Canada-Alberta International Conference**  
**“Competing for Skills: Vocational Education and Training in the 21st Century”**

Keynote address:

Mr. Tjerk (Jack) Dusseldorp, President, WorldSkills International

“Where there’s a skill there’s a way: enabling innovation and change through 21st century vocational education.”

Monday 31 August, 2009.

## **1. INTRODUCTION**

I would like to acknowledge a debt of gratitude to Dr Helen Smith for assisting me in preparing this address. A senior research fellow at RMIT University in Melbourne, Australia, Dr Smith is attending the WorldSkills Competition here in Calgary.

I will frame my comments about VET and “competing for skills” around three of the most important issues concerning us all in the early part of the 21st Century. They are identity, mobility and sustainability.

But first a short story – which happens to be true.

It concerns one of Australia’s past WorldSkills champions who was asked to speak to a public gathering on what had inspired him to follow his chosen trade and achieve his WorldSkills medal performance.

He began by describing what happened when, as a sixteen year old, he told his teacher that he planned to leave school to take up an apprenticeship. He was immediately taken to the Principal’s office, where he was told that as the top student in his class he was a role model for the others and had everything to gain by going onto university. He replied that he didn’t feel school had much more to offer him and he wanted to get started on his ambition to learn a trade and run his own business. It was made very clear to him that he was making the biggest mistake of his life.

Then, just a few short years later, he entered the regional WorldSkills competition at the instigation of his technical college teacher, and to his surprise he won both the regional and the nationals that followed which earning him the right to join the national team and represent his trade and country at the international WorldSkills Competition.

This period was the most intense learning experience of his life, and he returned home not only with a medal, but with his confidence to start his own business stronger than ever. And he found that his old school friends, still at university, envied him as he talked about putting a deposit down on his first home, while they remained indebted to the government for their tuition fees, and still lacked any clear ideas about their own futures.

Of course, vocational education – or learning by doing – has existed long before there were schools, teachers and labour markets. Most young people then, and to a much lesser extent now (except in the Germanic countries), learnt the skills of their future livelihood as apprentices. Through watching, practicing and improving, and innovating as well.

Across most of the modernised world, apprenticeship has gradually given way to state and national VET systems that seek to supply the skill formation needs of the industries which produce the goods and services we take for granted in our everyday lives.

In Europe, the UK, Australia, Japan, China, the United States and Canada, VET systems emerged in the late 19th and early 20th centuries and for all of their differences, these systems share significant features in common.

- They are complex
- They struggle to keep pace with the labour market demands of changing economies and emerging industries
- They find it difficult to meet the needs of small to medium enterprises
- And they all face the challenge of aligning their training products and services to exacting, national and global standards at the same time as they are adapting their training to meet changing local needs.

Yet across the modern world VET tends to be a poor cousin in the educational hierarchy, a status which continues to discourage very talented young people with less confidence than the hundreds of young skill champions who have gathered here in Calgary under the WorldSkills banner.

These national VET systems also share a desire to meet the challenges they face and to share their resources in doing so. Cooperative initiatives such as the OECD's *Learning for jobs* and *Systemic Innovation* projects, attest to the willingness of VET systems to embrace new ideas.

It is in this spirit that I offer you some thoughts about what VET should aim to be and what it needs to do to get there, and to provide some examples of innovation which may help show the way forward.

In the time available I will touch on three broad elements of what is a complex and multifaceted issue. Firstly the relationship of VET to other sub-systems of education – essential to strengthening VET's identity. Secondly, the role of the workplace as a site for vocational education and training – and highlighting the unique accessibility and mobility features of VET; and thirdly the central challenge of sustainability and the role that VET should play in this.

## **2. BRINGING VET AND OTHER EDUCATIONAL SUB-SECTORS TOGETHER**

### ***2.1 VET and higher education***

The first, and arguably most important thing that VET needs to do is to become more integrated with school and university education. As well as retaining its unique qualities as a form of applied learning, VET needs to extend outwards from its sectoral enclave to take up a place within schools and universities, which for their own part need to extend outwards into the world of work as a site for learning (a topic I will return to later).

The idea of links between VET and higher education is certainly not new. National policy and international initiatives encourage articulation between VET and higher education. However, progress in bringing VET and higher education together has been slow, and the story is of one way educational articulation from the 'vocational' to the 'higher' sector, rather than of genuine cross sector links that foster applied learning at all levels.

To simply focus on a one way articulation runs the risk that VET will be seen by higher education (and the general public) as merely a starting point en route to another form of learning rather than a learning experience which in its own right, produces outcomes of value to the individual and society. And it tends to let universities off the hook: as one way articulation arrangements allow universities to avoid coming to grips with their own vocational role, and the implications of this for the way courses are designed and delivered.

Of course, the real world in which skills are applied to solve human, social, economic and political problems does not work according to or benefit from a separation of mental and manual labour. Brain surgery, bridge building, food production and plumbing – all require a skilled hand drawing on know-how and theory to produce outcomes.

The need for a closer integration between education sectors is undeniable. Employers talk of the need for graduates with high level analytical abilities and technical skills and increasingly we find graduates of generalist university degrees seeking vocationally specific diplomas offered by technical institutes and trade schools. And it is a call that is not new. In 1999 UNESCO declared:

“Technical and vocational education should develop close interfaces with all other education sectors to facilitate seamless pathways for learners with an emphasis on articulation, accreditation and recognition of prior learning.”

A recent review of the Australian higher education system advocated moving to a unified tertiary sector to ensure, “a capacity for the whole system to provide integrated responses to workforce needs for industries and enterprises”.

The review committee recognised the value of the distinct contributions made by different forms of learning, but also maintained that:

“... there should be better connections across tertiary education and training to meet economic and social needs which are dynamic and not readily defined by sectoral boundaries.”

The further we travel into the 21st century the more pressing becomes the need for high order skills and for a new way of understanding what vocational education really means. Formulating and applying solutions to emerging problems of water and food supply, capturing carbon and recycling materials are matters for high level skill, deep applied knowledge and the capacity to theorise and solve unique problems. It calls for a new way of understanding the relationship between practical skills and knowledge production. It calls for strategies to enable specialists from different fields, skill types and levels, to work together as high-order problem solving teams.

Yet despite recent reports and financial incentives, our educational systems lag behind in practice. Post-Bologna efforts in Europe to integrate work placements and other forms of applied vocational learning into higher education curricula, and similar initiatives in Australia, the UK and Canada have not managed to shift dominant conceptions of vocational education as a pathway for the less able or overcome university fears that too close a relationship will lead to the standardisation of academic work and the erosion of academic freedom.

Consider this alternative perspective of a VET student writing in a recent blog entitled, “when will vocational education training step out from the shadow of academic learning?”

“The assessment element of our VET course wasn’t just limited to paper based exams that gave it academic credibility, but included practical assessments that encouraged us to seek innovative solutions to problems, thinking outside the box and designing programs for the kind of unexpected real life scenarios we would encounter in our work...We were given the skills that made us work ready and prepared to face our clients, and these are the skills we all need to develop in a rapidly changing and increasingly unpredictable global marketplace.”

Yet for purely practical reasons we will continue to struggle to integrate high level practical skill development into university education as long as our educators continue to operate within entirely different institutional domains. As the Australian Bradley Review Committee pointed out:

“Various efforts to strengthen the connections between higher education and VET have been made in Australia over the last twenty-five years with limited success, due to structural rigidities as well as to differences in curriculum, pedagogy and assessment.”

However there are models that demonstrate how we might move forward. The concept of polytechnic education carries with it the extension of VET into higher education, and there is an excellent example right here in at SAIT where curriculum development is supported by partnerships with business and industry. The very same practical “know how” and partnerships that have enabled Calgary to successfully host the 2009 WorldSkills Competition.

In Victoria, one of Australia’s eight provinces, there are five institutions known as ‘dual sector universities’ which have the characteristics of a polytechnic and a university – offering research degrees to PhD level and work-integrated learning at certificate, diploma and degree levels. These institutions maintain close links with companies and industry organisations and offer customised qualifications and skill sets to industry clients.

Another way of linking VET and higher education is through what the UK calls a foundation degree and Australia calls an associate degree – higher education qualifications which are offered by VET providers and which provide for specific skill development, broad vocational knowledge and clear guaranteed pathways into undergraduate degree programs. Both in the UK and Australia, these qualifications must be designed in consultation with industry and offer flexible entry requirements.

In a tertiary sector with strong industry links and integrated governance, a range of innovative vocational learning is possible, for example:

- Dual awards which bring together high level practical skill development with a theoretical base
- Integrated studies which bring VET skill electives into degrees; and where degree subjects are used to bring a critical perspective to the application of specialized skills
- Vocational post-graduate options – such as graduate certificates and diplomas which are available to university graduates and adults with high level work experience
- ‘Modularised’ study based on skill sets which enables workers to upgrade or deepen their skill and knowledge base and at the same time work towards higher level qualifications with labour market portability.

## **2.2 VET and Schools**

At the same time we need to re-integrate vocational learning into school education, strengthening not only VET’s identity, but also the uncertain sense of identity suffered by the young people who are disenfranchised by the traditional school curriculum. There are many students, who, like the WorldSkills champion I mentioned earlier, are discouraged from taking a vocational pathway. Sadly, too many of them, unlike our WorldSkills champion, have been unable to resist the pressures exerted by prevailing values and end up locked into desk-bound abstract “learning about” rather than “learning how” followed by jobs that don’t really meet their inner aspirations or talents.

However, despite the pressure to follow an academic pathway, Australian young people are voting with their feet. Over the past decade, participation in VET in schools (which has a mandated workplace learning component) has grown from a fifth to half of all senior secondary students and a recent national poll revealed high levels of support for apprenticeship and training pathways for young people.

And in some cases, through agreements between schools, VET and universities, articulated VET and higher education programs are now being underpinned by school based programs. For example at RMIT, secondary students interested in a career in the construction industry can do year 11 and 12 school studies which link to with a competency-based diploma and a work integrated degree in Construction Management.

In Finland (which currently leads the PISA educational benchmark ranking) the number of students applying to enter secondary vocational education has risen some 30% since they hosted WorldSkills in 2005. In fact last year, for the first time, the number entering vocational education was higher than the number entering general education in their secondary schools. They have had to re-open vocational programs that they’d closed down some years ago due to lack of students.

More than ever, guidance advice, mentoring and brokerage will be critical if young people are to be truly at the centre of learning and skills development. These intermediary roles can help turn large and impersonal systems into accessible networks, particularly for young people who are at the margins of mainstream provision.

Done well they can focus on the diversity of learners and their various needs for vocational education, career development and flexible training solutions. A notable Australian example of such an intermediary role is the network of not for profit group training companies which link young people to the skill needs of small and medium enterprises and now employ the largest number of apprentices across the nation.

## **3. EMBRACING THE WORKPLACE AS A SITE FOR VOCATIONAL LEARNING**

Achieving a closer integration between general and vocational studies in schools, and in post school learning will help to consolidate the institutional identity of VET. Equally important is the identity of non-institutional vocational learning, in particular that which occurs in the workplace.

Ensuring that workplace learning is factored into VET and formally recognised not only helps to meet employer needs for 'work-ready' graduates and cost effective skill upgrades, it also affirms individual and different pathways to skill acquisition.

Work-readiness is a matter of both confidence as well as competence – being at ease with the routines of skill application; having the capacity to collaborate with team-mates, negotiate tasks and to manage these under contingent circumstances. None of these attributes are especially fostered through traditional forms of classroom learning and assessment. Indeed recent OECD country studies have observed that college based vocational education can inhibit authentic assessment of work competency.

The workplace offers a range of opportunities for various forms of work-integrated learning such as:

- Gaining experience of the culture and routines of work through work placements
- Undertaking learning as part of one's work role under the guidance of a work supervisor
- Assessment of work competency through observation by a supervisor, who works with a qualified assessor to validate competent performance
- Using reflective tools to self-assess and to peer-assess work colleagues
- Having work-based learning formally recognised as a means of facilitating labour market mobility and skill transfer.

In Australia work-based learning strategies have been introduced in industries where there are skills shortages. For example to upgrade the skills of existing non-trade workers through a combination of recognition of current competency, assessment of job skills by supervisors, gap training and validation of workplace assessments by qualified assessors working in partnership with the company.

In Germany, where workplace learning has a long and strong tradition, the Daimler Corporation uses 'Learning Bays' - spaces which are located in the middle of work processes for informal and formal learning. Trainers attached to the learning bay are generally skilled workers from relevant departments who act as facilitators for learning specific topics and skills. The concept of the learning bay is also used for the technical skills training of existing workers.

The workplace is also a site for simulated work practice in circumstances where worker and client safety is a key issue – simulated pilot training being a well known example. Simulated work practice is also being taken up in the health industry, for example by The Queen Adelaide Hospital in Australia which uses a 'skills laboratory' to enable medical students and staff to learn and practice hands-on simulated procedures in a supported learning environment before they perform the same procedures in the real workplace. The laboratory enables learners to practice on both real and simulated patients in learning situations.

#### **4. ANYTIME/ANYWHERE VOCATIONAL LEARNING**

Arguably the need for vocational education and training to be primarily located in any particular space and time has been greatly diminished by the near ubiquitous access to communication technologies in so many modern economies – and by the alacrity with which young people have embraced mobile communications. Personal computers and laptops have become an integral part of our learning, work, and community lives and many other devices are becoming more computer-like: mobile phones, televisions, global positioning systems, digital music players, personal digital assistants, video cameras, still cameras, and game consoles, to name a few. These devices are getting cheaper, and becoming smaller and more portable.

What has been recently named 'Ubiquitous Computing' creates a new sense of space. Spaces for work, learning, shopping, entertainment all used to be different, defined places. Now the divisions between such spaces and their characteristic activities are becoming blurred.

From a learning standpoint, physical location is no longer a constraint on where and how people learn. Hand-held computing devices can always be with you – information can be accessed and learning experiences communicated as video or voice files to other learners, and to teachers in other locations. For young people, learning is also increasingly integrated with social life: a new reality which has been delightfully exploited by Irish educators who, to encourage students to learn, use and preserve the Celtic

language gave them free phones loaded with grammar and vocabulary software. Here was a device that young people would always have with them, knew how to use, and that was already seamlessly integrated into their daily social life.

Examples of current ICT use in vocational learning in Australian VET providers include:

- Managers doing diploma units using desktop and hand-held devices for receiving and sending text, voice and digital images to trainers
- Building apprentices sending digital records of work completed to assessors; calling up a teacher to get advice and instructions and discuss training issues
- Secondary students taking vocational units creating e-portfolios to demonstrate their current skills and to create a visual record of their achievements.

And an exciting experiment which is underway at RMIT University involves the use of Point of Vision (POV) glasses to enable construction industry students to submit their on-site work for formal assessment. The glasses are light weight, polarized lens with a mobile recorder fixed to the middle of the glasses. In the arm of the glasses is a 2GB memory (with a recording time of 5 hours), a USB connection and micro on/off, play and pause buttons. In this way the glasses allow for real time recording of work performance which can be directly downloaded to a PC or laptop.

The technical innovation in these examples is the unfettered mobility that hand-held (and wearable) technologies offer to teachers and learners. The pedagogical innovation is the capacity of the VET teachers to re-imagine their role and to bring the learners, their work colleagues and employers into a new form of partnership where teachers coordinate and facilitate learning opportunities and learners take maximum responsibility for managing their assessment.

## **5. EMBEDDING THE CONCEPT OF SUSTAINABILITY INTO SKILL DEVELOPMENT**

But let's pause here and step back into the helicopter and take a look at the bigger picture that VET functions within.

As Elim Salim, the Chair of the 2002 World Summit on Sustainable Development pointed out:

"... there are serious shortcomings in the way development has taken place in the 20th century ... development has followed only the economic track and has left behind social and environmental stability, resulting in rising poverty, inequality in income and development and natural disasters through rising flood levels affected by sea rise due to global warming. Development as implemented in the 20th century was not sustainable."

In other words, modernity and its technologies got us into our 21st century mess – we have to deploy new forms of technologies and new forms of fabrication, distribution, use and re-use to get ourselves out of it. Finding sustainable solutions is a problem solving exercise which relies on the capacity to apply new concepts in practice – in a myriad of different contexts and under different social and economic conditions.

The challenge for VET is not just one of curriculum or pedagogy. To contribute to sustainable development, VET needs to re-imagine itself as a different sort of learning community which is dynamically linked to equally re-imagined industrial and business communities.. A recent UNESCO Discussion paper has eloquently encapsulated the challenge:

"The process of re-orienting VET towards sustainable development is a broader and more pervasive task than that of revising syllabuses and devising new teaching and learning materials that incorporate principles and examples of sustainability... The crisis of unsustainability cannot be solved by the same kind of education that helped create the problems... Schools, colleges and universities are part of the problem."

Sustainability in VET has been on the global agenda since at least 2001 when UNESCO formulated three goals to orient VET towards sustainable development. These goals viewed sustainability as essentially an issue of democratisation and empowerment and providing vocational learners with a critical understanding of

the role of science and technology. More recently the debate has focussed on the bread and butter of VET – on how technical skill and knowledge can be harnessed to achieve practically sustainable outcomes.

This theme is born out in the 2006 UNESCO discussion paper which argues that:

“The challenge for VET is to re-orient and re-direct its curricula to imbue students and trainees with respect for the conservation and sustainable use of resources, social equity and appropriate development .” (UNESCO 2006, p. 9).

This paper also makes a most encouraging observation about the changing perceptions of work and learning:

“The boundaries between manual and mental work are fading away, as many traditional forms of work and the respective preparation processes for learning to work undergo change. The education and training of knowledge workers, suggests that this integration trend will predominate in the 21st century. This is because learning sophisticated technological concepts requires a sound foundation in mathematics, science, communications skills, and also an understanding of technology... Notions of sustainability in VET concern and affect both aspects of manual and mental competencies.” (UNESCO 2006, p. 24).

The challenge now is to take the VET sustainability agenda beyond the conference room and into the classroom and the workshop.

This is partly a question of curriculum to meet the demand for new skills in the production, installation and servicing of alternative energy sources and to adapt traditional skills to green industries<sup>1</sup>. However, achieving sustainability is a bigger and more complex issue than providing new skills as the demand arises.

What is needed is a new approach to skill formation which has VET working strategically with industry, government and community agencies to achieve agreed economic and social goals. This is what an Australian VET agency termed a skills ecosystem where VET/industry/government networks work together to “examine the functioning of local labour markets, systems of work organisation, human resource management, and relationships between firms, and other key players such as applied research organisations”.

## **6. ENABLING NEW FORMS OF VOCATIONAL LEARNING: THE ROLE OF GOVERNMENT**

The chance of these sorts of reforms being implemented relies ultimately on the willingness of people in education, the community and the private sector to work together in new ways. However, there is a very important enabling role here for government and a tremendous challenge. That is: to work out what sort of governance arrangements will support innovation and at the same time allow for the monitoring of national and global quality standards.

There is no time here to go into details, but it needs to be said that encouragement of innovation and the maintenance of quality is only possible under devolved governance arrangements which facilitate flexibility and change.

I want to briefly mention three critical directions in governance.

1. Adopt standards-based regulation of systems, programs and services which enable multiple institutional arrangements for delivery of services, including public and private provision, large, small, general and specialist, and local flexibility of program design within the framework of agreed standards

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<sup>1</sup> On this front, a recent Australian report estimated that skills shortages are constraining consumer capacity to switch to more sustainable alternatives , citing the example of the NSW consumer subsidy for conversion of cars from petrol to LPG which did not reach its potential because of a shortage of mechanics able to undertake the conversion *Growing the Green Collar Economy: Skills and labour challenges in reducing our greenhouse emissions and national environmental footprint*, CSIRO 2008

and accountability arrangements. This means replacing behavioural control through inspection with the audit of outcomes measured against quality benchmarks.

2. Take curriculum out of the regulatory process. This is what happened in Australia when Training Packages were introduced. While by no means a perfect system it offers enterprises a greater voice in the way training is delivered and greater flexibility than is possible in systems where competency standards are translated nationally into standard learning and assessment activities.
3. Avoid making regulation complex and detailed, just because we have the technology to do so. This is a warning issued by the OECD to Australia, where they urge the simplification of what has become an overly burdensome amount of detail and prescription.

In particular governments need to avoid the temptation to centralise quality procedures. There is no substitute for quality teaching and for well resourced training providers. This means pushing the maximum resources and matching accountability down the line. Focus on the standard of training and assessment NOT on standardising curriculum and assessment.

## **7. CONCLUDING REMARKS: RE-INVENTING VET FOR THE 21ST CENTURY**

There are good reasons why VET should be able to play a key role in the development of innovative solutions to our 21st century economic and environmental dilemmas. VET has a tradition of responsiveness and innovation, and has demonstrated a capacity to meet vocational learning needs from the most basic to the most advanced. However, despite its past achievements and demonstrated capacity to evolve to meet new challenges, VET faces a serious and deeply embedded problem: its status in the community and amongst policy makers and educators.

It is little wonder that vocational education institutions and systems sometimes exhibit the symptoms of an identity crisis.

It is this identity which needs to change – both internally and externally – so that members of the VET community regard themselves as worthy, and the image of VET in the community is aligned with that of school and ‘higher education’.

In 1999 the second UNESCO Congress on Technical and Vocational Education with representatives of 130 countries convened to develop a 21st Century vision for vocational education and training. An urgent goal of the Congress identified the need to enhance the status and prestige of vocational education in the eyes of the community and the media so as to promote the parity of esteem between vocational and general education, especially in developing countries.

I believe WorldSkills remains one of the best means to achieve this goal on a global basis through the cooperative action of our members by raising awareness of the essential contribution that skills and high standards of competence make to the achievement of economic success and personal fulfilment.

After nearly 30 years involved with WorldSkills – the last ten as its President – I have witnessed a dramatic increase in interest in VET from both government and industry in all parts of the world. As a result, the membership of WorldSkills has doubled to 52 Member countries and regions in the last 15 years and we anticipate it will grow to over 60 by the time (either Leipzig or Paris<sup>2</sup>) hosts the event in 2013.

Canada, and particularly Alberta, now has the opportunity to richly benefit from the 2009 WorldSkills legacy. Whatever you do don't leave town without visiting the Competition at Stampede Park over the next few days.

Thank you for your kind attention.

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<sup>2</sup> To be decided by vote at the WorldSkills International General Assembly meeting, tonight at 5.30pm (31 August, 2009)