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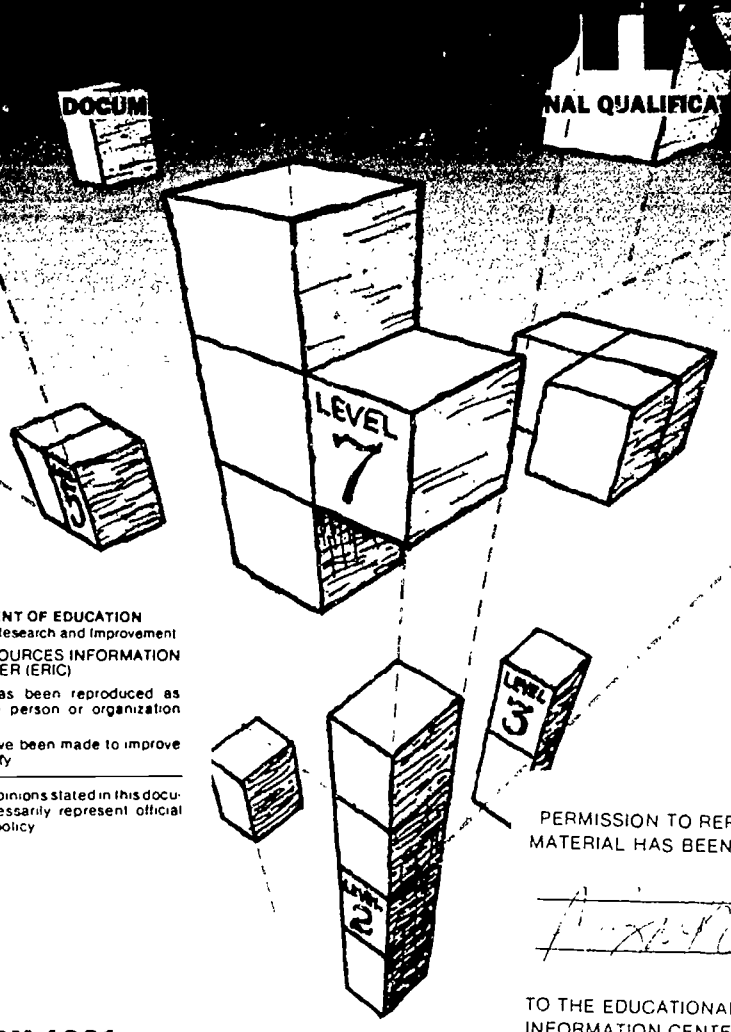
ABSTRACT

This document is intended to generate discussion about the plans of the New Zealand Qualifications Authority for developing a National Qualifications Framework. The document begins with an explanation of the qualifications framework in Maori and in English. A guide to reading the document points out its organization and the inclusion of diagrams and Maori proverbs and their English translation. Section 1 outlines proposals and options for post-high school qualifications, including descriptions of vocational competence in the European and United Kingdom models and plans for certification. Section 2 outlines proposals and options for secondary education qualifications, discussing the school certificate, senior secondary education qualifications, and scholarships. Section 3 tells how all the threads are drawn together in the National Qualifications Framework, covering the following: the role of the Qualifications Authority or of the agencies acting in lieu of the Authority; how experiential, community-based and work-based learning will relate to the Framework; and the goals of the Framework. Section 4 addresses units of learning, such as how students will choose appropriate units and the advantages and disadvantages of the unit learning approach. Section 5 covers student assessment and reporting, arguing in favor of standards-based assessment. Section 6 explains how prior learning will be recognized. Section 7 describes course development and necessary quality assurance processes. There are 28 references and 4 appendices containing: an example of a Scottish higher national unit specification; a Scottish national certificate module descriptors; and examples of standards-based assessment used in plumbing and gasfitting and achievement-based assessment of one skill in school biology. (CML)

DESIGNING



MARCH 1991

NEW ZEALAND QUALIFICATIONS AUTHORITY
Mana Matauranga Motuhake o Aotearoa

DESIGNING The Framework

A DISCUSSION DOCUMENT ABOUT RESTRUCTURING NATIONAL QUALIFICATIONS

MARCH 1991

NEW ZEALAND QUALIFICATIONS AUTHORITY
Mana Matauranga Motuhake o Aotearoa
P O Box 160, Wellington. Phone: 0-4-850 459, Fax: 0-4-854 929

Foreword

by Dr the Hon Lockwood Smith, Minister of Education

The challenge we face is to create a world-class education system which will engender a new spirit of enterprise and initiative...

...We must break the cycle of failure that condemns so many young people to dependence on the state, so that they can fulfil their potential and make their contribution to our nation's future.

– National Party Manifesto 1990

The National Government has decided to reform national qualifications. Its initiatives include:

A fairer School Certificate examination. The failure rate built into current scaling procedures will go, and the examination will be based on published national standards. Results will show actual achievement, and reward the efforts of students and their teachers.

Scholarships. Options will be presented for the Scholarships examination to recognise academic excellence in the senior school.

A new National Certificate. This will be a new tertiary vocational qualification. It will be an option for students which may be pursued at school, polytechnic, private training establishment, or approved work places. Units of the National Certificate will be available for study alongside other senior school qualifications. Credits gained at school or elsewhere may be built on during further education.

Traineeships. A new work-based Traineeship programme will be introduced to help more young people gain trade and technical qualifications.

The Training Opportunities Programme (TOP). TOP is to be a programme of learning units that will provide entry into the National Certificate.

Access as a *programme of learning focused on employment outcomes* will be replaced by the Training Opportunities Programme.

The New Zealand Qualifications Authority will play a central role in bringing about these policy changes. This document, which seeks the widest possible opinion on qualifications reform, is a basic part of the process.

I commend the Qualifications Authority for promoting this discussion and for outlining a range of choices for public consideration. The building of a new qualifications framework is no light task and I urge your serious consideration of the issues involved.

In particular, I should value the sharing of your views with the Qualifications Authority on the implications of:

- including the National Certificate in senior school qualifications;
- introducing a unit and credit approach to post-school qualifications;
- identifying levels of achievement for post-school qualifications;
- naming the qualifications which will encompass those levels.

Your participation is important to the development of a rational and effective qualifications structure, and to the future of New Zealand education and training.

Lockwood Smith
Minister of Education

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PART B

Introduction

DESIGNING THE FRAMEWORK is a discussion document prepared by the New Zealand Qualifications Authority.

The Qualifications Authority is charged under the Education Amendment Act 1990 with developing a framework for national qualifications in secondary schools and post-school education and training. The framework is central to a comprehensive and cohesive qualifications system which will encourage the highest standards of individual achievement and promote the growth of education and training in New Zealand.

Developing the framework involves nationwide consultation at all levels of the education and training sector and with groups from industry and the community.

Late last year the Qualifications Authority circulated *Towards a National Qualifications Framework*, a discussion document prepared by the framework project team to seek opinion on general principles and concepts. Over 250 written submissions and many direct comments were received from individuals, professional organisations, unions, employers, education agencies, schools, tertiary institutions, and community groups. The Qualifications Authority is most grateful for this response.

Widespread support was indicated for:

- developing a reformed qualifications framework;
- building qualifications around units of learning which carry credits;
- assessing learners against published national standards;
- rewarding excellence.

At its meeting in November 1990, the Board of the Qualifications Authority recognised these preferences and directed the project team to begin a second round of consultation.

The new National Government has since indicated its education priorities.

This second discussion document on the framework therefore contains statements of Government policy, recommendations from the Qualifications Authority developed from previous consultation, and options to be considered.

Your response to the document will be analysed by the project team and so provide direction for the establishment of the framework.

A detailed questionnaire is enclosed to assist you in deciding among the options. We recommend that you detach it and keep it in front of you as

you read the document. Additional written material should be addressed to:

The Chief Executive Officer,
New Zealand Qualifications Authority,
Box 160, Wellington

and marked for the attention of the

National Qualifications Framework Project Team.

The closing date for responses is **5 July 1991**. The project team will report to the Board in **late August 1991**. The Board's decisions are expected to be announced progressively from **September 1991**. The *Education Amendment Act 1990* requires the Qualifications Authority to seek the approval of the Minister of Education for any major changes to secondary school qualifications.

The Board considers this consultation to be essential to the development and implementation of a comprehensive and coherent national qualifications framework, and urges your serious consideration of and response to the issues raised.

Professor Sir James Stewart
Chairman, New Zealand Qualifications Authority Board

The New Zealand Qualifications Authority was established under the Education Amendment Act 1990. The Act requires the Qualifications Authority:
To develop a framework for national qualifications in secondary schools and in post-school education and training in which:

i all qualifications (including pre-vocational courses provided under the Access training scheme) have a purpose and a relationship to each other that students and the public can understand; and

ii there is a flexible system for the gaining of qualifications, with recognition of competency already achieved.

Section 253(c) Education Amendment Act 1990

Nga Kete o Te Wananga - Qualifications for Maori

Papa te whaititiri, hikohiko te uira, ka kanapu ki te rangi, i whetuki ki raro ra, ru ana te whenua e!

E rau rangatira ma tena koutou katoa. Tena koutou i roto i nga ahuatanga o te wa. Ko o tatou mate kei te tangihia i nga wa katoa. No reira e nga kuru pounamu, nga tini mate o nga hau e wha, haere, haere, haere atu ra. Moe mai koutou i Tuawhakarere.

Ka huri te po, ka tau mai te ao, Tihei mauri ora.

This section has been written to bring Maori people up-to-date with the proposed National Qualifications Framework and to encourage them to express their views.

He rei nga niho, he paraoa nga kauae

Enterprise and commitment will be needed to break the cycle of under-achievement that condemns a high proportion of Maori people to depend on the state. A reformed qualifications structure can help Maori, and all New Zealanders, to aim higher and have their achievements recognised.

The proposed unit of learning approach

Units of learning developed by Maori providers will be included in the National Qualifications Framework, and will count for credit towards national qualifications. Learners will be able to attend a variety of learning places including Marae, Kokiri Centres and private training providers.

Ka mate kainga tahi, ka ora kainga rua

This will give Maori learners greater control over their learning within the context of national standards.

A standards-based approach to assessment recognising all student achievement

This form of assessment will allow Maori learners to judge the worth of their own learning and will show their actual performances. Standards-based assessment is already being developed for *Te Reo Maori* at School Certificate level.

Obtaining recognition for prior learning

Matua whakapai i tou marae, ka whakapai ai te marae o te tangata

Learning within the Maori culture relies on both formal and non-formal processes. The learning is determined by the context in which it occurs. It includes general, employment-related and experiential options, all of which the Marae can provide.

Being able to have purely Maori qualifications fully recognised nationally
Maori knowledge and skills will be recognised within the national context and will enter the pathway to international recognition.

Participation in general and vocational course establishment
It is important to assure Maori people that the standards of the qualifications they gain will be recognised. Maori participation in discussions on all aspects of the Qualifications Framework will be vital.

He umauma tangata, he umauma rakau

The challenge to the Qualifications Authority is to put in place a national qualifications structure which recognises the responsibilities of the Treaty of Waitangi and thereby offers incentives to Maori, and to all New Zealanders, to achieve their learning goals.

A booklet outlining the relevance of the framework to the Maori people is available from the Qualifications Authority.

Tungia te ururua kia tipu whakaritorito te tipu o te harakeke

> Maori education achievement today will form the foundation for the next generation of self-development. National is committed to educational excellence and recognises that the needs of Maori children must be met as a matter of urgency.
> **National Party Policy on Maori Affairs** 1990

Mauri tu Mauri ora, Mauri noho Mauri mate

> We must empower young Maori - enrich them with the new wealth of education.
> **Winston Peters, MP, National Spokesman on Maori Affairs,** 1990 NZ National Party Conference, Wellington

A Guide to Reading 'Designing the Framework'

The main text is unshaded, and appears on the left-hand page.

Material contained in boxes, on the shaded right-hand page, consists of illustrative diagrams, quotations from individuals and relevant documents, more detailed explanations of the main text, and extracts from submissions made during the first round of discussion.

Each section of Parts A and B is self-contained and may be considered separately.

Whakataukī (proverbs) will be found through the text. For those not fluent in the Maori language, translations are provided in the footnotes.

A questionnaire is included with this discussion document. We suggest that you keep it before you as you read through the text. There is some space for additional comment, and you may wish to add further pages to amplify your views. Responses may be in Maori or in English.

Part A

This part of the document outlines proposals and options for:

- **Post-School Qualifications** (Section One)
- **Secondary Education Qualifications** (Section Two)

and draws the threads together in a proposed:

- **National Qualifications Framework** (Section Three)
  - encouraging student participation
  - stimulating high achievement
  - providing pathways and options
  - ensuring flexible learning
  - allowing for recognition of competency already achieved

1 Section One: Post-School Qualifications

Post-school qualifications cover the range of learning from pre-employment level to diplomas and degrees. The existing structure of major national qualifications is shown in the accompanying diagram. *This is a very simple representation and there are many qualifications not included.* The area shown as *Degree* is extremely complex, and includes a range of higher certificates, diplomas and postgraduate degrees.

In establishing principles for the rationalisation of post-school qualifications, the Qualifications Authority researched many overseas sources. Both the British and Australian qualifications systems are moving, or have moved, towards recognition of occupational competence[1] at distinct levels, from trainee to the highest professional stage.

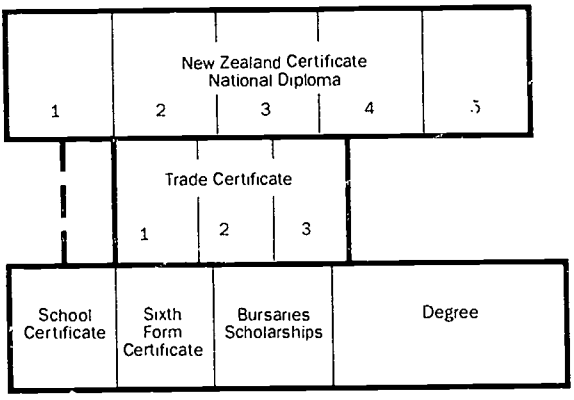
It is important to establish levels that relate both to overseas structures and to existing national qualifications, and to ensure the levels are based logically on occupational and educational patterns. Developments in vocational education in Britain, the European Community and Australia have been closely monitored. The wider responsibilities of the Qualifications Authority in general education has demanded a careful study and a broadening of overseas models, in order to develop a distinct New Zealand approach to the qualifications structure.

The Qualifications Authority has identified eight levels of learner achievement and suggests these as the basis for proposing a framework for qualifications. The proposed levels have been derived from those proposed for Australia by their National Training Board. All units of learning[2] would be assigned to an appropriate level. The draft descriptions which follow have an employment focus. The Qualifications Authority wishes to broaden these definitions to incorporate general and higher learning. In addition to the present consultation, a research programme is being undertaken to study the merging of levels statements to cover both competence-based and general learning.

1 **competence:** proficiency at a specified level in a related set of skills

2 **units of learning:** also known as modules, units of learning are self-contained courses with specific learning outcomes. One or more units may make up a programme leading to a specific qualification. Units of learning are discussed fully in ***Section Four.***

THE PRESENT STRUCTURE OF NEW ZEALAND QUALIFICATIONS



A FOCUS ON OUTCOMES

The shift to an outcome-led system of education and training thus means a qualification-led or assessment-led system . This proposition makes a lot of people unhappy because they think of qualifications as 'sitting exams' and writing essays or doing multiple-choice tests. If this were to be the case I would share their concern. Educationalists are also unhappy with the proposition because they believe that qualifications do not and cannot assess many of the finer aspects of the learning that they believe to be important. They are right if they think only in terms of traditional forms of qualification . But this is not what is now being proposed for the new standard based qualifications.

Along with the new standards must go new forms of assessment, very different from sitting examinations. The full benefits of the model can only be realised if assessment can cover all the things we want people to learn (and more importantly what the learners want to learn). It also works if assessment is more friendly and facilitates learning rather than acting as a deterrent or just an obstacle to be overcome.

Outcomes: NVQs and the Emerging Model of Education and Training, Gilbert Jessup, 1991

LEVEL DESCRIPTIONS FOR THE CURRENT CONSULTATION

LEVELS

1 Has established work orientation. Performs routine and predictable tasks with close supervision. Basic theoretical knowledge and practical skills. *In general education, provides the basic foundation for further study. (Basic vocational level.)*

2 Performs a range of directed tasks under general supervision, and more complex tasks, involving the use of theoretical knowledge and practical skills, under close supervision. *In general education, could be equated with achievement during the fourth year of secondary schooling. (Process work skills.)*

3 Performs tasks of some complexity, involving the use of applied theoretical knowledge and practical skills. Significant individual responsibility. *In general education, could be equated with achievement during the fifth year of secondary schooling. (Practice skills/subtrade level.)*

4 Performs complex tasks without supervision. Self-directed with some supervision of others. Substantial applied knowledge. *(Skilled trades level.)*

5 Performs creative planning and design tasks. Self-directed. May supervise others. Performs tasks involving independent use of a high degree of technical orapplied knowledge. *(Advanced trades/technician level.)*

6 Performs creative planning and design tasks. Makes autonomous use of a high degree of applied knowledge, in combination with mastery of the theoretical bases of that applied knowledge. May supervise others. *In general education, could be equated with achievement during the third year of degree studies. (Higher level technician paraprofessional.)*

7 Makes autonomous use of a high level of theoretical and applied knowledge. Undertakes significant high level creative planning, design or management functions. May have accountability and responsibility for the output of others. *In general education, could be equated with initial achievement at a postgraduate level. (Professional.)*

8 Generates and uses a high level of theoretical and applied knowledge. Undertakes complex and major high level creative planning, design or managerial functions with full accountability and responsibility for the output of others. *(Senior professional.)*

EXAMPLES OF DESCRIPTIONS OF VOCATIONAL[3] COMPETENCE

EUROPEAN COMMUNITY	UNITED KINGDOM
Level 1: Professional initiation with theoretical knowledge and practical capabilities being very limited. This training must primarily enable the holder to perform relatively simple work.	Competence in the performance of a range of varied work activities most of which are routine and predictable or which provide a broad foundation as a basis for progression
Level 2: A level where the holder is fully qualified to engage in a specific activity with capacity to use instruments and techniques. Work may be independent within the limits of relevant techniques.	Competence in a significant range of work activities, performed in a variety of contexts. Some of the activities are complex or nonroutine, and there is some individual responsibility or autonomy. Collaboration with others, perhaps through membership of a work group or team, may be a requirement.
Level 3: Training involves a greater fund of theoretical knowledge than 2. Activity is chiefly technical work which can be performed independently and/or entail executive and co-ordination duties.	Competence in a broad range of work activities performed in a wide variety of contexts and most of which are complex and non-routine. There is considerable responsibility and autonomy, and control and guidance of others is often required.
Level 4: Training involves high level technical training. Qualifications cover higher level of knowledge and capabilities. It does not generally require mastery of scientific bases. Training outcomes make it possible in an autonomous or an independent way to assume design and/or management administrative responsibilitles.	Competence in a broad range of complex, technical, or professional work activities, performed in a variety of contexts and with a substantial degree of personal responsibility and autonomy. Responsibility for the work of others and the allocation of resources is often present.
Level 5: Training generally leads to an autonomously pursued vocational activity - as an employee or self employed person - entailing a mastery of the scientific bases of the occupations.	Competence which involves the application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable range of contexts. Personal accountabilities for analysis and diagnosis, design, planning, execution and evaluation feature strongly, as do very substantial personal autonomy and often significant responsibility for the work of others and for the allocation of substantial resources.

3 **vocational:** relating to employment or occupation.

Certification

Certification shows that a particular qualification has been obtained. Most certificates for trade, technician and professional qualifications are issued by the New Zealand Qualifications Authority or by a post-school learning provider.

Admission to some trades or professions (often called *registration*) is controlled by boards and professional associations, a number established by statute, others voluntary. Examples are the Medical Council of New Zealand and the Electrical Registration Board. Admission usually requires evidence that the applicant has the relevant qualification(s), is working in the trade or profession concerned, and has served time as a probationer, trainee or apprentice. Conditions for admission are set by the ruling body and may be regulated by law.

Most occupations, however, do not have restricted admission but some qualification is expected as proof of skill or competency.

A number of trade and professional qualifications cannot be certificated unless the examining body (normally the Qualifications Authority) has evidence of the time served by the trainee. Trade Certificate, for example, is not awarded unless the required (say) 6000 hours of work-based apprenticeship has been completed. Time-serving is not a guarantee of competence and it may be argued that it should not be made a condition of certification. Admission bodies may require this, but it is not necessarily a matter for the examining authority.

Some overseas countries separate occupational admission and certification, because a qualification certificate is only part of the requirement for trade or professional practice. There is no reason why this policy should not be adopted in New Zealand where, in effect, the Qualifications Authority is doing the work of the admission bodies by being obliged to require evidence of time served in the current trades register.

The Qualifications Authority's role would be to certify that units have been completed successfully and the right learning outcomes[4] achieved.

4 **learning outcomes:** precise statements about what a learner should do to demonstrate competence at the end of a unit of learning.

ENGINEERS UNION INITIATIVE

One of the real skill shortages areas in New Zealand is in the commissioning and utilisation of new technology, and in the design and implementation of new high skill work processes.

Relatedly, there is an absence of development of new skills above and beyond the current apprenticeship system. Also, for those groups who wish to make progress on difficult demarcation issues it seems as if the provision of new skills and training offers solutions.

For those reasons the Engineers Union has committed itself to the development of new trade and post-trade skills, and new classification and training programmes that reflect these skills.

On our current path there is a likelihood that the final result of these initiatives will be a series of enterprise and industry specific post-trades qualifications. In this event the portability of skills between manufacturing industries would be lost. Industry would lose the ability to shift labour in response to the changing requirements of enterprises and industries. Without such portability the national basis of competition against overseas competitors would be in jeopardy.

Rex Jones, National Secretary Engineers Union, 25 November 1990

A COMMON CURRENCY FOR QUALIFICATIONS

...there is a need to develop a *common currency of qualifications* which will allow each type of education in a differentiated system to be related to others, to higher education and to the labour market. Such a currency, which to some extent exists already in several countries, would allow mobility within diversity, something which is desirable both from the points of view of individual progression, and the optimum use and flexibility of manpower. A common currency of qualifications, expressed in terms of *credits* and *levels*, would also allow relevant work experience to be appropriately valued, a point which will become increasingly important in relation to adults.

Pathways for Learning OECD 1986

Industry would specify which units of learning, at what level, should be included in the trade or professional qualification. It would detail what other conditions must be met before the applicant could practise.

Increasingly, certification is being requested to suit local requirements. In these cases certificates could include general units, units relating to that industry and units specific to the workplace concerned. In some cases local enterprises are extending national certification to suit their own requirements. At Kinleith, for example, tradespersons employed by NZ Forest Products Pulp and Paper Ltd can take an examination and those who can demonstrate a high level of skills and knowledge related to their employment are awarded a certificate. A board of union and company representatives administers the examination and awards certificates.

The flexibility afforded by a unit of learning approach is further discussed in ***Section Four.***

Who will record student results?

A *central database*[5] (with or without on-line access for providers and other authorised users) could be set up by the Qualifications Authority. This could be an extension of existing School Certificate centralised records.

A *distributed* or *networked database*[6] could be maintained by authorised issuing authorities.

Local databases[7] could be maintained by all issuing authorities, with learners being responsible for carrying records with them. This would be the cheapest option but may cause problems as learners move from one provider to another. Arrangements would have to be made for the central storage of student records from providers who cease to operate.

Who will issue certificates?

Three options are suggested:

1 The New Zealand Qualifications Authority acting alone, as is the practice for current senior school qualifications and for the Trade Certificate, for example.

5 **central database:** a single EDP record system located with and managed by one central agency, with possible on-line access for enquirers.

6 **distributed database:** several EDP record systems at different locations, linked in a network and operating as a single system from the viewpoint of enquirers.

7 **local database:** a self-contained record system, not necessarily EDP-based, operated by a single organisation for its own purposes and not directly accessible to other enquirers.

EXAMPLES OF POSSIBLE FORMS OF NATIONAL CERTIFICATION

These are working examples only, and should not be considered final.

1 Here the nature of the qualification, except for its title and level, is not specified. Whether or not the units studied are appropri te for entry to a trade or profession is a matter for industry to determi . Learners have maximum flexibility but require strong vocational guidance.

NEW ZEALAND QUALIFICATIONS AUTHORITY
Mana Matauranga Motuhake o Aotearoa

This is to certify that
Jane Elizabeth Thorne
has been awarded the
National Certificate (Level 3)
20 December 1993

CHAIRPERSON DIRECTOR
BAY OF ISLANDS COMMUNITY POLYTECHNIC
Te Kuratini o te Pewhairangi

2 (Page 21, top) Here, the certificate has been issued for a broad occupational grouping according to the criteria established by the relevant Industrial Training Organisation.

The Qualifications Authority is responsible only for certifying that the requisite number of units (listed separately) has been successfully completed.

The appropriate industry body determines whether the qualification is suitable for the applicant's entry to the joinery trade.

3 (Page 21, bottom) An example of a certificate for a specific qualification. Here, the learner has completed a qualification whose format has been agreed to by industry and whose completion (including time served) has been certificated by the provider and the Qualifications Authority.

2 A local accredited provider issuing a certificate jointly with the Qualifications Authority, as is the practice for the current National Certificate in Business Studies.

3 A national industry group or professional body issuing the certificate jointly with with the Qualifications Authority.

What are the options for identifying the ownership of certificates?
There are various options for identifying the ownership of certificates.

1 A national certificate could be issued in the name of the Qualifications Authority with appropriate reference to the provider and the industry or professional body as applicable (see the example on page 19).

2 A national certificate could be issued in the name of a provider with reference to the Qualifications Authority and an industry or professional group (see the example on page 21, top).

3 A national certificate could be issued in the name of a professional body or industry group with reference to the Qualifications Authority and possibly the provider (see the example on page 21, bottom).

What are the options for the format of certificates?
The following options are suggested for the format of certificates.

1 The certificate is a record of achievement, listing all units successfully completed. Employers would decide, as at present, whether the qualification fits the applicant for a position in their organisations. Admission authorities would decide similarly whether the requirements for a trade or profession had been met.

2 The certificate describes a generic or broad field of study. In this example the student or trainee would follow a programme containing elements of a variety of related occupational skills. For example, a National Certificate in Construction could include units of carpentry and plumbing. Such an approach would allow industries and enterprises to develop and recognise completion of training which crosses traditional boundaries. Students would learn more broad-based skills appropriate to an industry. The existing National Certificate in Business Studies is an example of this approach. It has a range of units of learning which give students knowledge, skills and attitudes applicable to a wide variety of employment opportunities.

BAY OF ISLANDS COMMUNITY POLYTECHNIC
Te Kuratini o Te Pewhairangi

This is to certify that

Jane Elizabeth Thorne

has been awarded the
National Certificate
(Construction) Level 3
20 December 1993

CHAIRPERSON
BAY OF ISLANDS COMMUNITY POLYTECHNIC

ISSUED UNDER THE AUTHORITY OF THE NEW ZEALAND QUALIFICATIONS AUTHORITY

CONSTRUCTION INDUSTRY TRAINING ORGANISATION OF NEW ZEALAND

This is to certify that

Jane Elizabeth Thorne

has been awarded the
National Certificate in Joinery
Level 3
20 December 1993

CHAIRMAN

ISSUED UNDER THE AUTHORITY OF THE NEW ZEALAND QUALIFICATIONS AUTHORITY

3 The certificate describes completion of a specific vocational qualification. An example would be the current Trade Certificate in carpentry which requires completion of a closely prescribed course of study, together with employment and time-serving components. In a unit of learning approach, industry would specify the units to be completed. Such an approach would allow the identification of units of learning common to other training programmes, so providing flexibility in otherwise fixed programmes of learning.

While the first option provides the greatest flexibility, historical and practical considerations will mean that industry groups will specify which of the options suit their needs. Different approaches will suit different groups. Consequently, a uniform approach to certification may not be practicable.

Refer to ***Section Five*** for further discussion of certification in the context of a career-long *Record of Education and Training*.

Naming of Qualifications

This section deals with the certification of units of learning by the use of an official title.

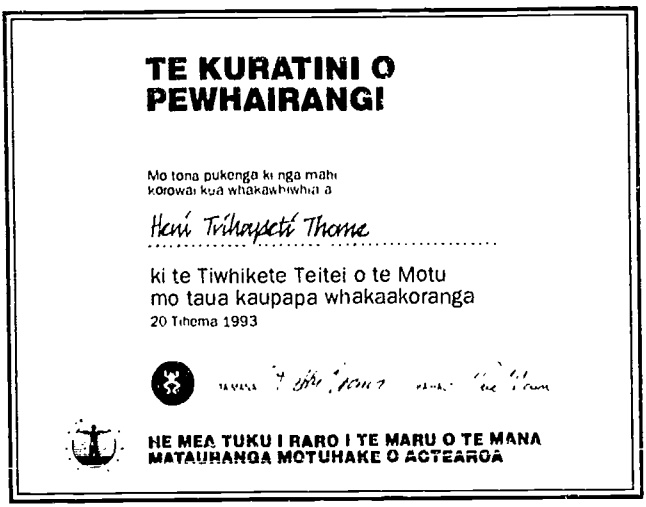
National Certificate

The government has decided that there is to be a new post-compulsory qualification with the title *National Certificate*, which will be introduced from 1993. National Certificate courses will be offered by polytechnics and private providers; through work-based training, the Training Opportunities Programme and traineeships; and at secondary school.

There are many options for the naming of qualifications, of which three are outlined below. In these, the title *National Certificate* may be applied at the initial level of qualifications or extended to higher levels.

MAORI CERTIFICATES

Specific Maori skills will be eligible for certification, with certificates reflecting tikanga Maori.



TE KURATINI O PEWHAIRANGI

Mo tona pukenga ki nga mahi
korowai kua whakawhiwhia a

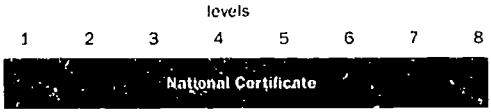
Hemi Trihapeti Thorne

ki te Tiwhikete Teitei o te Motu
mo taua kaupapa whakaakoranga
20 Tihema 1993

NE MEA TUKU I RARO I TE MARU O TE MANA MATAURANGA MOTUHAKE O AOTEAROA

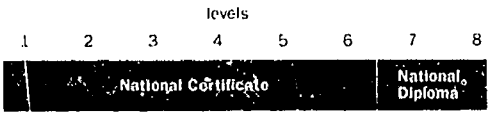
Option One - A National Certificate

The *National Certificate* would be issued at the end of a course of learning, listing by level the units completed successfully.



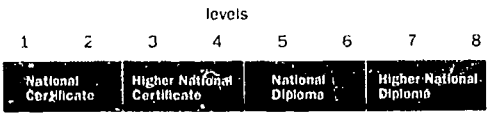
Option Two - Two-tier Qualifications

There would be two qualifications titles: National Certificate and National Diploma. The establishment of criteria for building a Diploma upon a Certificate would determine the level boundary, which could be other than between 6 and 7.



Option Three - Four-tier Qualifications

In this option, the learning leading to each qualification covers two levels, allowing for four different titles.



Except for the name *National Certificate*, no decision has been made as to the naming of new qualifications. For example, the word *National* could be replaced by *New Zealand* in any of the suggested formats. The existing *New Zealand Certificate* could retain its current title or be renamed a *National New Zealand Diploma*.

FURTHER READING

Advanced Courses Development Programme: Policy Paper, Scottish Vocational Education Council (SCOTVEC), 1990, 66pp.

The National Certificate: A Guide to Procedures, Scottish Vocational Education Council, 4th ed. July 1989, 58pp+App.

National Vocational Qualifications: Criteria and Procedures, National Council for Vocational Qualifications (UK), 1989, 26pp.

Outcomes: NVQs and the Emerging Model of Education and Training, Gilbert Jessup, Falmer Press, 1991.

Pathways for Learning: Education and Training from 16 to 19, Organisation for Economic Co-operation and Development, 1989, *ISBN9261131752.*

Setting National Skill Standards: a Discussion Paper, National Training Board (Australia), July 1990, 18pp+App

2 Section Two: Secondary Education Qualifications

The Government has decided that it will reform senior secondary school qualifications through the introduction of a National Certificate in the senior school. This would bring the number of qualifications at secondary school to six (*School Certificate, Sixth Form Certificate, Higher School Certificate, National Certificate, Bursaries and Scholarships*). The Government has decided therefore to phase out Sixth Form Certificate and Higher School Certificate from 1993. The diagrams opposite show the progression from the present qualifications structure to the new.

The Government has decided to link senior secondary education qualifications with the broad National Qualifications Framework.

Underlying the qualifications framework in secondary schools is the National Curriculum of New Zealand. The Ministry of Education is developing a framework for the national curriculum[8] and schools will have an opportunity to comment shortly.

Ehara taku toa i te toa takitahi engari he toa takitini*

School Certificate

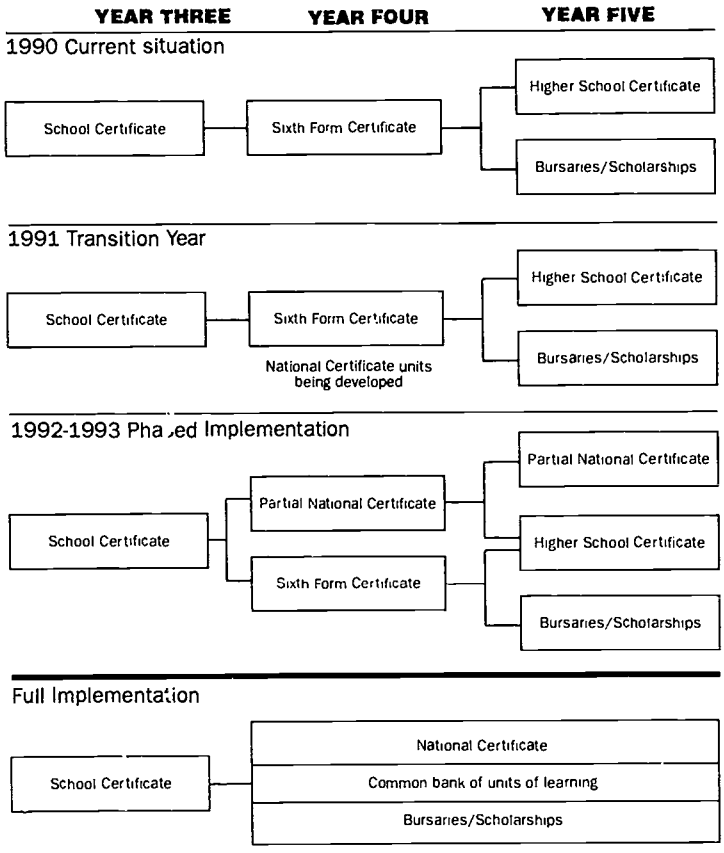
Until recently, the fifth form year has marked the end of general schooling for many New Zealanders, and School Certificate has been an important qualification for adult and working life. More recently, many young people have returned to study in the sixth and seventh forms (see ***table of years of attendance at secondary school***, page 29).

For these students, Sixth Form Certificate and University Bursaries are replacing School Certificate, therefore, as entry qualifications for further education and employment. School Certificate remains as a measure of performance part way through secondary school.

8 **curriculum:** in the context of this document, any planned activity by a provider of education and training which promotes learning. Commonly, this would be described by programme statements, teaching schemes and resources.

* *My strength is not individual, it comes from a collective wisdom.*

THE GOVERNMENT'S PROPOSED TIMETABLE FOR THE REFORM OF SECONDARY EDUCATION QUALIFICATIONS



It is widely agreed that compulsory schooling[9] should provide a broad general education. School Certificate should focus, therefore, on the student's general educational achievement over the first three years of secondary schooling. While it should take into account the needs of employers and tertiary education, it should not be driven by them. It follows that employment training for under-fifteens should be limited to general preparation for the world of work, with the emphasis on generic skills[10] useful in more than one type of job. More specifically, employment-related learning should be post-compulsory (which may include courses in the upper secondary school, the Training Opportunities Programme, polytechnics, colleges of education, universities, wananga, private providers and workplaces).

The Government intends to maintain and strengthen School Certificate, but as a standards-based[11] qualification. There has been increasing criticism of the present system of scaling School Certificate which uses the performance of the *average* student as the norm[12]. The result has been a set grouping of grades, no matter what the real standards of achievement. The system has been seen to especially disadvantage many Maori learners and members of minority groups, who have opted to leave school early as a result.

The Government has decided that School Certificate will provide a record of standards achieved at the end of three years of secondary education. It will provide detailed feedback to students, so that they can make better decisions about their future studies.

A separate document will be released by the Qualifications Authority in early April 1991 outlining options for a standards-based School Certificate.

9 **compulsory schooling:** at present, the official school leaving age is 15 years, and many young people leave before completing the fifth form year. The National Government's policy is to raise the leaving age to 16 years.

10 **generic skills:** a term used to describe skills which are of use in the majority of life and work situations. Examples are social skills, skills in learning to learn and in creative thinking and problem solving, as well as core skills in literacy, numeracy, science and technology.

11 **standards-based assessment:** assessment of learners in relation to defined levels of attainment.

12 **norm:** used here in a general sense to indicate a normal standard.

AVERAGE NUMBER OF YEARS OF ATTENDANCE AT SECONDARY SCHOOL

YEAR	NON-MAORI STUDENTS	MAORI STUDENTS	TOTAL SCHOOL LEAVERS
1975	3.7	3.0	54,233
1980	3.9	3.3	58,851
1985	3.9	3.3	61,325
1986	3.9	3.3	58,383
1987	4.0	3.4	57,164
1988	4.1	3.5	54,363

Education at a Glance, Ministry of Education 1990

He kapara miti hinu*

Forty-seven percent of Maori leave secondary school with no academic qualifications. One in twenty Maori students gain A gradings in School Certificate compared with one in five European students.

National Party policy on Maori Affairs 1990

A COMPARISON OF SIXTH FORM CERTIFICATE GRADES AWARDED TO MAORI AND NON-MAORI STUDENTS IN 1989

GRADE	1	2	3	4	5	6	7	8
Maori (M)	1.3	2.2	5.0	10.5	20.0	28.3	21.5	11.2
Maori (F)	1.2	2.4	6.2	12.5	22.3	29.2	17.8	8.6
European (M)	4.4	6.1	11.1	17.7	23.1	22.1	11.2	4.3
European (F)	4.4	6.8	13.2	20.1	24.2	20.8	8.3	2.2

Education Statistics of New Zealand, Ministry of Education, 1990

* *Once bitten, twice shy.*

Senior Secondary Education Qualifications

The Senior School Curriculum

The senior school should provide a range of learning opportunities for students. These should cater for student needs, which are diversifying as more and more students return to the senior school. In recent years students have been able to follow a variety of pathways including School Certificate, Sixth Form Certificate, Bursaries and Scholarships, as well as courses leading to trades, technician, horticultural and office systems qualifications. Subjects from all these separate areas will form the basis for the National Certificate.

The existing Sixth Form Certificate, Higher School Certificate and University Bursaries will be retained in their present form until the end of 1992. The new National Certificate will be introduced from 1993. The Government intends to phase out Sixth Form Certificate and Higher School Certificate from 1993. Bursaries and Scholarships will remain. This new structure will give coherence to senior school qualifications and will set targets for high achievement by *all* students.

National Certificate

The new qualification, titled National Certificate, will be available at secondary and tertiary levels and be structured around units of learning which will be assessed against *national standards* of performance. Units will be based on clear learning outcomes and will attract credits[13] towards subsequent qualifications.

The National Certificate will offer adults returning to study, who wish to further their education and training in the workplace or at places of learning, the opportunity to achieve a national qualification. It will be possible for secondary school students to attend both school and another provider, to follow the course which suits their own preference. At both years four and five the majority of the units of learning will be common to the National Certificate and Bursaries.

13 credits: numeric values assigned towards a qualification as recognition for previous or current learning. Credits are discussed fully in ***Section Four.***

NATIONAL CERTIFICATE AND UNIVERSITY ENTRY REQUIREMENTS IN SCOTLAND

In an important new development the Scottish Universities' Council on Entrance (SUCE) has indicated that SCOTVEC awards may count towards entry on degree courses.

The SUCE Guide for 1991 states that module *91003 Communication 3* should be accepted as satisfying the English component of the general entrance requirements in the eight Scottish universities. It also indicates that appropriate combinations of certain Mathematics modules are acceptable for university entrance.

The Guide accepts the SCOTVEC principle of stating admissions requirements in terms of the candidate's ability to benefit from the course as well as the ability to achieve academic standards. It also acknowledges that appropriate SCOTVEC awards can give evidence of academic potential and therefore can be included in satisfying entry requirements to specific courses, although each university faculty must decide for itself which modules offer suitable evidence. More than 200 National Certificate Modules are currently used to prepare mature students for Higher Education as part of the Scottish Wider Access Programme (SWAP). SCOTVEC is working with SUCE to clarify which of these modules are suitable for satisfying general entrance requirements.

Scottish Vocational Education Council (SCOTVEC) Journal, Autumn 1990

The unit approach means that opportunities for in-depth and exploratory study will increase. For example, extension units will enable students to explore an area of a subject which to them is especially interesting. Introductory units, exposing students to a new area of study or to different career options, will be available. Units to develop expertise in technological skills, useful in a number of subjects, may be offered.

The introduction of the National Certificate will broaden the senior school curriculum, offering a chance for high achievement to all students. It will give them more choices in their preparation for subsequent adult and working life. It will allow existing courses to be rationalised, and will support and extend what has already been achieved in many secondary schools. The Government intends that the Certificate be well regarded by the further education and employment sectors but recognises that this is achievable only with those sectors' full support.

The National Certificate will offer an alternative route to employment and further study, and will enjoy equal status with Bursaries. The Government does not intend that there will be first and second class qualifications based on the discredited distinction between *academic* and *vocational*. Both are equal in their worth. There will be strong links between the National Certificate and Bursaries through common learning units. In addition schools will be able to cater for sixth year and adult students.

Outstanding achievement will also be recognised in the National Certificate by the award of a National Certificate with distinction. Recognition of merit is discussed in ***Section Five***.

The considerable resource and staff training implications of introducing a new qualification in the senior school are acknowledged.

Bursaries

Bursaries will continue as an examination normally taken by many students at the conclusion of two years study beyond the fifth form. It will be of particular value for students who wish to pursue advanced studies at diploma or degree level immediately after leaving school. Certificates for completion of units will be available to students not continuing to the end of the seventh form.

VOCATIONAL COURSES IN BRITISH SCHOOLS

The Government's determination to introduce vocational courses into sixth forms is likely to result in a dramatic change in the relationship between schools and colleges [of further education]...

The Minister of State...announced last week that he is lifting the ban on schools offering the Business and Technician Education Council's First Diplomas, the range of one-year course for sixteen-year-olds which prepares them to start work or to go on to more advanced vocational studies.

...The First Diplomas, which involve studying a broad occupational area while continuing general education, are primarily intended to lead on to National or other advanced vocational courses. But about one student in five goes straight into a job related to the course. Nearly half go on to take a National and another 14 per cent to some other full-time study, the most common of which is A-level.

Times Educational Supplement 21 Dec 1990

A FLEXIBLE SENIOR SCHOOL

In general we support the idea of modularisation with credits and clearly defined performance criteria. We applaud any shift from norm referenced assessment.

There would be more opportunities for schools to meet the needs of their students outside the usual courses if learning institutions can cross credit with each other. Standardised certification available at whichever learning institution the student chooses would facilitate this.

Secondary schools have staff who are trained and experienced in meeting the needs of their individual students in their local community. Their focus is on young people and their social, vocational and academic needs.

Greater flexibility in the certification process would help local secondary schools to better meet the needs of their senior students wanting to do a wider range of courses in a familiar and supportive setting.

Northcote College Submission 1990

Current prescriptions will remain generally unchanged, but over a period of time will be written in unit form and entered into the common bank of units of learning largely shared with the National Certificate. However, some units will be particular to Bursaries and others to the National Certificate.

Scholarships

Government and the New Zealand Qualifications Authority are committed to the recognition of excellence of achievement. In 1990 for the first time individual subject Scholarships were awarded on the basis of performance in a single examination (Bursaries). The Qualifications Authority also identified top 'all round' scholars who attained Scholarships level in five subjects. Government has determined that the separate award of Scholarships will continue.

Options for Scholarships are:

- Scholarships awarded on the basis of total marks as applied prior to 1990;
- Scholarships awarded on the basis of high achievement in individual subjects.

Options for identifying top scholars are:

- the current University Bursaries/Entrance Scholarships examination prescription using single papers as in 1990;
- a single examination which includes optional additional questions for Scholarships students;
- separate Scholarships papers only in those subjects for which the Bursaries examination is unable to identify excellence sufficiently;
- reinstatement of separate Scholarships papers in all subjects.

ACADEMIC VERSUS VOCATIONAL

We cannot afford as a nation to continue with weary prejudices about the relative merits of so called *academic* or *practical* study. Instead, I hope that everyone concerned will recognise and react to this opportunity to bridge the academic/vocational divide, and in doing so help us to release the potential of all our young people, whatever career destination they happen to have in mind.

Kenneth Clarke British Education Secretary addressing the Society of Education Officers, 25 January 1991

THE SCOTTISH HIGHERS AND THE NATIONAL CERTIFICATE

... by 1989, more than three-quarters of all young people in fifth year were taking some NC [National Certificate] modules. The average enrolment was almost three modules per pupil, amounting to some 120 hours of curricular time, roughly the equivalent of one Higher .... [Bursaries subject]. The most significant explanation for the growth in National Certificate presentations from schools would now appear to be that the National Certificate is a more appropriate vehicle for the curricular and assessment needs of the young people who form the majority of the fifth-year population.

The Times Scottish Educational Supplement 5 Oct 1990

FOCUS ON LEARNING

If one accepts that the central process with which we are concerned is learning, and that learning can take many forms, education and training may be seen as helping to make that possible. The focus on learning would also help to eradicate the distinction between education and training, and the establishments and agencies which divide learning into two camps. As a learner I do not make this distinction. My head does not have separate compartments to receive education and training.

Outcomes: NVQs and the Emerging Model of Education and Training, Gilbert Jessup, 1991

3 Section Three: Drawing The Threads Together: A National Qualifications Framework

The design of the National Qualifications Framework must stimulate and encourage the provision of flexible high quality learning opportunities for all New Zealanders. The goals for a framework suggested by the New Zealand University Students' Association (refer page 41) are endorsed by the Qualifications Authority. The framework will be a co-ordinated set of units of learning, available to students at senior secondary school, in polytechnics, colleges of education, universities or private training establishments, and in wananga, marae or community agencies. Such learning must be equally available in the workplace, and through self-directed study or experiential learning[14].

The building blocks of the framework are units of learning, designed around clearly specified outcomes. The units are stepping stones towards national or nationally recognised qualifications. (Refer to ***Section Four*** for a fuller discussion of units of learning.)

He whare maihi e tu i te wao he kai na te ahi, he whare maihi e tu ki roto ki te pa tuwatawata koina te tohu rangatira*

Many of the units of learning will be common to different kinds of qualification. A national catalogue of units of learning will be established as a guide to the choices available. Through the framework, Maori knowledge and skills will be recognised in a national context and enter the pathway to international recognition. Therefore, the framework will encompass Maori educational alternatives and Maori values.

Ma pango, ma whero, ka oti te mahi**

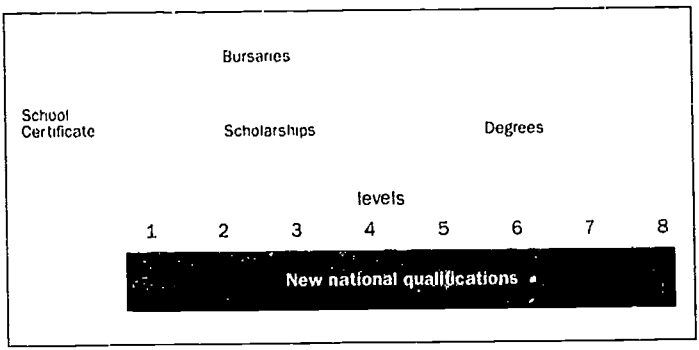
The framework will incorporate all national and nationally recognised qualifications which are the responsibility of the Qualifications Authority. The framework proposed will have the following features:

14 experiential learning: learning acquired in the normal course of life and work rather than through organised education and training.

* *Build on a sound foundation*

** *A co-operative spirit will ensure success*

THE FRAMEWORK



- a national catalogue of units of learning written in terms of outcomes and bearing credits towards named qualifications;
- School Certificate subjects standing alone (that is, not included in the national catalogue of units);
- senior secondary school units as part of the catalogue and with a credit rating;
- degrees offered by universities and other authorised providers written in learning outcome terms with specified credit transfer.

What will the catalogue contain?

The catalogue will be a published register or computer database of units of learning of benefit to learners wanting to know what is available. Industry, professional bodies and providers will be able to see what has already been developed. The catalogue will also give details of unit requirements for national certification.

What will be the role of the Qualifications Authority or of bodies acting in lieu of the Authority?

The Qualifications Authority will itself or by delegation:

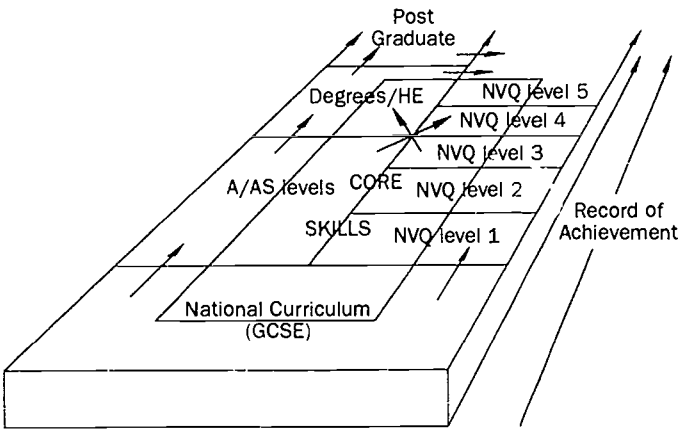
- establish the national catalogue of units of learning;
- specify the format in which a unit of learning will be entered in the catalogue;
- provide a channel for course approval;
- facilitate credit transfer across provider sectors;
- provide a channel for accreditation of providers;
- provide a channel for assessments to be moderated[15].

Universities will operate these processes for the Qualifications Authority according to agreed criteria. Polytechnics, colleges of education and wananga will operate under delegated authority.

15 moderation: the process of ensuring that assessment is consistent among providers and is to the required standard

LINKS BETWEEN VOCATIONAL AND GENERAL EDUCATION IN ENGLAND AND WALES

This diagram provides a model of the various developments in England and Wales to link education and training within a coherent framework. It is projected that all young people will follow the National Curriculum. At 16 years, some will continue in schools or colleges through the Advanced and Advanced Supplementary (A and A/S) levels in the senior school, while others will take National Vocational Qualifications (NVQs).



Adapted from **Jessup** 1991

Irrespective of the route or place of learning, all young people will be expected to develop common core skills which will help to align the systems. Transfer between the systems will be assisted by credit transfer arrangements at all levels. The distinctions among the largely separate systems currently in existence will become increasingly blurred.

How will experiential, community-based and work-based learning relate to the framework?

Procedures will be developed in partnership with industry and other concerned groups to guarantee credit transfer or recognition of achievement from experiential, community and on-job learning. (Refer to ***Section Six.***)

It is intended that the catalogue of units of learning will be available and suitable for both on-job and off-job learning. (Refer to ***Section Four.***)

Traineeship proposals

The Government intends to introduce a *Traineeship* scheme, which will probably consist of a mixture of on-job and off-job learning. Industry will be encouraged to design traineeships around competency testing and units of the National Certificate.

Traineeships are expected to provide skills specific to a firm or industry on a foundation of broad employment-based training. Such generic skills as literacy and numeracy may also be included.

National certification is the key to acceptance and utilisation of the Traineeship programme, and to facilitating the progression of trainees between different forms of on-job and off-job learning.

GOALS FOR A FRAMEWORK

1.3 In our view, a national framework for qualifications should be based on the following goals:

1.3.i **Clarity** of structure, of purpose, of nomenclature, of links within the system, of the roles and functions of all parties, so as *to ensure* the system has credibility within the community and can be easily understood by all.

1.3.ii **Excellence** of teaching and assessment methods, of administration and management, so as *to promote* the educational, social, economic and democratic well-being of New Zealand.

1.3.iii **Flexibility** of access points, of transfer between courses and institutions, of methods of provision, so as *to promote* choice for students.

1.3.iv **Recognition of Achievement** so as *to promote* education and training as a means of opening doors for students, not as a mechanism of sifting out "the brightest and the best".

We are also supportive of, in principle, the introduction of a credit based education system, modularisation and performance-based assessment...

New Zealand University Students' Association (Inc) Submission 1990

WHAT INDUSTRY REQUIRES

In summary the Training Board supports fully:

i Flexibility and the concept of a variety of pathways to gaining qualifications.
ii Portability and credit for competencies already achieved.
iii A modular approach, provided the structure of the module does not dictate the content.
iv Assessment based on measurement of achievement against established standards.

The Board is concerned, however, that the resulting framework gives birth to qualifications:

i Which are easily identifiable.
ii Which recognise the particular needs of increasingly specialised technical training.
iii Whose structure does not determine the content. In other words industries must be able to identify the skills and competencies they require and an appropriate qualification then be found to recognise those - not the other way around.

New Zealand Motor Industry Training Board Submission 1990

Part B

This part of the document outlines specific elements which underpin the framework.

- **Units of Learning** (Section Four)
- **Assessment and Reporting** (Section Five)
- **Recognition of Prior Learning** (Section Six)
- **Course Development and Quality Assurance** (Section Seven)

4 Section Four: Units of Learning

The information in this section has been developed from the very considerable input received on modular learning[16] from respondents to *Towards a National Qualifications Framework*. As a result of that input and further investigation, the Qualifications Authority is recommending a unit of learning structure; each unit having specified learning outcomes and carrying credits.

The National Qualifications Framework must be flexible. It must accommodate the differing needs of individual users (employers, professions, trades, providers and learners), in order to adapt to change and be consistent in standard.

Such flexibility can be achieved most easily with a structure of modules or units of learning. These can be arranged in a variety of ways to construct different courses for different needs. Some standardisation is needed to enable the units to be fitted together to form a variety of pathways. *Packages* of units of learning, some compulsory and others optional, become the basis for occupational qualifications. Units will be available which are suitable for both on-job and off-job learning.

Ka kore atu ano i Waitaia-iti, a, i Waitaia-rahi*

How will students choose appropriate units of learning?

Entry advice to students on any prerequisite learning, together with a statement of the unit's learning outcomes and credits towards recognised qualifications, would indicate clearly whether or not it is appropriate to take the unit. Additional guidance may often be necessary. Guidance would be given by employers, unions, peers and teachers. While selection of units of learning will be influenced by the requirements of qualifications, it will be possible for a learner to choose to complete units without following a particular qualifications track.

16 modular learning: learning organised in modules, referred to in this document as **units of learning.**

* *A bird in the hand is worth two in the bush.*

OVERSEAS MODELS

The Scottish Vocational Education Council (SCOTVEC) has developed a centralised qualifications system with all units and unit results held on an EDP database in Glasgow. There is excellent subject moderation, effective administration, and a strong interest in the learning process. Field officers monitor provision and subject assessors ensure consistency of standards.

In England, Wales and Northern Ireland, the National Council for Vocational Qualifications (NCVQ) has a contrasting employment led philosophy, monitoring outcomes and standards, but with no focus on the learning process. In the NCVQ approach there is relatively little participation by industry in the process of learning and teaching nor industry influence over the taught body of knowledge. Industry Lead Bodies conduct training needs identification and derive National Vocational Qualifications from an analysis of employment requirements, of the functions employees carry out in the workplace. Statements of competence are therefore independent of learning. The qualification is solely dependent upon assessed competence and not the acquisition of such competence. Such an approach can, however, have considerable advantages for employers, and for learners outside formal programmes.

Because of the wider educational focus of the New Zealand Qualifications Authority and its responsibilities for course approval, accreditation and certification, New Zealand may need to seek the middle ground. SCOTVEC and NCVQ have recently reached agreement on the development of qualifications capitalising on the best of both approaches. This has influenced the unit of learning proposals in this document.

What are the advantages of the unit of learning approach?
Research by the Qualifications Authority indicates that a unit of learning approach has advantages for learners, employers, the community, and providers:

- statements of learning outcomes provide a clear expression of what has to be learnt and provide the basis for national standards maintained through the Qualifications Authority;
- there is flexibility of study and a greater control over individual learning as a result of increased choice between units and providers and between full and part time study;
- staff-student relationships, student behaviour and attendance tend to improve;
- success in student-centred learning is higher, thus increasing staff motivation;
- there is more effective use of resources where units are common to several learning courses;
- common units give access to a variety of qualifications and limit the need for too-early specialisation;
- credit accumulation and transfer is facilitated;
- course changes are more easily made within small units;
- there is a greater variety of entry and exit points.

Whaia ko nga taumata*

Maori education and training providers will be guided by standards formulated by Maori groups in consultation with the Qualifications Authority. The Qualifications Authority will ensure that moderation systems are in place to maintain standards.

* *Strive for excellence*

Examples of **learning outcomes** and **standards**

1 For a unit entitled Committee Skills, there could be four learning **outcomes** with accompanying performance criteria[17].

One learning outcome could be *Effectively service a committee.*
Performance criteria could be:

i Draws up and circulates papers for a meeting;
ii Arranges a venue and facilities for a meeting;
iii Prepares a Chairperson's brief;
iv Drafts a minute of the meeting;
v Lists consequential action.

From **Scottish Vocational Education Council National Certificate module 82503,** *Committee Skills*

2 A unit of learning *The Marketing Mix* could have one general learning outcome: *The student shall convert marketing concepts and theories into strategic marketing actions*; and several *specific* learning outcomes, for example:

- evaluate distribution strategy in relation to marketing mix factors;
- describe the effect of a breakdown in distribution strategy on the customers of an organisation;
- compare the values of personal and impersonal communications in marketing a product or service;
- formulate a promotional mix from a specific set of marketing objectives.

From **Auckland Institute of Technology Marketing and Tourism Department Diploma in Marketing,** Module A, Marketing Management: Marketing Planning, Topic: *Marketing Mix*

17 **performance criteria:** sometimes called *performance indicators or standards.*

What are the possible disadvantages of the unit of learning approach?

- Courses which are intrinsically integrated may become fragmented when split into a number of units. This problem can be overcome by treating such courses as a single unit, with appropriate credits.
- Theoretical gains in flexibility are sometimes negated by a tendency for occupational admission bodies to specify a narrow range of units for qualification.
- The unit approach has high start-up costs and will require increased investment in training for teaching and administrative staff.

Would there be a standard format for units of learning?

The task of the Qualifications Authority is to establish a national qualifications framework and to set up and maintain national standards. It is not the role nor the policy of the Qualifications Authority to constrain teaching and learning, since it must *establish a flexible system for the gaining of qualifications*.

A research report for the Scottish Education Department[18] found that, where unit specifications about teaching and assessment were very tight in all respects, teachers treated the specification as a prescription and failed to exercise initiative in moulding units to their own teaching style or to vary the time frame. A prescriptive, centralised approach is unlikely to be beneficial.

However, providers will be required to conform to a broad unit format for their units to be entered into the national catalogue. When approved as part of the catalogue, units of learning will be in the public domain. All other such course information as teaching-learning approaches and details of resource materials provided for the purpose of course approval and accreditation will be confidential between the Qualifications Authority and the developer.

18 Assessing Modules, Scottish Council for Research in Education, 1988.

MODULARISATION - VALUE FOR WOMEN

Our members saw this as an interesting and even exciting concept with particular value to women. One member who had observed the development of a similar system in Scotland in 1986 spoke enthusiastically about the opportunities presented by this type of structure for New Zealand with its highly mobile population and increasingly large numbers of people entering study for interest or betterment, not necessarily for a vocation. There was enthusiasm for the opportunity to undertake modular study knowing that each module is counting for some sort of qualification which can be built on, added to and carried over a number of years.

National Council of Women of New Zealand (inc) Submission 1990

Suggested simplified unit format for inclusion in the national catalogue

Unit title
Credit value
Statement of purpose
Statement of learning outcomes and performance criteria
Entry information

What would be the advantages of a national catalogue of units of learning?

A catalogue of units will benefit students, industry and providers. Students will have increased choice. Industry and providers will be able to avoid duplication of effort in course development. Providers will be able to achieve economies of provision. When units were introduced in Scotland there were significant economies through the identification of what was common in different courses.

How would existing qualifications be incorporated into the catalogue?

The Qualifications Authority's approval and accreditation processes would require over a period of time all existing national and nationally recognised courses to be written in a unit of learning format. They could then be entered into the catalogue. The very considerable resource implications of introducing a units of learning approach are acknowledged.

Non-university degrees could be incorporated readily into the catalogue, as approval processes require a unit structure. In many respects the papers system adopted by universities is already a broad unit structure and should be readily adaptable to a learning outcome format. Course approval would require the specification of credit transfer.

NEW ZEALAND EXPERIENCE

Most New Zealand polytechnics are aware of or are already using units of learning. The most experienced is Wanganui Regional Community Polytechnic which was funded by the Ministry of Education in 1988 to convert entire learning programmes over a two year period. Such organisations as Telecom are establishing training programmes based on units of learning. A large number of units have been written for Access providers, and some schools are expanding their transition programmes using banks of locally and nationally developed units.

SCOTTISH SENIOR SCHOOL STRUCTURE

Much more is known about establishing programmes based on learning units with specific outcomes than about units based on school subjects with general outcomes. In Scotland, the **Howie Committee** is reviewing the current structure of senior school examinations, including the relationship between traditional 'academic' subjects and **SCOTVEC***'s National Certificate. Similarly, in England and Wales, there is a move towards amalgamating vocational qualifications and general subjects in the senior school. New Zealand will have the benefit of the Committee's work in setting future policy directions.

* The Scottish Vocational Education Council - refer to **OVERSEAS MODELS**, page 45.

The conclusion of the working group is that there should be an open catalogue of nationally validated units of study with standard descriptor format and institutional packaging of units leading to named qualifications; with units of an average 40 hours of student effort.

NZ Society for Horticultural Science working party 1989

Size of Units

Through its approval and accreditation processes the Qualifications Authority or those exercising its powers would check that units were of an appropriate size. For some subjects, providers may elect to offer 1-credit units. More integrated general subjects could be served better by 3-credit or perhaps 6-credit units. Polytechnics, colleges of education, universities and wananga may prefer larger units for more advanced courses

A common benchmark will need to be established to provide for a broad balancing of work-load with credit value. One credit could be allocated to the smallest unit of learning.

For planning purposes (timetabling in schools, for example), one credit needs to be linked with a specific number of hours of typical total student time. The Qualifications Authority suggests that 30 hours might be suitable. In Scotland the base hours are fixed at 40. Defining a unit in terms of total student time encourages diversity in learning arrangements and accommodates on-job, non-formal and open learning. The key focus remains on learning outcomes, however, and not on student time.

Units of learning are the building blocks of the National Qualifications Framework. They are also the stepping stones to qualifications. The Qualifications Authority welcomes detailed submissions on the size and credit values of units.

Please refer to the ***Appendices*** for examples of units of learning.

At Massey University in the Faculty of Agricultural and Horticultural Sciences there is a unit of academic workload measurement called the credit point. This unit is benchmarked to a nominal total student workload (including formal teaching, laboratories and self-directed learning) of one hour/week over a standard 30-week measuring period. The 30-hour unit may be taught in a more concentrated period. The University is currently considering the application of this unit to all undergraduate programmes.

FURTHER READING

16s - 18s in Scotland - an action plan, Scottish Education Department, January 1983, 69pp+App

Access programme planning - a modular approach, Ministry of Education, 1990, 67pp

Advanced Courses Development Programme: Policy Paper, Scottish Vocational Education Council (SCOTVEC), January 1990, 66pp

Assessing Modules: Staff Perception of Assessment for National Certificate, (SCRE Publication 99, Practitioner Minipaper 3), Harry Black, John Hall and John Yates, Scottish Council for Research in Education, 1988, *ISBN 0947833250*

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Modularisation Task Force Report Central Institute of Technology 1990

The National Certificate, A Guide to Procedures, Scottish Vocational Education Council (SCOTVEC), 4th ed. July 1989, 58pp+App

The National Certificate Catalogue of Module Descriptors, Session 1990-1, Scottish Vocational Education Council (SCOTVEC), 1991

Setting National Skill Standards: a Discussion Paper, National Training Board (Australia), July 1990, 18pp+App

Modularisation Stage One Report, Wanganui Regional Community College, May 1989. 44pp

Modularisation Stage Two Report Appendices 1990, Wanganui Regional Community Polytechnic, February 1990

5 Section Five: Assessment and Reporting

WHAT TYPES OF ASSESSMENT ARE THERE?

Norm-referenced assessment
A learner's achievement is measured against the achievement of others in a group, producing a ranked list of learners. Outcomes are reported as percentage marks or grades, which are important mainly in relation to other learners. What an individual knows and can do is not directly reported.

Standards-based assessment
A learner's performance is measured against standards of achievement or competence. Results are reported in terms of what the learner knows or can do.

Two forms of standards-based assessment relevant to the national framework are:

competence-based assessment which
- measures the learner's skills and knowledge against predetermined standards (that is, the learner can or cannot demonstrate the competence);
- has no grades or ranking;
- is most appropriate for courses which have a comparatively large number of discrete skills (e.g. Mathematics, Dentistry, Joinery).

achievement-based assessment which:
- measures how well the learner has achieved in relation to criteria which are related to grades;

Norm-referenced assessment measures the performance of an individual against that of others in a similar group. Marks or grades of individuals are compared with the norm for the group, establishing a ranking order. Norm-referencing provides a single score which indicates the learner's achievement in a subject area. It is summative[19], measuring the overall result of the learning process and discriminating between individuals over a wide range of achievement, but it places more emphasis on the differences between learners than on the achievement. Scaling of scores may reduce the value of norm-referencing as a source of information about standards of performance.

Standards-based assessment measures the actual performance of a learner against set standards of achievement or competence. Performance is reported as a set of learning outcomes, which are precise statements of what the individual should know and do. Standards-based methods include those which are criterion-referenced, **competence-based**, performance-based, or **achievement-based**. It must be acknowledged that standards-based assessment involves normative judgements in that what is judged as a standard relies on 'normal' or appropriate performance. Standards-based assessment lends itself to a formative[20] approach to learning.

Achievement-based assessment measures how well learners have achieved outcomes, by using grade-related criteria[21], irrespective of the performance of other learners in the same group. Since 1987, investigations into this form of assessment have been carried out in a number of Sixth Form Certificate subjects and have involved approximately a third of all NZ secondary schools.

Examples of units based on assessment of learning outcomes are given in the **Appendices.**

A number of higher education institutions in the United Kingdom are beginning to state the aims of their degrees in the form of outcomes and are exploring competence-based approaches to specifying degree requirements. The Council for National Academic Awards (CNAA) requires the restructuring of [non-university] degrees into component units. The Open University, which offers degrees in the form of units, is considering specifying unit requirements in the form of learning outcomes rather than programme inputs. In Canada, Athabasca University has operated its courses on this basis for several years and in Britain the National Council for Vocational Qualifications (NCVQ) is developing pilot projects to describe professional qualifications in a competence format.

19 **summative:** forms of assessment which summarise the learner's performance at the end of the learning process.

20 **formative:** forms of assessment emphasising student development during the learning process, rather than final performance.

21 **grade-related criteria:** statements describing several levels of achievement in one aspect of a subject. In achievement-based assessment levels of performance are specified from 1 (lowest) to 5 (highest).

- reports a range of levels of achievement (***Appendix Four***);
- is most appropriate for subjects with a mix of generic skills and knowledge (e.g. History).

How do these two methods of standards-based assessment compare?

There are some similarities. In both:

- the focus is on what a learner knows and can do (competence);
- predetermined criteria set a target for the learner to achieve;
- criteria are expressed in positive terms;
- criteria require a degree of detailed specification;
- teaching and assessment are closely related in the learning process;
- assessment must be conducted progressively and cover a variety of situations rather than rely on a single end point;
- considerable interaction between teacher and learner is needed and encouraged;
- student attitudes may be assessed.

Standards-based assessment, with its focus on learning outcomes, is endorsed by the Qualifications Authority.

Which form of assessment should be used?

Standards-based and norm-referenced assessment both have advantages and disadvantages. In recent years, however, there has been a move in many parts of the world towards various forms of standards-based assessment, which can be adapted to suit the nature of the course, the learning environment and different forms of delivery. A clear preference for this form of assessment was indicated in responses to *Towards a National Qualifications Framework.*

Ka pu te ruha ka hao te rangatahi*

Standards-based assessment will be used for Te Reo Maori at School Certificate level from 1991. Students' performances in both the written and oral examinations will be assessed against seven criteria. Assessors have been trained throughout the country to recognise students' performances in both the oral and written examinations against these criteria.

He ao te rangi ka uhia, he huruhuru te manu ka tau**

A MAORI VIEW

The Maori Trust Board also supports the recommendation to assess student achievement against established standards rather than against the achievement of other students. This change has been recommended by many Maori educators, and we believe the change will help to support Maori students within the educational system. We also believe, however, that a major question that must be asked is the question of who will set the standards against which Maori students will be judged. If Maori students are to have an equitable chance within the educational system, then Maori must have a prominent role in establishing the standards that will be used to judge the progress of the students.

In addition, we believe that formal recognition and qualifications should be given to student achievement in Maori domains where no recognition is given at the present time. This is particularly true of achievement through Maori ACCESS training courses. Recognition for achievement in Maori cultural domains can best be judged by Maori people. Therefore, it is essential that Maori are included in the process of establishing standards.

A Maori Trust Board Submission 1990

* *The old net is cast aside and the new net goes fishing*
** *As clouds cover the sky, so feathers adorn a bird*

The most appropriate form of standards-based assessment should be selected for each area of learning. Competence-based assessment is most suitable for areas of learning in which competence can be described in terms of a set of discrete skills that can be performed to a defined standard. Examples are given in ***Appendices One*** to ***Three.*** Achievement-based assessment is better suited to general subjects in which attributes and skills are not measurable in quantitative terms, but rely on qualitative judgement. An example is given in ***Appendix Four.***

There is growing evidence that occupational outcomes can be predetermined and stated for occupations and professions in which the outcome is a practised competence, but there is concern about education in which the outcomes are generic and diffuse. Basic general education develops the skills, knowledge, attitudes and understanding which underpin competence rather than prepares people directly for particular employment. It provides a basis from which specific aspects of competence can be acquired. There is a risk that narrow task-based specifications of competence may limit the range of learning if they focus only on the most tangible aspects of performance, but these dangers are well recognised. It is possible to create outcome statements that emphasise knowledge and understanding as the basis for skills.

The Qualifications Authority is undertaking research on standards-based assessment in general education and in advanced academic learning. The Authority recognises that there is a continuing debate on the appropriate concept of competence, in particular the role of knowledge and understanding, and more generally the cognitive components of competence and the role of generic competencies. A discussion document will be available in April on request from the:

Policy and Development Division
New Zealand Qualifications Authority
PO Box 160
Wellington

Can excellence be recognised in standards-based assessment?

Standards-based assessment enables merit to be recognised in a variety of ways.

In competence-based assessment merit can be awarded for originality of approach, for the transfer of skills to a more demanding context, or for the

LEARNING OUTCOMES IN INTEGRATED GENERAL SUBJECTS

EXAMPLE OF A UNIT OF LEARNING IN ENGLISH LITERATURE

The following are some objectives/learning outcomes for a first course on Chaucer that might be offered by an English department in a university.

At the end of the course successful students:

1 Should be able to enjoy reading course texts with some fluency because they

   a can recognise the major features distinguishing Chaucer's English from modern English (morphology, syntax, spelling, pronunciation)
   b have absorbed a range of Chaucer's vocabulary
   c can understand and explain narrative detail
   d have an awareness of the many generic conventions within which Chaucer worked
   e know something of Chaucer's re-use of existing literature
   f can appreciate some of Chaucer's characteristics, e.g. his very wide range, his serious playfulness, his scepticism.

2 Should therefore have a sufficient grip on their reading of Chaucer to be able to read relevant critical literature constructively.

In the same university English department students might take a course on film studies where they are required to adapt part or all of one of Chaucer's Canterbury Tales to a film script. Learning outcomes for this might be that, at the end of the course, the student will:

1. independently produce a film script that observes the conventions of the script writer's craft;
2. represent faithfully the key elements in the original text;
3. use and integrate an appropriate range of film techniques;
4. translate from one medium to another showing understanding of and sensitivity to the difficulties of the process;
5. sustain a controlled personal style that includes striking or original effects;
6. evaluate the strengths and weaknesses of the script.

demonstration of skills and/or knowledge at a higher level than that defined as *competence*. In achievement-based assessment the application of grade-related criteria results in graded outcomes, allowing for merit to be recognised.

What is a profile?

With standards-based assessment, a number of learning outcomes are assessed in order to judge overall competence or to measure achievement on a scale of distinct levels. This assessment method does not lead automatically to a mark, but to a profile or summary of performance over a range of different outcomes. For employers, the broad range of reporting provides valuable information on a learner's knowledge, skills and attitudes.

Record of (School) Achievement

The Record of Achievement is a comprehensive statement of a student's achievements at school. It is the widest form of profile statement as it includes assessment of personal, cultural and sporting attitudes and achievement. It rounds out the reporting of educational achievement. It can be of particular relevance to prospective employers and to further education providers. The Ministry of Education is currently evaluating a two year investigation into school leaver documentation.

Record of Education and Training

The Qualifications Authority suggests that a wider *Record of Education and Training* could be developed as an innovative approach to recording and certificating achievement at school and beyond. The Record would list cumulatively achievement in national units of learning and any consequent certification. It could also record the award of a qualification by an industry or professional body. Such a system would document career-long achievement and help to create a learning culture in New Zealand.

RECOGNISING MERIT

Competence-based assessment can recognise merit in several different ways, including demonstration of the ability to transfer the skills or knowledge acquired in an individual unit to a more demanding context, such as the workplace. A student taking a management course with an individual unit on training might be asked to *list the benefits and limitations of a management-driven staff training programme* to demonstrate competence. To earn merit the student might be asked to *carry out an investigation into staff training programmes and prepare a report noting benefits and limitations* in relation to her/his own workplace.

Merit could be awarded in an individual unit or over a complete course by the demonstration of skills, knowledge and attitudes to a higher level than that defined for competence. A student studying medical microbiology may be asked, as one of the learning outcomes for the course, to:

> *explain your laboratory's methods for processing the following specimens for microbiological investigation (a) blood (b) sputum...etc.*

to demonstrate competence. To earn merit, the student may be required to:

> *evaluate the efficiency and effectiveness of your laboratory's methods for processing specimens for microbiological investigation, and recommend any actions that would optimise performance in this area.*

In the recognition of merit, emphasis would be placed on the requirement to operate at the highest levels of cognition-synthesis, requiring integration of all components of the course; and evaluation, requiring a judgement to be made.

FURTHER READING

The National Certificate: A Guide to Assessment, Scottish Vocational Education Council (SCOTVEC), 1988, 75pp

Outcomes: NVQs and the Emerging Model of Education and Training, Gilbert Jessup, Falmer Press, 1991

Competency-based Assessment in the Professions (Research Paper No 2), G Marks and D McCurry, National Office of Overseas Skills Recognition (Australia), AGPS, Dec 1990, 74pp

Development of Assessable Standards for National Certification (a set of 6 guidance notes), Training Agency (UK), 1988, 1989

School Leaver Documentation Developmental Project: Evaluation Report on the Trial in Nine New Zealand Schools, 1989-90. David Nightingale, December 1990

A COMPARISON BETWEEN NORM-REFERENCED AND TWO FORMS OF STANDARDS-BASED ASSESSMENT

Facet		Norm-Referenced
1	Information provided about the learner	Summary in numerical or grade form of the general level of attainment in a broad area of learning
2	Information reported	Achievement in relation to other students in the group (marks or grades)
3	Domain of assessment	General prescribed subject areas
4	Extent of assessment	Narrow range of examinable skills, mainly recall and application of knowledge
5	Educational purpose	Summative assessment Achievement in relation to other learners
6	Achievement levels measured	Wide range of levels with fine discrimination between students, not necessarily accurate.
7	Moderation	After assessment by external examination with national moderation and, possibly, scaling of marks.
8	Most appropriate uses	Measuring general level of knowledge and understanding of a subject in order to rank or select a student.

Competence-Based	Achievement-Based
Specific statements about what the learner knows and can do	Graded statements of achievement over a range of aspects within a subject
Description of the learner's competence (profile)	Descriptions of achievement in each aspect within a subject (profile)
Specific learning outcomes	Aspects of knowledge, skills and attitudes derived from learning outcomes
Wide range of well-defined skills	Wide range of skills levels
Formative and summative assessment Guides learner through the learning process	Formative and summative assessment Guides learner through the learning process
Competence achieved or not yet achieved Broad discrimination possible	Graded levels of achievement described by criteria in several aspects Good discrimination between learners possible
Explicit standards Quality assurance through approval and accreditation mechanisms	Explicit standards and examples Consensus panels, visiting moderators, multi-matrix sampling
Determining competence based on set standards in specific roles or	Measuring and describing achievement over a wide assessment tasks domain

6 Section Six: Recognition of Prior Learning

Many adults have knowledge, skills and experience that they wish to have credited towards a qualification. They may also have credits from previous learning that they wish to have transferred. Before this learning can be recognised it must be assessed against the competencies required for the qualification. This assessment must be equitable and easy to obtain. It must be rigorous and open to scrutiny so that standards are upheld.

Prior learning may be recognised and given credit in the following categories:

Work-based learning. This establishes credit for in-house company training towards national qualifications. The assessment may take the form of a written test or tests, observation of work in the workplace, submission of examples of work, oral examination or simulation. Usually the assessment will be a combination of several of these methods.

Experiential learning. Using a variety of methods, life experience is documented and evaluated to determine entry and/or credits towards a course of education or training. The student prepares a portfolio which outlines the evidence for recognition of prior learning. This portfolio is given to a panel of subject experts for evaluation and the granting of credits.

Competencies and qualifications gained overseas. Performance in a skill area is assessed by written, practical or oral tests. The results of these tests are combined with documented overseas qualifications so that an equivalence of the qualification can be derived. The outcome may lead to direct entry to employment in New Zealand or to registration in a regulated trade or profession.

Ano me he whare pungawerewere*

Attestation. A student's suitability to enter, or hold credits towards, a course of training, is affirmed by respected members of an ethnic or other community. The attestation may be combined with other forms of assessment of experiential learning. In New Zealand there will be a need to recognise learning which arises from a purely Maori base for the skills of carvers,

* *As if it were a spider's web.*

Before embarking on any programme, learners and their advisers will want to assess the skills and knowledge they already possess to determine the appropriate starting point. This is especially important for adult learners, who will have a variety of skills and knowledge on which to build. Adults will also constitute an ever growing proportion of the participants in education and training in the future.

Outcomes: NVQs and the Emerging Model of Education and Training, Gilbert Jessup 1991

Hutia te rito o te harekeke, kei hea te komako e ko e, kii mai ki ahau he aha te mea nui o te ao, maku e kii atu he tangata, he tangata, he tangata.*

WOMEN AND THE QUALIFICATIONS FRAMEWORK

Deep concern was expressed about the effect the emphasis on qualifications would have on women and other disadvantaged groups such as Maori or the disabled. We would urge that you consider and take account of the needs of women (especially older women) who may enter the format with excellent management skills developed in the family or through voluntary work, but who are without formal qualifications. It is important that they are not disadvantaged by this formal certificated structure. There should be mechanisms by which they can enter at a level most suited to their current situation although they may not have met the necessary formal qualifications requirements. The modular learning programme has the potential to assist, provided it is formulated to accept informal learning experience. We note with approval the wide net cast in accepting community experience for qualification in Early Childhood Education. But as the overall proposal stands there is a real fear that such paper-based qualifications will discriminate against women.

National Council of Women of New Zealand (Inc) Submission 1990

He purapura i ruia mai i Rangiatea**

We believe that there should be a process of attestation that takes into account areas such as women's voluntary work, and previous relevant paid work experience. We also support attestation for Maori people and see this issue as being one that should be resolved in consultation with Maori people and in accordance with the articles of the Treaty of Waitangi.

Early Childhood Programme, Christchurch College of Education Submission 1990

* *What is the most important thing in the world? It is people, it is people, it is people!*
** *As seeds are scattered from Rangiatea, from the heavens, so do they flourish.*

weavers, kaumatua and kuia. Attestation is already in use to support alternative entry to colleges of education.

Credit accumulation and transfer.

Credit accumulation is the adding together of credits, gained from the successful completion of units of learning, to achieve a full qualification. For example, Trade Certificate is gained by accumulating passes in appropriate subjects at Stages 1-3, together with stipulated time served in apprenticeship. *Credit transfer* is the transfer of credits from one place of learning to another. For example, a learner may transfer a Trade Certificate Stage 1 credit gained in one polytechnic to another, where Stages 2 and 3 will be completed.

Credit accumulation and transfer schemes exist in a number of countries, and fall into two main categories.

Many countries, including New Zealand, have no formal national credit accumulation and transfer systems. They rely instead on negotiation between teaching authorities or institutions to establish mutual credit transfer arrangements. One or more central agencies (in this country, the former Department of Education) may publish listings of these. By consulting the listing, it can be established whether polytechnic qualification X can be credited towards university qualification Y, and to what extent. The same amount of credit may not be available at university Z. Such systems are clumsy and expensive to operate because each case must be considered individually.

In some countries there are numerical systems, in which a nominal full-time year of study is allocated a fixed number of *credit points*. An example is the British Credit Accumulation and Transfer Scheme (CATS) operated by the Council for National Academic Awards. Each nominal year is valued at 120 points. Credit of 360 points (120 at each year level) in a coherent course gains a Bachelor degree. A further 70 at postgraduate level earn a Graduate Certificate and 120 (a further 50) a Master Degree. The scheme is designed to assist non-university students gain degree qualifications through part or full-time study under a variety of learning systems, including distance education. A similar system could operate in New Zealand, at a considerable saving in time and cost over the present method.

In Australia, the National Board of Employment, Education and Training (NBEET) has recommended the establishment of a national 'credit bank' with far-reaching powers.

Recognition of Prior Learning is relevant to the achievement of a more flexible, highly skilled and productive workforce

Victoria State Training Board - Ford Motor Company Project Report 1990

For Recognition of Prior Learning by a training provider to be effective the following conditions need to be fulfilled:

1 the training provider must offer courses in which competencies and levels of achievement are clearly stated;

2 courses must be based on units of learning that allow a student flexibility of entry once prior learning has been assessed;

3 there must be adequate staffing allocated to cover the assessment process and provide student guidance;

4 the process of assessment must be cost-effective to both the training provider and the student;

5 relativity between all courses on the National Framework must be clearly defined.

Regardless of which method is used to recognise prior learning one principle remains:

Credit can only be given to learning outcomes that have been assessed by acknowledged experts according to national standards.

A detailed paper on Recognition of Prior Learning is available on request from the

Implementation Division
New Zealand Qualifications Authority
P O Box 160
Wellington

7 Section Seven: Course Development and Quality Assurance

Course[22] development for schools

Courses in the senior secondary school depend on sound curriculum development and assessment practices, and an enabling qualifications framework.

As a result of the restructuring of education, the Ministry of Education has responsibility for developing curriculum and assessment practices in schools, and the Qualifications Authority has responsibility for assessment leading to qualifications. As a consequence, course development for the senior secondary school will be undertaken co-operatively by the Ministry and the Authority.

Vocational course development refers to vocational courses, excluding those taught at universities. It is the process which begins with an industry assessing its position, identifying its present and future skill needs, and working in partnership with providers to develop a learning course.

Course development has four fundamental stages:

- training needs identification;
- course development;
- assessment and moderation development;
- course review.

The aim of course development is to provide learning that can be delivered by industry on-job, by an institution or private training establishment, or by a combination of both.

Quality assurance is achieved by the operation of course approval, provider accreditation and moderation of assessment. These are the responsibility of the Qualifications Authority or of delegated bodies exercising the Authority's powers.

22 course: a coherent programme of learning and training leading to certification

INDUSTRY'S ROLE

The Federation is actively promoting the development of a national skills policy. This must be supported by a national qualifications system which is comprehensive, modular, competency-based and internationally acceptable.

The system must allow for industry to determine its own knowledge and skill requirements, and performance standards. In addition a national qualifications framework must be sufficiently comprehensive to recognise systematic and structured on-job training which fulfils industry-established criteria for national recognition.

New Zealand Employers' Federation (Inc) Submission 1990

TRAINING A KEY ELEMENT

The NZ Council of Trade Unions believes training and education are key elements in ensuring New Zealand's social, industrial and economic development.

NZ Council of Trade Unions 1990

The Australian Government along with union and employer groups have placed great faith in the ability of our industry restructuring process to bring about major changes in the country's productivity. Competency-based training and assessment have been seen as integral to this restructuring process.

Testing Times: a Study of Assessment On and Off the Job, TAFE National Centre for Research and Development, 1990

Course development requires decisions which are most effectively made by industry. These include the balance of on and off-job provision. While course development is an industry-led process, it operates on a partnership principle with providers and the Qualifications Authority.

Industry advisory mechanisms

Across the range of units of learning, many are likely to be used in more than one occupational or industry qualification. For example *turf culture* may be a common unit in an apprenticeship, a primary industry cadet scheme or an undergraduate diploma course. Because of this there is a need to be sure that all interested parties are involved in the selection, development and monitoring of that unit.

One way to co-ordinate the views of interested parties would be to establish industry advisory mechanisms. These would need to be placed so that they are close enough to industry to have a comprehensive knowledge of its requirements yet be sufficiently far away to have a sector wide focus.

To achieve this balance the Qualifications Authority supports suggestions that *industry training organisations* be established. Industry would self-select into such broad generic groupings as *Primary Industries* or *Construction*. It is suggested that Industry Training Organisations be non-statutory bodies, which focus on functions. They would have a meeting budget and be serviced by a bureau whose staff would be provided by a servicing agency (at present the Education and Training Support Agency but likely to be the Tertiary Education Commission), and by the Qualifications Authority. The bureau would administer and advise on vocational qualifications and training schemes.

FIELD OF LEARNING FORUMS

The Qualifications Authority needs advisory mechanisms capable of providing very broad spectrum policy advice about the future needs of the qualifications system.

FLEXIBLE LEARNING NEEDED

Technical change cannot be realised without concomitant, even anticipatory, changes in the education and training system, to meet the requirement for a more highly skilled and educated workforce. It is necessary to develop more flexible types of course provisions, both within enterprises and in the higher education system. A broad general secondary and tertiary education for large numbers of young people needs to be complemented by more specialised adult courses throughout working life, sometimes in industry, sometimes in educational institutions, and sometimes in combined courses.

New Technologies in the 1990s OECD 1988

EXISTING SECTOR-FOCUSED STANDING COMMITTEES OF THE NEW ZEALAND QUALIFICATIONS AUTHORITY

- Secondary Qualifications
- Academic Qualifications
- Vocational Qualifications

OTHER STANDING COMMITTEES OF THE QUALIFICATIONS AUTHORITY

- Community/Non-Formal Education, Training and Development
- Maori Education, Training and Development

POSSIBLE GROUPINGS FOR INDUSTRY TRAINING ORGANISATIONS

- Administration
- Community
- Finance
- Manufacturing
- Retail
- Transport
- Communication
- Construction
- Health
- Primary industries
- Services

The Industry Training Organisations could comprise the core membership of one or more Field of Learning Forums. Other members would be prominent people drawn from all levels of the education sector and the community. An example would be a *Science and Technology* forum involving industry representatives along with teachers, academics and research scientists. The forums would provide an opportunity for dialogue between the industry (employers, unions, professional associations, students) and education sectors.

They would advise the Qualifications Authority on future broad skill needs and all aspects of qualifications. They would replace the existing education sector-focused Standing Committees (refer to box, previous page) and would provide assistance to the Authority in strategic planning for all qualifications and for national skills development.

How would vocational courses be developed?

The development of vocational courses would be co-ordinated by the Industry Training Organisations.

Rather than deal with this process as fragmented parts identified by separate names (curriculum, syllabus, prescription etc), with different bodies being responsible for each, course development and approval would be seen as a continuum.

Within the continuum, judgements on standards and quality assurance must be separated from course development. Those who develop the course should not also be its judges. For this reason course development must be the responsibility of industry and the providers, with the Qualifications Authority in a consulting role.

Industry Training Organisations would establish contracts between the industries concerned, the providers and the Qualifications Authority to undertake course development work.

The contracts would establish who takes primary responsibility for different parts of the process.

RESPONSIBILITIES IN COURSE DEVELOPMENT

Normally industry would be responsible for:

- developing industry-wide plans (industry audit);
- identifying industry skills (skills audit);
- directing the training needs analysis which identifies the training required to attain such skills;
- deciding (in conjunction with the other partners) the appropriate place of provision;
- advising (again as a partner) on the development of the training needs into a learning course;
- assessing the on-job component of the course;
- moderating the assessment (in partnership with providers);
- revising and reviewing procedures for the course (again as a partner).

Providers, including employers delivering on-job training, are responsible for:

- development of identified training needs into a learning course;
- providing the training;
- assessing the off-job provision;
- assessing on-job training in partnership with industry if required;
- moderating assessment (in partnership with industry);
- revising and reviewing procedures for the course (as a partner).

The New Zealand Qualifications Authority is (itself or by delegation) responsible for:

- establishing principles and concepts which comprise the national framework for qualifications (including principles for unit writing, principles governing statements of competence, principles governing standards and assessment);
- establishing nomenclature for qualifications;
- advising providers (on and off-job) on methodology for statements of competence, standards and assessment;
- maintaining the national catalogue and units of learning and qualifications;
- providing the channel for industry and provider involvement in course approval and accreditation procedures;
- regulating the framework for qualifications (levels, standards, nomenclature and appropriateness of assessment);
- approving courses and accrediting learning providers;
- monitoring processes designed to achieve and maintain consistency of assessment.

Information available to industry partners

Industry partners, training providers and students will all require information about the units of learning included within the framework. Sufficient information about each will be needed to enable potential users to decide whether the unit is suitable for their particular purposes.

Those who have put money and effort into course development may be reluctant to relinquish this information. A mechanism is needed to allow user access to information while protecting the developers' interest.

What quality assurance processes would be necessary?

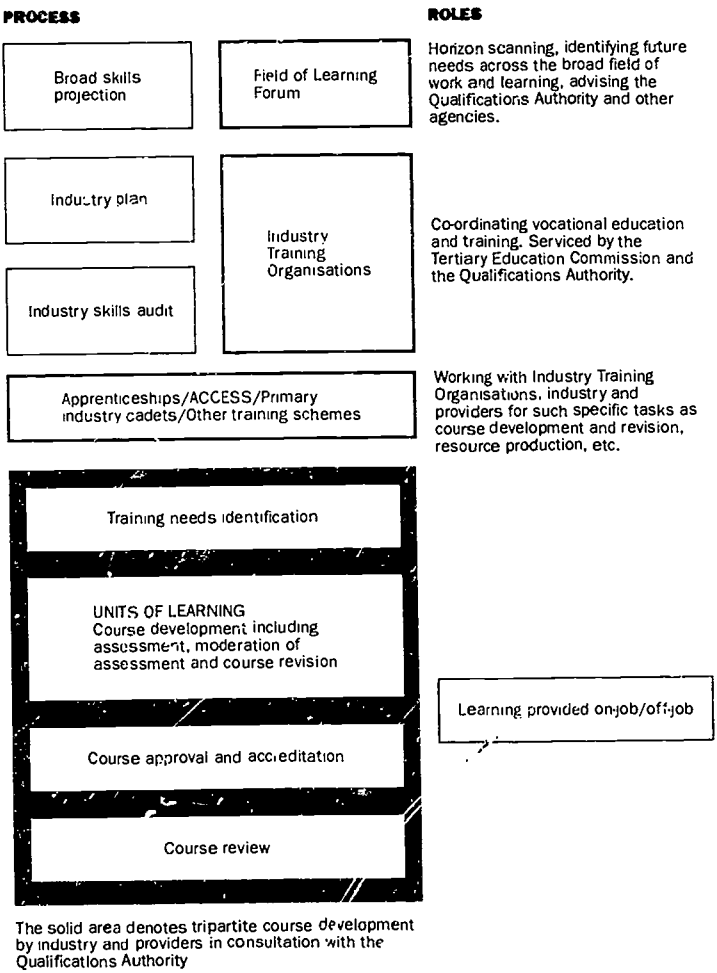
The Education Amendment Act 1990 requires the Qualifications Authority to have a quality assurance role. Under the Act universities have their own inter-institutional body acting in place of the Authority. The Act encourages the devolution of authority to such other provider groups as polytechnics, colleges of education and wananga. These groups would use procedures approved and monitored by the Qualifications Authority.

For post-school qualifications where full local academic and industry support could be shown, the Qualifications Authority's approval and accreditation processes could be simplified. For some higher diploma and all degree courses, much more rigorous procedures may continue to be applied.

The Qualifications Authority is responsible for registering private training establishments, for approving their courses, and for accrediting them to teach those courses. Cost-effective procedures will need to be developed for the Training Opportunities Programme and National Certificate units offered by private providers and secondary schools which are fully funded by the Government.

There is a need to have low cost approval procedures which are consistent with high standards. The traditional but expensive way to guarantee standards would be through processes led by staff of the Qualifications Authority and professionals from industry. Alternatively the Qualifications Authority could delegate its roles to providers and monitor their procedures, while continuing to ensure industry participation at a local and national level.

A MODEL FOR THE PROCESS OF COURSE DEVELOPMENT



The solid area denotes tripartite course development by industry and providers in consultation with the Qualifications Authority

This approach would rely on national and local industry scrutiny, academic boards within institutions and peer review[23]. If established learning providers consult fully with employers, unions, professional groups, students and teachers, then course approval and accreditation should present few difficulties. For newer and smaller providers the Qualifications Authority may need to verify standards with a more hands-on approach.

Approval and accreditation would always be for a specified length of time.

What would be the benefits and drawbacks of devolved processes?

The benefits of devolved processes are that providers and the communities they serve take more responsibility for their own standards according to nationally prescribed criteria. They are able to co-operate in a professional manner with other agencies providing similar courses. Administrative costs are lowered and a central agency monitors the 'big picture' rather than intervenes. Autonomy is enhanced and standards are correctly maintained.

A disadvantage is the initial variability in standards until monitoring and review are well in place. To minimise this the New Zealand Qualifications Authority staff will seek a liaison role with industry and with providers so that requirements are understood clearly and then well applied.

How will the transition be accomplished?

The procedures proposed above could be implemented when all parties have confidence that there are strong academic and consultative systems in institutions. Devolution requiring central monitoring can take place only as the Qualifications Authority and industry (employers, unions, professional groups, students) gain confidence in the academic structures and in industry advisory mechanisms. Quality assurance will also be needed for work-based training.

23 peer review: scrutiny by other teaching professionals in the same field

IMPLICATIONS OF RAPID CHANGE

Vocational education and training contents will have to be updated to meet the requirements of rapid economic, technical and social change. Technology should receive a greater emphasis. People should be trained for development, planning, control, supervision, rather than for simple routine tasks. More stress should be laid on autonomy, team work, modern languages...

Vocational education needs to be further developed so as to achieve equivalence with general education and relevant prestige.

Federal Government of Germany **Ministry of Education and Science** 1990

MODERATION

With respect to moderation, we support a moderation process which can occur at local as well as national level. It would also be valuable if it can be inter-institutional, ie: polytechnics could be involved in moderation of programmes of secondary schools, private providers or universities. My experience has shown that using staff from universities for the moderation of National Diploma in Accountancy papers has been particularly effective and has allowed the development of closer working relationships and cross-fertilisation of ideas.

Pat Irving, CEO, Northland Polytechnic Submission 1990

FURTHER READING

Review of Vocational Qualifications in England and Wales: a Report by the Working Group to Review Vocational Qualifications; Chairman, H G DeVille, Manpower Services Commission: Department of Education and Science, HMSO, April 1986, 61pp

Setting National Skill Standards: a Discussion Paper, National Training Board (Australia), July 1990, 18pp+App

Training Victoria: a Guide to the State Training System, Office of the State Training Board (Australia), 1989, 39pp, *ISBN 0724172882*

People and Skills in the New Global Economy: Premier's Council Report, Province of Ontario, Canada, 1990, 237pp

Jobs for Young People: a Way to a Better Future: Report of a Commonwealth Expert Group, Peter Kirby et al., Commonwealth Secretariat, 1987, 142pp

Outcomes: NVQs and the Emerging Model of Education and Training, Gilbert Jessup, Falmer Press, 1991

Appendices

All four of the examples of learning units that follow show the use of specified learning outcomes (which provide standards) and of performance criteria (against which achievement is measured).

Appendix One and ***Appendix Two*** are examples of the SCOTVEC unit format. All detail of teaching method is developed by providers. Note that the New Zealand term for *performance criteria/indicators* is *standards*.

Appendix Three shows a unit developed for use by the New Zealand plumbing industry. It demonstrates the use of a record book.

Appendix Four is a New Zealand example of achievement-based assessment of one skill in a Sixth Form Certificate biology task (*planning an investigation*). A unit would be developed from several such tasks to ensure reliability of assessment. The same procedure would be applied to the other six skills identified for biology.

These appendices show examples of existing good practice only and are not intended to prescribe a format for New Zealand units of learning.

The full text of all of these units and/or further information on a unit of learning approach may be obtained from the

Policy and Development Division
New Zealand Qualifications Authority
P O Box 160,
Wellington.

Appendix One

PART OF A SCOTVEC HIGHER NATIONAL UNIT SPECIFICATION

Higher National Unit Number	6400019
Higher National Unit Title	Financial Accounting Statements
General Competence for Unit	Setting up and operating a financial accounting system and preparing final accounts on a manual and computerised basis for internal presentation
Credit Value	3
Access	Access to this unit is at the discretion of the Centre. However, it would be of benefit if the student had skills in communication and numeracy. This may be evidenced by possession of National Skills modules 91004 Communication 4 and 81053 Mathematics: Business Numeracy

OUTCOMES AND PERFORMANCE CRITERIA

Outcome 1

Set up and operate on a manual and computerised basis a double entry system for recording the financial transactions of an organisation.

Performance Criteria

a The ledger accounts set up are appropriate in terms of the transactions to be recorded.

b The record of the transactions in the books of original entry is clear, legible, accurate and complete.

c The accounting of VAT is in accordance with SSAP 5.

d The posting from the books of original entry to the ledger accounts is accurate and conforms to the double entry convention.

e The extraction of expense and revenue items for the period and balances on asset and liability accounts at the end of the period are accurate and complete.

Outcome 2
Incorporate control mechanisms into financial accounting systems.
(PERFORMANCE CRITERIA)

Outcome 3
Describe accounting concepts and their impact on the valuation of current and fixed assets.
(PERFORMANCE CRITERIA)

Outcome 4
Adjust ledger accounts for accruals and prepayments, bad debts and depreciation.
(PERFORMANCE CRITERIA)

Outcome 5
Prepare final accounts with adjustments using a manual and a computerised system.
(PERFORMANCE CRITERIA)

Outcome 6
Prepare final accounts with adjustments from incomplete records.
(PERFORMANCE CRITERIA)

Outcome 7
Calculate accounting ratios and explain their use in the interpretation of accounts.
(PERFORMANCE CRITERIA)

Context
The following information gives further clarification regarding the context in which the outcomes and performance criteria are to be achieved.

Corresponding to the Outcomes

1 Double entry convention; source documents; books of original entry including cash book and journal; ledger accounts.
2 Trial balance; bank reconciliation statements; control accounts; types of error; correction of errors; batch totals.
3 Accounting concepts: accruals, going concern, consistency, prudence, matching, realisation, historical cost, money measurement, materiality. Concepts of value: historical cost, replacement cost, realisable value. Methods of depreciation: straight line, reducing balance, valuation.

4 Receipts and payments compared with income and expense; bad debts and provisions for bad debts accounts; fixed assets; provision for depreciation and disposal of fixed assets accounts; SSAP 12.
5 Manufacturing accounts; trading and profit and loss accounts; appropriation accounts; income and expenditure accounts; balance sheets; statements of source and application of funds. Types of organisation: sole trader, partnership, limited company, non-profit making organisation.
6 Single entry or incomplete records. Receipts and payments accounts.
7 Current and acid test ratios, debtors, creditors, stock and fixed asset turnover, gross and net profit percentage, return on capital employed, dividend cover, earnings per share and capital gearing ratio.

AWARD OF PASS

A student who achieves all learning criteria for all outcomes will be awarded a Pass in the Unit.

Award of Pass with Merit
A student who achieves the outcome and performance criteria for Merit in addition to the outcome and performance criteria for a Pass will be awarded a Pass with Merit in the Unit.

Merit Outcome
Apply techniques to identify and correct shortcomings in accounting records and produce final accounts from the corrected records.

Performance Criteria
a Identification and correction of errors is in accordance with good accounting practice
b Application of control mechanisms is effective to ensure the systematic identification of errors.
c Techniques applied to make good any shortages in the information provided are appropriate.
d Working notes and schedules are clear and comprehensive.
e The final accounts are comprehensive, accurate and in good form.

US043/HN
16/08/89

Appendix Two

SCOTTISH VOCATIONAL EDUCATION COUNCIL
Hanover House
24 Douglas St
Glasgow, G2 7NQ

NATIONAL CERTIFICATE MODULE DESCRIPTOR

Ref No: 98229 **Session:** 1989-90

Title: Turf Production

Purpose

This module is designed to enable the student to acquire the practical skills involved in turf production.

The module should be taught as part of an integrated programme of sports turf modules and is designed to complement 98228 Turf Maintenance.

It is suitable for students who intend to follow a career in the leisure and recreation industry or in soft landscaping.

Preferred Entry Level

78025 Use of Hand Tools in Horticulture (x1 2)
78029 Use of Hand Tools in Greenkeeping (1 2)
78031 Plant Production from Seed

Learning Outcomes

The student should:

1. select grasses suitable for use in landscape and on sport surfaces;
2. relate the uses of swards to specific sports and landscape uses;
3. produce an area of turf from seed and turves;
4. prepare and carry out an aftercare programme for a new sward from sowing to establishment.

Content/Context

Safety regulations, safe working practices and procedures should be observed at all times.

The breadth of coverage and content of this module should be adjusted to suit the particular surfaces relevant to the students' interests, and should relate as far as possible to the programmes being followed.

Corresponding to Learning Outcomes 1-3

Identification of appropriate turf grasses both as seed and in their mown vegetative stages, using generic, specific and common names. Modern cultivars of appropriate grasses (identification is not necessary). The qualities and limitations of the grasses chosen. Relationship of these in specific swards.

The limitations of single-species swards and the advantages of mixtures. The desirable characteristics of appropriate sports and, or amenity surfaces. Composition of mixtures which are likely to produce particular surfaces.

Students should know about the various operations that might be carried out in producing a seed bed, although not all the initial tasks will necessarily be carried out by themselves.

The following operations should be used in the assessment of the student.

For seed, the student should:

i calculate the weight of seed required for a given seed-bed;
ii weigh seed out accurately;
iii use correct sowing rate;
iv sow seed evenly and cover (if appropriate);
v remove stones and debris.

For turves, the student should:

i mark out and lift an area of turf;
ii use a turf gauge if appropriate;
iii prepare an area to receive turf;
iv use correct laying procedures (including bonding, standing on boards);
v apply and work in a suitable top dressing;
vi tidy up site after task is completed.

The importance of mechanical, physical and chemical clearance of existing vegetation. Debris removal. Rubble sumps. Cut and fill. Obtaining levels and or contours. Topsoil removal and storage. Sub-soil grading, consolidation and aeration. Topsoil return. Insertion of drains. Topsoil improvement in relation to structure, pH and nutrition. Primary cultivation. Secondary cultivation. Fallowing stale seed-beds. Tilth. Practical project in producing a good seed bed.

Choice of method. Situations where each method is best employed.

Seed: Storage, mixing and chitting. Factors affecting sowing rates and times. Sowing techniques (including hydroseeding and precision drilling where appropriate). Calculations of costs and quantity. Precautions against disease and damage.

Turf: Types. Uses. Lifting. Inspection of bought-in-turf. Laying. Calculations of costs and quantities. Seedling turves. Immediate aftercare.

Vegetative: Species. Situations. Stolon gathering. Planting.

Stone removal; rolling; irrigation; top-dressing; weed and disease control; repair work; first cut.

Suggested Learning and Teaching Approaches

Special timetabling arrangements may need to be made to accommodate the seasonal nature of the work.

Opportunity should be given to reflect on, reinforce and build on previous work.

1. Specimens should be laid out initially and labelled, but later this task might be assigned to students. Students should develop observation skills individually at first, but could improve them in association with their peers. The tutor should be available for guidance and give supplementary instruction, using audio visual aids, as required. Identification of component should be on-going and should be built into later lessons. Information retrieval should be undertaken from given sources on cultivars and qualities of grasses. Small group discussions on their uses should feed into tutor-guided class discussions.
2. Visiting speakers and site visits to appropriate surfaces would be helpful. Individual and or groups of students should undertake an investigative project into surfaces appropriate to them. Projects on each surface may later be compiled and edited for distribution to other students.
3. Introductory lecture, discussions and visits, audio visual aids to outline the whole process. Site visits, lectures, information retrieval, audio visual aids, demonstrations, practicals, etc. to develop sequential aspects. Each student should carry out a practical project.
4. Lectures to introduce topic, followed by group discussions. Summary discussions leading to practical projects.
5. Practicals and demonstrations supplemented by lectures and student-based critical analysis.

Assessment Procedures

Acceptance performance in the module will be satisfactory achievement of the performance criteria specified for each learning outcome.

The following abbreviations are used below:

LO Learning Outcome
IA Instrument of Assessment
PC Performance Criteria

LO1: SELECT GRASSES SUITABLE FOR USE IN LANDSCAPE AND ON SPORT SURFACES:

PC The student:
- a describe the main grasses used for landscape;
- b describe the main grasses used for sport surfaces;
- c identify seed samples and vegetative samples.

IA (1) Restricted Response Questions:
The student will be presented with an exercise to describe the main grasses used for landscape and sport surfaces.

The exercise will consist of 4 restricted response questions as follows:
performance criteria (a) 2 questions;
performance criteria (b) 2 questions.

IA (2) Identification Test:
The student will be set an exercise which tests the ability to identify 5 samples of grass seed and 5 vegetative samples of grass using generic specific names appropriate to sports turf and landscape situations.

The exercise will consist of the student identifying vegetative samples by genus, species and sub-species where applicable and identifying 4 seed samples and 4 vegetative samples correctly and producing two correct responses for both (a) and (b).

LO2: RELATE THE USES OF SWARDS TO SPECIFIC SPORTS AND LANDSCAPE USES:

PC The student:
- a select the appropriate seed mix for a variety of specific sports areas;
- b select the appropriate seed mix for a given landscape site;
- c state reasons for the choice of seed mixes.

IA Assignment:
The student will be presented with an exercise to test the knowledge of how various seed types relate to specific sports and landscape uses.

The exercise will consist of two parts:

i matching exercise in which the student is presented with two sets of information, one a variety of seed mixes, the other a variety of sport and landscape uses. The student will be required to match the most appropriate seed mix to the corresponding land use;

and

ii four restricted response questions in which the student will be expected to give reasons for the choice of seed mix for 4 sports sites and 2 landscape sites.

Satisfactory achievement of the Learning Outcome will be based on the student correctly matching 4 seed mixes to the appropriate use and producing 3 correct responses for the second part of the exercise.

LO3: PRODUCE AN AREA OF TURF FROM SEED AND TURVES:

PC The student:

a select materials required for turf production;
b prepare area for grassing;
c grass prepared site.

IA Practical Exercise:
The student will be set the task of preparing an area to produce turf from seed and turves.

The exercise should be undertaken on surfaces of not less than:

i for turves - one square metre;
ii for seed - 5 square metres.

Satisfactory achievement of the Learning Outcome will be based on the student producing an area of turf by seed and by turves.

LO4. PREPARE AND CARRY OUT AN AFTERCARE PROGRAMME FOR A NEW SWARD:

PC The student:
- a prepare an aftercare programme for a newly established area of turf;
- b state the sequence and timing of operations;
- c carry out aftercare programme.

IA Assignment:
The student will be set an assignment to carry out an aftercare programme for an area of turf.

The assignment should consist of two parts:
- i production of an aftercare programme consisting of a minimum of 5 maintenance operations in the correct sequence with an explanation of the reasons for sequencing;
- ii a practical exercise in which the student should implement the after care programme.

The practical exercise should include the following operations:
- i rolling;
- ii irrigation·
- iii first cut;
- iv stone removal;
- v appropriate repair work

The exercise should be undertaken on establishing grass surfaces.

The student may be assessed using an observation checklist.

Satisfactory achievement of the Learning Outcome will be based on the student carrying out an aftercare programme and indicating the appropriate sequence of operations.

Appendix Three

EXAMPLE OF STANDARDS-BASED ASSESSMENT USED IN ON-JOB TRAINING IN PLUMBING AND GASFITTING

The Training Manual sets out the tasks in which an apprentice is expected to be competent by the end of an apprenticeship. These are divided into duty areas which are groupings of related work tasks. For each task there is a list of standards which describe successful task performance so that performance can be assessed. Then the tools, safety requirements and steps involved are described, together with the theory items required to support the performance of the task. These are discussed by the apprentice and the supervisor when the apprentice is learning the task.

The Training Record Book is the record of each individual apprentice's practical ability, knowledge and experience. It contains the list of tasks as in the Training Manual. When the apprentice can perform the task, he or she signs the Record Book and has a tradesperson watch while he or she works. If the apprentice has reached the level of performance and meets the standards specified in the Training Manual, the tradesperson signs the Record Book for the appropriate level of competence: basic, intermediate or completed.

The following is an example of one task.

TRAINING MANUAL

Duty: 3 Water Supply
Task: 3.1
An apprentice by the end of training must be able to INSTALL WATER SUPPLY SYSTEMS

Standard:
The water supply systems are installed to the:

- Plumbers, Gasfitters and Drainlayers Act 1976
- Drainage and Plumbing Regulations
- Water Supply Protection Regulations
- Local Body By-laws
- manufacturer's specifications
- architect's/client's requirements

TOOLS AND MATERIALS:

Brazing equipment	Dies	Drills drill bits
Excavation equipment	Hand tools	Isolating equipment
Ladders	Brackets and fixings	Filters
Fittings	Jointing compound	Leads
Pipe tongs	Pipe vice	Scaffolding
Test equipment	Welding equipment	Pipes
Pumps	Tanks	Valves

STEPS:

1 Determine the point and condition of water supply
2 Apply for permit(s) as required
3 Determine the backflow prevention requirements
4 Determine the system requirements according to the system function:
   - potable water supply
   - irrigation
   - flushing
   - fire fighting
5 Determine the termination points
6 Calculate the pump and pipe sizes that are required
7 Arrange for the electrical connections
8 Install the water control valves
9 Install the filter and pump systems
10 Install the break tanks
11 Install the backflow preventers
12 Purge the water system
13 Test the water system
14 Arrange for the inspections as required
15 Leave the work site in a safe and clean condition

SAFETY:

1 Wear safety and protective clothing
2 Wear safety and protective footwear
3 Wear ear and eye protection
4 Use approved electrical isolating equipment
5 Maintain a safe working environment

KNOWLEDGE:

1 Describe the types and uses of pumps
2 Describe the sources of potable water
3 Describe the comprehensive control systems
4 Describe the operation of water control valves
5 Describe the methods of calculating pump and pipe sizes
6 Describe the operation of filters and pump systems
7 Describe the operation of break tanks
8 Describe the operation of backflow prevention equipment
9 Describe the methods of purging and testing the water system
10 Explain the reasons for water protection
11 Explain the function and working of basic irrigation systems

RECORD BOOK

Duty: 3 Water Supply
Task: 3.1 Install Water Supply Systems: Potable Water
(the alternative systems Irrigation, Flushing and Firefighting are set out on following pages)

	Apprentice Signature	Tradesperson Signature	Tradesperson Registration Number	Date
Domestic/Light Commercial				
BASIC	_____	_____	_____	_____
INTERMEDIATE	_____	_____	_____	_____
COMPLETED	_____	_____	_____	_____
Commercial/ Industrial				
BASIC	_____	_____	_____	_____
INTERMEDIATE	_____	_____	_____	_____
COMPLETED	_____	_____	_____	_____

BASIC: Can perform the trade skills in the task with supervision
INTERMEDIATE: Can perform the task with limited supervision
COMPLETED: Can perform the task without supervision

Appendix Four

EXAMPLE OF ACHIEVEMENT-BASED ASSESSMENT OF ONE SKILL IN SCHOOL BIOLOGY

Planning an Investigation is one skill in sixth form biology. A task and mark schedule have been developed, both based on the grade-related criteria which describe this skill.

A series of tasks would be set to ensure reliability in judging each student's typical level of competence in planning an investigation. The same procedure would be applied to the other six skills of biology.

This task was proven in the moderation trials 1988-89.

GROWING MEDIA

Grade-Related Criteria for Assessment (Planning an Investigation)

Levels of Performance

Level 1 Presents some ideas which could lead to a plan.
Level 2 Presents a plan.
Level 3 Presents a logical plan which could lead to a feasible investigation.
Level 4 Presents a logical plan which is feasible and could lead to a sound conclusion.
Level 5 Presents a logical plan which is feasible, comprehensive, and could lead to a sound conclusion.

Task

A biologist wants to grow plants which need a lot of water and is looking for the medium which is best at holding water.

You have been given samples of sphagnum moss, potting mix and sawdust.

Design and describe an experiment to find which sample holds the most water. NB: You are *NOT* to do the experiment.

The following equipment would be available to help you with your description.

(A picture shows each of: three sizes of measuring cylinders, three sizes of trays, three sizes of beakers, a stop-watch, filter paper, a jug of water, a retort stand, two sizes of funnels, a thermometer, paper towels, a balance.)

Marking Schedule Performance Indicators

Level 1 Presents some ideas about measurement or control of variables.

Level 2 Presents a plan with some details. Does not mention that they control obvious variables: volumes of water used, volume or weight of media, same length of time draining or soaking.

Level 3 Presents a good plan. Steps outlined may not be in logical sequence. Some aspect will prevent a sound conclusion (e.g.: uses equal weights of sample not equal volumes, different times for soaking or draining). Must say they would measure water retention.

Level 4 Presents a good plan which could lead to a sound conclusion. Must have same volume of media used and same times for soaking and draining. Steps listed in logical sequence. Must say how they would measure water retention.

Level 5 Presents a comprehensive plan which could lead to a sound conclusion. Steps listed in logical sequence. Same volume of media used. Same time for soaking and draining etc. Must say how they would measure water retention. Indicates an understanding of some finer design points (e.g.: either recognises limitations OR acknowledges alternative methods OR discusses some of the minor variables such as temperature, evaporation, original dryness.

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