VICTORIAN QUALIFICATIONS AUTHORITY

New Skills and Knowledge - Implications for Qualifications

ISSUES PAPER

By Peter Noonan

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**Contents**

1. Introduction 3
2. Changing Skill and Knowledge Requirements 4
3. A Framework for Consideration 9
   - 3.1 The Role of the State 9
   - 3.2 The Design of Qualification Systems 10
   - 3.3 Assessment 13
4. Conclusion 14

Bibliography 15
1 Introduction

In the past few years, a number of major reviews, reports and research papers have identified the actual and likely influence of changes in the workplace, of changing demography, of changes in social values and of changing technology on the nature of future skills requirements.

Broadly speaking, these publications have identified the need for VET policy and pedagogy to be set in the context of workforce skills development (not just formal VET) and to be linked to policies and strategies aimed at building the capabilities of individuals to successfully participate in the modern knowledge based economy.

While the implications of these changes for competency standards, for assessment, and for pedagogy generally have been identified and debated, their full implications for qualifications have not yet been properly explored.

The purpose of this paper is to analyse the implications of changing skills and knowledge for formal qualifications and to discuss possible policy approaches. While the focus of the paper is on VET, the implications of the analysis extend logically to schools and higher education qualifications as well. The paper draws on Australian and OECD reports and papers on changing skills and knowledge requirements, and on two reports by the DEMOS organisation in the United Kingdom.
2 Changing Skill and Knowledge Requirements

The High Level Review of Training Packages Phase 1 Report by OVAL Research (ANTA 2003) was the first and most comprehensive assessment of implications for VET standards, qualifications and pedagogy arising from changing employment patterns, organisational changes, changing skill, changing knowledge, changing learning, changing pedagogy, changing clients and changing education and training relationships.

One of the key summary conclusions of the report was that:

*The concept of skill can no longer be simply defined in terms of the knowledge and skill required for a job or occupation. The new concept includes an array of general and personal capacities and attitudes deemed essential to the contemporary world of work, in addition to job and occupational knowledge and skills.*

The report challenges the kinds of knowledge traditionally associated with formal education and training and argues that:

*This position proposes that the knowledge required by the contemporary economy is different from the knowledge that has occupied traditional education and training programs. Current thinking emphasises knowledge constructed as practical, interdisciplinary, informal, applied and contextual over knowledge constructed as theoretical, disciplinary, formal, foundational and generalisable.*

The report also identified the growing importance of individual attributes (and not just to technical skills), and the challenge the development of these attributes poses for education and training providers, for courses, for assessment and certification and for qualifications.

In particular, the OVAL report draws on contemporary research into the importance of work based learning and argues that this form of learning is not organised around pre-specified content and is not determined by qualifications guidelines or training packages.

Interest in changing skills and knowledge requirements have been driven in part by concepts such as the innovation and knowledge based economy. The OECD (1996) has defined knowledge required in a modern economy as:

- **Know-what** which refers to knowledge about “facts”;
- **Know-why** which refers to scientific knowledge of the principles and laws of nature;
- **Know-how** which refers to skills or the capability to do something; and
- **Know-who** which involves information about who knows what and who knows how to do what.

This typology of skills and knowledge is largely consistent with the OVAL report and holds significant implications for qualifications.
Formal qualifications tend to encompass codified knowledge – that is, knowledge which is captured and represented in standards and curriculum and which primarily covers the ‘know what’ and ‘know why’ knowledge categories. Tacit knowledge is more commonly represented in the ‘know how’ and ‘know who’ categories and is acquired through non formal and informal learning. Many employment related skills are developed in workplaces. Of course, many qualifications require the integration of knowledge and practice, including qualifications offered under competency based training models (although critics of CBT would also argue that it overly emphasises ‘know how’ to the exclusion of other forms of knowledge and skill).

Nonetheless, the distinction is important as the OECD points out that ‘tacit knowledge in the form of skills needed to handle codified knowledge is more important than ever in labour markets’.

There has been renewed interest in the concept of workforce skills development as a framework which can encompass these different forms of knowledge and the means by which they are acquired.

Kaye Schofield in the South Australian Ministerial Skills Inquiry argued that the concept of workforce skills includes:

…those activities which increase the capacity of individuals to participate effectively in the workforce throughout their whole working life and which increase the capacity of firms to adopt high-performance work practices that support their employees to develop the full range of their potential skills and value.

Noonan argued that VET policy in the future had to more effectively encompass both tacit and codified knowledge, and formal and informal learning in a shift to the concept of workforce development rather than just formal VET. He asked:

The key question is whether or not Australia is poised to make the transition from a largely standards and qualification 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.

These arguments paralleled concurrent consideration of the development of generic or employability skills in Australia, in particular the framework proposed by the Business Council of Australia and the Australian Chamber of Commerce and Industry, and responses by agencies such as the VQA to those frameworks.

The Employability Skills Framework developed for the Australian Chamber of Commerce and Industry and the Business Council of Australia identifies the following key employability skills.

- Communication skills that contribute to productive and harmonious relations between employees and customers;
- Team work skills that contribute to productive working relationships and outcomes;
- Problem-solving skills that contribute to productive outcomes;
- Initiative and enterprise skills that contribute to innovative outcomes;
- Planning and organising skills that contribute to long-term and short-term strategic planning;
- Self-management skills that contribute to employee satisfaction and growth;
- Learning skills that contribute to ongoing improvement and expansion in employee learning
- Company operations and outcomes; and
- Technology skills that contribute to effective execution of tasks.
The Employability Skills Framework also identified a set of personal attributes:

- Loyalty;
- Commitment;
- Honesty and integrity;
- Enthusiasm
- Reliability;
- Personal presentation;
- Commonsense;
- Positive self-esteem;
- Sense of humour;
- Balanced attitude to work and home life;
- Ability to deal with pressure;
- Motivation; and
- Adaptability. (ACCI 2004)

Key issues in the debate around this framework were the extent to which attributes, such as those outlined above, are characteristics of individuals, which have more to do with personality traits and life experiences than outcomes from education and training programs, the subjective nature of some of these attributes and the difficulty in defining and assessing them.

In a paper, The Creative Age: Knowledge and Skills for the New Economy, DEMOS has subsumed the concept of employability skills into the broader concept of creativity. DEMOS argues that creativity can be learned and acquired and that it is not just an innate personal attribute. Under this construct, creativity involves ‘the ability to apply and generate knowledge in a range of contexts, in order to meet a specific goal in a new way’.

DEMOS identifies future skills requirements within the creativity framework as information management, self organisation, inter-disciplinary, personal and inter-personal, reflection and evaluation and risk (involving futures thinking, decision making, stress management and learning from failure).

DEMOS argues that creativity is as much about what is not known as is known as it involves the capacity to solve problems progressively over time and to apply previously learned knowledge to new situations. It also recognises that creativity is related to context – it can only be defined and assessed in the context in which it occurs.

It can be argued that the DEMOS framework – along with generic and employability skills frameworks – are simply a re-hashing or updating of core and key competency frameworks developed in Australia, the United States and the United Kingdom (amongst other countries) in the early 1990s frameworks with which formal education and training systems and qualification and certification bodies have failed to come to grips, either because the frameworks are flawed or because the design of our qualifications systems cannot accommodate new knowledge and skills requirements.
But the failure of formal systems to, as yet, reflect changes in the nature of current and emerging skills requirements does not mean that these requirements are not important or that they will go away. Rather, it suggests that other mechanisms may be put in place formally and informally so that individuals, firms and communities can both build and have recognised the skills, knowledge and capabilities they require for effective participation in the modern economy and society in the future.

The challenge of workforce retraining and adult learning in the context of the aging of Australia’s population adds to the complexity of this challenge. Participation in formal education and training, and consequently in its certification and qualification systems, declines significantly with age. Tacit knowledge and informal learning becomes more and more important - but does it even matter that it sits outside of our traditional notions of qualifications?

To the extent that qualifications and their components, such as units and modules, have currency and act as a mark of status, their content and design must increasingly reflect the needs of adult learners, including those retraining for current and new occupations and those seeking to re-enter the workforce. The need to boost Australia’s workforce participation levels by increasing the skills and capabilities of people with low levels of formal qualifications and low levels of engagement with the workforce adds to this imperative and skills recognition and certification is an important part of this process.

Equally, we also need to ensure that qualifications prepare people for a range of workforce futures and for further learning. In other words, we are looking to our qualification systems, as well as our formal education and training systems, to play far more different and diverse roles than they ever have in the past - but the extent to which these expectations can be met within current frameworks and guidelines is at best unclear.

As DEMOS concludes:

*This leads to a paradox. While skills requirements are rising, more qualifications are not necessarily helpful. Because of the premium on new ideas and flexibility, people who have built up detailed knowledge over time find themselves at a disadvantage if they do not know how to apply what they know in different ways. The ‘new basic skills’ are about how people think and act, not just what they know.*

*In the meantime, qualifications are still at premium because they act as a form of currency and a mark of status. Most employers still use them as a way of sorting job applicants, even if they claim that they are looking for other kinds of ability. We are increasingly looking to schools and universities to deliver different kinds of knowledge and skills, while also augmenting the pressure for them to deliver conventional qualifications.*

If knowledge and skills are to be future determinants of economic and labour market success, individuals will increasingly seek some form of recognition and certification of their individual capacities, employers will also look for independent and authoritative means by which the skills and knowledge claimed by individuals can be validated and governments will look to measures by which stocks of skills and knowledge can be measured.
This creates several dilemmas for policy makers:

- Can new requirements for skills and knowledge be reflected in formal qualifications and, if so, how can this be achieved given the personalised, context specific and changing nature of new forms of knowledge and skills?
- Will qualifications frameworks and guidelines become so complex that they will be impossible to interpret and use, and will qualifications seek to serve so many purposes and contain so many signals that they become impossible for users to interpret?
- Will there be the potential for an explosion in the number of qualifications leading to a kind of qualifications inflation which will ultimately devalue, rather than add value to, the process of certifying knowledge and skills?
- Should qualifications (particularly in VET) only signal competence for particular technical and occupational requirements or should they signal more about the capabilities and attributes of individual learners?
3 A Framework for Consideration

This paper takes as a starting point the view that the process of looking at how qualification frameworks could change and evolve to reflect new thinking about skills and knowledge should at least commence. Three broad areas of investigation are required: the role of the state in organizing and authorizing qualifications systems, the design of qualifications systems, and assessment. The issues involved are complex and, in some instances, have not been fully explored or researched and in the scope of this paper are only analysed in a preliminary and tentative manner as a contribution to that discussion.

3.1 The Role of the State

Firstly, the purpose of qualifications and the role of the State, both directly or indirectly, in certifying and issuing qualifications must be clarified.

It can be argued that, if skills and knowledge are the essential determinants of economic and social success, there is a compelling public interest in ensuring that public qualification systems reflect, to the maximum extent possible, the range of knowledge, learning pathways and outcomes that are used and valued in the economy and in society more broadly, and promote new forms of skills and knowledge, rather than entrench current and past practices.

The alternative is for public qualifications increasingly to be seen as ‘old currency’ and increasingly irrelevant to learners as they seek to acquire and have recognised new skills and knowledge. As a consequence, unless public qualifications systems adapt, there is likely to be a proliferation of different forms of provider, industry, and professional association qualifications, each struggling for recognition in the marketplace with no underpinning coherence or basis for comparability and recognition between them.

This having been said, it must also be recognised that qualification systems can never seek to encompass all forms of knowledge and the means by which they are acquired, in particular many forms of tacit knowledge which are built up through experience, interactions between individuals and groups, curiosity and self-directed learning.

Other forms of qualifications will also continue to exist along side of public and formal qualifications as they have done for many years.

The danger is that public qualifications frameworks may become so complex and seek to serve so many purposes that they will collapse under the weight of their own complexity. This suggests that we must be careful in the design of qualifications frameworks and qualifications themselves.
3.2 The Design of Qualification Systems

A starting point to this process is to structure the key elements of the qualifications framework on a consistent and coherent basis.

The report on the design of the initial framework for the Credit Matrix in Victoria for the VQA identified the different frameworks that underpin qualification systems in a number of comparable countries to Australia. The report highlighted the need to identify the different strands of skills and knowledge that should be encompassed within qualifications and the level of complexity of learning outcomes across these strands. The initial design was subsequently modified in the form of the current Credit Matrix descriptors.

The design report highlighted the need, through a common framework of descriptors, to identify the type of knowledge, the level of skill associated with its application and the context within which it is applied, in particular levels of learner autonomy and responsibility.

These strands or taxonomies are evident in a number of national qualification frameworks and are implied in VET related qualifications within the Australian Qualifications Framework (AQF).

However, the AQF is a framework made up of descriptions of qualifications authorised and issued in the different sectors, rather than a framework based on an integrated and coherent set of descriptors from which qualifications and their components (units and modules) can be derived.

While a sectorally based qualification descriptor can also encompass current and emerging skill and knowledge requirements, a preferable approach would be to develop a common framework of taxonomies and levels which embodies a forward looking common sense of what our nationally recognised qualifications are intended to signify across the different sectors of education and across the different contexts within which learning occurs.

A common framework of levels and descriptors could ensure that individuals can be confident that their learning in different sectors and in different contexts will encompass different aspects of skills and knowledge, recognising that all elements of knowledge and skills will not apply equally in all qualifications or their components.

The objective would be to tie together knowledge and its application across a range of contexts and, in so doing, ameliorate the unproductive ‘knowledge versus competency’ debate which creates an artificial barrier between the VET and higher education sectors, bedevils the effective implementation and recognition of VET in schools and entrenches, rather than reduces barriers to, credit transfer, articulation and recognition of prior learning.

However, even a more coherent and integrated set of qualification descriptors does not itself resolve the challenges of encompassing and supporting new concepts of skills and knowledge involving context specific, personalised and attribute focussed outcomes into qualifications.
Firstly, the greater the importance of the context within which knowledge is acquired and applied, the greater the difficulty of assigning a single level or qualification type across a broad range of learners. In particular, the level of autonomy and accountability of different sorts of learners may vary significantly in terms of age, experience, access to workplace based learning and work practices and culture. By its nature, many new forms of knowledge will be context specific, will change and will also be shared by groups of people, not just individuals. As the group changes so does the nature of the knowledge. This will become an increasing issue as workforce aging and the focus on workforce development brings adult learners from increasingly varied backgrounds into formal, recognised education and training.

Secondly, attributes such as those embodied in employability skills frameworks, and the creativity model advanced by DEMOS, are not necessarily consistent with a framework based on increasing levels of complexity of learning. Attributes such as inter-personal skills, self organisation, capacity for team work, capacity for further learning and so on can occur at all levels of learning. Indeed, some attributes may be more important at lower rather than higher levels of learning and work - for example, the importance of interpersonal skills at lower levels of the services industries and the relatively high levels of autonomy in which many tradespeople work, compared to some professionals. These attributes are also not static; they may change rapidly through experience and application, while the level of knowledge type (concrete, factual abstract etc) may be relatively static. If attributes are reflected in a qualification outcome at a point in time, individuals may be significantly disadvantaged as their personal attributes change and develop.

Many of these attributes are also highly value based – strong leadership for one person may be seen as directive and didactic by another. Teamwork may or may not be a good thing, depending on the quality of the team – individual initiative may conflict with team goals and norms but may contribute more to innovation and problem solving. As such, they are difficult to specify and to assess on a consistent and commonly recognised basis.

Finally, the focus on capability requires broader approaches to definitions of competence than under current Training Package guidelines. The focus on the performance of tasks and the application of knowledge in immediate workplace contexts and in terms of current work practices is no longer (if it ever was) a sufficient basis for the development of the kinds of broad capabilities individuals will require and employers appear to value.

Development of these broader capabilities will require a further evolution of VET pedagogy to focus on the importance of students’ learning, as well as achievement against external standards. Courses and qualifications must encompass both performance levels against external standards and more strongly support individual learning by students to help them develop their broader capabilities, most importantly their capacity for further learning and to apply knowledge and skills in new and changing contexts.

This evolution does not require a move away from specified outcomes in areas of required technical and occupational competence as some have suggested. This will simply create a confusing market of provider, industry and professional qualifications, undermine important gains in mutual recognition of qualifications between the States and the growing value accorded national qualifications in overseas markets. It will also set back current proposals to more effectively align VET competency standards and industry and occupational licensing requirements, effectively handing the specification of those requirements to industry and occupational regulators.
It must also be recognised that, for many students, gaining immediately relevant skills for employment can serve as a critical foothold in the labour market, giving them employment, and income and self-esteem – so signals of direct labour market outcomes are important. However, evidence of significant churning and unsuccessful outcomes from many students at lower VET qualification levels suggests that there needs to be a much greater focus on building greater learning attributes and capabilities in VET learners.

This will require either a major re-think in the process by which VET qualifications are designed – that is, they are more than the sum of the individual units of competence upon which they are based – or, alternatively, that greater discretion be given to training providers to develop their own qualifications in which national standards are transparently embedded. The problem with the latter approach is that it may lead to a confusing array of qualification titles, with unclear linkages to standards. However, unless the current system and process changes, the pressure to more effectively build individual learner capabilities will inevitably see the development of new, accredited qualifications in any event.

Under either scenario, VET qualifications themselves may increasingly be only broad indicators of learning outcomes and that qualification transcripts will have to contain more information on standards which have been achieved. They will have to be supported by more information on transcripts about specific units and specialisations and be supported by information on the contexts within which skills and knowledge were learned and applied. Where occupational and industry licensing requirements exist, these outcomes would also need to be clearly recorded, specified and cross referenced to the relevant regulatory requirements.

Concepts such as learning portfolios and skills passports may also have to be re-considered as necessary adjuncts to qualifications. This is not necessarily as radical as it may seem; school reports contain information on achievement against external benchmarks and the attributes students have bought to the achievement of those tasks. They reflect both summative and formative assessment outcomes. These models support a greater focus on the learning needs and development of individual learners and may be the only way in which information on broader attributes and capabilities can be recorded, reported and updated over time. They will also assist in improving recognition of prior learning and current competence, credit transfer and entry into other qualifications.

However, issues such as cost, the role of the state and of education and training providers in collecting, verifying and maintaining these systems will have to be carefully assessed.
3.3 Assessment

Qualifications cannot be divorced from the means by which they are assessed, and assessment practices can significantly distort designed or required outcomes. A full analysis of the role of assessment in qualification systems is beyond the scope of this paper but, as DEMOS has also noted in Beyond Measure (2003) - a paper on which challenges current approaches to assessment and certification in the United Kingdom:

*Only by verifying how well what has been learnt has been understood, how confidently it can be drawn on in a range of different contexts, and how effectively it can be applied to solve practical, real-life problems, can we hope to improve our capacity to learn in the future – literally, to learn how to learn. But an assessment system that measures recall of knowledge rather than depth of understanding that tests only a narrow section of the curriculum, and that demotivates and lowers the self-esteem of learners is not fit for this purpose.*

DEMOS argues that the principle underpinning assessment should be the assessment of learning as the basis of a radically reshaped qualifications and certification system. While this argument has significant merit in relation to the purposes of schooling (the primary focus of the DEMOS paper) and should be intrinsic in all future certification and qualification systems, assessment against required technical and occupational outcomes to signal proficiency and competence will continue to be a primary requirement for most VET qualifications in terms of both student and employer needs and expectations.

Nonetheless, if qualifications are also intended to signify broad capabilities and, in particular, capacity for further learning, it is essential that assessment processes and outcomes provide both summative assessment; that is, assessing and recording outcomes against required standards and benchmarks and formative assessment that is progressive assessment and feedback of individual learners as they progress through particular learning pathways and not just in relation to specific units of competence. Formative assessment is critical in the development of people's capabilities for further learning as they learn to reflect on their learning outcomes and prepare for further stages of learning.

Formative assessment is also crucial in the development of tacit knowledge and personal capabilities and attributes as it can be closely linked to management practices, employee feedback and appraisal and quality assurance processes such as 360° feedback. Formative assessment records can also show the contexts and manner in which knowledge and skills were applied, how learners responded to feedback and their capacity for self reflection and change.

Assessment objectives therefore should encompass both external requirements in terms of labour market outcomes and prerequisites for further learning, and the development of individuals as learners.
4 Conclusion

Consideration of the issues raised in this paper in Australia’s federalist and sectorally based education and training system is complex and difficult, and reaching agreement on required changes to policies, procedures and guidelines even more so. But every major policy change has a starting point, and the evidence from research and proposed new directions in VET pedagogy are that changes in the external environment are driving changes in the nature of skills and knowledge required for the future. Unless qualifications systems adapt to and reflect these changes, they will either stifle innovation or be bypassed and replaced by alternatives systems increasingly outside of the public realm.
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