Gateway – Linking Vocational and School Assessment Systems

Presented by Kari Miller

1. Introduction

When the National Qualifications Framework (NQF) system was put into place in New Zealand it was designed to encompass competence based learning and assessment from senior secondary school to University. In New Zealand senior secondary school encompasses years 11-13 at school with students ranging from 15-18 years in age. While the senior secondary school system has embraced (albeit reluctantly in some cases) the competence-based system, Universities still have an uneasy relationship with its existence.

In this presentation I will outline:

- how the school-vocational link works
- the advantages and challenges for both parties
- some examples of where the links are working well.

2. Background

When the NQF was first introduced into the senior secondary school system it encompassed both vocational skills and conventional school subjects in a unit standard format. This format is based upon the assumption that a unit standard outlines the skills and knowledge required for competence in a particular outcome, is an assessment not delivery tool, and a learner is assessed as competent or not yet competent. While this concept works well for vocational skills and knowledge, as industry is only concerned about whether a candidate can or can't perform a specific outcome, this format does not fit easily into conventional school subjects that were used to being graded.

To accommodate the need to grade performance but still stick within the unit standard format, achievement standards were designed. Achievement standards are still outcome based, and an assessment not a delivery tool but students can be graded within their performance to reflect competent, merit and excellence. The requirements for merit and excellence are clearly stated within the achievement standard and require a greater depth and sufficiency of evidence while still keeping within the descriptor set for the level. A copy of the New Zealand NQF level descriptors is attached as an appendix.

3. Issues

While this development met the requirements for the conventional school subjects, it caused some problems for the vocational sector as schools were delivering and assessing achievement standards up to level 3 on the NQF and also wanted to deliver and assess vocational unit standards up to level 3 on the NQF as well. While

this is not a problem for achievement standards there is an inherent conflict for vocational unit standards as the level 3 descriptor states:

Level	Process	Learning demand	Responsibility
3	Carry out processes that: - require a range of well-developed skills - offer a significant choice of procedures - are employed within a range of familiar contexts	Employing: - some relevant theoretical knowledge - interpretation of available information - discretion and judgement - a range of known responses to familiar problems	Applied: - in directed activity with some autonomy - under general supervision and quality checking - with significant responsibility for the quantity and quality of output - with possible responsibility for the output of others

Theoretical outcomes at level 3 can be comfortably assessed in the school system especially by students at year 13. However this is not the case with vocational skills. As outlined in the level 3 descriptor above, candidates are required to be able to perform the outcomes 'in directed activity with some autonomy and only under general supervision and quality checking'. When we consider the definition of competent 'as being able to perform the outcome consistently in a context', this poses a problem for a school environment. For most employers their expectation would be that the candidate could perform the outcome consistently on-job and on their own. Capability, which is 'the assessment of underpinning knowledge and skills' is a different matter, and most industries are reasonably comfortable with knowledge being assessed in a school or learning provider-based environment.

To try and resolve the issues around assessment of practical competence by students still at school, the Gateway programme was devised.

4. The Gateway Programme

The Gateway programme is designed to strengthen the pathway for students from school to workplace learning. In 2008, senior students in over 340 schools will participate. The purpose of Gateway is to support students undertaking learning and assessment in the workplace. Structured workplace learning is a formalised learning arrangement set in an actual workplace for a sustained period of time with clear understandings about the knowledge and skills to be attained and the unit or achievement standards to be assessed.

Students complete a supervised work placement and have their learning in the workplace assessed against unit and/or achievement standards on the NQF. Collaborative and networking arrangements among schools are encouraged, allowing the sharing of information and experience and increasing the efficiency of engagement with the business community and other stakeholders.

There are some key features to the programme. These include:

- A workplace learning component that is incorporated into the student's overall study programme.
- Schools can either directly manage the delivery of Gateway, or engage a broker to arrange and oversee all or part of the programme.
- A work placement relevant to the student's learning and vocational goals is arranged.
- An individualised learning plan is prepared with each student which identifies the learning and assessment to be undertaken.
- The work placement is for a sustained period to ensure planned learning goals are met.
- The school, employer and student formalise their understanding of what will occur in a Gateway Placement Agreement before the student begins the work placement.
- Workplace learning is assessed against NQF unit and/or achievement standards and this assessment occurs in the workplace.

The role of the employer in the programme is crucial. Employers provide a supervised placement and have a role in the delivery of workplace learning. Employers may advise on learning content which will help make the learning as relevant as possible to the industry, thereby assisting the student's future employment and career prospects.

All Gateway students remain enrolled as full-time students of their school. A written agreement needs to be signed by the school, employer and student before each placement begins. Schools must also be satisfied that the workplace environment is safe and appropriate for structured workplace learning and ensure that the welfare and interests of students are protected.

All Gateway programmes have a Gateway co-ordinator. The Gateway co-ordinator is the term commonly used to describe the person (or people) responsible for managing a school's Gateway programme. This role is pivotal to the success of a school's programme and is a key contributor to the implementation and management of Gateway.

To ensure the programme has the best chance for success it is important that schools develop a selection policy for the recruitment and selection of students for Gateway. Students best suited to placement in the workplace are likely to:

- be motivated to learn in the workplace
- be able to manage individualised learning and assessment
- have a strong interest in a particular industry or career direction
- be reliable, with a good attendance record
- be work ready.

Once a student has identified a suitable industry for a work placement, and a potential placement has been found, the Gateway co-ordinator needs to develop a learning plan. This is best done with the involvement of the employer and the student, and will help ensure their engagement with the programme. Involving the employer in planning the student's Gateway programme ensures appropriate learning activities are provided in the workplace, and also secures their commitment

to the success of the placement. Once the learning plan has been developed and agreed to by the employer, it should be documented and signed by the student, employer and co-ordinator. Students then undertake their agreed work placement and are assessed in the workplace by an approved workplace assessor.

5. Challenges and Advantages

Challenges

As with most vocational skills learning that is done in schools, Gateway has also attracted the tag of being for low achievers. This is partly a hangover from the days when students who opted to take technology-based subjects were considered trade-based, and partly because a number of Careers Advisors in schools are themselves academic and not trade-based. As can be seen from the requirements of the Gateway programme outlined above, students have to be self-motivated and prepared to cope with managing their own learning and assessment requirements in the workplace, not a feat for low achievers. In the New Zealand tertiary environment, Polytechnic or University based learning attracts quite large fees that are paid by the student or their family. Student loans are available but they are just that, loans that are required to be paid back with interest once the learning is completed and the student is in full-time work. For a young person just starting out in their career this can be quite a burden and has been one of the reasons for New Zealand's 'brain drain' overseas.

While Gateway attracts some Government funding it also provides a challenge for Industry Training Organisations (ITOs) which are responsible for managing vocational or industry training in New Zealand. There are currently 40 ITOs representing all the major industrial groupings represented in the New Zealand workforce. They are governed by the Industry Training Act which tasks them with:

- the development of competencies (unit standards) and qualifications for their defined sector
- the management of workplace learning and assessment for their sector
- the overall quality management of the assessment against the competencies (unit standards) and qualifications for their sector.

Unfortunately the Government funding this process attracts is only linked to candidates signed into training agreements linked to a workplace. This does not cover school students who are enrolled as full-time students to their school. This means that any work ITOs do with schools has to be covered by the Gateway funding, industry contributions or come from the ITO's operating budget.

As with a number of western countries, New Zealand is currently experiencing skill shortages in a number of industries as a result of full employment, economic growth, and the loss of trained personnel overseas to better working conditions and higher wages. These factors mean that the vocational-school link becomes more vital as industries try and encourage school students to 'give their industry a go'. However with a competitive market, all competing for the same target audience, this is not as easy as it seems.

Encouraging enterprises to provide Gateway opportunities is also a major challenge the programme faces. New Zealand is made up mainly of small to medium

enterprises (SMEs). Enterprises of this size are often owner-operated and don't have the capacity to provide lots of support to inexperienced learners wanting to get 'a taste' of the industry. In large cities with large companies this is not so much of a problem, but in small centres numbers wanting Gateway opportunities can often outstrip the supply of enterprises able to participate in the programme.

Advantages

One of the main advantages of Gateway is that it gives all parties a chance to 'try before they buy'. Students enrolled in technical subjects at school often do so because they are interested in 'learning by doing' rather than classroom learning. This doesn't mean they are low achievers just that they prefer a practical rather than an academic path. Being able to have work experience with local enterprises not only cements their school-based learning but enables them to see and experience how work actually works in that industry.

Employers also get a chance to see how the student performs in an industry setting. Quite a number of these work placements result in permanent employment opportunities for the student once they leave school.

By completing vocational unit standards at school, students gain skills and knowledge that count towards their industry apprenticeships. In some cases they are able to complete pre-trade qualifications through school-polytechnic links that give them an advantage with employers in obtaining an apprenticeship. This means that employers get an employee who is already useful in the job which can make a big difference as to whether an SME employs a school leaver or not. During full employment having a competitive edge over other applicants is not so much of a problem but when the economy tightens and unemployment rises, vocational qualifications and experience will often make the difference in who actually gets the job.

School leavers who enter workplace apprenticeships are 'learning while they earn'. This means they are not saddled with the level of debt that accrues to someone who has completed their learning in a Polytechnic or University.

The other main advantage of Gateway, especially for the student, is their ability to complete practical unit standards they are not able to complete at school. While unit standards at levels 1 and 2 (see the level descriptors outlined below) can be assessed in a simulated situation, level 3 cannot as discussed earlier in this paper.

Level	Process	Learning demand	Responsibility
1	Carry out processes that: - are limited in range - are repetitive and familiar - are employed within closely defined contexts	Employing - recall - a narrow range of knowledge and cognitive skills - no generation of new ideas	Applied - in directed activity - under close supervision - with no responsibility for the work or learning of others

Level	Process	Learning demand	Responsibility
2	Carry out processes that: - are moderate in range - are established and familiar - offer a clear choice of routine responses	Employing: - basic operational knowledge - readily available information - known solutions to familiar problems - little generation of new ideas	Applied: - in directed activity - under general supervision and quality control - with some responsibility for quantity and quality - with possible responsibility for guiding others

6. Workplace Examples

In this section of the presentation I would like to discuss examples where the vocational-school link works very well in two quite distinct industry sectors. The area that these two sectors have in common is that they are both topics traditionally carried out by schools in their technology programmes. The two areas are food technology and solid materials technology or cooking and woodwork for those of us who come from an earlier generation of education. Both of these topics areas are linked to vocational ITOs. Food technology is linked to the Hospitality Standards Institute which is responsible for the cooking and food and beverage sectors, and solid materials technology which links with the construction sector that is covered by six different ITOs. The construction ITOs have formed a working coalition to develop unit standards that can be delivered and assessed in the school environment but that can apply as base knowledge and skills for all the participating ITO's industry sectors.

Food technology
This is a very popular option in New Zealand schools. Whether it is because students at that age are always hungry or because of the rise of cooking shows on television, food technology classes don't have to struggle for numbers and sometimes have to carefully manage their programmes to cater for all the students who enrol in this option.

Learning in this area typically starts at year 11 and students who are serious about working in the industry can stay until year 13. In New Zealand there is a difference between students who elect to learn cooking and those that elect to learn food and beverage. Students that elect to learn cooking are typically interested in becoming a chef whereas those electing to learn food and beverage don't tend to view front of house as a career but are looking for skills that will serve them well when they are travelling or working an alternative job while they are studying.

Historically, cooking skills learnt in New Zealand were based upon the British City and Guilds qualifications. However these have now been overtaken by the qualifications developed by the Hospitality Standards Institute (HSI) which are unit standard based and registered on the NQF. A qualification for basic cookery has been developed at level 2 on the NQF, that can be started, and in some cases,

completed at school and then completed either in the workplace through an apprenticeship or at a training provider.

This qualification covers a range of basic cooking skills that can start a student off on the bottom rung in a commercial kitchen. While the student is still at school they are able to learn the cooking techniques and practice the skills under supervision in a simulated situation. HSI assists both the student and the teacher by providing workbooks contextualised for the school environment. These workbooks provide both delivery and assessment assistance and have been checked for industry relevance by technical experts in the cookery field. To assist teachers to provide the appropriate learning and assessment environment, HSI have defined the requirements for each of their learning environments related to the level of the unit standards being delivered and assessed against.

NQF Level 1 environment
There are no time pressures, and practical units may be assessed against in a classroom. The equipment relevant to the unit standard must be available, this can be domestic equipment.

NQF Level 2 environment
There are some elements of commercial realism. The following criteria are applicable:

- the candidate must be under time pressures
- there must be an end user of the product
- domestic equipment can be used.

NQF Level 3 and above environment
There is a high degree of realism intended to replicate a commercial workplace setting. The following criteria are applicable:

- realistic time pressures
- relevant commercial equipment to perform training and assessment
- realistic customer/staff ratios - interpreted by sector as follows:

Accommodation Services: While the end user in the assessment activity may be the assessor, there must be evidence of multiple occasions where the candidate has produced product or similar for guests who have the expectations of a paying guest.

Cookery: While the end user in the assessment activity need not be a guest, there must be evidence of multiple occasions where the candidate has produced product or similar for guests who have the expectations of a paying guest. There must be time constraints relevant to the assessment and relevant levels of production.

Food and Beverage: While the guest in the assessment activity need not be a paying guest, they must have the expectations of a paying guest. Assessment will take place with the candidate demonstrating competence over multiple occasions while dealing with multiple tables and/or guests.

Food Services: The assessment should replicate the quantity catering environment in terms of specialist bulk equipment, preparation and service techniques which replicate current industry practice in staff workplace cafeterias, residential feeding

environments, central production operations, public venues and similar quantity catering establishments.

Front Office/Guest Services/Hospitality Operations: While the guest in the assessment activity need not be a paying guest, they must have the expectations of a paying guest.

By defining the learning and assessment environments and providing examples of how they apply, both students and employers are very clear about 'what they are getting' when a student is awarded credit for particular unit standards. The link between school and employment enables a fairly seamless transition especially if the candidate has been able to experience a Gateway placement for the completion of their practical unit standards. Completing tasks in a school kitchen is vastly different to completing the same tasks in a commercial kitchen at peak production hours.

Solid Materials Technology

Solid materials technology encompasses the areas traditionally covered by wood and metal work. As outlined above this area covers a number of different ITOs who are responsible for the construction sector. While each of the different ITOs may be responsible for specific areas in the construction sector, a common set of skills is required by all of them. These cover:

- safe working practices
- knowledge of construction and manufacturing materials
- elementary workshop procedures and processes
- using hand tools
- using portable electric tools
- constructing items
- preparing sketches and working drawings
- reading and interpreting plans
- using fixed machinery
- receiving instructions and communicating information
- planning, monitoring and checking the quality of construction projects
- applying mathematical projects.

This working consortium has developed two qualifications at levels 1 and 2 that aim to achieve the following:

'Provide two qualifications that form part of the *BConstructive* programme, designed specifically to provide a progressive pathway for secondary school students to integrate into a wide range of trade related occupations. The design and content of these qualifications is the result of extensive national consultation with secondary schools and Tertiary Education Organisations.

The skills embedded in these qualifications reflect knowledge from a range of subjects and incorporate key competencies from learning areas of the New Zealand Curriculum. The compulsory sections cover core skills all of the participating industries would require. The elective sections provide students with a range of choices that enable them to achieve skills designed around their specific needs and individual learning styles.

The emphasis of the National Certificate in Building, Construction, and Allied Trades Skills (Level 1) is to stimulate the process of learning through interpreting situations and by encouraging students to take an active approach to problem solving. The National Certificate in Building, Construction, and Allied Trades Skills (Level 2) provides a range of opportunities for structured workplace learning through work based learning programmes, where students can test future career and employment opportunities. Learning can then take place in a more realistic environment, allowing students to make informed decisions on their transition from school to work'.

As can be seen from the statements above, both of these qualifications are designed to link into the Gateway programme. Students undertaking any of the unit standards listed in either of these qualifications can be placed in a range of industry sectors from building to flooring and still meet the requirements for both the general and specific skills required for these quite diverse industries at an entry level. What they achieve in these base qualifications enable them to progress onto sector specific qualifications that will give them the advanced technical skills required for their chosen trade.

7. Summary

In this presentation I have outlined how the New Zealand NQF system has attempted to provide a link between learning and assessment that happens in the school environment and learning and assessment that happens on-job. One of the principles behind the development of the NQF was to provide a seamless transition from school to work and for students in the senior secondary school system to be able to achieve meaningful knowledge and skills that would enable them to participate in the workplace.

While there are challenges, as there are to any system, the Gateway programme provides a process for all parties (students and employers) to link what is learnt at school with what is expected at work in a way that advantages all of the participants. To date this has worked best in the trade-based and practical sectors but there is no reason why, once the programme has matured, it cannot be translated to other areas in the workplace that have traditionally been covered solely by the Polytechnic and University sectors. We may see in the future workplace apprenticeships that cover areas such as engineering and accountancy or other practical based career options. Watch this space as for a small country we are often big on innovation!

Appendix 1 – NQF Level Descriptors

Level	Process	Learning demand	Responsibility
1	Carry out processes that: - are limited in range - are repetitive and familiar - are employed within closely defined contexts	Employing - recall - a narrow range of knowledge and cognitive skills - no generation of new ideas	Applied - in directed activity - under close supervision - with no responsibility for the work or learning of others
2	Carry out processes that: - are moderate in range - are established and familiar - offer a clear choice of routine responses	Employing: - basic operational knowledge - readily available information - known solutions to familiar problems - little generation of new ideas	Applied: - in directed activity - under general supervision and quality control - with some responsibility for quantity and quality - with possible responsibility for guiding others
3	Carry out processes that: - require a range of well-developed skills - offer a significant choice of procedures - are employed within a range of familiar contexts	Employing: - some relevant theoretical knowledge - interpretation of available information - discretion and judgement - a range of known responses to familiar problems	Applied: - in directed activity with some autonomy - under general supervision and quality checking - with significant responsibility for the quantity and quality of output - with possible responsibility for the output of others
4	Carry out processes that: - require a wide range of technical or scholastic skills - offer a considerable choice of procedures - are employed in a variety of familiar and unfamiliar contexts	Employing: - a broad knowledge base incorporating some theoretical concepts - analytical interpretation of information - informed judgement - a range of sometimes innovative responses to concrete but often unfamiliar problems	Applied: - in self-directed activity - under broad guidance and evaluation - with complete responsibility for quantity and quality of output - with possible responsibility for the quantity and quality of the output of others
5	Carry out processes that: - require a wide range of specialised technical or scholastic skills - involve a wide choice of standard and non-standard procedures - are employed in a variety of routine and non-routine contexts	Employing: - a broad knowledge base with substantial depth in some areas - analytical interpretation of a wide range of data - the determination of appropriate methods and procedures in response to a range of concrete problems with some theoretical elements	Applied: - in self-directed and sometimes directive activity - within broad general guidelines or functions - with full responsibility for the nature, quantity and quality of outcomes - with possible responsibility for the achievement of group outcome
6	Carry out processes that: - require a command of wide-ranging highly specialised technical or scholastic skills - involve a wide choice of standard and non-standard procedures, often in non-standard combinations - are employed in highly variable routine and non-routine contexts	Employing: - specialised knowledge with depth in more than one area - the analysis, reformatting and evaluation of a wide range of information - the formulation of appropriate responses to resolve both concrete and abstract problems	Applied: - in managing processes - within broad parameters for defined activities - with complete accountability for determining and achieving personal and/or group outcomes
7	Carry out processes that: - require a command of highly specialised technical or scholastic and basic research skills across a major discipline - involve the full range of procedures in a major discipline - are applied in complex, variable and specialised contexts	Requiring: - knowledge of a major discipline with areas of specialisation in depth - the analysis, transformation and evaluation of abstract data and concepts - the creation of appropriate responses to resolve given or contextual abstract problems	Applied: - in planning, resourcing and managing processes - within broad parameters and functions - with complete accountability for determining, achieving and evaluating personal and/or group outcomes
Level	**Involves skills and knowledge that enable a learner to:**		
8	- provide a systematic and coherent account of the key principles of a subject area; and - undertake self-directed study, research and scholarship in a subject area, demonstrating intellectual independence, analytic rigour and sound communication.		
9	- demonstrate mastery of a subject area; and - plan and carry out - to internationally recognised standards - an original scholarship or research project. - **Demonstrated by:** - the completion of a substantial research paper, dissertation or in some cases a series of papers		
10	- provide an original contribution to knowledge through research or scholarship, as judged by independent experts applying international standards.		

Appendix 2 - References

The following publications and papers were used for the literature search for this paper:

- Beauty is in the eye of the beholder: student perceptions of transfer in experiential education, Greg P. Durkin 2002.

- Definition and selection of competences (DeSeCo): theoretical and conceptual foundations strategy paper, Directorate for Education, Employment, Labour and Social Affairs Education Committee, Governing Board of the CERI 2002.

- Recognising foundation competencies on the National Qualifications Framework, Ministry of Education 2004.

- Applying foundation learning/generic skills within the New Zealand Qualifications Framework, Ministry of Education 2004.

- Background to thinking in relation to tertiary education strategies 3 and 4, Ministry of Education 2004.

- Assessing and Certifying Generic Skills by Berwyn Clayton, Kaaren Blom, David Meyers and Andrea Bateman 2004.

- Gateway/ A Handbook for Schools 2008 available on http://www.tec.govt.nz.