

University awards and the National Framework of
Qualifications (NFQ):
Issues around the Design of Programmes and the
Use and Assessment of Learning Outcomes



FIN

*The University Sector
Framework
Implementation
Network (FIN)*

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P R E F A C E

The National Framework of Qualifications (NFQ) was launched in October 2003. It is designed to accommodate Irish school, further and higher education and training awards across its ten levels, and to provide a central point of reference, nationally and internationally, for the comparison, contrast and recognition of qualifications. Its ultimate purpose is to place the learner at the centre of education and training.

The implementation of the NFQ provides a series of challenges for, among others, programme designers, lecturers, education providers, and awarding bodies. The university sector Framework Implementation Network (FIN) was established so that practitioners in the universities and their linked colleges could discuss and propose some approaches to these challenges, and communicate these to their colleagues across higher education for consideration. The following report represents the initial outcomes from this collaborative exercise, focused around the issue of designing programmes and awards for inclusion in the NFQ, and the design and assessment of learning outcomes linked to these awards.

The Irish Universities Association (IUA) and the National Qualifications Authority of Ireland (NQAI) would like to take this opportunity to thank the members of FIN, nominated by the universities and their linked colleges, for their contribution to this project and their commitment to the purpose and activities of FIN. It is hoped that they, and their colleagues, will continue to meet through this forum and collectively to address matters arising from the ongoing full implementation of the NFQ.

On behalf of the network, we would also like to acknowledge the support of Professor John Scattergood, who has chaired and guided FIN since its establishment in December 2007. In this capacity, Professor Scattergood has lent the network not only the weight of his formidable academic career, but also that of his balanced, critical and informed voice. For this, we thank him most sincerely.

Details on the membership of FIN, further information on the network's activities, and a dynamic version of this publication, are all available at www.nfqnetwork.ie



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INTRODUCTION

In the last decade the Bologna Process has brought about a quiet but irreversible revolution in the higher educational systems of Europe. To date 46 countries have chosen formally to be associated with it and to implement its protocols, which are at once radical and innovative as well as spacious and enabling. Its agenda is political and social as well as educational: it seeks to create a European Higher Education Area which provides the best possible third-level education that it can, creating a population and workforce which is not only highly skilled but also culturally aware and internationally mobile. Its attention has, understandably, been focussed mainly on that cohort of students who transfer directly from second-level schooling to third-level, but not exclusively so, as the latest ministerial communiqué makes plain.¹ It adverts to the aspiration to ‘a Europe of knowledge that is highly creative and innovative’ and continues:

“Faced with the challenge of an ageing population, Europe can only succeed in this endeavour if it maximises the talents and capacities of all its citizens and fully engages in lifelong learning as well as widening participation in higher education”.

Third-level education is available for everybody and potentially for the whole of life. And it is not only economically advantageous, but also socially enhancing. Again in the words of the ministerial communiqué: “Student-centred learning and mobility will help students develop the competences they need in a changing labour market and will empower them to become active and responsible citizens”.

The aspirations and ideals of the Bologna Process are, of necessity, stated in general and high-level terms, but it is recognised that their achievement demands a grounding in practical reality and in enabling organisational and administrative structures and practices; it is that part of the third-level spectrum in which the university sector Framework Implementation Network (FIN) has chosen to locate itself. The original protocols of the Bologna Process recognised the need for strong administrative instruments to give tangible meaning and shape to the ideals – the Diploma Supplement and ECTS were mentioned – and as the process developed the need for firm qualifications frameworks, explicit learning outcomes and transparent assessment procedures became apparent. It is in these three areas that FIN makes its modest proposals and its contribution.

Basic to this enterprise is a qualifications framework, which is precise, transparent and internationally acceptable. This was recognised by the Berlin ministerial communiqué of 2003:

“Ministers encourage the member states to elaborate a framework of comparable and compatible qualifications for their higher education systems, which should seek to describe qualifications in terms of workload, level, learning outcomes, competences and profile. They also undertake to elaborate an overarching framework of qualification for the European Higher Education Area”.²

In Ireland this, in a sense, was preaching to the converted – or, better, validating something that had already been developed.

Discussions around the need for a more coherent and effective system of qualifications began in Ireland in the early 1990s. The Qualifications (Education and Training) Act 1999 established the legislative context for the development of the National Framework of Qualifications (NFQ). The Act also established the National Qualifications Authority of Ireland (NQAI), which was tasked with developing and implementing a national framework of qualifications based on standards of knowledge, skills and competence. Universities, like other

¹ European Ministers Responsible for Higher Education (2009) *Communiqué of the Conference of European Ministers Responsible for Higher Education, Leuven and Louvain-la-Neuve, 28-29 April 2009*. Brussels: European Commission. Available from: http://www.ond.vlaanderen.be/hogeronderwijs/bologna/conference/documents/Leuven_Louvain-la-Neuve_Communique%C3%A9_April_2009.pdf

² European Ministers Responsible for Higher Education (2003) *Communiqué of the Conference of Ministers responsible for Higher Education in Berlin on 19 September 2003*. Brussels: European Commission. Available from: http://www.bologna-bergen2005.no/Docs/00-Main_doc/030919Berlin_Communique.pdf

academic institutions, have agreed to map their awards on to a ten-point scale established by the NQAI, levels 7-10 on the National Framework of Qualifications (NFQ) being particularly relevant for universities.³ The Bologna Process requires that each country develop national qualifications frameworks compatible with the three cycles of the Bologna meta-framework, which is effectively a translation device for national frameworks. Countries self-certify the compatibility of their national frameworks with the Bologna Framework. The compatibility of the Irish NFQ with the Bologna Framework was formally verified in 2006.⁴ In April 2008 a lifelong learning meta-framework, the European Qualifications Framework (EQF) was introduced by the European Commission. Ireland referenced its NFQ levels to the eight levels of the EQF in the summer of 2009.⁵

One of the most striking features of Ireland's third-level system is the abundance and variety of the courses available at all levels. This is a testimony at once to the commitment of the population to education as a means of professional development and personal enhancement and to the readiness and flexibility of third-level providers to put these courses on. Sometimes their development is in response to national needs, but often – particularly in relation to diplomas and certificates – local factors are crucial. The process is dynamic: courses appear and disappear as their relevance changes. There appears often to be little central direction and, in a sense, this is all to the good because swift and geographically uneven responsiveness is essential if public needs are to be met. Amidst this breadth and diversity of course choice lies potential confusion for learners attempting to navigate the qualifications framework. But with the development of the NFQ and its explicit relationship to the European meta-frameworks it is now possible for those possessing qualifications and those seeking them to position their appropriate awards onto an authoritative map, to see academically where they stand.

It is with this area that the first of the FIN working groups has concerned itself. It has undertaken to explain, in some detail, the relationship of the NFQ to the European meta-frameworks, to set out the awards available – degrees, diplomas, certificates – and to position them in terms of the national and European frameworks, and to define them in terms of level and ECTS workloads. In short, it has provided a brief technical guide, primarily aimed at programme designers, to the characteristics of programmes that are recognised through the NFQ. As such, the function of this – as with the function of all the working groups – is practical and utilitarian.

The *Berlin Communiqué* (2003), quoted above, associated learning outcomes with the development of qualifications frameworks and since then they have assumed considerable importance in the reorganisation of European third-level education which is taking place. Learning outcomes in themselves are limited, modest and prosaic devices for describing achievement but they have attained importance because they are an essential part, one of the basic building blocks, of a larger movement from the traditional 'input-based' description of educational entities (which concentrates on access requirements, course length, aims and objectives, methods of instruction, curricula, methods of examination etc.) to an 'output-based' system which concentrates on what the student has learned at the end of a period of instruction.⁶

There are many definitions of learning outcomes, but that in the ECTS Users' Guide for 2004 is as good as any and has achieved wide currency:

"Learning outcomes are statements of what a learner is expected to know, understand and / or be able to demonstrate after completion of a process of learning".⁷

Learning outcomes may be large enough to account for a course or small enough to account for a module or unit. They seek to describe the progress of the student's learning in terms of the knowledge which has been acquired, the comprehension of that knowledge, and the capacity, in relation to that body of knowledge, to apply it, to analyse it, to synthesize it, and to evaluate it. Learning outcomes define what is learned in two

³ See National Qualifications Authority of Ireland (2006) Towards the completion of Framework implementation in the universities – a discussion paper. [Internet]. Available from: http://www.nfqnetwork.ie/_fileupload/Image/Towards%20the%20completion%20of%20Framework%20Implementation%20in%20the%20Universities.doc

⁴ See <http://www.nqai.ie/docs/publications/31.doc>

⁵ <http://www.nqai.ie/documents/EQFReferencingReportfinalJune2009.pdf>

⁶ See Adam, S. (2004) *Using learning outcomes. A consideration of the nature, role, application and implications for European educational of employing learning outcomes at the local, national and international levels.* UK Bologna seminar 1-2 July, Heriott-Wyatt University, Edinburgh. P. 5

⁷ European Union (EU) (2004) *ECTS Users' Guide – European Credit Transfer and Accumulation System for Lifelong Learning*, European Commission p. 44

broad areas. Subject-specific outcomes relate narrowly to a defined body of often very precise or technical knowledge. This type of learning outcome may be dominant at module or unit level. Generic outcomes describe transferable skills relating to any discipline – problem-solving skills, written or oral communication skills, team-working skills, IT skills and so on. But whether specific or generic, what the student has learned has to be at the centre of the definition.⁸

In 2008 the Higher Education Authority (HEA) proposed⁹ that third-level institutions, in furtherance of the implementation of the NFQ, should establish a set of written learning outcomes not just at the generic levels of degree, diploma and certificate, but for all programmes, courses, modules and units, and since then the sector has increased its engagement with this. Teaching and learning, especially at third-level, are holistic processes – things relate to other things, the boundaries of subjects are porous – so it has required considerable intellectual adjustment across the sector to fashion taxonomies of learning such as are required by an outcomes-based approach. It is the difficulties inherent in satisfying these challenges that are addressed by the second FIN working group.

Writing learning outcomes at a programme level is difficult, but in some areas it is more difficult than in others. In some subjects, mainly professional or vocational, particularly those which are validated by bodies external to the third-level providers, the range of knowledge to be acquired and the skills and the competences are often broadly accepted across a number of institutions, sometimes across a number of countries – as is the case in some areas of medicine, dentistry and certain therapies. In some cases, as with Engineers Ireland and the Schools of Engineering in the State, a professional body will make common cause with the third-level providers to produce an impressive set of learning outcomes which frame the subject overall, while allowing for individual preferences and nuance. A number of European Tuning¹⁰ groups have sought to define the parameters of specific subjects and, in Britain, benchmarking of outcomes¹¹ for specific disciplines has been put in place.

These all provide useful points of reference and the second working group adverts to them. However, it also seeks to establish an understanding of the process of writing discipline-specific outcomes, and includes a series of prompts for individual teachers to engage with outcomes in their own disciplines in order to guide them in producing their own outcomes which are logical but not over-specific or over-generic. Case studies from a representative but discrete range of subjects – business studies, physics, music and English – are designed to highlight the problems and to help to solve them.

In justifying an outcomes-based approach to learning, it is often said that it aids curriculum design by clarifying the key purposes of courses, how the components of the syllabus cohere and how learning progression is organised. Learning outcomes highlight the relationship between teaching, learning and assessment. Learners benefit from full and clear statements of exactly what they will be able to achieve and do after a specified period of study. Learning outcomes provide learners with clear information which enables them to make more informed choices at programme, module and unit levels. In terms of quality assurance, learning outcomes increase transparency between qualifications and within them. They can play a key role in defining points of reference for the establishment and assessment of standards. Internationally, learning outcomes can promote the mobility of both students and those seeking employment by facilitating credit transfer and the recognition of qualifications. They can provide a common format for different forms of learning – distance learning, work-based learning, non-formal learning – and facilitate lifelong learning. They benefit higher-educational institutions, employers and society at large by articulating the specific achievements associated with various qualifications.¹²

Which is all very well, but this approach – with its explicitness and transparency – demands a commensurately precise and robust set of assessment procedures to give it force and authority, and it is assessment which is

⁸ See Gosling, D. & Moon, J. (2001) *How to use learning outcomes and assessment criteria*. London: SEEC

⁹ Higher Education Authority (HEA) (2008) *Proposals for the Incorporation of Performance into Institutional Funding*. Dublin: HEA. P. 6

¹⁰ For information on the European Tuning Projects, please see: <http://tuning.unideusto.org/tuningeu/>

¹¹ For further information on subject benchmarking in Britain, please see: <http://www.qaa.ac.uk/academicinfrastructure/benchmark/default.asp>

¹² For a fuller discussion, please see Adam, S. (2006) 'An introduction to learning outcomes: a consideration of the nature, function and position of learning outcomes in the creation of the European Higher Education Area'. In: Froment, E.; Kohler, J.; Purser, L. & Wilson, L. eds. *EUA Bologna Handbook – Making Bologna Work*. Berlin: Raabe Verlag. p. 7-8

the theme of the deliberations of the third FIN working group. This is not easy to address for a number of reasons: one is that programme and module or course or unit learning outcomes demand to be treated differently from one another. Jennie Moon explains:

“It is important to note that there are clear differences in the nature of programme outcomes and learning outcomes written for modules. Programme outcomes are written for a typical or average student and they may be aspirational. They are not, therefore, directly testable. For example, programme outcomes may evidence areas of learning that are the outcomes of the student’s experience of engagement in the programme, on the basis that the whole may be greater than the sum of the parts”.¹³

Learning outcomes written at a programme or course level ought not to be a simple digest of module learning outcomes, but should be a generalised version of them with which they are compatible. Programme or course level outcomes should also map onto the appropriate award-type and level descriptors for that award. But learning outcomes at module or unit level need to be directly testable, by whatever means – multiple choice questionnaire, oral presentation, practical, work-book, log-book, written essay or project, dissertation, formal examination and so on. These and other issues are addressed by this working group, who also deal with such pressing topics as the constructive alignment of learning outcomes, whether or not assessment should take place at a threshold level, and how one chooses which outcomes to assess, when and how, what the practical institutional and procedural contingencies are and so on. Again the arguments and recommendations are illustrated by concrete examples. And again there is emphasis on the self-reflexivity which accompanies this process: teachers and administrators are of necessity learners as well. Humility is part of the learning process.

The FIN group was set up by the Irish Universities Association (IUA) and the the NQAI. Its function was not to enunciate new theories or to break new ground. Its more modest task was to respond to ideas which are changing the landscape of higher education in Europe and beyond – one hopes for the better – and to fashion for them a shape and practicality in terms of the contingencies of twenty-first century Irish society and twenty-first century Irish third-level education. Accordingly, the group was not made up of educational theorists – though we all, of necessity became acquainted with education theories for the ‘frail, travelling coincidence’ of this committee – but of teachers and administrators, senior and junior, who would probably have said that they had nothing much in common, at the start of the process, except a desire to see the third-level sector respond creatively and responsibly to what is happening throughout Europe and to maintain the pre-eminent position Ireland has in these wide-ranging reforms.

But transferable knowledge and strategies are part of the larger agenda. And what has happened, it seems to me, as the fortunate chairman of the FIN committee, is that the group has not only fulfilled its narrow brief but gone, perhaps fortuitously but in innovative ways, beyond it, because some of its findings and suggestions, principally because they are grounded in an experiential reality, may be relevant and useful not only within the Irish context, from which they derived, but more widely in the emerging and expanding European Higher Education Area.

Professor John Scattergood

Chair of University Sector
Framework Implementation Network (FIN)

December 2009

¹³ See Moon, J. (2002) *The Module and Programme Development Handbook: A Practical Guide to Linking Levels, Outcomes and Assessment Criteria*. London: Routledge. p 142



PART I

TECHNICAL ASPECTS OF DESIGNING AND REDESIGNING PROGRAMMES/AWARDS FOR INCLUSION IN THE NATIONAL FRAMEWORK OF QUALIFICATIONS (NFQ)

PART 1 CONTENTS

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ABSTRACT

This first part of the university sector Framework Implementation Network (FIN) report addresses some of the technical aspects that are associated with designing new or redesigning existing¹⁴ programmes for inclusion in the National Framework of Qualifications (referred to as 'the Framework' or the 'NFQ' in the remainder of this document), including level indicators, major and non-major award-types, award-type descriptors, and credit allocation. It addresses learning outcomes mainly in terms of how they, as a construct, contribute to the formation of a programme, and the importance of designing appropriate teaching, learning and assessment methods (these topics are picked up in greater detail in parts 2 and 3 of this report). The essential linkage of the Framework with quality assurance activities is emphasised. The relationship of the Irish Framework with the Framework for Qualifications of the European Higher Education Area, more commonly referred to as the 'Bologna Framework', and the European Qualifications Framework (EQF) is also examined. Web links to key references and language, and further sources of information, are included at the end of each topic.

INTRODUCTION

Drawing on the experience of academics and administrators, and those supporting teaching and learning across higher education institutions, this opening part of the report aims to: provide some guidance for addressing the challenges presented by the Framework as they relate to the design or redesign of programmes; identify the common characteristics of programmes that are recognised through the Framework; compile, for ease of reference, the technical information required when designing or redesigning programmes to be included in the Framework; and, consider how the Framework can be used sensibly as a benchmarking tool that aids consistency and the recognition of qualifications. It also recounts, and attempts to respond to, some of the questions that have been posed by higher education practitioners in the course of designing and adapting programmes for inclusion in the NFQ.

Programmes are designed and updated in line with local, national and international developments and the existence of the Framework does not make this process any less dynamic. An ongoing dialogue will be required within and across higher education institutions regarding the most effective means of implementing the Framework in this environment. The university sector Framework Implementation Network's working group on the technical aspects of designing programmes for inclusion in the Framework, hopes that this opening part of the report will contribute to the important discussions to be had in this regard in the coming months and years amongst and between academics and administrators.

A NOTE ON LANGUAGE

This first section of the report uses the words 'programme' and 'award' throughout. In the majority of cases a programme delivered by a university, or by a linked college in which it makes awards, is also the award that the learner receives on its successful completion, e.g., a learner who undertakes a BSc (Hons) Government programme is also awarded a BSc (Hons) Government by the university, having successfully completed the programme. In this regard, the words 'programme' and 'award' are used in this section interchangeably.

¹⁴The intention of this section is to provide assistance for those who are designing new programmes, but also for those who are redesigning or adapting existing programmes. The latter occurs where a programme was written prior to the introduction of the Framework, learning outcomes, credit etc. and now needs to be rearticulated in these terms. In some cases, the programme designer may determine that an extensive redesign is required, in other instances the level of adaption needed may be less. In either case, the process will have similar aspects to the design of new programmes but the process may be different. The working group has been cognisant of these differing circumstances and has sought to reflect them within the following sections.

SECTION A: NFQ ARCHITECTURE AND THE CHARACTERISTICS OF HIGHER EDUCATION PROGRAMMES THAT IT RECOGNISES

AN OVERVIEW OF THE ARCHITECTURE OF THE FRAMEWORK

The Qualifications (Education and Training) Act 1999 first articulated, in a national context, the requirement to develop a qualifications framework based on outcomes of knowledge, skill and competence. The Framework was primarily established to provide a reference point to compare and contrast qualifications for the purposes of easing access and progression arrangements for the learner and increasing the recognition of awards; providing a means of recognising varying sizes of learning; and, reinforcing and supporting the national policy approach towards the creation of a lifelong learning society. The concept of lifelong learning recognises that learning takes place in formal, non-formal and informal settings that include the workplace, involvement in social and community activities, and learning through life experience generally. A major objective of the Framework is to enable the recognition of these learning achievements, to support the development of alternative pathways to qualifications (or awards), and to promote the recognition of prior learning.

Following widespread consultation the National Qualifications Authority of Ireland (NQAI) set out the architecture of the Framework in 2003 in its documents [Policies and Criteria for the Establishment of the National Framework of Qualifications](#) and [Determinations for a National Framework of Qualifications](#). The essential elements are set out below:

- The Framework has ten levels, which incorporate schools, further and higher education and training qualifications. A representation of these levels through a 'fan diagram' is available in [appendix A1](#);
- There are overarching level indicators at each level of the Framework with associated sub-strands of knowledge, skill and competence appropriate to the achievement of an award at each of these levels. These indicators are expressed in terms of learning outcomes and are included in [appendix A2](#). Major awards at each level are further defined through major award-type descriptors; those relating to higher education are included in [appendix A3](#). In the universities, major award-type descriptors are the reference point for developing learning outcomes at the programme and module level of major awards. Level indicators are the reference level for developing programme and module learning outcomes for non-major awards;¹⁵
- There are two overall types of award in the Framework: major awards and non-major awards;
- Major awards have a larger volume and breadth associated with them than non-major awards. There are currently 16 major award-types included across the ten levels of the Framework;
- There are three classes of non-major award: minor, special purpose and supplemental. The award-type descriptors for these classes of award are included in [appendix A4](#); the descriptors are broad in nature in order to be able to incorporate a wide range and variation of programme provision. These awards capture smaller or more narrow pieces of learning and are described by the NQAI as follows:
 - *Minor awards* recognise partial completion of the outcomes of a major award
 - *Supplemental awards* recognise learning that is additional to a major award
 - *Special purpose awards* recognise relatively narrow or purpose-specific achievement

Therefore, minor awards and supplemental awards always have a relationship with at least one major award, whilst a special-purpose award may share some outcomes with a major award, but can also be a stand-alone award;

- Further education and training awards are made at levels 1-6 of the Framework, higher education and training awards are made from levels 6-10;

¹⁵ The Higher Education and Training Awards Council (HETAC) has developed standards in a number of fields of learning which have evolved from the Framework's generic major award-type descriptors and are referred to by its providers and by the Institutes of Technology.

- Awards included in the Framework are expected to indicate the access, transfer and progression arrangements (ATP) associated with them (see [Access, Transfer and Progression and Credit](#), p. 18);
- Awards recognised through the Framework are subject to quality assurance processes (see [Quality Assurance](#), p. 19), and;
- At levels 6-10 of the NFQ there are 7 major award-types that apply to the design of higher education and training awards:

Level 6:	Higher Certificate
Level 7:	Ordinary Bachelor Degree
Level 8:	Honours Bachelor Degree Higher Diploma
Level 9:	Master's Degree Postgraduate Diploma
Level 10:	Doctorate

KNOWLEDGE, SKILL AND COMPETENCE AND ASSOCIATED SUB-STRANDS OF THE NFQ

The 2003 NQAI document [Policies and Criteria for the Establishment of the National Framework of Qualifications](#) sets out further information on the nature of the knowledge, skill and competence outcomes, and the associated sub-strands thereof, upon which the Framework is constructed. The relevant section has been reproduced in italics below and provides useful guidance on the application of these concepts to the design of programme and module learning outcomes, a topic that is further elaborated upon in part 2 of this report:

Division of knowledge, skill and competence into sub-strands¹⁶

The Authority has determined that there are three general strands of learning outcome that will be used in setting standards. These strands are knowledge, know-how and skill, and competence. It is necessary to analyse the learning outcomes within these strands more fully. A number of substrands have been identified within these main strands that can be considered as the component structures of the three kinds of learning outcome. They identify the sources of order within the kinds of learning outcomes associated with awards at the various levels of the Framework. The substrands are based on the concepts introduced in the understandings of knowledge, skill and competence.

The main strands of learning outcome are divided into sub-strands as follows:

- *knowledge*
- *breadth*
- *kind*
- *know-how and skill*
- *range*
- *selectivity*
- *competence*
- *context*
- *role*
- *learning to learn*
- *insight*

¹⁶ Policies and Criteria for the Establishment of the National Framework of Qualifications National Qualifications Authority of Ireland (2003) pgs 20-25.

The sub-strands can be summarised as aiming to answer the following questions

- What nature or quality of knowing has the learner engaged in?
- How extensive are the physical, intellectual, social and other skills demonstrated by the learner?
- How complicated are the problems that a learner can tackle using the skills acquired and how does a learner tackle them?
- In what contexts is a learner able to apply his/her knowledge and skills?
- How much responsibility can the learner take, personally and in groups, for the application of his/her knowledge and skills?
- To what extent can the learner identify the gaps in his/her learning and take steps to fill those gaps?
- How far has the learner integrated the intellectual, emotional, physical and moral aspects of his/her learning into his/her self-identity and interaction with others?

Knowledge – breadth

Knowledge outcomes are associated with facts and concepts; that is, they refer to knowledge of, or about, something. The more diverse, complex and varied the facts and concepts, the greater the breadth of knowledge and this is a matter of level. Breadth is distinguished from the number of different facts and concepts learned, which relates to volume.

Knowledge – kind

The representation of facts and concepts, including ideas, events or happenings, is cumulative. The more facts and concepts are layered on top of each other, and draw successively upon each other to construct meaning, the higher the level of learning. This process is typically associated with progressively greater abstraction from concrete phenomena into theory.

Know-how and skill – range

Skills, in both their execution and the demonstration of underpinning procedural knowledge, encompass the use of many different kinds of tool. 'Tool' refers to any device or process that facilitates individuals having some effect on their physical, informational or social environment. Tools include cognitive and social processes as well as physical implements. Tools, and the skills to use them, range from commonplace or familiar to novel or newly-invented. The sheer number of skills acquired is a matter of volume, rather than of level. The diversity of skills is a feature of this strand that contributes to differentiation in level. The completeness of the set of skills (and associated know how) in respect of an area of activity is another feature that helps indicate the level.

Know-how and skill – selectivity

The performance of tasks depends on the learner having an appropriate understanding of the environment in which the tasks are performed and being aware of his/her own ability and limitations, while at the same time being able to correctly judge the fit between the demands and ability. Whereas the range of know-how and skill refers to what a learner can do, selectivity (which might also be called procedural responsiveness) refers to the judgement that the learner exercises in carrying out procedures, through selecting from the range of know-how and skills available to him/her, in accordance with his/her appraisal of the demands of the task.

Competence – context

Human situations, whether occupational or general social and civic ones, supply the context within which knowledge and skill are deployed for practical purposes. Such situations range in complexity and hence in the demands they place upon the person acting in them. Highly defined and structured situations or contexts constrain the behaviour of the individual and require lower levels of learning. The range of responses required, and hence the extent to which a broader range or higher level of knowledge and skill have to be drawn upon also depends on how predictable the context is. Acting effectively and autonomously in complex, ill-defined and unpredictable situations or contexts requires higher levels of learning.

Competence – role

For many purposes, joining and functioning in various kinds of group is a key component in putting knowledge and skill to effective use. Joining a group successfully requires individuals to adopt appropriate roles within the group. This requires the application of social skills and an understanding of the tasks of the group. Higher levels of competence are associated with playing multiple roles as well as with roles requiring leadership, initiative and autonomy. Higher competence is also associated with participation in more complex and internally diverse groups.

Competence – learning to learn

This strand encompasses the extent to which an individual can recognise and acknowledge the limitations of his/her current knowledge, skill and competence and plan to transcend these limitations through further learning. Learning to learn is the ability to observe and participate in new experiences and to extract and retain meaning from these experiences. While drawing on other aspects of knowledge, skill and competence, this sub-strand places an emphasis on the relationship of the learner to his/her own learning processes. This provides a basis for abstraction and generalisation that, in principle, facilitates regarding this as a separate sub-strand of competence.

Competence – insight

Insight refers to ability to engage in increasingly complex understanding and consciousness, both internally and externally, through the process of reflection on experience. Insight involves the integration of the other strands of knowledge, skill and competence with the learner's attitudes, motivation, values, beliefs, cognitive style and personality. This integration is made clear in the learners' mode of interaction with social and cultural structures of his/her community and society, while also being an individual cognitive phenomenon. A learner's self understanding develops through evaluating the feedback received from the general environment, particularly other people, and is essential to acting in the world in a manner that is increasingly autonomous.

Status of the sub-strands

Not all the sub-strands are equally familiar to current users of awards. The sub-strands within knowledge and know-how and skill have long formed the basis for awards. Context and role competence are familiar for users of some types of award. The competence of learning to learn makes explicit, as outcomes, certain kinds of learning that would previously have been considered as properties of programmes and, as such, are bound up in the learning process, rather than elements to be explicitly certified in awards. Insight is perhaps the most innovative sub-strand. It is not clear to what extent this sub-strand has been taken up as an explicit objective of education and training programmes or incorporated in the design of awards. There are considerable difficulties in devising appropriate methods for assessing the attainment of such outcomes. Nevertheless, it seems desirable to make provision for such outcomes within the Framework. It is likely that this substrand will need further refinement as education and training practice and associated awarding practice develops. This sub-strand will need to be developed iteratively in association with practitioners.

ACCESS, TRANSFER AND PROGRESSION AND CREDIT

One of the main aims of the Framework, and a statutory function of the NQAI, is to improve access, transfer and progression arrangements for the learner across education and training. The allocation of credit to individual modules and programmes as a whole is one means of supporting this objective.

The volume associated with higher education and training awards is expressed in terms of the allocation of European Credit Transfer System (ECTS) compatible credit. In 2004, the NQAI published the document [Principles and Operational Guidelines for the Implementation of a National Approach to Credit in Irish Higher Education and Training](#). Developed in conjunction with representatives from higher education and training, these principles and guidelines set out the range of credits associated with the higher education and training major award-types in the Framework apart from the research Master's Degree and the taught or research Doctoral Degree ¹⁷ (these are similarly not associated with credit in the Bologna Framework). The document also indicates the national agreement that one credit notionally equates to 20-30 hours of student effort.

CREDIT AND MAJOR AWARD-TYPES	
Level 6 Higher Certificate	120 credits
Level 7 Ordinary Bachelor Degree	180 credits
Level 8 Honours Bachelor Degree	180-240 credits
Level 8 Higher Diploma	60 credits
Level 9 Postgraduate Diploma	60 credits
Level 9 Master's Degree (Taught)	60-120 credits

In January 2006, the universities and the NQAI also agreed the credit ranges and associated qualification titles for non-major awards in the university sector. It was decided that the title Certificate would be used for non-major awards up to, but not including, 60 credits, and that the title Diploma would be used for non-major awards of 60 credits or more.

Recognition of prior learning (RPL) is becoming an increasingly important aspect of access, transfer and progression arrangements and of the drive towards establishing a lifelong learning society. The NQAI has published [Principles and Operational Guidelines for the Recognition of Prior Learning in Further and Higher Education and Training](#). These principles and guidelines include the recognition of prior experiential and/or accredited learning for access to a programme, advanced access to a programme and for a full award. The role that RPL might play in admission arrangements should be considered and documented at the programme design stage. If redesigning a programme, it is an equally suitable time to review the programme entry, exit and progression arrangements.

Increasing use of the Diploma Supplement has also aided recognition and progression internationally. A Europass Diploma Supplement is issued to graduates of higher education institutions. It provides additional information on a graduate's award, including the level of the award on the National Framework of Qualifications (NFQ). The Diploma Supplement also contains information on the referencing of the Irish NFQ to the Bologna and EQF Frameworks (see p. 40).

¹⁷ It should be noted that while nationally no credit has been assigned to the research Master's Degree or the research Doctoral Degree awards, a number of universities have allocated credit to components leading to these awards within their institutions.

QUALITY ASSURANCE

The universities have primary responsibility for their own quality assurance systems. They established the Irish Universities Quality Board (IUQB, www.iuqb.ie) in 2002 to organise the periodic review of the effectiveness of the quality assurance procedures in place in the universities as required by Section 35(4) of the Universities Act, 1997. The Higher Education Authority (HEA) has a statutory function to review and report on the quality assurance procedures developed by the universities and to be consulted by the universities in their review of the effectiveness of quality assurance procedures.

Increasingly, the quality assurance processes in place in the universities refer to the appropriate design and positioning of awards within the Framework. The joint Irish Universities Association (IUA) and IUQB document [A Framework for Quality in Irish Universities](#) which was updated in 2007, put the placement of programmes in the Framework as a key element of the quality assurance self-assessment process. As part of the Self-Assessment Report for an Academic Unit, the following is set out for the Curriculum Development Review aspect:

Details of programmes and modules are provided, including specific reference to the positioning of each associated qualification in the National Framework of Qualifications, with sufficient information provided to allow the reviewers to understand the appropriateness of the level and type of the award ... The Unit also describes the processes by which the curricula of its programmes are developed and reviewed on a periodic basis. The benchmarking of the programmes against similar programmes elsewhere in Ireland and internationally is an important option. [Section 6.6, pg. 55]

The IUQB's 2009 document [Institutional Review of Irish Universities](#) incorporates the Framework for Quality in Irish Universities and thus links quality assurance practices to the implementation of the Framework:

The Main Review Visit will be used by the team to confirm the processes employed by the university for assuring the effectiveness of its quality management process in accordance with national and European requirements. The team will receive and consider evidence on the ... ways the university has been working to ensure that it has in place procedures (including, for example, internal reviews and its external examiner processes) designed to evaluate how the learning outcomes are achieved for programmes that have been placed in the National Framework of Qualifications (NFQ) [Section 35, pg. 12]

The documents [A Framework for Quality in Irish Universities](#) and [Institutional Review of Irish Universities](#) are both written in a manner that is consistent with the [Standards and Guidelines for Quality Assurance in the European Higher Education Area \(ESG\)](#) which were adopted by European Ministers for Education at their 2005 Ministerial meeting in Bergen. They include standards and related guidelines for internal institutional approval, monitoring and periodic review of programmes and the external review of same.

THE IRISH HIGHER EDUCATION QUALITY NETWORK (IHEQN)

There are several actors involved in carrying out quality assurance activities across the higher education sector; each acting in accordance with their respective legislative provisions. The Irish Higher Education Quality Network (IHEQN) was established in 2003 to provide a forum for the principal national stakeholders involved in the quality assurance of higher education and training to discuss quality in a national and international context, to work towards the development of a common national position on key quality assurance issues and to inform the debate on those same issues at a European level. It includes representation from all of the awarding bodies and agencies involved in quality assurance and the Department of Education and Science (DES), the Irish Universities Association (IUA), Institutes of Technology Ireland (IOTI) and higher education and training providers. The Network also provides the opportunity to work with the Union of Students in Ireland (USI) to develop the input of students into quality assurance processes. As a result of this collaboration, the IHEQN has published *Principles of Good Practice in Quality Assurance/Quality Improvement for Irish Higher Education and Training*; *Principles for Reviewing the Effectiveness of Quality Assurance Procedures in Irish Higher Education and Training*; *Principles for Student Involvement in Quality Assurance/Enhancement*; and *Provision of Education to International Students: Code of Practice and Guidelines for Irish Higher Education Institutions*.

The university sector Framework Implementation Network and the IHEQN have collaborated in the last academic year through Bologna Expert (www.bologna.ie) seminars on the design and quality assurance of discipline specific learning outcomes. These were organised in conjunction with the HEA and supported by the European Commission.

USEFUL LINKS:

NFQ Architecture

Policies and Criteria for the Establishment of the National Framework of Qualifications (NQAI, 2003):
http://www.nqai.ie/publication_oct2003b.html

NFQ Determinations (including level indicators and major award-type descriptors) NQAI,
http://www.nfq.ie/nfq/en/public_resources/Nat_qual_authority.html

Award-type descriptors for non-major awards:
http://www.nfq.ie/nfq/en/public_resources/Nat_qual_authority.html

Level Indicators diagram only:
<http://www.nfq.ie/nfq/en/documents/GridofLevelIndicators.pdf>

The Universities and the National Framework of Qualifications (IUA, 2005):
<http://www.iua.ie/publications/documents/publications/2005/RegistrarReport.pdf>

Access, Transfer and Progression

NQAI Access, Transfer and Progression policies and procedures (NQAI, 2003):
http://www.nfq.ie/nfq/en/public_resources/policies_procedures.html

Principles and Operational Guidelines for the Implementation of a National Approach to Credit in Irish Higher Education and Training (NQAI, 2004):
http://www.nfq.ie/nfq/en/public_resources/princip_guidelines.html

Principles and Operational Guidelines for the Recognition of Prior Learning in Further and Higher Education and Training (NQAI, 2005):
http://www.nfq.ie/nfq/en/public_resources/princip_guidelines.html

European ECTS Users' Guide (European Commission, 2008):
http://www.eua.be/eua/jsp/en/upload/ECTS_DS_Users_guide_en.1094119167134.pdf

Quality Assurance

Irish Universities Quality Board:
www.iuqb.ie

A Framework for Quality in Irish Universities (IUQB/IUA, 2007):
http://www.iuqb.ie/info/iuqb_publications.aspx

Institutional Review in Irish Universities (IRIU) (IUQB, 2009):
http://www.iuqb.ie/info/iuqb_publications.aspx

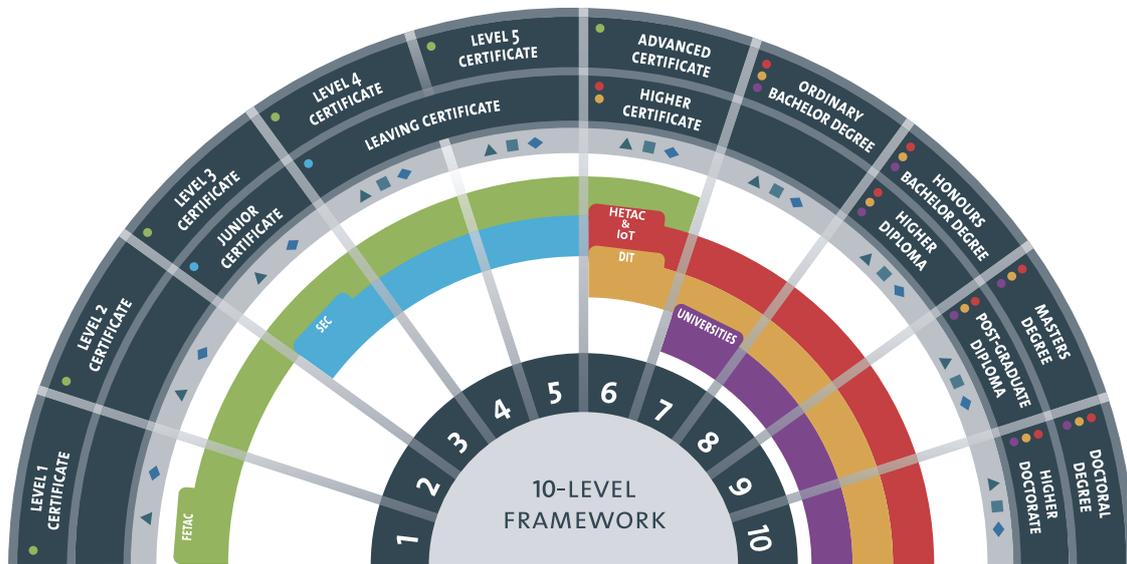
Irish Higher Education Quality Network:
www.iheqn.ie

Standards and Guidelines for Quality Assurance in the European Higher Education Area (2005):
http://www.enqa.eu/pubs_esg.lasso

SECTION A APPENDICES

APPENDIX A1: NATIONAL FRAMEWORK OF QUALIFICATIONS - THE 'FAN DIAGRAM'

NATIONAL FRAMEWORK OF QUALIFICATIONS



AWARDING BODIES

- FETAC - Further Education and Training Awards Council
- SEC - State Examinations Commission (Department of Education & Science)
- HETAC - Higher Education and Training Awards Council
- IOT - Institutes of Technology (make their own awards at specified levels under Delegated Authority from HETAC)
- DIT - Dublin Institute of Technology
- Universities

AWARDS IN THE FRAMEWORK

There are four types of award in the National Framework of Qualifications:

- Major Awards: are the principal class of awards made at a level
- ▲ Minor Awards: are for partial completion of the outcomes for a Major Award
- Supplemental Awards: are for learning that is additional to a Major Award
- ◆ Special Purpose Awards: are for relatively narrow or purpose-specific achievement

National Framework of Qualifications



	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
Knowledge <i>Breadth</i>	Elementary knowledge.	Knowledge that is narrow in range.	Knowledge moderately broad in range.	Broad range of knowledge.	Broad range of knowledge.
Knowledge <i>Kind</i>	Demonstrable by recognition or recall.	Concrete in reference and basic in comprehension.	Mainly concrete in reference and with some comprehension of relationship between knowledge elements.	Mainly concrete in reference and with some elements of abstraction or theory.	Some theoretical concepts, abstract thinking, with significant depth in some areas.
Know-How & Skill <i>Range</i>	Demonstrate basic practical skills, and carry out directed activity using basic tools.	Demonstrate limited range of basic practical skills, including the use of relevant tools.	Demonstrate a limited range of practical and cognitive skills and tools.	Demonstrate a moderate range of practical and cognitive skills and tools.	Demonstrate a broad range of specialised skills and tools.
Know-How & Skill <i>Selectivity</i>	Perform processes that are repetitive and predictable.	Perform a sequence of routine tasks given clear direction.	Select from a limited range of varied procedures and apply known solutions to a limited range of predictable problems.	Select from a range of procedures and apply known solutions to a variety of predictable problems.	Evaluate and use information to plan and develop investigative strategies and determine solutions to various unfamiliar problems.
Competence <i>Context</i>	Act in closely defined and highly structured contexts.	Act in a limited range of predictable and structured contexts.	Act within a limited range of contexts.	Act in familiar and unfamiliar contexts.	Act in a range of varied and specific contexts, taking responsibility for the nature and quality of outputs; identify and apply skill and knowledge to a variety of contexts.
Competence <i>Role</i>	Act in a limited range of roles.	Act in a range of roles under direction.	Act under direction with limited autonomy; function within familiar, homogenous groups.	Act with considerable amount of responsibility and autonomy.	Exercise some initiative and independence in carrying out defined activities; join and function within multiple, complex and heterogeneous groups.
Competence <i>Learning to Learn</i>	Learn to sequence learning tasks; learn to access and use a range of learning resources.	Learn to learn in a disciplined manner in a well-structured and supervised environment.	Learn to learn within a managed environment.	Learn to take responsibility for own learning within a supervised environment.	Learn to take responsibility for own learning within a managed environment.
Competence <i>Insight</i>	Begin to demonstrate awareness of independent role for self.	Demonstrate awareness of independent role for self.	Assume limited responsibility for consistency of self-understanding and behaviour.	Assume partial responsibility for consistency of self-understanding and behaviour.	Assume full responsibility for consistency of self-understanding and behaviour.

GRID OF LEVEL INDICATORS

	LEVEL 6	LEVEL 7	LEVEL 8	LEVEL 9	LEVEL 10	
	Specialised knowledge of a broad area.	Specialised knowledge across a variety of areas.	An understanding of the theory, concepts and methods pertaining to a field (or fields) of learning.	A systematic understanding of knowledge, at, or informed by, the forefront of a field of learning.	A systematic acquisition and understanding of a substantial body of knowledge which is at the forefront of a field of learning.	Knowledge Breadth
	Some theoretical concepts and abstract thinking, with significant underpinning theory.	Recognition of limitations of current knowledge and familiarity with sources of new knowledge; integration of concepts across a variety of areas.	Detailed knowledge and understanding in one or more specialised areas, some of it at the current boundaries of the field(s).	A critical awareness of current problems and/or new insights, generally informed by the forefront of a field of learning.	The creation and interpretation of new knowledge, through original research, or other advanced scholarship, of a quality to satisfy review by peers.	Knowledge Kind
	Demonstrate comprehensive range of specialised skills and tools.	Demonstrate specialised technical, creative or conceptual skills and tools across an area of study.	Demonstrate mastery of a complex and specialised area of skills and tools; use and modify advanced skills and tools to conduct closely guided research, professional or advanced technical activity.	Demonstrate a range of standard and specialised research or equivalent tools and techniques of enquiry.	Demonstrate a significant range of the principal skills, techniques, tools, practices and/or materials which are associated with a field of learning; develop new skills, techniques, tools, practices and/or materials.	Know-How & Skill Range
	Formulate responses to well-defined abstract problems.	Exercise appropriate judgement in planning design, technical and/or supervisory functions related to products, services operations or processes.	Exercise appropriate judgement in a number of complex planning, design, technical and/or management functions related to products, services, operations or processes, including resourcing.	Select from complex and advanced skills across a field of learning; develop new skills to a high level, including novel and emerging techniques.	Respond to abstract problems that expand and redefine existing procedural knowledge.	Know-How & Skill Selectivity
	Act in a range of varied and specific contexts involving creative and non-routine activities; transfer and apply theoretical concepts and/or technical or creative skills to a range of contexts.	Utilise diagnostic and creative skills in a range of functions in a wide variety of contexts.	Use advanced skills to conduct research, or advanced technical or professional activity, accepting accountability for all related decision making; transfer and apply diagnostic and creative skills in a range of contexts.	Act in a wide and often unpredictable variety of professional levels and ill-defined contexts.	Exercise personal responsibility and largely autonomous initiative in complex and unpredictable situations, in professional or equivalent contexts.	Competence Context
	Exercise substantial personal autonomy and often take responsibility for the work of others and/or for allocation of resources; form, and function within, multiple complex and heterogeneous groups.	Accept accountability for determining and achieving personal and/or group outcomes; take significant or supervisory responsibility for the work of others in defined areas of work.	Act effectively under guidance in a peer relationship with qualified practitioners; lead multiple, complex and heterogeneous groups.	Take significant responsibility for the work of individuals and groups; lead and initiate activity.	Communicate results of research and innovation to peers; engage in critical dialogue; lead and originate complex social processes.	Competence Role
	Learn to evaluate own learning and identify needs within a structured learning environment; assist others in identifying learning needs.	Take initiative to identify and address learning needs and interact effectively in a learning group.	Learn to act in variable and unfamiliar learning contexts; learn to manage learning tasks independently, professionally and ethically.	Learn to self-evaluate and take responsibility for continuing academic/professional development.	Learn to critique the broader implications of applying knowledge to particular contexts.	Competence Learning to Learn
	Express an internalised, personal world view, reflecting engagement with others.	Express an internalised, personal world view, manifesting solidarity with others.	Express a comprehensive, internalised, personal world view, manifesting solidarity with others.	Scrutinise and reflect on social norms and relationships and act to change them.	Scrutinise and reflect on social norms and relationships and lead action to change them.	Competence Insight

APPENDIX A3: HIGHER EDUCATION AND TRAINING MAJOR AWARD-TYPE DESCRIPTORS
Higher Certificate award-type descriptor

Title	Higher Certificate
Class of Award-type	Major
Purpose	This is a multi-purpose award-type. The knowledge, skill and competence acquired are relevant to personal development, participation in society and community, employment, and access to additional education and training.
Level	6
Volume	Large
Knowledge - breadth	Specialised knowledge of a broad area
Knowledge - kind	Some theoretical concepts and abstract thinking, with significant underpinning theory
Know-how and skill - range	Demonstrate comprehensive range of specialised skills and tools
Know-how and skill - selectivity	Formulate responses to well-defined abstract problems
Competence - context	Act in a range of varied and specific contexts, taking responsibility for the nature and quality of outputs; identify and apply skill and knowledge to a wide variety of contexts
Competence - role	Exercise substantial personal autonomy and often take responsibility for the work of others and/or for the allocation of resources; form, and function within, multiple, complex and heterogeneous groups
Competence – learning to learn	Take initiative to identify and address learning needs and interact effectively in a learning group
Competence - insight	Express an internalised, personal world view, reflecting engagement with others
Progression & Transfer	Transfer to programme leading to an Advanced Certificate (Award-type h) Progression to a programme leading to an Ordinary Bachelor Degree (award-type j) or to an Honours Bachelor Degree (award-type k).
Articulation	

Ordinary Bachelor Degree award-type descriptor

Title	Ordinary Bachelor Degree
Class of Award-type	Major
Purpose	This is a multi-purpose award-type. The knowledge, skill and competence acquired are relevant to personal development, participation in society and community, employment, and access to additional education and training.
Level	7
Volume	Large
Knowledge - breadth	Specialised knowledge across a variety of areas
Knowledge - kind	Recognition of limitations of current knowledge and familiarity with sources of new knowledge; integration of concepts across a variety of areas
Know-how and skill - range	Demonstrate specialised technical, creative or conceptual skills and tools across an area of study
Know-how and skill - selectivity	Exercise appropriate judgement in planning, design, technical and/or supervisory functions related to products, services, operations or processes
Competence - context	Utilise diagnostic and creative skills in a range of functions in a wide variety of contexts
Competence - role	Accept accountability for determining and achieving personal and/or group outcomes; take significant or supervisory responsibility for the work of others in defined areas of work
Competence – learning to learn	Take initiative to identify and address learning needs and interact effectively in a learning group
Competence - insight	Express an internalised, personal world view, manifesting solidarity with others
Progression & Transfer	Progression to programme leading to an Honours Bachelor Degree (Award-type k) or to a Higher Diploma (Award-type l). Progression internationally to some second cycle (i.e. "Bologna masters") degree programmes.
Articulation	

Honours Bachelor Degree award-type descriptor

Title	Honours Bachelor Degree
Class of Award-type	Major
Purpose	This is a multi-purpose award-type. The knowledge, skill and competence acquired are relevant to personal development, participation in society and community, employment, and access to additional education and training.
Level	8
Volume	Large
Knowledge - breadth	An understanding of the theory, concepts and methods pertaining to a field (or fields) of learning
Knowledge - kind	Detailed knowledge and understanding in one or more specialised areas, some of it at the current boundaries of the field(s)
Know-how and skill - range	Demonstrate mastery of a complex and specialised area of skills and tools; use and modify advanced skills and tools to conduct closely guided research, professional or advanced technical activity
Know-how and skill - selectivity	Exercise appropriate judgement in a number of complex planning, design, technical and/or management functions related to products, services, operations or processes, including resourcing
Competence - context	Use advanced skills to conduct research, or advanced technical or professional activity, accepting accountability for all related decision making; transfer and apply diagnostic and creative skills in a range of contexts
Competence - role	Act effectively under guidance in a peer relationship with qualified practitioners; lead multiple, complex and heterogeneous groups
Competence – learning to learn	Learn to act in variable and unfamiliar learning contexts; learn to manage learning tasks independently, professionally and ethically
Competence - insight	Express a comprehensive, internalised, personal world view manifesting solidarity with others
Progression & Transfer	Transfer to programmes leading to Higher Diploma (Award-type I). Progression to programmes leading to Master's Degree or Post-graduate Diploma (Award-types m or n), or in some cases, to programmes leading to a Doctoral Degree (Award-type o). Progression internationally to second cycle (i.e. "Bologna masters") degree programmes
Articulation	

Higher Diploma award-type descriptor

Title	Higher Diploma
Class of Award-type	Major
Purpose	This is a multi-purpose award-type. The knowledge, skill and competence acquired are relevant to personal development, participation in society and community, employment, and access to additional education and training.
Level	8
Volume	Medium
Knowledge - breadth	An understanding of the theory, concepts and methods pertaining to a field (or fields) of learning
Knowledge - kind	Detailed knowledge and understanding in one or more specialised areas, some of it at the current boundaries of the field
Know-how and skill - range	Demonstrate mastery of a complex and specialised area of skills and tools; use and modify advanced skills and tools to conduct closely guided research, professional or advanced technical activity
Know-how and skill - selectivity	Exercise appropriate judgement in a number of complex planning, design, technical and/or management functions related to products, services, operations or processes, including resourcing
Competence - context	Use advanced skills to conduct research, or advanced technical or professional activity, accepting accountability for all related decision making; transfer and apply diagnostic and creative skills in a range of contexts
Competence - role	Act effectively under guidance in a peer relationship with qualified practitioners; lead multiple, complex and heterogeneous groups
Competence – learning to learn	Learn to act in variable and unfamiliar learning contexts; learn to manage learning tasks independently, professionally and ethically
Competence - insight	Express a comprehensive, internalised, personal world view manifesting solidarity with others
Progression & Transfer	Progression to programmes leading to Master's Degree or Post-graduate Diploma (Award-types m or n)
Articulation	From an Ordinary Bachelor Degree (Award-type j) , or from an Honours Bachelor Degree (Award-type k), into a new field of learning

Master's Degree award-type descriptor

Title	Master's Degree
Class of Award-type	Major
Purpose	This is a multi-purpose award-type. The knowledge, skill and competence acquired are relevant to personal development, participation in society and community, employment, and access to additional education and training
Level	9
Volume	Large
Knowledge - breadth	A systematic understanding of knowledge at, or informed by, the forefront of a field of learning
Knowledge - kind	A critical awareness of current problems and/or new insights, generally informed by the forefront of a field of learning
Know-how and skill - range	Demonstrate a range of standard and specialised research or equivalent tools and techniques of enquiry
Know-how and skill - selectivity	Select from complex and advanced skills across a field of learning; develop new skills to a high level, including novel and emerging techniques
Competence - context	Act in a wide and often unpredictable variety of professional levels and ill defined contexts
Competence - role	Take significant responsibility for the work of individuals and groups; lead and initiate activity
Competence – learning to learn	Learn to self-evaluate and take responsibility for continuing academic/professional development
Competence - insight	Scrutinise and reflect on social norms and relationships and act to change them
Progression & Transfer	Progression to programmes leading to Doctoral Degree (Award-type o), or to another Master's Degree or to a Post-graduate Diploma (Award-types m or n)
Articulation	

Post-graduate Diploma award-type descriptor

Title	Post-graduate Diploma
Class of Award-type	Major
Purpose	This is a multi-purpose award-type. The knowledge, skill and competence acquired are relevant to personal development, participation in society and community, employment, and access to additional education and training.
Level	9
Volume	Medium
Knowledge - breadth	A systematic understanding of knowledge, at, or informed by, the forefront of a field of learning
Knowledge - kind	A critical awareness of current problems and/or new insights, generally informed by the forefront of a field of learning
Know-how and skill - range	Demonstrate a range of standard and specialised research or equivalent tools and techniques of enquiry
Know-how and skill - selectivity	Select from complex and advanced skills across a field of learning; develop new skills to a high level, including novel and emerging techniques
Competence - context	Act in a wide and often unpredictable variety of professional levels and ill defined contexts
Competence - role	Take significant responsibility for the work of individuals and groups; lead and initiate activity
Competence – learning to learn	Learn to self-evaluate and take responsibility for continuing academic/professional development
Competence - insight	Scrutinise and reflect on social norms and relationships and act to change them
Progression & Transfer	May exempt from part of the programme leading to a Master's Degree (Award-type m)
Articulation	

Doctoral Degree award-type descriptor

Title	Doctoral Degree
Class of Award-type	Major
Purpose	This is a multi-purpose award-type. The knowledge, skill and competence acquired are relevant to personal development, participation in society and community, employment, and access to additional education and training.
Level	10
Volume	Large
Knowledge - breadth	A systematic acquisition and understanding of a substantial body of knowledge which is at the forefront of a field of learning
Knowledge - kind	The creation and interpretation of new knowledge, through original research, or other advanced scholarship, of a quality to satisfy review by peers
Know-how and skill - range	Demonstrate a significant range of the principal skills, techniques, tools, practices and/or materials which are associated with a field of learning; develop new skills, techniques, tools, practices and/or materials
Know-how and skill - selectivity	Respond to abstract problems that expand and redefine existing procedural knowledge
Competence - context	Exercise personal responsibility and largely autonomous initiative in complex and unpredictable situations, in professional or equivalent contexts
Competence - role	Communicate results of research and innovation to peers; engage in critical dialogue; lead and originate complex social processes
Competence – learning to learn	Learn to critique the broader implications of applying knowledge to particular contexts
Competence - insight	Scrutinise and reflect on social norms and relationships and lead action to change them
Progression & Transfer	
Articulation	

APPENDIX A4: NON-MAJOR AWARD-TYPE DESCRIPTORS

Minor Award-Type Descriptor

Class of Award	Minor
Purpose	Multi-purpose award-type that recognises attainment of part of a major award and which has relevance in its own right.
Level	Generally, the same level as the major award to which it is linked
Volume	Variable - smaller than the major award of which it is a part
Comprehensiveness	Variable
Knowledge - breadth	Variable
Knowledge - kind	Variable
Know-how and skill - range	Variable
Know-how and skill - selectivity	Variable
Competence - context	Variable
Competence - role	Variable
Competence – learning to learn	Variable
Competence - insight	Variable
Progression & Transfer	Transfer to programmes leading to attainment of a part of one or more major awards Transfer to programmes leading to special purpose awards
Articulation	
Link to other Awards	Learning outcomes form part of those of a major award

Special Purpose Award-Type Descriptor

Class	Special Purpose
Purpose	To meet specific, relatively narrow focused legislative, regulatory, economic, social or personal learning requirements
Level	Any Level – best-fit
Volume	Variable - between small and medium
Comprehensiveness	Usually limited to a small number of sub-strands
Knowledge - breadth	Variable
Knowledge - kind	Variable
Know-how and skill - range	Variable
Know-how and skill - selectivity	Variable
Competence - context	Variable
Competence - role	Variable
Competence – learning to learn	Variable
Competence - insight	Variable
Progression & Transfer	<p>Transfer to programmes leading to major or minor awards at the same level or above</p> <p>Transfer to programmes leading to supplemental awards at the same level</p> <p>Transfer/progression to programmes leading to related special purpose awards at the same level or above</p>
Articulation	
Link to other Awards	Learning outcomes may form part of those of a major award, minor award or supplemental award

Supplemental Award-Type Descriptor

Class	Supplemental
Purpose	For learners who have already obtained a major or special purpose award. May be for refreshing/updating and continuous education and training with respect to an occupation/profession.
Level	Generally, the same level as the major or special purpose award to which it is linked
Volume	Variable - between small and medium
Comprehensiveness	Variable
Knowledge - breadth	Variable
Knowledge - kind	Variable
Know-how and skill - range	Variable
Know-how and skill - selectivity	Variable
Competence - context	Variable
Competence - role	Variable
Competence – learning to learn	Variable
Competence - insight	Variable
Progression & Transfer	Progression to programmes leading to major awards at the next level in a related field of learning
Articulation	From major or special purpose award at the same level
Link to other Awards	Learning outcomes are closely linked to those of a major award or of a special purpose award – they generally reflect a deepening of learning, up-dating or specialisation

SECTION B: RELATING THE ARCHITECTURE OF THE NFQ TO THE PROGRAMME DESIGN PROCESS - FIRST PRINCIPLES

INTRODUCTION

Taking into consideration the architecture of the Framework outlined in the previous section and its relevance to the design of new, and the modification of existing higher education programmes, there are some first principles, which are worthy of consideration when undertaking these processes. These are articulated in italics and elaborated upon below. The first and second sections look at issues of particular relevance to major awards and non-major awards respectively. The third section considers matters common to the design or redesign of both major and non-major awards.

MAJOR AWARDS

DEVELOPING PROGRAMME LEARNING OUTCOMES

Each major award to be included in the Framework should be designed around a series of programme outcomes, which are expressed in Framework terms (i.e., uses the appropriate Framework award-type descriptor with its eight sub-strands of knowledge, skill and competence)

The Framework's level indicators are intended to provide the overarching reference point for the standard required of an award at a given level. Major awards at each level are further defined through major award-type descriptors incorporating sub-strands of knowledge, skill and competence. Some progress is being made in higher education to translate these award-type descriptors into field specific indicators using the language of a particular discipline to provide a context for the elaboration of the descriptors. Examples of progress to date in this regard can be located in part 2 of this report.

In order for an award to be accurately included in the Framework, it should express its overall intended outcomes in terms of the appropriate knowledge, skill and competence associated with a particular Framework award-type, thus creating the programme learning outcomes. This ensures that there is a clear and transparent correlation between the programme, the appropriate Framework major award-type descriptor and the associated Framework level.

While the award-type descriptors have been designed as generic indicators of knowledge, skill and competence that apply regardless of the field of learning, these sub-strands will not necessarily be represented equally in the programme learning outcomes. This is a matter for the programme designer and will very much depend on the nature of a given programme.

A major award that incorporates exit awards¹⁸ should express the learning outcomes for each of the programmes that it incorporates, as well as for the overall award, and these should be stated with reference to the related Framework award-type descriptors

Some major awards incorporate one or more exit awards that the learner can attain at a given point or points; other programmes are structured as *ab initio* awards.¹⁹ In terms of the former, examples would be an Honours Bachelor Degree that allows learners to choose to exit, upon appropriate assessment, with a Higher Certificate or an Ordinary Bachelor Degree. Equally a Master's Degree might incorporate a Postgraduate Diploma as an exit award.

In these cases, the awards incorporated into an overall award should be treated as part of the whole, but also in their own right. As a result, any award that it is possible to achieve must have its own overall programme outcomes articulated for it and these should be included in the programme document.

¹⁸ An exit award or qualification consists of a defined set of outcomes within a larger award and is available to a learner who achieves these outcomes and does not complete the larger award.

¹⁹ An *ab initio* award is one in which a learner is required to complete the programme from beginning to end in order to be awarded his/her qualification.

DEVELOPING MODULE LEARNING OUTCOMES

The learning outcomes articulated for the modules that make up the programme should reflect and elaborate upon the programme learning outcomes

Modules combine to make up a programme. Each one needs to be expressed in terms of learning outcomes and each should be contributing to the achievement of the overall programme learning outcomes. This construct lends an important coherence to a programme and provides the basis upon which effective and appropriate teaching and assessment can be based.

It is unlikely that all modules within a programme will incorporate all eight sub-strands of knowledge, skill and competence

The level of knowledge, skill and competence associated with each individual module will not necessarily reflect the overall Framework level of the programme. For instance, an Honours Bachelor Degree in a given discipline may contain a substantial amount of level 6 and 7 outcomes. The guidelines set out by the NQAI indicate that for major awards, at least 60 credits associated with a programme should have learning outcomes at the level at which the programme as a whole is included in the Framework.

ASSIGNING CREDIT

The credit allocated to the modules and the programme as a whole should be compatible with the European Credit Transfer System (ECTS) and the national guidelines for the operation of credit

The higher education and training awards included in the Framework incorporate credit which is compatible with the European Credit Transfer System (ECTS). The purpose of this is to contribute to the recognition and transparency of qualifications and the mobility of learners both nationally and internationally.

The allocation of credit to modules indicates the typical overall student workload associated with that module; in which case, the balance of emphasis on elements within the programme will need to be taken into consideration.

In the case of some awards there is a credit range in place (see p. 18), most notably the Honours Bachelor Degree has a range of 180 to 240 credits.

PROGRAMME/AWARD TITLES

The Major-Award type of a particular award should be reflected in the title of the award

In the case of major awards, programmes should make reference in their titles to the award-type they lead to i.e., Honours Bachelor Degree (in x), Higher Diploma (in y) etc. This is important in terms of clarity and transparency for the learner, other education and training institutions and the employer. Where local traditions prevail however, the learner and the public should at least be provided with clear and instructive information regarding the award's status in Framework terms, including the level, award-type, associated credit and progression opportunities. The NQAI's short guide to marketing of Framework awards²⁰ includes some examples of communicating the details of programmes included in the Framework.

²⁰ http://www.nfq.ie/nfq/en/documents/userguide_marketing_final.pdf

NON-MAJOR AWARDS

DEVELOPING PROGRAMME LEARNING OUTCOMES

Each non-major award to be included in the Framework should be designed around a series of programme outcomes. These should be expressed in Framework terms by using the Framework's level indicators as a reference point

The Framework's level indicators provide the overarching reference point for the standard required of an award at a given level. These are the key reference points for the inclusion of non-major awards in the Framework. Minor, supplemental and special purpose awards may often specify standards for fewer than the eight sub-strands associated with a level. In some cases, their focus may be narrow and only a small number of sub-strands may be defined. If only one sub-strand is defined for the award then the level to which the award-type is allocated is decided on the basis of that strand. If more than one sub-strand is defined, a best-fit principle will apply. This will take into account the purpose and context for developing the award and, where relevant, its link to other awards.

ASSIGNING CREDIT

The credit allocated to the modules and the programme as a whole should be compatible with the European Credit Transfer System (ECTS) and the national guidelines for the operation of credit

The higher education and training awards included in the Framework incorporate credit, which is compatible with the European Credit Transfer System (ECTS). The purpose of this is to contribute to the recognition and transparency of qualifications and the mobility of learners (see Access, Transfer and Progression page18) both nationally and internationally.

The allocation of credit to modules indicates the typical overall student workload associated with that module. In which case, the balance of emphasis of elements within the programme will need to be taken into consideration.

PROGRAMME/AWARD TITLES

The credit allocated to a non-major award should indicate the appropriate naming conventions for the programme

The amount of credit associated with a non-major award influences the programme name. Non-major awards up to, but not including 60 credits, should be called "Certificates". Non-major awards with a credit allocation of 60 or more should be called "Diplomas". This convention is consistent with the discussion document on the policy approach to the inclusion of university awards in the Framework²¹ that was agreed by the NQAI and the universities and published in 2006. The non-major award type to which the programme leads should be clearly indicated in all documentation.

²¹ http://www.nfqnetwork.ie/_fileupload/Image/Towards%20the%20completion%20of%20Framework%20Implementation%20in%20the%20Universities.doc

ISSUES COMMON TO THE DESIGN OR REDESIGN OF MAJOR AND NON-MAJOR AWARDS

TEACHING, LEARNING AND ASSESSMENT

Teaching and learning, and assessment methods should be designed to ensure that the attainment of learning outcomes is achieved and can be demonstrated by the learner

Learning outcomes express the expected attainment of knowledge, skill and competence by a learner on successful completion of a given programme. Teaching, learning and assessment strategies need to be aligned appropriately with these learning outcomes in order to enable the learner to demonstrate their attainment.

In terms of assessment, part three of this report, focuses on assessment methods and how these can be built in as part of a combined programme design, teaching, learning and assessment strategy.

FRAMEWORK FEATURES EVIDENT IN PROGRAMME DESIGN OR REDESIGN

A programme, whether designed or redesigned, should display all of the features necessary for its inclusion in the Framework

A major or non-major award intended for inclusion in the Framework may be constructed from the top down (i.e., identification of award-type, design of programme outcomes, design of module outcomes etc.), from the bottom up (combining existing modules in order to identify the programme outcomes and to link these to an award-type) or through a combination of both of these methods. A checklist of key issues is included in [appendix B1](#).

ACCESS, TRANSFER AND PROGRESSION

Access, transfer and progression arrangements associated with a programme should be clearly identified for the learner

One of the key objectives of the Framework is to improve access, transfer and progression arrangements for the learner. When designing or redesigning a programme for inclusion in the Framework the arrangements for accessing the programme (including through arrangements for the recognition of prior learning where possible), transferring from it, exiting from it, and progressing to other awards should be documented at the outset in programme materials and clearly communicated to the learner.

SUMMARY OF KEY ELEMENTS IN DESIGNING/REDESIGNING A MAJOR OR NON-MAJOR AWARD FOR INCLUSION IN THE FRAMEWORK

DESIGNING A MAJOR AWARD FOR INCLUSION IN THE FRAMEWORK

Programme learning outcomes articulated and mapped to appropriate award-type descriptor



Module learning outcomes designed to collectively deliver programme learning outcomes



Credit allocated to award (and modules) within range agreed for award-type



Appropriate teaching, learning and assessment methodology designed



Name of award reflects appropriate award-type

DESIGNING A NON-MAJOR AWARD FOR INCLUSION IN THE FRAMEWORK

Programme learning outcomes articulated and mapped to appropriate Framework level



Learning outcomes for modules designed to collectively deliver programme learning outcomes



Credit allocated to award (and modules) within range agreed for award-type



Appropriate teaching, learning and assessment methodology designed



Award named in accordance with credit allocated

SECTION B APPENDICES

APPENDIX B1: PROGRAMME DESIGN / REDESIGN: CHECKLIST OF KEY ISSUES

When designing a new programme or redesigning an existing programme for inclusion as a **major award** in the Framework, the following checklist may act as a reminder of the key elements to be included:

- Programme learning outcomes should be stated with reference to the related Framework award-type descriptor
- Programme learning outcomes should be articulated for any exit awards built into an award and should be stated with reference to the related Framework award-type descriptors
- Module learning outcomes should be articulated and should collectively lead to the achievement of programme learning outcomes
- The teaching methodologies chosen should reflect the programme and module learning outcomes
- The assessment methods chosen should enable learners to demonstrate the attainment of the programme and module learning outcomes
- Modules and the programme as a whole should be expressed in ECTS-compatible credits and in accordance with agreed credit ranges for Framework award-types
- The name of the award should be reflective of its award-type, e.g. Honours Bachelor Degree in x, Postgraduate Diploma in y
- The access, transfer and progression arrangements associated with a programme should be clearly described in the programme document and in related materials.

When designing a new programme or redesigning an existing programme for inclusion as a **non-major award** in the Framework:

- The programme should be identified as being minor, special purpose or supplemental
- Programme learning outcomes should be stated with reference to the related Framework level indicators
- If the programme incorporates modules, the learning outcomes should be articulated and should collectively lead to the achievement of programme learning outcomes
- The teaching methodologies chosen should reflect the programme and module learning outcomes
- The assessment methods chosen should enable learners to demonstrate the attainment of the programme and module learning outcomes
- Modules and the programme as a whole should be expressed in ECTS-compatible credits and in accordance with agreed credit ranges for Framework non-major awards
- The name of a non-major award should be reflective of the amount of credit associated with it i.e., Certificate if up to, but less than 60 ECTS credits, and Diploma if 60 or more credits
- The access, transfer and progression arrangements associated with a programme should be clearly described in the programme document and in related materials.

SECTION C: THE NFQ AND EUROPEAN QUALIFICATIONS FRAMEWORKS: IMPLICATIONS FOR PROGRAMME DESIGN

EUROPEAN FRAMEWORKS

It is important to understand that the Irish Framework is operating in a wider context, in both European and international terms. There are now two meta-frameworks in operation at a European level: the Framework for Qualifications of the European Higher Education Area, more commonly referred to as the 'Bologna Framework' and the European Qualifications Framework (EQF). The first is used to compare higher education qualifications in national frameworks of qualifications to the Bologna Framework cycles and the second is a 'lifelong learning' framework to which the levels of national qualifications frameworks are referenced. Both Frameworks are based on learning outcomes, and are consistent with the understandings and concepts underpinning the Irish NFQ.

The Bologna Framework emerged as part of the [Bologna Process](#) and is currently the better known of the two Frameworks in the higher education environment in Ireland. It is based on [three cycle descriptors known as the 'Dublin descriptors'](#). Essentially these indicate the learning outcomes associated with first cycle (Bachelors Degree), second cycle (Master's Degree) and third cycle (Doctoral Degree) qualifications.

In contrast, and in order to fulfil its objective of recognising learning throughout one's life, the EQF is an [eight level Framework](#) which applies to all types of education and training qualifications, from school education to academic, professional and vocational. Each level is expressed in terms of learning outcomes. When each country in Europe has developed its national qualifications framework it will verify and reference it against the cycles/levels of the Bologna and EQF frameworks respectively. This process will establish how national qualifications/levels relate to these overarching Frameworks and thus to other national frameworks in Europe.

Ireland verified the compatibility of its National Framework of Qualifications with the Bologna Framework in 2006 and completed the referencing of its levels against those of the EQF in June 2009. Links to the reports on both of these processes are included at the end of this section. How Framework qualifications line up against the Bologna Framework cycles, and the EQF levels, is illustrated below. It is important to note that the compatibility between the higher levels of the EQF (levels 6, 7 and 8) and the three cycles of the Bologna Framework has been confirmed at a European level:

Comparison of NFQ with Bologna Cycles / EQF Levels

EQF Levels	Bologna Framework	Irish NFQ Levels	Irish Major Award-Types
1		1	Level 1 Certificate
		2	Level 2 Certificate
2		3	Level 3 Certificate, Junior Certificate
3		4	Level 4 Certificate, Leaving Certificate
4		5	Level 5 Certificate, Leaving Certificate
5	Short Cycle within First Cycle	6	Advanced Certificate*, Higher Certificate
6	First Cycle	7	Ordinary Bachelor Degree
		8	Honours Bachelor Degree, Higher Diploma
7	Second Cycle	9	Master's Degree, Postgraduate Diploma
8	Third Cycle	10	Doctoral Degree, Higher Doctorate**

* The Advanced Certificate is a further education and training award and has not been verified against the Bologna Framework.

** The Higher Doctorate award is not based on a provider's programme and, as such, is not subject to validation, but is assessed by the awarding body for each individual learner. Normally, the learner already holds a first doctorate or equivalent for some period of time prior to becoming a candidate for the higher doctorate. As a result, further references to this award-type have not been made in this section of the report.

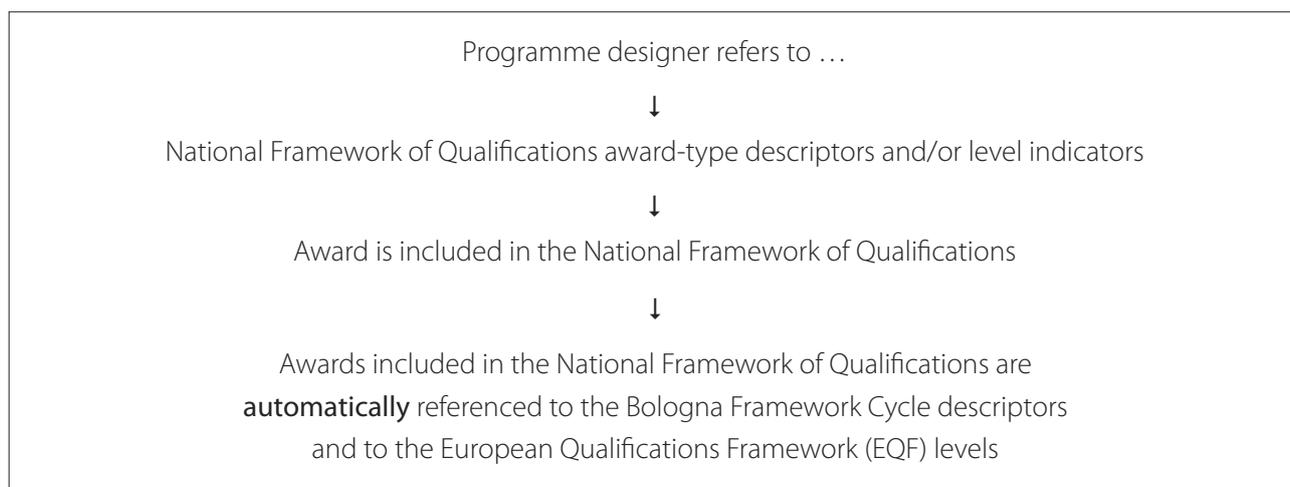
IMPACT OF EUROPEAN FRAMEWORKS ON PROGRAMME DESIGN

A number of European initiatives have evolved which encourage cooperation amongst higher education colleagues across Europe on particular higher education topics and disciplines. The thematic networks that have developed as part of the Tuning project and in support of the Bologna Process are one such development. The EQF is also supporting academic and sectoral collaboration across Europe. These are valuable processes which support the drive towards a European Higher Education Area, the relevance of the European meta-frameworks, and the introduction and implementation of national qualifications frameworks.

Ireland has played a central role in the development of both the Bologna Framework and its cycle descriptors (the 'Dublin descriptors') and the level outcomes upon which the EQF is designed. As a result, there is a high degree of comparability between the concepts of knowledge, skill and competence that underpin the Irish and European frameworks, as evidenced in the verification and referencing reports that elaborate on these relationships. It is a European and national expectation, however, that national qualifications frameworks, which articulate in more depth the knowledge, skill and competence outcomes associated with a given qualification and with the framework level at which it is included, will act as the primary reference point for the design of programmes.

As the compatibility of the NFQ with the Bologna Framework has been verified, and referencing to the EQF has been completed, the use of the NFQ major award-type descriptors and/or level indicators when designing a programme ensures its compatibility with the European meta-frameworks; contributes to the establishment of a national education and training system that promotes lifelong learning; accommodates transparent access, transfer and progression arrangements for the learner; and supports learner mobility.

PROGRAMME DESIGN: THE RELATIONSHIP BETWEEN THE NATIONAL FRAMEWORK OF QUALIFICATIONS AND EUROPEAN META-FRAMEWORKS



USEFUL LINKS ON EUROPEAN META-FRAMEWORKS

Bologna Cycle Descriptors:

http://www.bologna-bergen2005.no/EN/BASIC/050520_Framework_qualifications.pdf

Bologna Process website: <http://www.ond.vlaanderen.be/hogeronderwijs/bologna/>

NFQ Bologna verification: national report (NQAI, 2006):

http://www.nqai.ie/publication_nov2006.html

European Qualifications Framework and descriptors:

http://ec.europa.eu/education/lifelong-learning-policy/doc44_en.htm#doc

Referencing of NFQ to EQF: national report (NQAI, 2009):

http://www.nqai.ie/interdev_eqf.html

SECTION D: DESIGNING PROGRAMMES FOR INCLUSION IN THE FRAMEWORK - QUESTIONS ARISING

INTRODUCTION

The following section sets out some examples of the questions that have arisen for higher education practitioners when undertaking the process of designing programmes for inclusion in the Framework.

When constructing major awards, which should be designed first, the programme or the module learning outcomes?

In order to give coherence to a programme, a top down approach is probably the more logical sequencing, certainly for new programmes. The design of clear programme learning outcomes, based on knowledge, skill and competence, provides a basis for direct mapping to Framework award-type descriptors and Framework levels. Modules that collectively address these outcomes can then be designed and articulated as module outcomes.

In redesigning existing programmes, the sequence may be the other way around, where a collection of related modules are being brought together to construct a programme, and the programme learning outcomes are being derived from the combined module outcomes and then mapped to the appropriate Framework award-type/level.

Do all of the eight sub-strands of knowledge, skill and competence have to feature in the programme outcomes of a major award?

The majority of new or existing major awards are likely to accommodate all of the sub-strands, but the balance of emphasis in their representation will depend on the individual programme. Also, individual sub-strands of a major award may be at a different level to the overall level of the major award-type. However, the overall package of learning outcomes for a named award needs to correspond to those of the award-type to which it belongs.

Do all of the eight sub-strands of knowledge, skill and competence have to feature in every module of a major award?

It is extremely unlikely that all modules will reflect all of the sub-strands associated with the programme they combine to make. The function of the modules is to cumulatively address the programme learning outcomes of a major award.

Do all of the eight sub-strands of knowledge, skill and competence have to feature in the programme outcomes of a non-major award?

Non-major awards (minor, supplemental and special purpose awards) may often specify programme outcomes with fewer than the eight sub-strands. In some cases, their focus may be narrow and only a small number of sub-strands may be defined. If only one sub-strand is defined for the award then the level to which the award-type is allocated is decided on the basis of that strand. If more than one sub-strand is defined, a best-fit principle will apply. This will take into account the purpose and context for developing the award (and, where relevant, its link to other awards).

Is a programme designed using the Bologna Framework's cycle descriptors the same as using the National Framework of Qualifications level indicators and award-type descriptors for reference?

The relationship between national qualifications frameworks and European Frameworks is outlined in section C. This construct indicates that it makes sense for the Irish National Framework of Qualifications to take precedence when identifying a reference point for the design or redesign of programmes for inclusion in the Framework and for subsequent recognition in the context of the European frameworks. The greater level of detail provided in the Framework descriptors ultimately makes it an easier framework to use as a reference for programme design; it accommodates the design of non-major award types and makes explicit how the suite of national awards relate to one another.

If a programme is designed for inclusion at Level x, do all of the outcomes associated with the programme have to be at that level?

There is no requirement that all of the outcomes of a programme at a given level (major or non-major) need to be written to that level. With regard to major awards, 60 credits of learning outcomes need to be at the level of the award; for non-major awards the balance of learning outcomes need to be at the level at which the award is included. The distribution of level outcomes across a series of modules that make up a programme is a matter for the programme designer, in response to the needs of the programme and the anticipated learner. There are often introductory and intermediate aspects of a programme that will be at a lower level than the overall programme level. Similarly, some programmes incorporate exit points, which are at lower levels of the Framework.

How are exit points built into a programme designed to be included at a given level of the Framework?

If a programme has exit points at which awards can be made, the sequence of designing outcomes from the top of the programme still provides a logical starting point. When the exit points are being built in, they should also be accompanied by programme learning outcomes. It is important when designing a major award with exit points to keep in mind the minimum of 60 credits being at the level at which the award is included in the Framework.

Are the Framework level indicators designed to be threshold level indicators?

The Framework level-indicators (and award-type descriptors) are considered to indicate the 'typical' learning outcomes associated with the successful attainment of an award at a given level on the Framework, rather than being indicators of 'threshold' or minimum learning outcome attainment. This distinction has important implications for assessment design and for the development of assessment criteria.

How is an Ordinary Bachelor Degree with 180 credits differentiated from an Honours Bachelor Degree with 180 credits?

The Framework includes an Ordinary Bachelor Degree award-type with 180 credits at level 7 on the Framework. At level 8, the Honours Bachelor Degree has been allocated a range of credit from 180-240 credits. If you are designing an Honours Bachelor Degree with 180 credits, the key element that distinguishes it from an Ordinary Bachelor Degree with the same credit amount is the learning outcomes. Those associated with the Honours Bachelor Degree should be evidently at the higher level. It is also likely that all of the outcomes in the final year of a 180 credit Honours Bachelor Degree will be of a level 8 standard.

GLOSSARY

Award-type Descriptors:	The 16 major awards on the Framework are all award-types. Knowledge, skill and competence and associated sub-strand outcomes have been developed for each of these and are called award-type descriptors. Due to the level of variation within, and the range of non-major awards, less detailed award-type descriptors are available for the classes of non-major award (minor, supplemental and special purpose). Award-type descriptors are generic, in that they do not refer to a particular field of learning.
Bologna Framework:	A European higher education meta-framework with three cycles; Bachelor, Masters and Doctoral, and associated learning outcome indicators.
Bologna Process:	The process that commenced with the Bologna Declaration in 1999 to establish a European Higher Education Area (EHEA).
Credit:	Credit, and in some cases credit ranges, are associated with award-types in the Framework and are largely compatible in Irish higher education with European Credit Transfer System (ECTS) credit. The general purpose of credit is to recognise learning achievements which have value in themselves and which may be used to gain an award.
European Qualifications Framework (EQF):	A European lifelong learning meta-framework with 8 levels and associated learning outcome indicators.
Learning outcomes:	Learning outcomes are represented in the Framework through statements of knowledge, skill and competence. These are associated with each level and with the awards included in each level of the Framework.
Levels:	The National Framework of Qualifications (NFQ) has 10 levels that capture learning from the very initial stages (i.e., literacy and communication skills) to the most advanced (i.e. Doctoral level).
Level indicators:	Each level on the Framework has a specified level indicator. Level indicators are broad descriptions of learning outcomes, which are articulated in terms of knowledge, skill and competence. The Framework level indicators are generic in that they do not relate to a particular field of learning.
Major awards:	Major Awards are the collective term for the 16 awards with a large volume of outcomes that are featured in the Framework.
Meta-Framework:	An overarching (European) qualifications framework that enables the comparison of national qualifications frameworks with each other.
Module:	A module is a discrete piece of learning within a programme that has associated learning outcomes, assessment and credit. It is also known as a 'subject' or a 'unit'.
Module Outcomes:	Each module has learning outcomes associated with it. These outcomes collectively contribute to the achievement of the associated programme learning outcomes.

- Non-Major awards:** Non-major awards are the collective term for awards in the Framework with a smaller volume and more narrow outcomes than major awards. There are three classes of non-major award: minor, special purpose and supplemental.
- Programme Outcomes:** A series of statements articulated in terms of the learning outcomes of knowledge, skill and competence that are associated with a programme as a whole.
- Sub-strands:** The knowledge, skill and competence learning outcomes associated with each level of the Framework have associated sub-strands which elaborate types of knowledge, skill and competence learning outcomes. For example, at each level there are knowledge learning outcomes indicated; the type of knowledge outcome anticipated at each level is broken down into knowledge breadth, and knowledge kind. These are called sub-strands.
- Volume:** Volume refers to the amount of knowledge, skill and competence at a particular level or levels: the larger the amount of knowledge, skill and competence the greater the associated volume. The concept of volume is key to the development of a system of credit accumulation and transfer. Not all award-types at a level on the Framework have the same volume.



PART 2

DISCIPLINE-SPECIFIC LEARNING
OUTCOMES:
SOME CASE STUDIES, REFERENCE
POINTS, ISSUES AND INSIGHTS

PART 2 CONTENTS

DISCIPLINE-SPECIFIC LEARNING OUTCOMES: SOME CASE STUDIES, REFERENCE POINTS, ISSUES AND INSIGHTS

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ABSTRACT

Qualifications frameworks provide overarching reference points to encourage consistency in, and facilitate comparability across, a wide range of educational awards. These reference points provide indicators as to the level and type of an award, and often, the volume of student workload associated with the particular award. The National Framework of Qualifications (NFQ) level indicators are expressed in terms of knowledge, skills and competences, each of which is further defined in sub-strands, for example breadth and kind of knowledge, range and selectivity of skill-sets, and context for the development of competencies.²² In order to be relevant across the full spectrum of awards within a given educational system, the learning outcomes underpinning such frameworks are necessarily written at a high level of generality. However, since the programmes or courses leading to certified awards are invariably located within a particular field-of-study context (which may be single-discipline, inter-disciplinary or multi-disciplinary), in practice, the Framework provisions become meaningful and verifiable through the articulation of discipline-specific programme learning outcomes. The programme learning outcomes can be said to define the 'profile' of the qualification. This term is explained in a Council of Europe document: *The 'profile' of a programme/award "can refer either to the specific (subject) field(s) of learning of a qualification or to the broader aggregation of clusters of qualifications from different fields that share a common emphasis or purpose.*²³ It is the process of articulation of programme learning outcomes, and the challenges that it presents for programme designers and teachers, that are the focus here.

Part two of the university sector Framework Implementation Network (FIN) report seeks to identify and explore issues arising both for individual academics and subject communities in writing learning outcomes for discipline-specific programmes that are included in the NFQ; and to look at some practical ways of addressing those issues and concerns.

METHODOLOGY

At the time this group embarked on its work, some of the institutions in which members were based had already developed learning outcomes (though in most cases at the module level only), while others had not yet begun formally to work with learning outcomes. It was anticipated that, due to differences in institutional orientations, the process adopted in each institution regarding the development of learning outcomes would be quite different, with some working from the 'bottom up' to calibrate existing module outcomes by level and then moving on to programme outcomes, and others starting with programmes and progressing to outcomes at the module level. It was recognised that the introduction of an outcomes-based approach to higher education in Ireland requires the embedding on the ground of a different conceptual framework, based on the idea of 'competences'. According to the National Qualifications Authority of Ireland: *The Framework is designed to bring about change. It introduces a new approach to the meaning of an award, that an award will recognise learning outcomes - what a person with an award knows, can do and understands - rather than time spent on a programme.*²⁴

For the individual academic, who is responsible for teaching his/her subject, the requirement to adopt an outcomes-based approach to teaching - to think in terms of what competences their students will have upon successful completion of a course rather than what they wish their students to know at the end of the course - can represent a very radical change, the full extent of which often only becomes apparent as one begins to engage in writing and using learning outcomes. Even where the benefits of learning outcomes are recognised, concerns persist regarding the displacement of subject-specific knowledge by generic competences and the potential for a consequential 'dumbing down' of higher education. On the other hand, there is also a risk that academics will not 'own' the generation of learning outcomes within their disciplines, thus potentially turning the process into a 'paper exercise', which subsequently does not influence teacher behaviour or realize the potential benefits of an outcomes-based approach.

This working group considered that it could be beneficial to look at this particular area of tension around learning outcomes, and through this focus, to encourage more positive engagement and a sense of 'ownership' on the part of academic staff dubious about the benefits or usefulness of learning outcomes or

²² See Part 1 of this document pp 22-33.

²³ Bergen, S. (2007) *Qualifications – Introduction to a concept. Council of Europe higher education series 6.* Strasbourg: Council of Europe. pp. 118-27.

²⁴ National Qualifications Authority of Ireland (NQAI) (2003) *The National Qualifications Framework - An Overview.* Dublin: NQAI. p 2 [Internet]. Accessible from: <http://www.nqai.ie/docs/publications/13.pdf>

even hostile to the concept of the outcomes-based approach to higher education.

In order to explore whether (and in what way) distinct approaches to the writing of learning outcomes for programmes of study might be appropriate for different academic subjects or fields of study, this group chose to look at four subjects which are widely taught across the Irish third-level education system in single-discipline and inter-disciplinary formats, and which span the arts, social sciences, 'hard sciences' and performance-based fields of study. These were Business Studies, English, Music, and Physics.

One of the practical problems encountered by this FIN working group was that individual institutions tend not to make their programme outcomes available externally. The dearth of concrete examples of programme outcomes in the different subject areas was frustrating. So the working group invited academic colleagues working in the selected subject areas to collaborate in a series of programme learning outcomes case studies. These are presented in Section B.

In the UK, which has been working with learning outcomes for some time, and across Europe, where the outcomes-based Framework for Qualifications in the European Higher Education Area (the 'Bologna Framework') and the European Qualifications Framework (EQF) are now in operation, a great deal of work has been undertaken by groups of academics working in the different academic disciplines to describe the nature and extent of their particular subject or discipline, and to define the characteristics of degree programmes so as to provide a set of representative reference points for academic programmes at the different levels. The resulting UK Quality Assurance Agency (QAA) subject benchmark statements²⁵ and Tuning Educational Structures in Europe ("Tuning Project") subject reports²⁶ do not seek to prescribe the content of study programmes, but to facilitate comparability of programmes of study, while accommodating the complexity and diversity of degree programmes. The Tuning Project motto is "Tuning of educational structures and programmes on the basis of diversity and autonomy".

Of the subjects selected by the FIN working group examining the topic of discipline-specific learning outcomes, all four are represented in the UK Quality Assurance Agency (QAA) subject benchmark statements at Honours Bachelor degree level, though only Business & Management has so far been treated at Master's level. Subject-specific Tuning reports have been published for Business and Physics, and the implications of the Bologna Process for the study of Music at third level is currently a key topic for the Erasmus Thematic Network, Polifonia²⁷.

A seminar on the Bologna Process hosted by the Higher Education Authority, in association with the National Qualifications Authority of Ireland²⁸ in February 2009 in Dublin provided an opportunity to explore and discuss the views and experiences of academics currently involved in drafting and working with learning outcomes in these subject areas. Plenary session presentations from Professor Elisabeth Jay²⁹ on subject benchmarking in the UK for English, from Professor Gareth Jones³⁰ on the Tuning process and Physics benchmarks, from Dr. Peter Cullen of the Higher Education and Training Awards Council (HETAC) on the experience of developing subject-specific standards in that sector, and from Dr. Norma Ryan, Director of Quality Promotion Unit, University College Cork and Bologna Expert on linked quality assurance issues, offered valuable insights into the subject-benchmarking and Tuning processes. Four workshops took place, each focusing on one of Business Studies, English, Music and Physics. Participants explored questions concerning the learning characteristics for graduates in the given discipline, how to identify in learning outcomes terms the academic milestones in a programme, and questions concerning the desired balance between discipline-specific and 'generic' skills and competences. A summary of the discussions that took place is provided in Section C.

²⁵ For further information, please see Quality Assurance Agency for Higher Education (QAA) (2009) *Subject Benchmark Statements*. [Internet]. Available from: <http://www.qaa.ac.uk/academicinfrastructure/benchmark/default.asp>.

²⁶ For further information, please see Tuning Educational Structures in Europe (2009) *Subject Areas*. [Internet]. Available from: <http://tuning.unideusto.org/tuningeu/index.php?option=content&task=view&id=7&Itemid=30>

²⁷ Please see The Erasmus Thematic Network for Music 'Polifonia' (2009) *Polifonia*. [Internet]. Available from: <http://www.polifonia-tn.org/>

²⁸ The university sector Framework Implementation Network participated with the Irish Bologna Experts and the HEA in an interactive colloquium addressing the design of discipline-specific learning outcomes: *Supporting the Design of Discipline-Specific Learning Outcomes*, held on 6th February 2009. Presentations made on the day can be accessed from the network website: <http://www.nfqnetwork.ie/News/Default.76.html>

²⁹ Professor Elisabeth Jay, Associate Dean of the School of Arts and Humanities, Oxford Brookes University, and member of Review Group for the UK Quality Assurance Agency Subject Benchmark Statement for English.

³⁰ Professor Gareth Jones, Professor Emeritus and Senior Fellow in Physics, Imperial College London, and Tuning Expert.

SECTION A: MODELS FOR WORKING IN A DISCIPLINE-SPECIFIC CONTEXT

As noted above, this working group's deliberations have been informed by the reports of the EU Tuning Educational Structures in Europe Groups and by the UK Quality Assurance Agency (QAA) experience in writing subject benchmark statements for its university sector. Both provide valuable resources and reference points when seeking to design discipline-specific learning outcomes for programmes/awards referenced through the NFQ.

TUNING EDUCATIONAL STRUCTURES IN EUROPE ³¹

The project on Tuning Educational Structures in Europe, which commenced in 2000 with support from the European Commission, aims *"to offer a concrete approach to implement the Bologna Process at the level of higher education institutions and subject areas"*. An important aspect of the Bologna Process is concerned with achieving comparability of qualifications - and thereby also of study programmes - at the Bachelor, Master and Doctoral levels (Bologna cycles 1, 2 and 3 respectively) across national boundaries in Europe. With a particular focus on the subject or content of studies, Tuning proposes a common approach to describing, (re-)designing and evaluating academic programmes in different subject areas in the three degree cycles. This approach references the accepted level indicators for the three Bologna degree cycles (the 'Dublin Descriptors') and other key factors in establishing comparability: the competences of graduates derived from intended learning outcomes, the use of a common measure of student workload that serves for the accumulation and transfer of academic credit (the European Credit Transfer and Accumulation System [ECTS]), and common approaches to quality assurance and accreditation.

The project has been conducted through an extensive Europe-wide consultation process involving academics, graduates and employers. Subject-specific working groups have reported across a wide range of academic subjects, mainly, so far, at the Bachelor and Master levels. This focus on the subject is crucial for universities. According to the Tuning literature, *the name Tuning is chosen for the Process to reflect the idea that universities do not and should not look for uniformity in their degree programmes or any sort of unified, prescriptive or definitive European curricula but simply look for points of reference, convergence and common understanding*.³² In this way, the Tuning approach promotes the 'tuning' of curricula in subject areas, while at the same time recognising the validity and positive value of institutional autonomy and diversity and, by extension, of the centrality of the individual academic in the process. The educational stimulus which derives from the local context is also taken account of through the project's recognition of the importance of consultation with employers and professional bodies in relation to university curricula.

With regard to learning outcomes, Tuning differentiates between learning outcomes which are written by staff and competences which are obtained by students. It recognises that competences - both subject-specific and generic - are developed in and through the particular study programme.

UK QUALITY ASSURANCE AGENCY (QAA) SUBJECT BENCHMARK STATEMENTS

As part of its work in assuring and improving the quality of study programmes in universities, the UK Quality Assurance Agency initiated the development of subject benchmark statements. The brief for the QAA subject-benchmark groups was *to define the nature of the Bachelors degree in [subject], mapping out the subject territory and describing the range of skills and attributes of graduates in the subject; to articulate in a statement the minimum requirements or expectations of achievement, commonly called the 'threshold' level for an award in [subject]; similarly to express enhanced indicators for a 'typical' or 'focal' level of achievement*.³³

³¹ Tuning Educational Structures in Europe (2007) *Introduction to Tuning Educational Structures, General Brochure*. [Internet]. Available from: <http://www.tuning.unideusto.org/tuningeu/>

³² *Ibid.*

³³ Quality Assurance Agency for Higher Education (QAA) (2009) *Subject Benchmark Statements*. [Internet]. Available from: <http://www.qaa.ac.uk/academicinfrastructure/benchmark/default.asp>

According to the QAA website, *subject benchmark statements set out expectations about standards of degrees in a range of subject areas. They describe what gives a discipline its coherence and identity, and define what can be expected of a graduate in terms of the abilities and skills needed to develop understanding or competence in the subject. [...] Subject benchmark statements do not represent a national curriculum in a subject area, rather they allow for flexibility and innovation in programme design, within an overall conceptual framework established by an academic subject community.*³⁴ These subject benchmark statements have been developed by independent subject benchmark groups comprising senior members of the academic community. So far, such statements have been published by the QAA for a wide range of subjects at Honours Bachelor level, including: general business and management; English, music, and physics, astronomy and astrophysics. Statements have also been written for business and management, and physics at the Masters' level. See Appendix 1 of this section for links to these materials.

SECTION B: CASE STUDIES IN WRITING OUTCOMES FOR DISCIPLINE-SPECIFIC PROGRAMMES

For the purposes of this report, individual academics were invited to contribute a brief summary of their experiences and views on writing discipline-specific learning outcomes; these largely take the form of 'case studies'. Where available, the associated learning outcomes in published or draft format are also included.

The case studies are:

- Business Studies: M.B.S. in Human Resource Management (NFQ level 9 Master's Degree), University of Limerick, with programme learning outcomes.
- English Literature (1): B.A. in English Literature (NFQ level 8 Honours Bachelor Degree), NUI Maynooth.
- English Literature (2): B.A. in English Literature (NFQ level 8 Honours Bachelor Degree), University College Dublin, with programme learning outcomes.
- Music: B.Mus.Ed. (NFQ level 8 Honours Bachelor Degree), conjoint programme between Trinity College Dublin, the Dublin Institute of Technology Conservatory of Music and Drama and the Royal Irish Academy of Music, with draft programme learning outcomes.
- Physics: B.Sc. in Applied Physics/Physics with Astronomy (NFQ level 8 Honours Bachelor Degree), Dublin City University, with draft and final programme learning outcomes.

³⁴ *Ibid.*

CASE STUDY 1: BUSINESS STUDIES

Discipline	Business/HR
Programme	MBS in HRM
College	Kemmy Business School, University of Limerick
NFQ	Level 9

1. Please outline the process you adopted in order to arrive at an agreed set of programme outcomes.

Note: By 'process' is meant both the local drafting process, and the verification process at institutional level.

First steps included attending training sessions in the University and consulting with the Course Board. I drafted the learning outcomes for the programme taking into account any insights and input from lecturers on the programme. Following this, I sent the programme outcomes to the Course Board for any comments. It was important to incorporate learning outcomes from all modules on the programme – it was also important to clarify the level of student understanding/knowledge/skills – for the MBS in HRM, this level would be level 6 on Bloom's taxonomy.

Verification at institutional level was through Head of Department, Dean and finally the Vice President.

2. What were your main reference points (internal and external)?

Prompts: Did you consult Tuning Group descriptors, UK subject-benchmark statements, documentation from professional institutes, NQAI documentation?

Was there a consensus about what are the most important things that students of your discipline should learn in the selected programme (graduate attributes)?

My main reference points were NQAI literature and the training sessions provided by the University of Limerick. However, I also consulted other programme leaders, the Course Board for the MBS and other documentation from professional institutions. The UL training sessions and the information on the Centre for Teaching and Learning website were extremely helpful. There was general consensus about what a graduate should know/do and to what level.

3. What challenges did you encounter in the drafting stages and how did you overcome them?

The main challenge was trying to capture the programme learning outcomes within the framework given. I grappled with the problem of including generic skills and competencies while maintaining a subject specific focus, It was a challenge to effectively communicate to students the expectations and desired outcomes of the programme in a clear, economical and meaningful way. However, the training course and the NQAI literature helped with this.

4. What have been the benefits (if any) of drafting and working with learning outcomes at programme level and at module level?

I found this to be extremely beneficial for several reasons:

- Thinking about and drafting the programme and module outcomes provided me with an opportunity to reflect on the programme (in terms of philosophy, expectations etc)
- It required me to think about what the essential things a student needs to know/do upon completion of the programme. The use of Bloom's taxonomy helped with this process as it provided a hierarchy of ways students can demonstrate their understanding. This helped me clarify what a MBS student needs to know and do – and how well they need to do this.
- It also highlighted the importance of having measurable outcomes – it is important to be able to assess the learning outcomes. I realised through this process that I had written vague and immeasurable outcomes in the past. I have also learnt through this process the importance of using the appropriate action verbs when writing learning outcomes.

5. What has been the impact of the programme learning outcomes on teaching, assessment, and on student behaviour and performance?

It is quite difficult to fully answer this question at this stage – particularly with regard to student behaviour. However, from my own perspective (and from my conversations with some of the programme lecturers on the course, they seem to agree) I found the process has provided me with the valuable opportunity to rethink some of my assessments and learning outcomes. It has provided me with clarity and has helped me focus on the needs of the student.

In terms of the impact on students, it is too early to say but I hope this process will improve the communication between lecturers and students and will clarify for students what is expected of them and how this will be measured. I also hope it will help potential students make better informed decisions regarding what programmes they want to do.

MASTER OF BUSINESS STUDIES IN HUMAN RESOURCE MANAGEMENT F/T

Learning Outcomes:

Knowledge - Breadth & Kind

Identify the competitive, economic and regulatory contexts in which organisations operate both nationally and internationally

Critically evaluate the latest developments occurring in the HR profession and assess the applicability of these developments in differing organisations

Conceptualise, research and write reviews of specific areas of investigation.

Knowledge and Skill - Range & Selectivity

Know how and skill – range:

Demonstrate managerial ability through the application of advanced communication, conflict resolution, interpersonal and team effectiveness skills

Know how and skill – selectivity:

Apply the appropriate professional skills and knowledge in a variety of different business settings

Apply set of analytical tools and skills required to formulate human resource policies and programmes that will respond to the exigencies imposed by national and international contexts.

Competence - Context & Role

Competence – context:

Develop and apply the appropriate advanced skills and knowledge to decision making and problem solving in complex and uncertain business settings

Competence – role:

Develop interpersonal skills, confidence and ability to achieve personal targets and goals.

Apply the appropriate skills and knowledge needed to manage multiple roles in the workplace including leadership, team and conflicting roles.

Competence - Learning to Learn

Apply personal effectiveness skills such as time management, prioritising, reflection and action planning to the management of work commitments and professional development.

Competence – Insight

Synthesise and address the different theories, concepts, issues and problems pertaining to human resource profession.

CASE STUDY 2: ENGLISH LITERATURE (1)

Discipline	English Literature
Programme	B.A.
College	NUI Maynooth
NFQ	Level 8

1. Please outline the process you adopted in order to arrive at an agreed set of programme outcomes.

Note: By 'process' is meant both the local drafting process, and the verification process at institutional level.

In 2007, the School of English embarked on a wholesale revision of its BA (omnibus entry) programme from Level 1 (Year 1) right through Level 3 (Year 3). In addition, the School introduced for the first time a new BA in English (designated entry). Programme content and outcomes were developed and agreed at programme-development meetings of the Department before being forwarded to the Teaching and Learning Committee of the University for discussion and approval; subsequently, they go before the Faculty of Arts, Celtic Studies and Philosophy for review and approval.

Initial discussions about programme content may not have been couched in the language of learning outcomes but were concerned with questions of a balance between coverage (for instance, do students need to have the traditional survey course on Romanticism?) and approach. At the core of the programme are modules that constitute a traditional English syllabus, covering English literature from the Renaissance through the Restoration to Romantic Poetry and Modern and Postmodern culture, and systematically covering the main literary genres: fiction, drama and poetry. But the importance of designing a syllabus that would seek to reflect the situation of English literature in Ireland today was also recognised. So, the programme statement mentions "As Ireland becomes both more culturally diverse, and increasingly wants to examine its own culture, this degree will allow students to study Irish writing in a global context as a strand within an English degree". Additionally, with reference to both University and broader Government targets to increase graduate intake, it was felt that the integration of undergraduate and graduate study, with the former directly feeding into MA and research degrees, should be facilitated. This is reflected in the programme statement ("Those students who may wish to consider further postgraduate study will find that the programme provides a solid, three-year grounding in research techniques and literary theory") and also in the content.

There was broad consensus as to the outcomes of the programme: that is, in their final year, students who studied English at NUI Maynooth would have: good communication skills; strong analytical and conceptual facilities; the capacity to identify and also to use different theoretical approaches. And, discussions worked from desired graduate attributes (critical-thinking skills; lateral thinking; good oral and written communication; self-directed work and group work) back to how these might be realized through individual modules. It was felt that increasingly students entering university are not equipped with the requisite critical thinking skills for studying literature at university level and that is unfair to expect them to absorb these, as if by osmosis.

Thus, from the outset it was felt that individual modules needed to interconnect more explicitly and facilitate the development of the student's critical aptitude. In re-designing the programme, then, the importance of identifiable strands running through from Level 1 to Level 3 was recognised. Accordingly, Level 1 is made up of four modules Criticism and Research (I) and three Studies in Literary Form modules dealing with (II) Poetry, (III) Fiction and (IV) Drama respectively. Both the Criticism and Research strand and Literary Form strand are developed in Levels 2 and 3. The objective with the Criticism and Research module is to introduce students to the analysis of literature at university level and to orientate their learning in terms of critical-thinking skills and research methods. Through Criticism and Research II and III respectively, students engage in particular theoretical schools in these later modules, so the movement is from the general of Level 1 to specificity and depth at Levels 2 and 3. This is reflected in the learning outcomes for these later modules, which indicate a higher expectation and specificity (e.g. "On completion of this module, students will have a formation in critical and cultural theory and, through small group seminars, developed their own research topics"). The objective here was to provide a learning map that would enable the student to clearly identify expectation (from Level 1 to 2 and 3, from general to specific, survey to in-depth) and, crucially, progression. And, this is an attribute of the revised programme that the external examiners (BA 2009) identified as a particular strength.

In addition, in designing the programme it was felt that it should reflect current trends in Irish and international scholarship more explicitly – in that way, students taking English at NUI Maynooth would be able to identify how their degree was different to comparable degrees elsewhere. To this end, it was decided that we would have two strands, Irish Studies and World Literature, that would begin in Level 2 and continue into Level 3. It was additionally noted that foregrounding these areas at this stage usefully feeds into the two MA programmes (Twentieth Century Irish Writing and Culture, Empire and Postcolonialism).

2. What were your main reference points (internal and external)?

Prompts: Did you consult Tuning Group descriptors, UK subject-benchmark statements, documentation from professional institutes, NQAI documentation?

Was there a consensus about what are the most important things that students of your discipline should learn in the selected programme (graduate attributes)?

We looked at internal programme and module learning outcome templates but for the most part the emphasis was on colleagues' sense of trends in the discipline and also experience of teaching to a large and varied student cohort. As stated above, there was agreement as to graduate attributes and recognition of the need to write these into module objectives and assessment methods.

3. What challenges did you encounter in the drafting stages and how did you overcome them?

For a subject like English that is by its nature quiet, discursive and nuanced, module descriptor templates can present some problems as they can appear rather scientific or mechanical. Accordingly, effort was made to accommodate these templates to the subject, and to balance coverage and method (e.g. EN 353 Postmodern Writing and Culture: "On completion of this module students will have a good knowledge of the key critical accounts of postmodernism and will be experienced in using these in the interpretation of contemporary literature and the arts") without seeming reductive or simplistic.

The importance of blending outcomes and assessment was recognized and for the most part an effective relationship between the two has been achieved with the new programme. There was discussion about varying modes of assessment and this is the case with all modules, which involve a combination of essay, examination and weekly Moodle or e-learning exercises. It was noted that small-group seminars and seminar essays facilitate the optimum blending of outcomes and assessment for a discipline like English. However, resources limit the extent of this significantly. That said, the advantage of the formal exam, where students are required to engage with unseen questions in a finite time, was noted as a very good barometer of their competencies and knowledge in the discipline.

4. What have been the benefits (if any) of drafting and working with learning outcomes at programme level and at module level?

As a general principle, developing learning outcomes for a module is a useful exercise both for lecturers in early stages of their careers, and for those who are more experienced. For the former, it helps control the tendency to make modules overly complex or dependent on their own research interests; for more experienced lecturers, writing learning outcomes provides an occasion to reflect on the main purpose of modules that may have developed and evolved over the years. From an administrative point of view, it is helpful to be able to look at learning outcomes for the totality of all modules in a programme as a way of getting an overall impression of the coherence and direction of a given programme.

5. What has been the impact of the programme learning outcomes on teaching, assessment, and on student behaviour and performance?

In introducing a new programme, the result has been more cohesive and integrated modules and a clearer sense of a student's progression through to graduation. In terms of assessment, there is a clearer sense of what each module is 'doing' and how it relates to the overall programme. It has been our experience to date – confirmed by the external examiners for BA 2009 – that students are drawing from different modules in their continuous assessment rather than compartmentalizing material as happened with the old syllabus. Also, with increasing consciousness about learning outcomes (although there persists among some academics a

scepticism about the shift towards this vocabulary), we have implemented Grade Descriptors for all markers and for all forms of written assessment. These descriptors, which are made available to students via Moodle, indicate different levels of competency and specificity that neatly and usefully overlap with learning outcomes as they progress from Level 1 to Levels 2 and 3.

6. Free comments

There is a need to exercise a certain amount of recognition of the specificities of individual academic disciplines. Having been involved in running both a Media Studies programme and an English programme, I would have a clear sense that in the case of the former, certain modules (those in media production) would have strongly instrumentalist outcomes: (“To enable students to use ProTools to edit...”); whereas in a Humanities discipline such as English, the learning outcome should not be forced to conform to an instrumentalist learning agenda. Sometimes, the intended learning outcome of a module on the Victorian novel is simply to learn about the Victorian novel – not to teach transferable skills relating to composition by stealth.

Finally, I would strongly urge the abolition of the distinction between “aims” and “objectives” that many module descriptors seem to require. I have yet to receive a convincing explanation of the difference between these two categories; most people I know simply cut and paste the content of the “aims” field into the field for “objectives”.

CASE STUDY 3: ENGLISH LITERATURE (2)

Discipline	English Literature
Programme	BA
College	Arts and Celtic Studies, UCD
NFQ	Level 8

1. Please outline the process you adopted in order to arrive at an agreed set of programme outcomes.

Note: By ‘process’ is meant both the local drafting process, and the verification process at institutional level.

These comments relate to two linked, but separate processes: (1) the formulation of learning outcomes across the whole suite of modules offered in English; and (2) the writing of learning outcomes for modules designed to be delivered using Enquiry Based Learning (EBL). In the first instance (1) a small group within the school (a subset of the teaching and learning committee) drafted some initial outcomes, trying to identify the qualities, competencies and knowledge that we wished a graduate of English to have. This was initially a fairly lengthy list, which we then attempted to place into categories – in other words moving from complex and detailed statements to short, clear, generic ones. What one might call ‘programme outcomes’ are relevant to several aspects of the programme – at module level, at each stage, and also at level 4 (Masters’ level). The movement overall is from specific to general, from detail to simplicity, so a level 1 (First Year) learning outcome might state that the student will learn how to locate an article on Chaucer’s *Canterbury Tales* on JSTOR, whilst a level 3/programme one will set out that the students will acquire research skills relevant to the discipline. For certain kinds of module, e.g. seminars, many of the outcomes would be held in common across modules, with variations to take account of specific subject areas – this helps to make a programme delivered through 100+ modules cohere to some degree, whilst encouraging variation. In the second case (2) the approach was radically different as the modules were defined by process and delivery rather than purely by content. Thus the usual process of developing outcomes was inverted so that the module structure and content were determined by the learning outcomes – this would be typical of EBL which is strongly process driven. In addition, the EBL modules have learning outcomes that relate to different levels and components: module outcomes, but then more detailed and specific outcomes relating to individual assignments of problems. This, in our view, was essential for guiding both teachers and students through a learning style that is necessarily less structured than the traditional mode of delivery.

2. What were your main reference points (internal and external)?

Prompts: Did you consult Tuning Group descriptors, UK subject-benchmark statements, documentation from professional institutes, NQAI documentation?

Was there a consensus about what are the most important things that students of your discipline should learn in the selected programme (graduate attributes)?

We did look at some of the UK subject statements, and some of the NQAI documents (this latter mostly in relation to guidance about what was appropriate to each level), but beyond that we tried quite hard to articulate our own vision which we then expressed in language appropriate to the task, using, amongst other things, guidelines internal to UCD. There was a pretty clear consensus about attributes, but less agreement on the means by which these should be achieved.

3. What challenges did you encounter in the drafting stages and how did you overcome them?

There was initial resistance to this kind of approach, so it was incumbent upon us to demonstrate how learning outcomes can actually streamline and focus teaching, by providing structure and examples. There's an important segment around application and implementation, namely how the outcomes can be properly embedded in the curriculum and in assessments. This requires training and guidance that is difficult to put in place given resources and pressures on time – only then do learning outcomes become anything more than aspirational statements that threaten to float away from actual practice.

4. What have been the benefits (if any) of drafting and working with learning outcomes at programme level and at module level?

The development of clarity and coherence across the programme, and a more logical sense of how the student progresses as they move through the programme. The process of articulating what students should be able to do was very useful and increased staff confidence and interest in their teaching.

5. What has been the impact of the programme learning outcomes on teaching, assessment, and on student behaviour and performance?

They have enabled us to be far more consistent about delivery and assessment, as the learning outcomes have become the benchmark by which individual assignments are judged. This has been particularly useful in judging group work, where individual students have sometimes questioned their grade. In terms of student behaviour learning outcomes have not yet had as much of an impact as we would like – first years in particular are so content-driven that they find it hard to extrapolate to skills and competencies. In future years in EBL at least, we plan to focus more explicitly on learning outcomes and encourage students to use them to assess their own progress. We have seen an improvement in student performance, particularly in the B and C grad bands, and a reduction in the fail rate – this could be due to many factors (the EBL method, the impact of group work etc), but owes something at least to the clear and consistent grading enabled by coherent learning outcomes.

6. Free comments

I was initially something of a skeptic about learning outcomes, believing (like most academics) that what I was trying to do must be self-evident. But the process of sitting through and being selective about what should be achieved in a given context has been most useful and has significantly improved course design, delivery as well as strengthening student learning.

CASE STUDY 4: MUSIC

Discipline	Music
Programme	Bachelor in Music Education (Concurrent Honours Bachelor degree and second-level teaching qualification, working NFQ Level 8) ECTS credits 240+ over 4 years
College	Trinity College Dublin in association with the Dublin Institute of Technology Conservatory of Music and Drama and the Royal Irish Academy of Music.
NFQ	Level 8

1. Please outline the process you adopted in order to arrive at an agreed set of programme outcomes.

Note: By 'process' is meant both the local drafting process, and the verification process at institutional level.

After some internal discussion within TCD on the best way to approach the process of devising learning outcomes, the Course Co-ordinator for the Music education degree devised the outcomes. Shared initially with the School of Education's Director of Teaching and Learning (Undergraduate), the draft outcomes underwent further development in terms of content, format, expression and clarity. During this iterative process the number of learning outcomes was increased. Subsequently, the draft outcomes were circulated to key personnel involved in the planning, administration and running of the B.Mus.Ed. programme. Constituted as the Course Co-ordinating Committee, this group includes representatives of the Schools in Trinity which contribute to the programme (namely Education, Music, and Histories and Humanities) and of the partner institutions, namely the Royal Irish Academy of Music and Dublin Institute of Technology Conservatory of Music and Drama. The learning outcomes were circulated in advance of the meeting and thoroughly discussed by representatives. The programme outcomes were then forwarded to Trinity's learning outcomes project 'triage group' for comment and feedback.

2. What were your main reference points (internal and external)?

Prompts: Did you consult Tuning Group descriptors, UK subject-benchmark statements, documentation from professional institutes, NQAI documentation?

Was there a consensus about what are the most important things that students of your discipline should learn in the selected programme (graduate attributes)?

Trinity College offered a number of working seminars on drafting learning outcomes, facilitated by the Bologna Desk of the Vice-Provost's Office. These seminars proved useful in raising awareness and providing possible strategies. More focused local meetings helped focus attention on devising learning outcomes in general, primarily using the existing music education programme objectives and content and guidelines. As part of the process of conceptualizing the outcomes, consideration was given to visualizing the qualities required in potential post-primary music teachers.

Other reference points included a music education conference in Exeter attended by the B.Mus.Ed. Course Co-ordinator in which the 'Tuning' Music Working group presented their initial report on learning outcomes. The preamble to, and philosophy behind, their attempt to write comprehensive learning outcomes for music education was very informative. They also attempted to define learning outcomes and put their significance in the context of music education, and were on hand to answer questions from the floor. This informal contact was very useful. Other reference points emerged from the development of programme learning outcomes for the other main TCD School of Education undergraduate programme, the Bachelor in Education. This was underway at the same time as drafting for the B.Mus.Ed. and dialogue between those responsible for each programme was mutually beneficial.

3. What challenges did you encounter in the drafting stages and how did you overcome them?

The initial learning outcomes numbered about seven. To facilitate greater clarity and in light of the complex multi-faceted nature of the programme and its delivery, some disaggregation of learning outcomes was

undertaken to reflect more fully the breadth and depth of the student learning experience within and outside Trinity. Whereas the number of outcomes probably ultimately exceeded what was initially envisaged, the broad range of programme elements necessitated similar breadth in learning outcomes. Getting to grips with the specific language of learning outcomes promoted in the Bologna initiative - the 'normal' way to write them up - was another challenge, though perhaps less so than in other Schools given the familiarity of School of Education staff with the nomenclature and concepts of aims, objectives and outcomes. In addition to this it was a challenge to sustain enthusiasm for a task that seemed at times to be very bureaucratic. This lessened as the process gathered momentum, but it was a factor in the early stages. Understandably, given the breadth and scale of the programme, along with their other professional commitments, participating staff are extremely busy and securing their time to focus on the learning outcomes initiative was not always straightforward. As the process matured and especially once draft outcomes were available for discussion, securing the involvement of most decision-makers was more readily achieved.

4. What have been the benefits (if any) of drafting and working with learning outcomes at programme level and at module level?

There have been benefits in terms of greater insight and understanding of the B.Mus.Ed. programme. Devising learning outcomes provided another opportunity for reflecting on the programme - of asking ourselves "is what we are teaching central to what a music teacher needs to know?" It has encouraged us to look to the future of music education, and has reminded us that our programme needs to anticipate this future and offer student the relevant skills and knowledge for this time. It has given us the opportunity to weigh the relative importance of each skill as a facet of the overall programme.

It also helps to clarify our vision of what we believe a great music teacher to be, and to strive to facilitate development to this level for all of our students.

For new staff becoming involved, the availability of learning outcomes offers an efficient, effective way to get to know the programme, starting with the important vision and philosophy as articulated in the programme learning outcomes.

5. What has been the impact of the programme learning outcomes on teaching, assessment, and on student behaviour and performance?

Our learning outcomes have only recently been developed so we have experienced impacts from the drafting process only. The impact we hope to achieve includes clarity for employers in what they can expect from a music education graduate of this programme; clarity for our students as to what to expect from the programme, and clarity for lecturers as to what their targets are in teaching the students.

6. Free comments

The process of devising learning outcomes at programme level has assisted in providing clarity and transparency for our degree. Beginning with devising learning outcomes at programme level has given us the destination and the overall vision of what we want to achieve. The time and energy required to bring such a process to fruition ought not be under-estimated, especially where staff from different Schools and Colleges are involved in planning and teaching the same programme. Such an initiative is worthwhile, but it requires considerable time and commitment on the part of academic and administrative staff.

2nd Draft Programme Learning Outcomes

On successful completion of this programme, the graduate will be able to:

1. Articulate a sound personal philosophy of the aesthetic, cultural and practical value of music and history in relation to human development and educational curriculum.
2. Demonstrate a thorough understanding of the music and history curricula specified for upper-primary and post-primary schools and leading-edge methods for mediating the curriculum to students based on the informing disciplines of education and prevailing influences on educational practice.

3. Develop high-quality plans and support material, predicated on thorough subject-matter and pedagogical understanding, to guide their teaching of music and history.
4. Work effectively as a reflective teacher with a problem-solving orientation, drawing on best-practice methodologies in relation to planning, instruction, learning, classroom management and student assessment.
5. Confidently relate to and work within differing school and teaching contexts, accommodating the range of students' interests, abilities and home-support contexts.
6. Work effectively as part of a professional team within the organisational and managerial structures prevailing in post-primary education.
7. Demonstrate advanced knowledge, skills, competencies and performance in relation to music and history, leading to lifelong personal interest and enjoyment in the respective fields.
8. Demonstrate high standards of musical performance commensurate with graduates' future status as role models for aspiring students of music in post-primary schools and as leaders of music curricular and extracurricular activities in schools.
9. Articulate, practice and defend appropriate professional, ethical, compassionate, social and cultural positions in relation to teaching and learning.
10. Be aware of the legal and professional obligations in respect of his/her role with young people and act professionally at all times in the best interests of the students and their parents.
11. Value throughout life further learning opportunities and experiences in relation to education, music and history.

CASE STUDY 5: PHYSICS

Discipline	Physics
Programme	B.Sc. in Applied Physics/Physics and Astronomy
College	Dublin City University
NFQ	Level 8

1. Please outline the process you adopted in order to arrive at an agreed set of programme outcomes

Note: By 'process' is meant both the local drafting process, and the verification process at institutional level.

The teaching convenor and programme chairs looked at the existing degree accreditation documents, the Tuning and IOP (Institute of Physics) documents and made a first draft. This was then circulated to all the staff teaching on the programmes and revised in light of their comments..

Using the template provided within the University the physics programme outcomes were then looked at internally in DCU by the AFI* and Teaching and Learning staff, who made some minor changes and they were then submitted for external evaluation.

Further amendments were made on foot of comments from the external Validation Panel.

* AFI - Academic Framework for Innovation; a curriculum reform project in DCU within which the change to Learning Outcomes is being carried out.

2. What were your main reference points (internal and external)?

Prompts: Did you consult Tuning Group descriptors, UK subject-benchmark statements, documentation from professional institutes, NQAI documentation?

Was there a consensus about what are the most important things that students of your discipline should learn in the selected programme (graduate attributes)?

Sources:

- Internal degree accreditation documents (especially the more recent Physics/Astronomy one).
- Tuning Project: Reference points for the design and delivery of Degree Programmes in Physics.
- Institute of Physics document :The Physics Degree (Core of Physics).
http://www.iop.org/activity/policy/Degree_Accreditation/file_26578.pdf
- DCU Award Learning Outcome template.

There is a wide consensus across Europe about the contents of a Bachelor Physics degree, which is reflected in the Tuning document. However, there is a difference in approach between continental Europe and the more experimental Anglo-American tradition. Because of this the IOP document proved to be a better guide as it is more detailed and corresponds closely with the approach adopted in Irish Universities.

3. What challenges did you encounter in the drafting stages and how did you overcome them?

The main difficulty was in knowing where to begin as most staff were unused to the concept of learning outcomes. Once the initial difficulties were overcome the drafting was reasonably straightforward. Some difficulties were experienced in getting the wording right and some staff felt that there was a too rigid approach to using the "correct" words in the final version.

4. What have been the benefits (if any) of drafting and working with learning outcomes at programme level and at module level?

At programme level there is a benefit in looking again at the degree content and how it fits together. This is especially important in the Applied Physics programme which was designed 25 years ago and has undergone many piecemeal changes since then.

The module learning outcomes are being drawn up at present. This should allow a focus on the topics really required and later on how the various modules correlate with the overall programme structure. This will be done in the near future.

5. What has been the impact of the programme learning outcomes on teaching, assessment, and on student behaviour and performance?

None to date as the process is not yet complete.

6. Free comments

Experience has shown that staff are much more comfortable with this process if they are presented with an appropriate template for both programme and module learning outcomes. It is also vital that the appropriate supporting software is in place and working before the process starts. Delays in providing the appropriate backup can lead to extremely short deadline for the staff producing the learning outcomes.

LEARNING OUTCOMES (A): DRAFT submitted to External Verification Panel

School	Physical Sciences, Dublin City University
NFQ Award Title	Honours Bachelor Degree
DCU Award Title	BSc in Physics with Biomedical Sciences
Class of Award Type	Major
Purpose	<p>This is a multipurpose award.</p> <p>A student would register for this award in order to:</p> <ol style="list-style-type: none">pursue an interest in physics and the applications of physics to the biomedical sciences;acquire the prerequisite knowledge and skills to seek employment in the biomedical and high-tech sectors, physical engineering, physics and science teaching;acquire the knowledge and skills to pursue postgraduate studies in physics, applied physics, medical physics, biomedical sciences;to be eligible to receive the professional designation of Chartered Physicist from the Institute of Physics (London).
Level	Level 8
Volume	240

Upon successful completion of the programme of study for this award, a graduate will be able to demonstrate:

the fundamental knowledge, skills and general competences that pertain to a core physics degree programme with an emphasis on the applications of physics to biomedical sciences;

an understanding of how the natural sciences underpin the biomedical sciences and their applications.

Knowledge- Kind Upon successful completion of the programme of study for this award, a graduate will be able to demonstrate:

an understanding of the theory, concepts and methods pertaining to the broad areas of classical and modern physics, as encapsulated in the Institute of Physics (IOP) core of physics, which includes mechanics, electricity and magnetism, thermal physics, relativity, nuclear and particle physics, quantum physics, optics, electronics, statistical physics and spectroscopy in addition to some related material in mathematics and programming;

an understanding of the fundamentals of biology, biochemistry, physiology, anatomy and chemistry relevant to the biomedical sciences;

an understanding of selected advanced topics in the applications of physics to the biomedical sciences such as medical imaging;

a knowledge and experience of the research methods used in applied physics/biomedical sciences.

Feedback from DCU External Verification Panel

- Purpose is a very good example.
- Knowledge Breadth – change ‘good’ knowledge in the third paragraph to an alternative word or remove word ‘good’.

- Know How and Skill Range: 2nd point could move to Knowledge Breadth and 8th point could move to Competence Insight. Change reference to vast to wide instead in first paragraph.
- Competence Learning to Learn: see guidelines and template with regards to 'ethics'.
- Progression & Transfer: see template guidelines.
- Articulation: see template guidelines.

(B) Final version approved by Academic Council

Award Code	DC173
Title	<i>BSc in Physics with Biomedical Sciences</i>
Award Type	Major
Level	Level 8
Volume A	Large
Volume B	240
Purpose	<p>To acquire the fundamental knowledge, skills and general competences that pertain to a core physics degree programme with an emphasis on the applications of physics to biomedical sciences, with a view to:</p> <p>fulfil a personal interest in this subject,</p> <p>be able to participate and engage in community and society activities related to the biomedical sciences,</p> <p>be able to gain employment in a private or a public concern with a core interest in the biomedical area,</p> <p>to qualify for higher education and training in the biomedical sciences.</p>
Knowledge Breadth	<p>Graduates will have a working knowledge of the broad areas of physics, as encapsulated in the Institute of Physics (IOP) core of physics (topics such as mechanics, electricity and magnetism, thermal physics, relativity, nuclear and particle physics, quantum physics, optics, electronics, statistical physics and spectroscopy, in addition to related material in mathematics and programming).</p> <p>Graduates will have a good understanding of how the fundamentals of physics, chemistry and biology underpin the biomedical sciences with a particular emphasis on the working principles of biomedical instruments.</p> <p>Graduates will have a good knowledge of a selection of advanced topics in the biomedical sciences based on current state-of-the-art technologies, e.g., nanobiophotonics.</p>
Knowledge Kind	<p>The learner will have gained understanding of the fundamental principles of physics and other selected advanced topics in physics by studying lecture notes, textbooks or web-based material.</p> <p>The Learner knows how to apply the fundamentals of physics theory to solve numerical problems and exercises.</p> <p>The Learner has gained knowledge and understanding of the fundamental laws by carrying out an extensive range of experimental projects.</p> <p>The Learner has gained practical experience of the biomedical environment from a suitable period of training on site, such as the medical physics department of a hospital.</p>

Know How and Skill - Range

The Learner has acquired a vast range of basic and advanced skills and competences such as

Understanding of the fundamental principles of classical and modern physics.

A working knowledge of the fundamentals of chemistry, biochemistry, anatomy and physiology.

Understanding of how the fundamental sciences underpin applications in the biomedical area.

Working knowledge of the use of common laboratory instruments used by physicists and in the biomedical environments.

Ability to apply mathematical and computing tools to analyse, quantify and subsequently make decision upon a set of data.

Ability to clearly communicate and explain problems and their solutions to peers and the broader community.

An appreciation for the social and human aspects that prevail in biomedical environments such as a hospital.

The Learner will know how to apply, modify and build upon these skills and competences to successfully conduct

Experimental or theoretical research projects in academic or professional environments.

Any professional or advanced technical activity based upon these skills and competences and more specifically in the biomedical environment.

Know How and Skill - Selectivity

The Learner will be able to solve numerical and qualitative problems in the broad areas of physics, as encapsulated in the IOP core of physics and indicated above, especially they should be able to summarise the key elements of the problem, develop an appropriate strategy, choose and apply this strategy to the problem in an iterative way and finally be able to judge the reliability and range of validity of their solution.

The Learner will be able to make informed technical decisions or recommendations based on their knowledge of physics and biomedical sciences.

The Learner will have the specific skills to plan, design or exercise technical or management functions in the development, testing or implementation of biomedical products, tools or processes.

Competence - Context

The Learner will be able to use his knowledge and advanced skills to responsibly carry out research or advanced professional activities in various biomedical environments such as academic institutions, private research institutes, industry, service companies, public or private hospitals.

The range of skills and problem-solving methods acquired by the Learner will be transferable and applicable in any of biomedical contexts listed above.

Competence- Role

Upon completion of studies and training the Learner will be able to

Understand the particular needs of a company/research institution/hospital as part of a development strategy as specified by the senior practitioners of these concerns and provide effective and adequate solutions under their guidance.

Carry out the necessary technical and intellectual operations to successfully conduct a specified piece of research under the guidance of a peer.

Lead, instruct and manage the staff or groups of individuals with various specialisations who would be needed to conduct successfully the two points above.

Take on a management role in a technical or non-technical context.

Use their experience in group assignments and project work to foster team-working and management/leadership skills both in technical and non-technical situations.

Apply their analytical and mathematical skills to diverse problems/situations in the workplace.

Competence - Learning to Learn

Upon completion of studies and training the Learner will be able to

Adapt their level and breadth of knowledge to apply their skills and competences to new or unfamiliar work environments.

Generally take individual responsibility for their own learning being aware of the professional and/or ethical requirements that this may entail.

Assess their needs for ongoing professional development and training through appraisal of their working environment and other indicators and should be able to identify appropriate routes to meet these demands, whether through professional bodies, further study, mentoring etc.

Competence - Insight

Graduates will emerge from the programme as well-balanced individuals who are competent in their specialist technical area and who also possess good communication and interpersonal skills.

Graduates will be able to apply their knowledge and training to all aspects of work and the wider community.

Progression and Transfer

Learners may transfer to other degree programmes within and external to DCU, with the consent of the Physics with Biomedical Sciences programme board. Transfer to other Physics programme within DCU will be facilitated where possible up to the end of Year 1.

Graduates will be able to pursue postgraduate training at masters and doctoral level in a variety of areas including physics, biophysics, nanosciences and any other multidisciplinary area with an emphasis on biomedical applications, e.g., biosensors, biocomputing, etc...

Graduates will be able to pursue further training in areas such as management and business..

Articulation

Learners can enter the programme through the CAO by satisfying the programme entry requirements and points requirements from the Leaving Certificate examination or GCE A Level examination.

Learners can enter the programme from Year 1 of the Common Science/Science International or other equivalent science programme.

Learners can enter the programme as mature students who have the required background in technical and mathematical areas. This route may require an interview with the chairperson or other members of the programme board.

Learners can enter the programme with a FETAC Level 5 qualification (specifically a CASLT Applied Science-Laboratory Techniques qualification with the appropriate modules as specified in the DCU prospectus).

Learning Outcomes: A Personal Reflection

Lecturer, Education and Development (DIT), April 2009

My early higher education career (1980s onwards) involved me in the design of an inter-university, part-time modular Diploma (for a sector) which was supported by distance learning materials and an inter-departmental part-time modular BA (general). I was also involved in the first attempt at APEL (Accreditation of Prior Experiential Learning) for modules and programmes where external partners were involved as well as very significant numbers of staff in the sectors. These activities were challenging on many levels as they involved the political as well as the pedagogical. I am currently involved in working with academic staff and organisations on Web-Based Learning (WBL) and 'normal programmes'. If I consider just the pedagogical here I could make the following observations:

- a. Before the NQF it was difficult to have a mutually-informed conversation about the 'technologies' of learning outcomes, whether they were for individuals or sectors. University staff tended to operate from the received wisdom of tradition and practice without any explicit specifics other than the programme document templates used for programme validation by the NUI Senate. Academics had a great deal of freedom regarding how they taught and how they assessed, though examination papers etc. were generally submitted and approved at Department level. As Co-ordinator I could see wide ranges of practice regarding how well staff adhered to module descriptors and how some individual module teachers at distance from the Management Team might not get the idea of the unitary learning experience. Others had definite ideas of what should be learned regardless of the module objectives. Both of these issues were challenging for a modular degree where the learners experienced a degree of frustration with the lack of coherence and 'progression' among modules where they followed the list of contents/topics in the expectation of delivery as described. I shared their frustration as it is quite challenging to write objectives or learning outcomes and course content 'in advance' of meeting the actual learners and at a time distance from actual delivery.
- b. Likewise it was quite frustrating to try to apply programme and module learning outcomes to APEL but we did a better job on that as students were given freedom to interpret and contextualise them in meaningful ways.
- c. A larger frustration in writing learning outcomes for sectors is the new scholarship of curriculum design which is, to me, a little fundamentalist in its approach to 'alignment' – constructive, vertical and horizontal. This approach is extremely behaviourist as well as being contradictory to a 'student-centred' approach! It is now becoming obvious that these new technologies of multiple rubrics do not transfer well to sectoral learning outcomes and perhaps do not even serve school-leaver students well either.
- d. On the idea of sectoral learning outcomes themselves I have mixed views. The worry is always of producing only for the labour market. The reality I have experienced is that academic staff who have actually worked in a sector have a tacit understanding of how to contextualise the language of learning outcomes on a sufficiently high level to be useful but not constraining.
- e. I am currently involved in a Leonardo project on trying to look at sectoral learning outcomes in the air transport sector and the mechatronic sector across the EQF, EHEA and national frameworks. This should encourage us to think about generic learning outcomes as well as specific ones which make sense to sectors themselves.
- f. In recent years I have been operating with our internal guide for writing learning outcomes which is a combination of the NQF levels and the cognitive domain descriptors from Bloom's taxonomy while leaving out the other domains. Others are using SOLO etc. My experience is that the 'best' senior academic staff write learning outcomes from their 'accumulated wisdom' and look for compliance with regulations laterI guess this is the application of expert knowledge in any case.
- g. I am now working with staff who are designing advanced programmes for the workplace – mostly for sectors and in partnership with organisations/employers. This brings with it excitement and challenges – a major one being the uncritical adherence to the 'new technologies' of frameworks etc..... I enjoy listening

to the quite different views of how higher education knowledge works and how knowledge works in sectors. It is refreshing when staff try to 'subvert' what has become 'bureaucracy' in relation to writing of programme documents.

- h. However, overall I am greatly relieved to have the technologies of levels, descriptors, templates, learning outcomes etc. as they make conversations easier. However, as a very experienced academic I greatly resent being 'challenged' by very inexperienced members of panels regarding my 100% compliance with 'regulations' at the expense of good design and probably good outcomes! This really is the challenge for sectoral learning outcomes... an informed light touch is better than 'trials'!

SECTION C: SUPPORTING THE DESIGN OF DISCIPLINE-SPECIFIC LEARNING OUTCOMES

A summary follows of the issues raised, and views expressed, by the discipline-specific workshop groups at the joint university sector Framework Implementation Network / Bologna Experts colloquium on supporting the design of discipline-specific learning outcomes held February 2009, mentioned previously.³⁵

Participants were divided into four workshop groups, one each for Business, English, Music and Physics. Each group was asked to consider and discuss the following questions:

- (i) *What would you describe as the learning characteristics necessary for graduates in your discipline?*
- (ii) *How do these characteristics differ between the Honours Bachelor and Master's degrees?*
- (iii) *Based on your response(s) to (i) above, how do you identify, in learning outcomes terms, the academic milestones in a programme?*
- (iv) *Based on your group's discussion, what issues arise and/or what observations would your group make in relation to:*
 - *finding the optimum balance between discipline-specific and generic knowledge, skills and competences?*
 - *working with the award-level descriptors and sub-strands of the NFQ?*

Introduction

A central question for the workshop groups was the nature of discipline-specific curriculum and the relationship between curriculum and learning characteristics (or graduate attributes). It was evident that there are clear differences in approach between the subjects in terms of identifying the 'core knowledge base' in a subject for a Bachelor programme. The Tuning group for Physics had found that the content of Bachelor programmes across Europe was very similar, reflecting a broad consensus about what constitutes 'essential' knowledge in the discipline and the primacy of that discipline-specific knowledge in the curriculum. This view was borne out in the discussions of the Physics workshop group. In the case of Music, it was found that certain core skills and competences would be considered essential in Bachelor programmes, though there may be considerable divergence between programmes in terms of emphasis (performance or academic) and repertoire. In English and Business Studies, the curriculum for a given degree programme may vary significantly from other programmes in the same subject and at the same level, even within a region.

Factors influencing the disciplinary knowledge-base for a given programme are varied and complex. They derive both from local specifics, such as the type of institution and its role in its locality and the number and research interests of individual members of the teaching staff, as well as from wider national historical and cultural contingencies. The requirements of external professional accrediting bodies are also a significant factor: formerly they tended to specify programme content, though increasingly they are specifying the graduate attributes required for professional registration, attributes which have to be expressed in terms of

³⁵ See Appendix 1 for a full list of speakers in the plenary sessions, workgroup facilitators and rapporteurs.

programme learning outcomes and achieved through stated learning outcomes for the constituent modules.

The workshop group discussions suggest that, for academics in each of the four disciplines selected, curriculum content was considered to be extremely important, but that the particular balance in learning characteristics or graduate attributes, between discipline-specific knowledge, discipline-specific skills and competences and 'generic' competences, might vary according to the essential nature of the discipline.

The discussions engaged in by the workshop groups are summarised below under discipline headings. Only the questions listed above that were discussed within the working groups are detailed below.

Business

On learning characteristics:

Participants in the workshop group recognised the core competences proposed by the Tuning report on Business and the QAA benchmark statement on Business and Management at the Honours Bachelor level, which are critical thinking, analysis and synthesis; communication and inter-personal skills, problem-solving and decision-making; numeracy and planning skills; and leadership ability. It was suggested that the toolkit of a business graduate was not a conceptual one. A further characteristic identified by participants in the workshop group was the ability of graduates to develop their own ethical standpoint when faced with conflicting frameworks. Ethical responsibility was considered to be an important part of business education at all levels.

On the difference in learning characteristics between the Honours Bachelor (level 8) and Masters (level 9) levels:

While clearly there is great diversity in the range of Business Studies programmes available at the Bachelor (NFQ level 8) and Masters (NFQ level 9) level, the Tuning work on Business found that there were significant similarities in European third-level institutions regarding programme aims and content and stated subject-specific competences in Bachelor programmes, but less homogeneity at the Master's level. NFQ Level 9 programmes tend to focus on particular aspects of business, such as human resources management, organisational management, international business, and so on, and on the application of theoretical and practice frameworks to specific 'real-life' situations and problems.

On the optimum balance between discipline-specific and generic knowledge, skills and competencies:

While a knowledge of the social sciences provides a foundation for business studies, the ability to communicate effectively through oral presentations and the ability to manage and lead a project were considered extremely important in a graduate's capacity to develop their learning in the field of business and beyond in the context of societal needs.

Ethical behaviour, analytical skills and critical thinking, developed within the context of business education, are increasingly being recognised as essential dimensions of business education

Common concerns and difficulties:

Difficulties identified during the workshop group discussion included how to represent and measure 'emotional intelligence' and 'ethical standpoint' in learning outcomes.

English

On learning characteristics:

Participants in the discussion in relation to English pointed to the enormous breadth in their discipline and 'changing notions about the literary canon'. This echoed what Professor Jay had referred to as "Englishes" in her plenary address about subject benchmarking in the UK. The different characteristics of degree programmes in English in the UK derive from different programme structures, different departmental/school/faculty structures and different disciplinary contexts. It was noted that, in identifying knowledge outcomes for the graduate, the benchmarking group had to take a 'broad brush' approach: graduates could be expected to be able to discuss a "substantial number of authors of different periods" which might include "the period before 1800". In this way, the subject benchmark statement for English seeks to accommodate curricular diversity rather than to prescribe a core curriculum.

Professor Jay also referred to emerging tensions between the traditional academic emphasis and the growing popularity of creative writing programmes, which further complicate the definition of knowledge-based outcomes. A common concern among UK academics is that the outcomes-based approach to higher education risks being driven by an employer's 'skills agenda' towards more uniform, generic outcomes.

Another feature of the study of English highlighted in discussion was the prominence – in some programmes, centrality – of literary theory or 'perspectives', such as feminist or postcolonial perspectives on texts. The requirement for students to recognise and work within these theoretical frameworks or 'modes of reading' was a distinct dimension to be represented in learning outcomes dealing with both knowledge and competences.

There was a widely-held view that most students entering third-level programmes in English in Ireland would have a good knowledge of at least some areas of the subject and a proficiency in reading prose, poetry and play texts. With regard to the learning characteristics of Cycle 1 (Bachelor) and NFQ level 7 and 8 graduates, the most important were considered to be: ability to recognise and apply different perspectives; analytical skills; the ability to engage in self-directed learning; and the ability to present well-structured narrative and argument in written and oral formats. Arguably, with the exception of the former, these could also be considered as generic skills. What is more difficult to locate and to define in terms of outcomes is the notion of personal creativity. This may be an expected graduate attribute in creative writing programmes, but what about the academic Honours Bachelors programme? Is it a standard of individual student performance that can only be recognised and measured in terms of marking criteria? Or is the ability, in the final 'honours' year, to undertake independent, though closely supervised, work (for example in an undergraduate research dissertation) an indication of a creative engagement with the subject which can be assessed and represented in terms of a learning outcome?

On the difference in learning characteristics between the Honours Bachelor (level 8) and Masters (level 9) levels:

There tends to be more homogeneity in the subject background of entrants to a Bachelor programme than to a Master's programme. The capacity for independent learning and "self-assembly of relevant material" is developed during the Bachelor programme, and is essential at the Master's level. The nature of Master's programmes (evidenced in the smaller credit volume) is of greater specificity, usually within one area of the subject. A Bachelor programme provides a broad subject map, but the student on the Master's programme must gauge the potential for pushing out the boundaries of the map. In other words, Bachelor students are concerned with acquiring a broad knowledge of the subject, and Masters students with achieving a deeper, more focused and creative engagement with their material.

On identifying, in terms of learning outcomes, the academic milestones in an Honours Bachelor programme: Foundation knowledge and skills should be developed in the early stages of a programme and be demonstrable as learning outcomes, for example by the end of Year 1 in a full-time programme over three to four years. These outcomes might include the ability to: recognise and discuss certain genres and literary forms; develop a coherent argument in the form of a written essay; and analyse some texts.

Learning outcomes must be demonstrable and capable of being assessed, and should help students to see the objectives of a given level and understand how one level builds on the other. The final year of a programme should offer a 'vantage point' to encourage reflective synthesis.

On the optimum balance between discipline-specific and generic knowledge, skills and competencies:

In terms of an outcome such as critical ability, students of English should be able not only to critique a specific text, but also to critique texts in general.

Common concerns and difficulties:

Some general concerns and difficulties were voiced in the workshop group discussion: it was expressed that there may be difficulty for some in distinguishing between skills and competences, and in some instances, between competences and knowledge, as outlined in the NFQ architecture. It was perceived that an outcomes-based framework pre-supposes a staged linear cognitive development and may not reflect the reality of a student's development within a subject; and for some, learning outcomes remain prescriptive and

reductive.

Music

On learning characteristics:

As with English, participants stressed the breadth of their discipline and the differing emphases of performance-based and musicology-based programmes. There is also a professional dimension to this subject in the areas of performance and/or teaching.

A broad knowledge of a range of musical styles and music from different periods was considered to be an essential element of any degree programme, but many of the required discipline-specific characteristics for graduates are essentially non-verbal competences: musical literacy, ability to analyse a musical score, listening skills, compositional technique, etc. Graduates of performance programmes also have to demonstrate specific instrumental competences and performance technique. Music technology – which has rapidly become a prominent area in the subject – requires very specific technical, as well as musical skills. Graduates of music education programmes are additionally expected to have knowledge in the history, philosophy and psychology of education, along with effective communication and inter-personal skills. Personal creativity is important in composition and in terms of expressivity in performance. The more generic skills, such as the ability to engage in self-directed learning and research, to present well-structured narrative and argument in written and oral formats, and to engage in socio-historical reflection are also important in Music degrees.

On the difference in learning characteristics between the Honours Bachelor (NFQ level 8) and Masters (NFQ level 9) levels:

The main difference is that at the Master's level there is greater specialisation within the subject.

On identifying, in terms of learning outcomes, the academic milestones in an Honours Bachelor Degree programme:

The student progresses from acquiring broadly-based knowledge and skills in the subject to developing more widely applicable or generic skills, though these are developed in and shaped by the subject context. The skills developed in the programme are essentially the same skills in both early and late stages, though the complexity increases over the course of the programme. There are recognisable points of transition during the programme in terms of a student's skills base.

Common concerns and difficulties:

Some general concerns and difficulties were voiced in the workshop group discussion: the question of how to represent tacit knowledge and non-verbal communication and expressivity in terms of learning outcomes was raised. It was expressed that learning outcomes represent a short-term piece-meal accountability that is detrimental to the educational process; and it was felt that an understanding of what the 'music profession' requires of music graduates is important in creating effective learning outcomes. However, the profession itself is very disparate and has no one representative body.

Physics

On learning characteristics:

As observed by both Tuning and the QAA benchmark statement for Physics, the Bachelors curriculum in Physics is more standardised in so far as it is based on a consensus about a significant volume of 'core' 'hard' discipline-specific knowledge that a graduate in the subject is expected to have acquired. As alluded to by Professor Jones in his presentation,³⁶ this can present a problem as knowledge advances and expands. By focusing on graduate attributes, rather than the detail of course content, it should be possible to avoid overloading the syllabus. An interesting finding by the Tuning group was that in continental Europe the subject had a more theoretical emphasis, whereas in the UK and Ireland the emphasis was more on experimental Physics, reflecting different intellectual traditions. The ability to solve scientific problems can be expressed in terms of discipline-specific competences, though problem-solving can also constitute a generic competence (see for example the common set of programme outcomes for the Honours Bachelor in

³⁶ Jones, G. (2009) *Supporting the design of discipline-specific learning outcomes: Experiences of the Tuning Group for Physics. Paper presented at the university sector Framework Implementation Network / Bologna Experts Colloquium, Supporting the Design of Discipline Specific Learning Outcomes, Dublin 6th Feb. 2009.* [Internet]. Available from: <http://www.nfqnetwrok.ie/News/Default.76.html>

³⁷ For further details, please see Engineers Ireland (2007) *Accreditation Criteria for Engineering Education Programmes.* Dublin: Engineers Ireland. P.15 [Internet]. Available from: [http://www.engineersireland.ie/media/engineersireland/services/Download%20the%20accreditation%20criteria%20\(PDF,%20240kb\).pdf](http://www.engineersireland.ie/media/engineersireland/services/Download%20the%20accreditation%20criteria%20(PDF,%20240kb).pdf)

Engineering degree (B.A.I.) used by all third-level institutions in Ireland, validated by Engineers Ireland).³⁷

The highly detailed NQF architecture of knowledge, skills and competences clearly posed problems for academics primarily concerned with the content and structure of curriculum. Discussion touched on the question of how to represent the NQF categories of context, role and insight in relation to a graduate in Physics, and how to measure such outcomes. It was argued that context and role could be expressed in terms of competence in problem-solving, but insight, as with creativity in the context of the other subjects, was more difficult to define and represent in terms of learning outcomes. Perhaps the NQF “insight” is what Professor Jones referred to as “deep understanding”. The argument that the generality and perceived abstraction of NQF terminology could only take on meaning in a specific disciplinary context resonated with members of this workshop group.

On identifying, in terms of learning outcomes, the academic milestones in an Honours Bachelor Degree (NQF level 8) programme:

This question was not discussed in any great detail, but two points of note were made.

- At the Bachelor level in Physics, in common with other sciences, the curriculum is structured around the sequential building of discipline-specific knowledge; and
- It is hoped that the student will achieve a kind of breakthrough in their understanding of the subject, what Professor Jones referred to as ‘deep understanding’, something more than the simple accumulation of subject-specific knowledge, but developing out of a structured formation in the subject. This breakthrough may mark the passage between the Bachelor and Masters level.

On the optimum balance between discipline-specific and generic knowledge, skills and competencies:

As mentioned above, the knowledge base of the subject is growing all the time, and this presents a very real problem for defining the Bachelor curriculum: the tendency is to ‘crowd’ the syllabus rather than omit developments or core knowledge in certain aspects of the subject. Learning outcomes are a bridge between teaching and learning, and are therefore important in the design both of curricula and in teaching and assessment methodology.

Common concerns and difficulties:

Some general concerns and difficulties were voiced in the workshop group discussion: Concern was expressed about finding the appropriate balance, in an environment which requires learning outcomes on the one hand and promotes the ‘knowledge economy’ on the other, between discipline-specific knowledge and generic competences. Some considered that it is easier to define learning outcomes at the programme level than to assess the extent to which they are being achieved at the module level. It was felt that writing outcomes for programmes (i.e. single student cohorts) is more straightforward than writing learning outcomes for constituent modules, which may be taken by multiple cohorts, some on inter-disciplinary or multi-disciplinary programmes. The view was also expressed that learning outcomes statements do not assist in determining standards.

Learning outcomes: concerns and problems

As well as the dialogue that welcomes and supports the use of learning outcomes in higher education environments, the academic world has also voiced well-documented and widely-quoted concerns, many of which were voiced in the seminar discussions and case studies presented above. Other concerns often cited by critics of the outcomes-based approach to teaching and learning include:

- (i) By focusing teaching on the achievement of specific outcomes for students, the use of learning outcomes militates against students interacting autonomously with the course material, with the result that intended learning outcomes may not be achieved, though other academically valid outcomes may emerge;
- (ii) Stated learning outcomes encourage students to work only towards achieving the basic threshold assessment requirements associated with a programme of study (the tick-box mentality), and may also encourage a blame culture or litigious reaction from students who are deemed not to have achieved the stated intended outcomes;

- (iii) Learning outcomes are not sufficiently sensitive to the differences and specific requirements of different disciplines;
- (iv) It is merely a bureaucratic exercise reflecting a system which conceives of education as a commodity, promoted by managers who do not understand the academic process; an instrument of the contemporary 'quality culture' which appears concerned with the lowest common denominator;
- (v) Learning outcomes necessarily lead to over-assessment of students; and
- (vi) It represents a 'dumbing down' of higher education by devaluing discipline-specific knowledge in the curriculum and over-emphasising the acquisition of generic skills.

Learning outcomes: recognising the benefits

In partial response to these and similar concerns, a number of broad benefits in the use of a learning-outcomes approach can likewise be identified. Some of these are mentioned in the seminar discussions and case studies presented above. A number of others can be outlined as follows:

(i) *Emphasis on what and how a student learns*

It is often argued that one of the crucial benefits of the learning outcomes approach is, that in shifting the educational focus from teaching to learning, (without ignoring the requirements of the former but emphasising more clearly the impact of course design, teaching and assessment methodologies on the latter), students' engagement in active learning may be deepened such that they take more responsibility for their own learning. This "deep approach", as opposed to a "surface approach" to learning may "narrow the gap" between the more and the less academically able students (Biggs, 1999).³⁸

(ii) *Clarity and coherence in programme design*

Learning outcomes are statements of the knowledge, competencies and orientations which are formally accredited to the student upon successful completion of a programme of study; they make clear what learning is designed to take place. A direct correspondence between module and programme outcomes, supported by the underlying alignment (Biggs' "constructive alignment")³⁹ between content and teaching and assessment methods, leads to improved programme design. This clarity is valuable:

- for students, by contextualising their studies towards explicit outcomes;
- for teachers, by providing an articulated bridge between their teaching and assessment methods and their students' learning;
- for external examiners, by demonstrating how the providing academic department/school is attempting to ensure coherence between module and programme outcomes;
- for employers, by identifying key skills and competences they can expect from graduates;
- for professional bodies, by assuring that essential outcomes are being met;
- for providing institutions, by enabling them to align their programmes/awards at the appropriate level on qualifications frameworks, to provide assurance as to the coherence and integrity of their programmes, and to differentiate and promote the particular emphases of their programmes;
- for prospective students seeking to enter or re-enter formal education or transfer academic credit to another institution; and
- for the functioning of qualifications frameworks and to inform internal and external quality reviews.

³⁸ Biggs, J. (1999) *Teaching for Quality Learning at University*. Buckingham: SRHE and Open University Press.

³⁹ *Ibid.*

(iii) *The facilitation of pedagogical dialogue among teachers and learners in a discipline*

Making clear how and what learning outcomes are relevant to what programmes requires a high degree of mutual adjustment, communication and interaction between teachers of a particular programme, or more usually, across a set of inter-related programmes which draw on common modules. The introduction of learning outcomes in an institution is best approached not as an administrative or paper exercise, but rather as an academic process in which the collective engagement of teachers within disciplines is supported both at the local discipline or school level and at institutional level. It is this discussion that locates ownership of the process with the teachers and programme designers, and that arguably represents the most useful and fertile dimension of the learning outcomes approach to programme and module development and delivery in higher education.

(iv) *Quality and comparability*

By specifying learning outcomes for programmes and modules within any discipline, it is also argued that an improved degree of coherence between curriculum content and teaching and assessment methodology can be achieved, resulting in higher quality and greater comparability between programmes of study in the different subject areas. This quality and comparability is in the interests both of the higher education system and of the individual learner.

Issues and challenges

As anyone who is involved in the process of introducing learning outcomes in a higher education institution will recognise, the adoption of the outcomes-based approach to teaching and learning right across the third-level sector poses a major challenge to academics because it requires “a paradigm change”⁴⁰ on their part – or, as it is often described, exchanging the traditional ‘input-based’ or teacher-based model of university education (which focuses on course content, duration, and the lecturer’s aims and objectives) for one which focuses on students’ learning. This is not simply a question of pedagogy. Many academics, at least initially, perceive learning outcomes as undermining the intrinsic value of knowledge, of inviting a shallow, mechanistic, quantitative response from students in place of the creative intellectual engagement, based on knowledge and broad reading, they seek to foster in their students and which they consider essential to the development of their subject.

There are many practical problems too to be overcome. For example, much of the literature on learning outcomes and qualifications frameworks focuses on designing programmes such that they are consistent with this or that, whereas – especially at the Bachelor level - in reality each institution will typically have a pre-existing and complex set of inter-connecting single subject, two-subject and multi-disciplinary degree programmes which have evolved in the most economical way possible to respond to the particular local context – institutional tradition, role and disciplinary base; profile and number of academic staff in the various disciplines; student demand and marketability of programmes; professional body or industrial partner requirements, etc. On the whole, these approaches have served students, universities and society as a whole very well.

Furthermore, identifying the programme may not be entirely straightforward. The Irish university system is characterised by a wide range of programmes, allowing for different approaches to framing their programme outcomes:

- (a) single discipline;
- (b) joint-honors;
- (c) programmes comprising three disciplines one or two of which may be subsidiary;
- (d) common entry programmes offering a number of different subject specialisms; and
- (e) professional/vocational training programmes.

The subject-specific statements developed by the Tuning Project and the QAA provide a useful framework for single-discipline programmes. But, in the case of the popular joint honour or Arts degrees, should separate

⁴⁰ Adam, S. (2008) *Learning Outcomes, Current Developments in Europe: Update on the Issues and Applications of Learning Outcomes Associated with the Bologna Process*, Paper presented at UK Bologna seminar 1-2 July, Heriott-Wyatt University, Edinburgh

programme outcomes be written for every degree combination that includes French, or should subject outcomes be written for French and separately for each of the subject it combines with? Or should overarching programme outcomes be written for the Arts degree without reference to a particular subject? Different institutions may take a different approach, but the point to be made here is that it is a not insignificant practical issue on the ground.

Where programmes are accredited by professional bodies (or produce graduates for recognised but non-regulated professions) which have not themselves developed statements of discipline-specific knowledge and competences required in terms of graduate outcomes, writing learning outcomes is also problematic.

Another common concern about working with learning outcomes is the bureaucratic burden they represent. This presents a real challenge to institutions which are required to satisfy formal external accreditation and quality assurance requirements, while at the same time recognising and fostering the dynamic quality of teaching and learning.

Final reflections

Given that the outcomes-based approach to teaching and learning now underpins the formal architecture of higher education in Ireland and across Europe, if the learning-outcomes approach is to be genuinely useful within specific disciplines in terms of improving the design and coherence of study programmes and enhancing the effectiveness of the student's learning experience, then it is important that the concerns raised on the ground be addressed both at the institutional level and also systemically.

Disciplinary ownership and consensus are important features of agreeing and pursuing learning outcomes within particular fields. Some will be constrained by professional accreditation requirements, others less so. In either case, it seems important to engage in clear, open and positive dialogue within and between institutions about how learning outcomes can be identified and pursued in ways that reflect the diverse demands and values of a discipline. While it is the responsibility of the institution to devise a means of recording and publishing learning outcomes, ownership of learning outcomes must remain with the academic staff involved in the teaching, assessment and programme design. Learning outcomes can only be properly written by those who are involved in teaching, assessing and designing the programme of study, and, therefore, the process which the institution adopts, if it is to be effective over the medium-to-long term, must be one which engages all academic staff in a meaningful way and which supports pedagogical enquiry and development of good academic practice.

Experience in the Irish universities points to the usefulness of the following elements in the process of introducing learning outcomes:

- one or more persons charged with promoting or championing change at the institutional level;
- designation of individuals in the schools or academic units to lead and coordinate the process (typically directors of teaching and learning and programme directors or coordinators);
- use of local curriculum review and/or school/course committees to provide a forum for discussion and review in the disciplinary context; and
- central provision of information, advice and training for academic staff; the use of institutional templates to encourage consistency of approach and of presentation, and to facilitate the central collection of learning outcomes documentation for academic and quality improvement purposes.

Writing learning outcomes is an iterative process. The institutional process concerned with learning outcomes should allow for this. Effective procedures to review and update learning outcomes are needed at the local discipline/school and faculty/college level in the context of continual curriculum review and renewal.

A learning outcomes approach should not create a climate where students aim to achieve merely at the pass threshold level. Within disciplines consideration needs to be given to the pedagogies that encourage students to maximise their experiences and their performance. How this climate is created and sustained should be the subject of pedagogical strategy development within each discipline. Within each institution

academics must be supported in acquiring the skills necessary for writing quality outcomes and closely aligning their teaching and assessment methods and assessment criteria to support the desired outcomes. This has resource implications for the institutions.

Learning outcomes should be of practical utility for both teachers and students; they should provide an articulated framework for intellectual and academic enquiry that maximises students' engagement with the particular focus of the module and with the chosen subject(s) in general. How well they work may depend upon how well they are written.

The importance of incorporating emotional and personal outcomes into a learning outcomes approach is not insignificant and it can help to ensure that learning outcomes are interpreted and applied in a range of different ways depending on the discipline within which they are being applied. While certain outcomes essential to some disciplines may need to specify quite specific types of behavioural outcomes, learning outcomes do not need to be behaviouristic in order to be effective signals of learning expectations or characteristics within a particular discipline.

As is evidenced in the case studies, the NFQ level and award-type descriptors are not always central to the design of discipline-specific learning outcomes. Further articulation and understanding of the connection between these descriptors and those of the Bologna Framework is required in order to fully instate these as a primary reference point for institutions.

For individual academics who are required to adapt to the outcomes-based approach to teaching at third level, as well as for their institutions for which learning outcomes are becoming a key element in their internal quality assurance and quality improvement procedures, the effectiveness of the process through which learning outcomes are written will determine, at least in the short term, the extent to which the benefits of working with learning outcomes can be realised and any perceived shortcomings of the outcomes-based approach mitigated or avoided altogether. Arguably too, the extent to which concrete meaning can be given to the objectives of the National Framework of Qualifications will depend upon the quality of engagement of institutions and individual academics.

Ultimately, it is the learning outcomes for modules, not programmes, that are actually assessed, and so it is at this level that the integrity of the degree programme is guaranteed. Assessment of learning outcomes is the subject of Part three of this FIN report.

APPENDIX 1

JOINT UNIVERSITY SECTOR FRAMEWORK IMPLEMENTATION NETWORK AND BOLOGNA EXPERT COLLOQUIUM: SUPPORTING THE DESIGN OF DISCIPLINE-SPECIFIC LEARNING OUTCOMES

Hosted by the Higher Education Authority (HEA) and National Qualifications Authority of Ireland (NQAI) on Friday 6th February 2009, Alexander Hotel, Dublin 2.

Speakers at plenary session:

Professor John Scattergood, Chair of Framework Implementation Network

Introduction to the university-sector Framework Implementation Network and the discipline-specific learning outcomes working group

Professor Gareth Jones, Emeritus Professor and Senior Research Fellow in Physics, Imperial College London and Tuning Expert

Supporting the Design of Discipline-Specific Learning Outcomes: Experiences of the Tuning Group for Physics.

Professor Elisabeth Jay, Associate Dean (Academic) of the School of Arts and Humanities, Oxford Brookes University, and member of Review Group for the QAA Subject Benchmark Statement for English

Experiences from the QAA in the field of English.

Dr. Peter Cullen, Head of Standards, Research and Policy Development, Higher Education Training and Awards Council (HETAC)

The HETAC experience in setting award standards for the development of programmes for inclusion in the National Framework of Qualifications.

Dr. Norma Ryan, Director of Quality Promotion Unit, UCC and Bologna Expert

How can/should quality assurance feature in the design of discipline-specific learning outcomes?

Work Group Facilitators and Raporteurs:

Business Studies

Facilitator: Mr. Patrick McCabe, School of Business, Trinity College Dublin, and Irish member on Tuning in Business

Raporteur: Professor Bairbre Redmond, Deputy Registrar for Teaching and Learning, UCD and Bologna Expert

English

Facilitator: Professor Elisabeth Jay, Associate Dean (Academic) of the School of Arts and Humanities, Oxford Brookes University, and member of Review Group for the QAA Subject Benchmark Statement for English

Raporteur: Dr. Brendan McCormack, Registrar, IT Sligo and Bologna Expert.

Music

Facilitator: Professor Jan Smaczny, Hamilton Harty Professor of Music, Queens University Belfast

Raporteur: Ms. June Hosford, Director St. Nicholas Montessori College and Bologna Expert

Physics

Facilitator: Dr. Eamonn Cunningham, School of Physical Sciences, Dublin City University and Irish member of Tuning in Physics

Raporteur: Frank McMahon, Director of Academic Affairs, Dublin Institute of Technology and Bologna Expert

APPENDIX 2: RESOURCES

1. Quality Assurance Agency (QAA) subject benchmark statements:

"Subject benchmark statements set out expectations about standards of degrees in a range of subject areas. They describe what gives a discipline its coherence and identity, and define what can be expected of a graduate in terms of the abilities and skills needed to develop understanding or competence in the subject."⁴¹

Business

<http://qaa.ac.uk/academicinfrastructure/benchmark/statements/GeneralBusinessManagement.pdf>

English

<http://qaa.ac.uk/academicinfrastructure/benchmark/statements/English07.pdf>

Music

<http://qaa.ac.uk/academicinfrastructure/benchmark/statements/Music08.pdf>

Physics

<http://qaa.ac.uk/academicinfrastructure/benchmark/statements/Physics08.pdf>

2. Tuning Project Subject Statements

Please see: Tuning Educational Structures (2007) *General Brochure Introduction* (p78). [Internet]: Available from: <http://www.tuning.unideusto.org/tuningeu/>

Business

<http://tuning.unideusto.org/tuningeu/index.php?option=content&task=view&id=96&Itemid=123>

Music

<http://tuning.unideusto.org/tuningeu/index.php?option=content&task=view&id=194&Itemid=222>

Physics

<http://tuning.unideusto.org/tuningeu/index.php?option=content&task=view&id=114&Itemid=141>

3. Guides from Irish Institutions

UCD

This guide provides examples of learning taxonomies which cover cognitive, affective and psychomotor domains:

<http://www.ucd.ie/t4cms/taxonomies3.pdf>

TCD

Scattergood, J. (2008) *Writing learning outcomes at programme and module level*. [Internet]. Available from:

https://www.tcd.ie/vpcao/bd/pdf/Scattergood_2008_Writing_Learning_Outcomes_at_Programme_and_Module_Levels.pdf

Module Descriptor Template:

<https://www.tcd.ie/vp-cao/bd/moduledescriptortemplate.php>

UCC

Kennedy, D. (2007) *Writing and Using Learning Outcomes: A Practical Guide*. Cork: UCC Quality Promotion Unit

NUI Galway:

This link provides access to a quick guide to writing module learning outcomes and a short video introduction to learning outcomes:

http://www.nuigalway.ie/celt/teaching_and_learning/outcomes.html

⁴¹ Quality Assurance Agency for Higher Education (QAA) (2009) *Subject Benchmark Statements*. [Internet]. Available from: <http://www.qaa.ac.uk/academicinfrastructure/benchmark/default.asp>

4. Learning Taxonomies

This section provides links to resources on learning taxonomies which may be helpful in constructing learning outcomes at module level.

This resource provides a concise summary of learning taxonomies starting from Bloom's taxonomy (1956) which focussed mainly on the cognitive domain, and includes revisions to that model:

<http://www.learningandteaching.info/learning/bloomtax.htm>

This resource gives a more detailed overview of taxonomies starting with Bloom, and provides a good description of the taxonomies which deal with the affective domain (attitudes & beliefs) and psychomotor (skills). It could assist with the articulation of outcomes which address communication, IT skills, performance or language fluency for example:

<http://www.businessballs.com/bloomstaxonomyoflearningdomains.htm#bloom's%20taxonomy%20overview>

SOLO (Structure of Observed Learning Outcomes) **Taxonomy:** This taxonomy developed by Biggs & Collins (1982) describes how students' outcomes of learning display increasing structural complexity. It is a useful taxonomy for defining learning outcomes, and also for assessing the level of student learning:

<http://www.learningandteaching.info/learning/solo.htm>

This link gives a general overview of the SOLO Taxonomy. It shows how using the SOLO Taxonomy can encourage the development of students' higher order critical skills:

http://www.tki.org.nz/r/assessment/atol_online/ppt/solo-taxonomy.ppt

This link from the University of Queensland illustrates the implications of SOLO for assessment design:

http://www.tedi.uq.edu.au/downloads/Biggs_Solo.pdf

This link from Southern Cross University provides guidance on how to align teaching and learning activities with outcomes using SOLO

<http://www.scu.edu.au/services/tl/pathways/teaching/teaching4.html>

Krathwohl's Taxonomy of Affective Domain

This is the best known taxonomy of the affective domain and it is based on the principle of internalisation, the lowest level being general awareness of an object to the highest level characterisation where a set of values have been internalised:

<http://classweb.gmu.edu/ndabbagh/Resources/Resources2/krathstax.htm>

5. Other

Adam, S. (2008) *Learning Outcomes Current Developments in Europe: Update on the Issues and Applications of Learning Outcomes Associated with the Bologna Process*. Presentation at Bologna Seminar at Herriot-Watt University, Edinburgh

Bergen, S. (2007) *Qualifications – Introduction to a concept. Council of Europe higher education series 6*. Strasbourg: Council of Europe.

Biggs, J. (1999) *Teaching for Quality Learning at University*. Buckingham: SRHE and Open University Press.



PART 3

THE ASSESSMENT OF LEARNING OUTCOMES

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THE ASSESSMENT OF LEARNING OUTCOMES

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ABSTRACT

Programmes designed for inclusion in the National Framework of Qualifications (NFQ) are expressed in terms of learning outcomes, and credit, which can be mapped to the Framework's award-type descriptors and/or levels. The focus of this third part of the report of the university sector Framework Implementation Network is on the assessment of these learning outcomes. It is intended to provide general information on assessment, but also to act, primarily, as a resource for anyone designing or redesigning assessment approaches in the context of learning outcomes. This report assumes that readers have a good knowledge of learning outcomes and how to write them appropriately. Useful sources of information on learning outcomes in general are provided in the reference section at the end of this report.

SECTION A: INTRODUCTION TO ASSESSMENT AND CONSTRUCTIVE ALIGNMENT

In recent years there has been a change in the way student learning is viewed. Increasingly the focus has moved from teaching to learning, with the emphasis shifting from what is taught, to what has been learned. The learning outcomes paradigm has become the primary method for describing student learning and places an emphasis on a student's ability to demonstrate achievement of particular learning outcomes. In this context, assessment of learning outcomes becomes particularly important.

Assessment is an integral part of the learning process, providing a means of grading achievement, giving feedback on performance and identifying areas for improvement. Traditionally assessment was used primarily for summative purposes, taking place after something such as a topic, a module or an academic year was completed and used to grade student performance. Increasingly assessment is used for formative purposes, as a means of learning and as a mechanism to provide feedback on learning while the learning is taking place rather than after it has finished. As methods for assessing student learning have moved from mainly terminal, written examinations to continuous assessment incorporating a wider range of assessment instruments, there has been a concern with establishing guidelines for reliability, validity, transparency and authenticity. Notions of objectivity, subjectivity and originality are never far away from discussions on assessment and increasingly sustainability can be added to the list. According to Boud, "There is probably more bad practice and ignorance of significant issues in the area of assessment than in any other aspect of higher education. The effects of bad practice are far more potent than they are for any aspect of teaching. Students can, with difficulty, escape from the effects of poor teaching, they cannot (by definition if they want to graduate) escape the effects of poor assessment" (1998).⁴²

Traditionally, assessment at third level largely involved written assignments, end of year examinations, marking and grading. More recently, the increased emphasis on learner-centric approaches, coupled with moves to modularised curricula and the use of the learning outcomes paradigm, requires staff to review assessment approaches in order that teaching, learning methods, learning outcomes and assessment are aligned. The implementation of the Bologna Process, in particular the development of the National Framework of Qualifications (NFQ) with a focus on learning outcomes, has resulted in significant challenges. In many cases fundamental shifts in teaching, learning and assessment, as well as structural changes within third level institutions have become necessary. However, lest it should be thought that all assessment change is driven by such legislative developments, for many years there has been an academic focus on assessment and assessment practice, prompted by the expansion of higher education numbers, increasingly diverse student cohorts, quality assurance and enhancement; and the concept of assessment *as a form of learning* rather than something that simply grades or benchmarks learning.

Authors on teaching and learning in higher education believe that assessment defines the curriculum for most students, i.e. regardless of other information provided, such as course outlines or module descriptors, students decide what is important based on what is assessed (see Biggs, 1999; Ramsden, 2003).⁴³ Ramsden

⁴² Boud, D (1998) *Assessment and learning – unlearning bad habits of assessment*. Presentation to the Conference 'Effective Assessment at University', University of Queensland, 4-5 November 1998. [Internet] Accessible from: http://www.tedi.uq.edu.au/conferences/A_conf/papers/Boud.html

⁴³ Ramsden, P. (2003) *Learning to Teach in Higher Education*. New York: Routledge Falmer

claims that “assessment is the most significant prompt for learning but that poor assessment can encourage passive, reproductive forms of learning while simultaneously hiding inadequate understanding to which such forms of learning inevitably lead”. This can have a number of consequences. For example, for lecturers, they may end up ‘teaching to the test’, that is, only teaching what they know they will be examining, or over-assessment by using assessment as a way to get students to learn everything. For students, they may ignore assessment given for formative purposes and to deepen learning, if it does not explicitly contribute exam marks. For both students and lecturers there is a danger that some things get over-emphasised and others get under-emphasised, based on their perceived importance. Sometimes things which may be ‘easy’ to assess, such as a research paper on a particular topic, but only worth 10% of the overall grade, may make this topic seem very important to students.

In an attempt to make assessment part of the learning process, and as a means of addressing some of the issues raised above, Biggs (1999), coined the term ‘Constructive alignment’, describing it as “... the objectives define what we should be teaching, how well we should be teaching it, and how we could know how well students have learned it”.⁴⁴ Constructive alignment increasingly features as part of university curriculum development. Alignment of teaching, learning and assessment, coupled with the introduction of learning outcomes-based curricula, are amongst the most challenging teaching-related issues currently faced by third level teachers and require leadership and support to ensure that they are embedded locally.



AWARD LEVEL LEARNING OUTCOMES

The National Framework of Qualifications (NFQ) is one of Ireland’s main tools for engaging with the Bologna Process. It describes high-level outcomes expected to be achieved by a learner who successfully completes an award at a given level. Each major⁴⁵ award demonstrates outcomes across the three areas of Knowledge, Know-How & Skill and Competence, although the balance of emphasis will differ in accordance with the award. Award outcomes are demonstrated through the achievement of the learning outcomes of the modules, which cumulatively comprise the award. As a result, the relationship between award outcomes and module outcomes must be clear. The NFQ describes high level ‘Award Descriptors’ for all major awards, which are essentially generic learning outcomes that any graduate from any award at a particular level will have achieved. Institutions describe the outcomes for each of their awards using the NFQ descriptors as a guide, but with more specific graduate outcomes for each programme. Module learning outcomes are used to describe the learning associated with individual modules within awards. Work is continuing throughout Europe, including Ireland, to address the issue of developing discipline-specific learning outcomes. Please see Part 2 of this report: Discipline Specific Learning Outcomes – Some Case Studies, Reference Points, Issues and Insights.

MAPPING AWARD AND MODULE LEARNING OUTCOMES

The learning outcomes for an award are achieved through the accumulation of learning outcomes successfully demonstrated at the module level. When moving to a learning outcomes paradigm it is appropriate to either start with module learning outcomes and look at how each module contributes to the overall award outcomes, or to start with the award outcomes and agree how each module will deliver them

⁴⁴ Biggs, J.B. (1999) *Teaching for Quality Learning at University*. Buckingham: Open University Press.

⁴⁵ Awards in the NFQ are classified as Major, Minor, Special Purpose and Supplemental. For the purpose of this document ‘Award’ is used to mean Major Award. Part 1 of this report reviews in more detail the technical aspects of the NFQ, and the awards it recognises.

and then write/rewrite the module outcomes appropriately. Whichever approach is used, it is important to achieve coherence between the two, ensuring that all award outcomes are delivered and all module outcomes contribute to some award outcomes. It is likely that this 'mapping process' will be iterative, revisiting award and module outcomes as necessary.

When designing/redesigning programmes to use learning outcomes and align with the NFQ, it is necessary to ensure that all award outcomes are actually delivered through the modules contributing to that award. Whether you start with the programme or the module outcomes, you might find the grid below a useful tool for checking the mapping of module and programme outcomes. **It is usual that programme outcomes will be delivered by many modules but it is often the case that some may be over-delivered (PO1 below). Likewise such analysis may identify some programme outcomes that are under delivered (PO5 below).**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
MOD1	X		X	X				
MOD2	X	X						
MOD3	X					X	X	X
MOD4	X	X	X					X
MOD5	X						X	X

PO: Programme Outcome Mod: Module Outcome

EXTENT THAT MODULE OUTCOMES MEET AWARD OUTCOMES

It is a common misunderstanding that each module should address all of the sub-strands⁴⁶ of an NFQ award descriptor, in the way that programme outcomes must. This is not the case – in fact, unless a module has a large credit weighting, it is highly unlikely that it would address all, or even a large number, of the programme outcomes. Major Awards are made up of large volumes of credits, usually from 60 to 240, depending on the type of award. As an individual module will, in general, only carry 5 to 20 credits, it would not be expected (or even acceptable) that one module would address all outcomes.

SECTION B: ASSESSING LEARNING OUTCOMES

In a learning outcomes context, assessment effectively means assessing students' attainment of learning outcomes. In some discipline areas this will already be the norm, in that generally the ability to demonstrate knowledge, skills or competence is the main thrust of assessment, but in other discipline areas it may be more common that it is *content* which is mainly assessed. Some discipline areas feel that the learning outcomes paradigm is not suitable or appropriate for their type of student learning. For example, it is sometimes felt that in highly creative disciplines or arts-based areas it is difficult to 'reduce' student learning to specific outcomes.

⁴⁶ Each of the strands of Knowledge, Skills and Competence is further divided into sub-strands, with 8 sub-strands in total.

ASSESSMENT TERMINOLOGY

When discussing assessment it is often the case that we use words interchangeably which might have different meanings to different people. Below is a clarification of some key terms used in the following sections.

Assessment Criteria

This is the basis on which a judgment of the adequacy of the student work is made. Often the assessment criteria is implied in the way a learning outcome is written.

Assessment Instrument

The assessment instrument is the way in which particular learning outcomes are assessed, for example a research paper, a project, a lab exercise etc.

Assessment Task

This is the actual assignment a student must complete in order to demonstrate achievement of learning outcomes

ASSESSMENT IN AN INPUT MODEL

In an 'input' model, content tends to be the driver of most of the teaching, learning and assessment practices. Lecturers often refer to 'imparting or instilling information' which suggests a largely transmission-type model. This is often characterised by assessment which requires recall of information and primarily uses instruments such as exams, multiple-choice questions, essays and research papers. Sometimes this can lead to an assessment of what the lecturer has taught, rather than necessarily what the student has learned, or at the very least no way of distinguishing between the two.



(Marton, Dall'Alba et al., 1993)

ASSESSMENT IN AN OUTCOMES MODEL

In an outcomes model, assessment is focused on what a student can demonstrate in terms of knowledge acquired and understood, skills learned, competences attained etc. Different types of outcomes will usually require different types of assessment instruments. For example, if an outcome is that 'a student will demonstrate the ability to work safely in a laboratory', it may not be sufficient that a student can write about safe laboratory practices in an exam question, it may be necessary to observe them in actual situations.

DESIGNING 'BACKWARDS'

When designing curricula, many believe that we should start with what outcomes are to be attained, then define the appropriate assessment to enable a student to demonstrate this attainment, then design the teaching and learning approaches which will best deliver these. This contrasts quite starkly with traditional practices whereby the content to be covered tends to drive the rest of the curriculum design process. Some, notably Biggs, claim that assessment is what drives the rest of the curriculum development process and should always be the starting point. In a learning outcomes context, assessment must be designed so as to

ensure that learners can actually demonstrate achievement of particular outcomes. In more traditional approaches it was just assumed that the essay, the test, the exam etc. validly assessed learning and indeed, in most cases it probably did. When using learning outcomes, however it is not sufficient to assume, the validity of assessment approaches needs to be demonstrated.

ENSURING ASSESSMENT IS VALID

When deciding on appropriate assessment approaches, it is necessary to decide what it is that will enable both the lecturer, and the student, to recognise when a learning outcome has actually been achieved. For example, will an exam question on a Computer Programming paper which requires a student to hand write code, assess their programming ability in the same way that a requirement to write a programme on a computer would? When assessing learning outcomes it is important that all assessment instruments are checked to ensure that they will actually enable a student to demonstrate the attainment of the associated outcome. Sometimes it is assumed that all existing assessment approaches must be changed when one changes to assessing learning outcomes, but this is not, of course, necessarily the case. The assessment tools presented below provides a list of a large range of assessment instruments. The important thing is that a particular assessment instrument will validly assess a particular learning outcome. It is quite likely that existing assessment instruments are already valid or could be made so with minor changes so it makes sense to start with current instruments before looking automatically for new ones.

TYPE OF ASSESSMENT TOOL

Test/Written Examination

- Essay-type questions
- Multiple Choice items
- True or False
- Short Answer questions
- Closed book examination
- Open book examination
- Case study Critique

Oral Presentation/Practice-based Assessment

- Individual Presentations
- Group Presentations
- Interviews
- Oral Questioning
- Performance
- Debriefing Interviews
- Debriefing Questionnaire
- Poster Presentation
- Practicum
- Exhibition/Display of Work
- Professional Practice Assessment
(Work Placement, Clinical Practice, Teaching Practice etc.)
- Role Play
- Mini-Conferences
- Studio Critique

Project/Assignment/Process-based Assessment

- Essay
- Studio Critique and Review
- Journals/Diaries/Logs
- Intellectual Autobiographies
- Computer Aided Design
- Research Piece
- Case Studies
- Anecdotal Records
- Observations
- Reaction Papers
- Creation of Discipline-Specific Artefacts
- Literature review
- Book review
- Learning Contract
- Problem-solving Assignment
- Portfolios

CHECKING ASSESSMENT

Frequently, when a module is rewritten to use learning outcomes the assessment instruments are left unchanged. In reality many modules are *only* changed to use learning outcomes, without checking whether the assessment criteria and/or the assessment instruments are still valid. Often, if you examine the prior assessment instruments against the new learning outcomes one or more of the following occurs:

- Some learning outcomes are never assessed
- Some learning outcomes are over-assessed
- Some assessment instruments do not assess any learning outcomes.

It is useful to construct a matrix such as that shown below to check what is being assessed in a module. This will identify whether alignment is actually achieved. If alignment is not achieved, often a small change to the assessment instrument, or a re-expression of a learning outcome, can achieve this.

Module CG789	LO1	LO2	LO3	LO4	LO5	LO6
Assignment 1	✓				✓	
Assignment 2	✓		✓	✓		
Assignment 3						
Final Exam	✓		✓	✓	✓	✓

Looking at the example of the above matrix the following questions arise:

- Is learning outcome 1 over-assessed?
- How is learning outcome 2 assessed if at all?
- Do learning outcomes 1, 3, 4 and 5 need to be assessed through assignments and the final exam?
- What learning outcomes is Assignment 3 assessing?
- Is the final exam seen as the 'real' assessment instrument? Why are so many learning outcomes assessed in the exam as well as through other assignments?

The last point above is important. For many reasons - plagiarism being one of the most prominent, but also for issues of volume and efficiency- we often see the final examination as being the most important assessment instrument. However many learning outcomes do not lend themselves to being assessed validly in this way. This also raises questions about the validity of the other assessment instruments. Rather than 'compensating' for issues associated with continuous assessment, surely these assessment instruments need to be made more valid, especially if a written exam is not necessarily a valid instrument for some learning outcomes. This approach runs the risk of 'compensating' one invalid assessment instrument with another!

WHAT SHOULD BE ASSESSED?

It is sometimes the case that we assess things which we have not stated as intended⁴⁷ learning outcomes for a particular module. This is particularly common with 'soft' or 'transferrable' skills such as Presentation Skills, Group Working Skills etc. For example, we often use group-work as a learning mechanism or for efficiency purposes to reduce assessment volume and then assess student's group working ability (participation, attendance, contributions etc). If 'an ability to demonstrate group working' is an intended learning outcome for a module then it is absolutely valid to assess group working in this way and also to combine it with the assessment of another outcome. However, if group working is not a stated learning outcome then it should not be assessed, but it can of course still be used validly as a pedagogic tool.

If such 'soft' skills are intended learning outcomes and will be assessed, it cannot be assumed that they will be learned through informal exposure to them. It may be necessary to provide some formal 'teaching', even in the form of a handout, with respect to such soft skills if you are going to assess them. It is often assumed that simply working in groups will enable acquisition of effective group working skills, but acquisition of poor group working skills is just as likely. It cannot be assumed that simply by doing something, students will automatically learn how to do it effectively.

MAKING ASSESSMENT CRITERIA EXPLICIT

It is the case that often we mark assignments based on internalised, expert knowledge, which we have developed during our years of study and practice. As this is largely 'tacit' knowledge, (Polanyi, 1967)⁴⁸ it can be quite difficult to explain why we have allocated particular marks to particular pieces of work. Often a lecturer 'just knows' an A grade essay over a C grade one, but increasingly it is necessary to explain the award of individual grades. It can be particularly frustrating for students when they cannot fully understand why they received a particular grade or indeed what they could do to improve their grade in the future. Making tacit knowledge explicit can be difficult and the use of rubrics is one way of making it explicit.

A rubric is a scoring guide that identifies the criteria which is used to grade a piece of work, and often incorporates guidelines for evaluating these criteria. Suskie (2004)⁴⁹ identifies the benefits of rubrics as including, helping students to better understand expectations and possibly inspiring better student performance; making grading easier and faster, as well as more accurate, unbiased and consistent; and improving communication with students. There are many different kinds of rubrics, including checklists, rating scales, descriptive rubrics and holistic rating scales. Often different criteria are given different weightings or marks so that a numerical grade can be calculated to reflect performance.

Some examples of rubrics are given in Appendix 1.

USING TECHNOLOGY IN ASSESSMENT

Technology can be a major asset in tackling assessment, especially when assessing large groups. While earlier technologies tended to mainly support a limited set of test-like instruments, a wider range is now supported including portfolios, discussion fora, collaborative projects etc. As well as making summative assessment more efficient in many cases, technology can also play a significant role in formative assessment opportunities. Student feedback can be built into online assessment, so that when a student gets something wrong information regarding common mistakes or misunderstandings can be automatically provided to them. Other technology-enabled solutions also include the use of Student Response Systems in class to provide an instant picture of general understanding or misunderstanding of particular concepts.

⁴⁷ *Intended Learning Outcomes* are those which we expect students to attain and which will be assessed. There is also the concept of *Unintended Learning Outcomes* which are those which may or may not be achieved by some or all students as a consequence of completing a programme/module.

⁴⁸ Polanyi, M. (1967) *The Tacit Dimension*. Garden City, N.Y.: Anchor Books

⁴⁹ For further discussion, please see: Suskie, L. (2004) *Assessing Student Learning: A Common Sense Guide*. Bolton, MA: Anchor Publishing.

SECTION C: MANAGING THE CHANGE IN ASSESSMENT PRACTICES

As mentioned earlier, it is often not necessary to abandon current practice and to institute fully revised methods of assessment which are more appropriate to a learning outcomes approach. What is required is that the assessment instrument is aligned to the intended outcomes. Managing this change can involve a rebalancing of the weighting within the questions on an examination paper or between the examination and the continuous assessment component, if there is one. It may also be necessary to vary the range of types of questions within an examination paper to capture the broader range of outcomes. There is a related difficulty with consistency of such methods of assessment across different teaching staff and over time. All of these changes are desirable in any case and can be managed with some careful consideration of the issues involved. Some of these are discussed below.

ASSESSMENT VOLUMES

One possible result of a change to an outcomes-based assessment strategy is that the assessment load increases both for the student and for the staff. If a different type of assessment instrument is adopted in addition to the existing approach, then there must be a balancing between the two to ensure an appropriate load. As mentioned earlier, one should be careful about simply adding assessment but keeping the old instruments, especially terminal exams. Valid assessment may require substitution of one assessment instrument for another; so, be careful. Also, more than one learning outcome can be assessed with one assessment instrument so there are opportunities to reduce the volume of assessment.

RESOURCE IMPLICATIONS

One reason (although not the only one) that terminal examinations have been popular in the past is that they are cost-effective. Therefore there is a challenge for institutions adopting the learning outcomes approach to find ways of assessing the outcomes in a manner that can be delivered within available resources; both human and financial. Oral presentations/examinations and other, more individualised methods can be more expensive to administer and to monitor to ensure consistency across the various staff members involved and transparency for the student. There are inherent contradictions in the higher education system with under-funding in general and different funding models for different disciplines, alongside a requirement to implement the various elements of the Bologna Process and to design programmes/awards in terms of learning outcomes which can be included in the NFQ. There may be an inherent contradiction if a move to using learning outcomes demands more resources to be implemented validly. While some alignment can be achieved by careful design of assessment instruments, funding implications may arise.

INSTITUTIONAL/PROCEDURAL LIMITATIONS

Existing institutional structures and custom and practice can serve to constrain the adoption of new assessment practices. There can also be considerable comfort in using traditional approaches despite their limitations and the clear evidence in many cases that they do not promote deeper, more engaged, critical learning. Such traditional approaches are well recognised, understood and non-threatening. Indeed, much of the comfort arises from the fact that they are the approaches we ourselves experienced as students. Alternative approaches, which may probe more deeply and indeed require more work from both students and staff, may initially pose significant challenges and hence be resisted. It must also be remembered that the vast majority of third level teachers have had no formal training in pedagogy or curriculum design and may find it conceptually difficult to even know how to begin to design new approaches or validate existing ones.

In many instances, individual lecturers or module coordinators have, or believe they have, insufficient 'freedom of movement' to alter assessment practices and grading schemes, frequently not knowing what is formalised in regulations or what is actually local custom and practice. This is particularly the case in situations where, for example, a faculty has a requirement to allocate student assessment, as, say, 40% continuous assessment and 60% terminal examination, applied across the board for all modules, regardless of module learning outcomes.

Further, professional bodies that confer accreditation on certain programmes may also have fixed requirements. Whilst such requirements can be challenged (and perhaps should be), it requires additional, perhaps long-term, effort on the part of individual members of staff or programme teams. While this has been presented as a challenge, it may also provide an opportunity to question some of the limitations imposed by institutions or professional bodies. The need to demonstrate constructive alignment and appropriate assessment of learning outcomes can provide a powerful rationale to justify change.

THRESHOLD AND TYPICAL LEARNING OUTCOMES

The issue of what constitutes achievement of a learning outcome is one that is still actively debated. Very few learning outcomes are binary – i.e. achieved or not achieved. We know that students will demonstrate different degrees of competence with respect to any learning outcome, from those who just about gain minimal competence, to those who demonstrate mastery. This is no different from our current system where students who have achieved anything from 40% to 100% are deemed to have demonstrated competence, albeit at different levels.

In a learning outcomes context this becomes most important when writing the outcomes in the first place. It is important that the module designer understands what the appropriate level of achievement is for particular outcomes. Two main approaches tend to be used to express expected levels of achievement – Threshold and Typical achievement.

Threshold

If learning outcomes are written to reflect a threshold level of achievement then this should describe the minimum competence necessary to demonstrate ability with respect to that outcome. Anything below this level would be deemed to have failed to demonstrate a requisite level of achievement.

Typical

Frequently (and this is the case of the Award Descriptors in the NMQ) learning outcomes are written to reflect a 'typical' degree of achievement. In this situation there is room for students to demonstrate a lower achievement and still have demonstrated competence.

PLAGIARISM

In addition to the efficiency associated with terminal exams mentioned earlier, one of the reasons often cited for their use is the risk of plagiarism associated with other forms of assessment. There are a number of safeguards against plagiarism in continuous assessment that include encouraging students to take responsibility for their own learning by referencing sources properly and having a greater sense of the worth of their own opinion in relation to a topic. There are software solutions such as "Turnitin" which act both as an educational and a preventative tool. In addition, lecturers need to incorporate safeguards against plagiarism such as redefining the task from cohort to cohort, including some element of oral reporting, personalising elements of an assessment to individual students etc. If terminal exams are still the preferred option, variations such as the use of case studies, open book exams etc. can prove a viable alternative to the 'answer 3 out of 5 questions' format.

SECTION D: REVIEW AND EVALUATION OF ASSESSMENT APPROACHES

The principle of review and evaluation is a key component of any effective programme and module design process. It is also an invaluable means of assuring the quality of teaching and learning. The review and evaluation of assessment is essential in order to ensure the continued alignment of assessment tasks with specified learning outcomes and associated teaching strategies. The evaluation of assessment can occur at both the programme level and at the module level.

PROGRAMME-LEVEL EVALUATION

At the programme level, the evaluation focuses on the overall assessment pattern in a given programme. In particular, it might focus on two key issues:

- (i) the general congruency of the range of assessment tasks undertaken at the module level with the achievement of specified programme level outcomes. Whilst the assessment of learning outcomes occurs at the module level, it is important to gauge the extent to which specified programme level learning outcomes, particularly transferable skills, are being successfully assessed;
- (ii) the overall load of assessment tasks for students undertaking a given programme. In this context focus might be on:
 - evaluating the overall assessment workload of an individual student as he/she progresses through a given programme;
 - ensuring the efficiency of the assessment of module level outcomes in a given programme and, where possible, minimising duplication or over-assessment of particular learning outcomes in different modules and;
 - considering the adequacy of the range of assessment tasks employed throughout a programme and the suitability of those tasks to the effective assessment of specified learning outcomes.

Such evaluations might form part of periodic quality reviews conducted by the programme board or similar body entrusted with the responsibility of programme management.

MODULE-LEVEL EVALUATION

At the module level, the evaluation focuses specifically on the assessment tasks being employed to assess specified module level learning outcomes in a given module.

A number of helpful questions in conducting such an evaluation include:

- (i) Is the assessment task(s) employed valid?
 - does the assessment task employed actually assess the knowledge, know-how & skill or competence it is designed to assess?
 - does the assessment task employed actually assess at the level specified for the given module?
- (ii) Is the assessment task(s) employed reliable?
 - to what extent is the assessment task employed accurate in its assessment of the knowledge, know-how & skill or competence it is designed to assess?
 - can the achievement of assessment outcomes at the specified level be repeated?
- (iii) Are the grading and feedback mechanisms being utilised effectively?
 - are there clear grading guidelines or other mechanisms that clearly communicate the extent to which a student has been successful in achieving the specified learning outcome?
 - are there efficient feedback mechanisms in place to ensure that students can learn from the outcomes of the assessment tasks undertaken?

The evaluation of assessment tasks can benefit greatly from integrating both learner and lecturer feedback into the process.

A valuable source of data here is students' perceptions of the assessment tasks undertaken in relation to learning outcomes. In particular, it can be helpful to gain some insight in relation to the following areas:

- do students themselves perceive the relevance of the assessment task assigned to the specified learning outcome?;
- do students perceive that they have already been assessed in relation to the specified learning outcome either in another assessment task associated with a given module or in the assessment tasks of another module?;
- do students perceive the work and time needed to meet the requirements of an assessment task are reasonable?, and;
- do students perceive that feedback received on assessment tasks is helpful in terms of their learning?

At the module level, one can employ both quantitative (e.g. module evaluation questionnaires, statistical analysis of student results in relation to specific assessment tasks or component items of assessment) or qualitative (e.g. focus group, open questions) methods to gather relevant data from both learners and teachers. External examiners are another valuable source of feedback on assessment.

CONCLUDING REMARKS

This part of the report is designed to assist anyone who is embarking on design or redesign of assessment approaches in the context of adopting learning outcomes to describe student achievement at the programme and module level, with reference to the award-type descriptors and levels of the National Framework of Qualifications (NFQ). As a practical guide, it does not provide theoretical underpinnings for the approaches or suggestions it proffers, nor does it provide a theoretical or philosophical justification for, or discussion of, learning outcomes as a paradigm. The report is based on the experience of the sub-group in designing and redesigning curricula, particularly addressing the issues which arise in relation to assessment when one moves from a traditional, content-focused approach to a learning outcomes approach. It attempts to point out the dilemmas and problems that can arise and suggests ways of avoiding or resolving them.

Readers should always be aware of their local contexts and ensure that they take local regulations and custom and practice into account when changing practice. From the perspective of ensuring quality, changes should go through the normal academic procedures required to approve changes to curricula (these could be quite formal at the institutional level, or informal at the local programme level). Requirements of professional bodies should also be taken into account.

We hope that this report will be of value to you in addressing assessment in your own context.

APPENDIX 1: SAMPLE RUBRICS

A CHECKLIST RUBRIC FOR A WEB SITE (SUSKIE, 2004)

- The purpose of the site is obvious.
- The site's structure is clear and intuitive.
- Titles are meaningful.
- Each page loads quickly.
- The text is easy to read.
- Graphics and multimedia help convey the site's main points.
- The design is clean, uncluttered and engaging.
- Spelling, punctuation and grammar are correct.
- Contact information for the author or webmaster is given.
- The date each page was last update is given.

A RUBRIC FOR A BUSINESS ASSIGNMENT (SUSKIE, 2004)

Learning Outcome	Understanding	Satisfactory	Inadequate	Insufficient Information to Evaluate
1. Write articulate, persuasive and grammatically correct business materials.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Use critical, flexible and creative thinking to generate sound conclusions, ideas and solutions to problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Use software and networking services to obtain, manage and share information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Apply understanding of domestic and international diversity concepts and issues to business situations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Recognise ethical challenges and reach ethical business decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A RUBRIC FOR A TAKE-HOME ESSAY IN LITERATURE

This assignment asked students to take a position on a debatable issue regarding interpretation of literature they had studied. The lecturer has identified 3 major criteria – Position, Support and Acknowledgement of Alternative Points of View and has weighted them different levels of attainment of each criterion. Below is the detailed rubric for the Position criterion.

Criterion: Position	Weighting
Description	Weighting
Student takes a defensible position on the issue posed and states the position clearly. Position does not merely state the obvious or parrot one of the readings, but shows a creative mind at work.	
Student takes a defensible position on the issue posed and states the position clearly. Position may be somewhat obvious or closely parallel to one of the readings.	
Student takes a defensible position on the issue posed and states the position clearly but the position may state the obvious or simply paraphrase one of the readings.	
Student takes a defensible position on the issue posed, but the statement is ambiguous, carelessly stated or must be inferred.	
Student does not clearly state a defensible position, or position is not defensible or is irrelevant to the question posed.	

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Useful resources on Learning Outcomes

Visit the **Useful Links** section of the university sector Framework Implementation Network site www.nfqnetwork.ie for pointers to some additional useful resources.