

An Introduction to Module Design

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Introduction to AISHE Academic Practice Guides

This series is dedicated to the
memory of our dear friend
and colleague, Dr John Panter,
15 April 1941 – 13 November 2015.

Suaimhneas síoraí dá anam dílis

The All Ireland Society for Higher Education (AISHE) is pleased to bring you a new series of booklets, each of which offers guidance on a particular theme, for practitioners in higher education. Entitled the AISHE Academic Practice Guides, the series is designed to support the development of teaching and learning in practice.

The booklets are written by practitioners, for practitioners. Based on experience and scholarship, each guide offers an overview of the particular topic to help readers situate the experiences presented in other sections of the booklet. Case studies or examples of practice from contributors' higher education experience are presented and, finally, each booklet suggests resources that the reader may find helpful in their own practice.

We wish to acknowledge the National Forum for the Enhancement of Teaching and Learning in Higher Education for supporting this publication series. We also acknowledge the work of all those colleagues, networks and communities of practice who contributed to the project through writing, providing case studies and co-ordinating contributions in order to bring the series to publication.

Moira Maguire, AISHE President
Saranne Magennis, Series Editor

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Introduction

The Audience

This guide aims to assist a broad range of academic staff employed in higher education settings, from those who are new to teaching and who may be given the task of designing a module for the first time or reviewing and revising an existing module to more experienced academic staff seeking a new approach to module design or updating.

Underpinning Principle

We believe that our job as teachers is to create and sustain an effective learning environment for our students (Ramsden, 2003). This process begins with appropriate programme and module design and is buttressed by efficient module management, provision of appropriate learning spaces, resources and pastoral support as well as effective classroom performance.

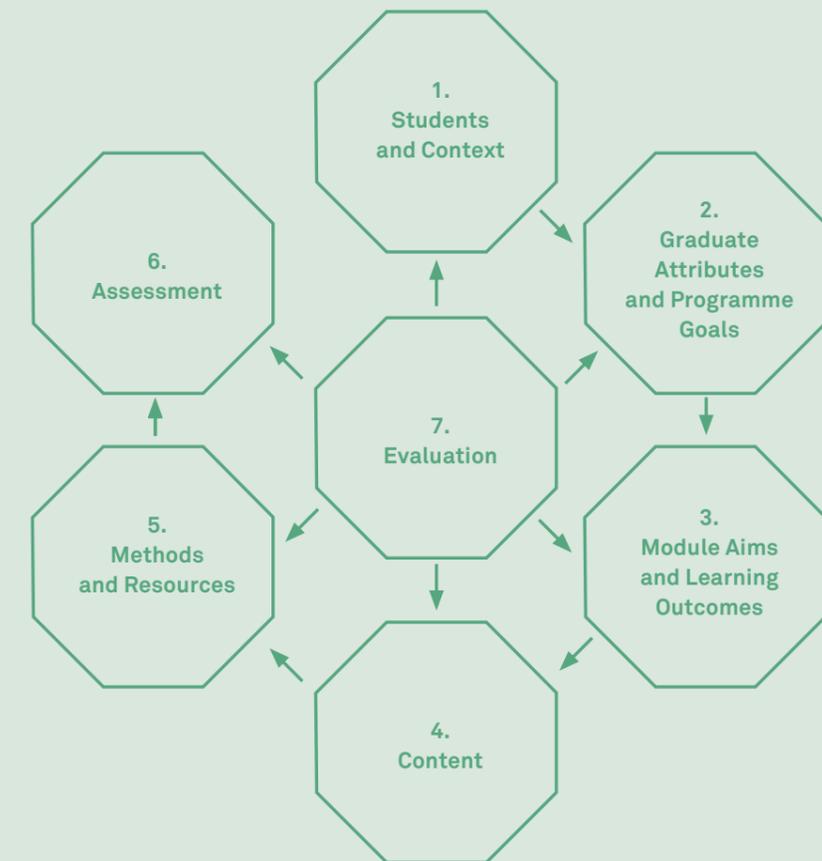
Key Learning Point

Teaching is creating and sustaining an effective environment for student learning.

The Approach

The approach used in this booklet is primarily practical but grounded in theory. To facilitate application one student-centred outcomes-based model for module design is used throughout.

Figure 1.1.
A student-centred outcomes-based
model for module design



This model differs from traditional content and method-based approaches to module design in three major ways.

1. *The process begins with consideration of the characteristics of the student population and of the international, national, institutional and professional contexts within which the module will operate.*

Key Learning Point

The approach is student-centred.

2. *The teacher's expectations of the students are made explicit from the beginning in the form of learning outcomes that constitute an organising principle on which decisions about content, teaching and learning methods and above all, assessment can be made. Thus, there are benefits for the students, who have a clear idea of what it is they have to do to succeed in the module, and for the teachers who need to make difficult decisions such as which content to include and which to exclude.*

Key Learning Point

The approach is outcomes-based.

3. *The process of specifying learning outcomes and choosing the teaching and learning methods most likely to encourage the attainment of these outcomes, together with defining assessment tasks most likely to encourage students to demonstrate their achievement of the learning outcomes is called 'constructive alignment' (Biggs and Tang, 2007).*

Key Learning Point

The approach is constructively aligned.

How to Use this Guide

The guide consists of 7 parts that together provide a step-by-step guide to module development. Alternatively, each part may be read as a standalone introduction to a particular aspect of the process.

Each part commences with the model and a set of learning outcomes indicating what readers should know and be able to do at the end of that section. Throughout the guide, key points, top tips and thinking points are highlighted along with further reading lists to assist readers to develop and apply the ideas presented.

Terminology used in Module Design

In the interests of clarity and consistency we shall employ the following definitions for key terms used in module design.

Table 1.1
Key Terms in Module Design

Module – the basic building block of a programme of study leading to the award of a degree, diploma or certificate also known as a course, unit or subject.

Aims – the teaching intention or purpose of the module and sometimes its context, for example, “the aim of this module is to introduce students to the basic concepts of Physics”.

Outcomes - what students can be expected to know and do on successful completion of a module, for example, “students should be able to analyse a contemporary scientific issue using skills in basic research, team work and critical analysis”.

Attributes - the characteristics, qualities, competencies or outcomes which graduates of a particular institution can be expected to have achieved regardless of their discipline, for example, effective communication.

Goals – discipline specific outcomes which graduates can be expected to have achieved on successful completion of a programme of study such as a Bachelor of Dentistry, for example, “apply a substantial knowledge base to clinical practice”.

Further Reading:

Biggs, J and Tang, C. (2007) *Teaching for Quality Learning at University*, 3rd edn (Maidenhead: SRHE and Open University Press). Chapter 4.

Fink, D.L. (2005) ‘*Integrated course design*’, IDEA Paper 42 (Kansas State University: IDEA Center) (online). Available: http://www.theideacenter.org/sites/default/files/Idea_Paper_42.pdf (20th June, 2015)

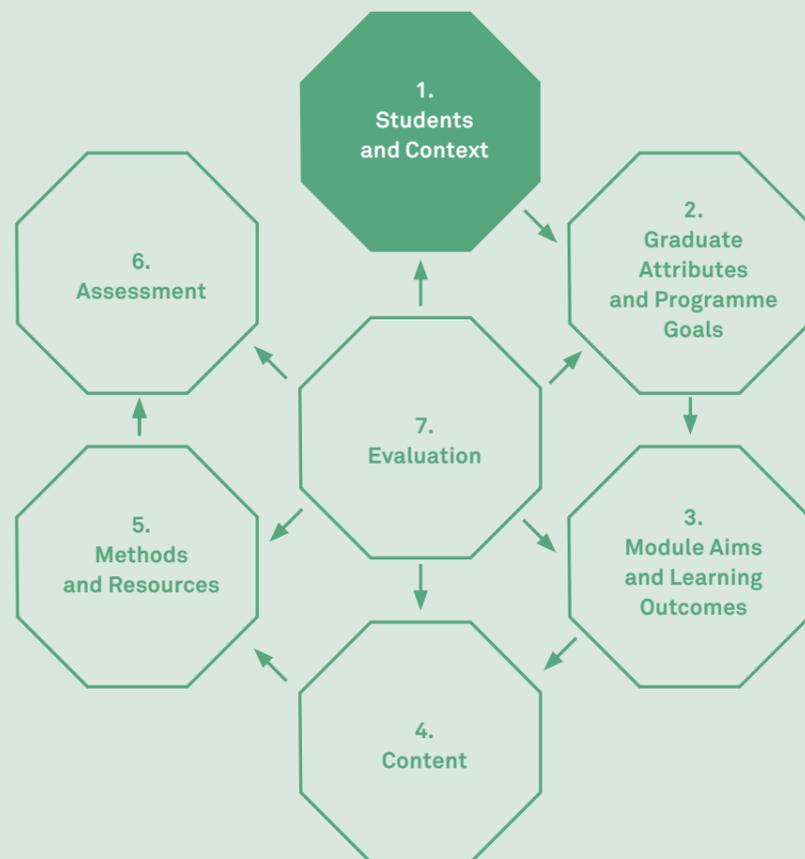
Ramsden, P. (2003) *Learning to Teach in Higher Education*, 2nd edn (London: Routledge Falmer), Chapter 8.

Part 1.

Students

and Context

Figure 1.2
Model (Students and Context)



Reader Learning Outcomes

By the end of Part 1 you should be able to:

- take into consideration the diversity of the students enrolled in your module;
- distinguish between your students' approaches to learning and their stages of intellectual development;
- evaluate the implications of these factors for module design.
- identify the contexts within which you design and teach modules;
- evaluate the significance for module design of current issues within these contexts.

Another booklet in the current series, *Promoting Inclusive Learning Environments for Nursing and Midwifery Students on Work Placements*, by Halligan, Clancy, and Howlin, offers useful insights into this work in the context of Nursing and Midwifery education.

Key Learning Point

The growth in student diversity is to be welcomed as it can contribute to a rich and stimulating learning environment. To enable this to happen, module designers must acknowledge this diversity and exploit it in positive ways to enhance the learning experience of all students.

1.1.1 Students

1.1.1 THE CHANGING STUDENT PROFILE

The proportion of the population who expect to have access to a university education has increased dramatically. Higher enrolments have led to greater economic, social, cultural and educational diversity in the student population.

Adequately supporting the diverse range of students you may encounter can be a daunting task particularly if you are new to teaching. Fortunately the growing body of literature on the inclusive curriculum provides practical guidance in creating a learning environment in which all students are given opportunities to work to their strengths.

Thinking Points

The Trinity Inclusive Curriculum Project has a range of excellent, free online resources to support the development of inclusive modules. <https://www.tcd.ie/CAPSL/TIC/>

Thinking Points

1. How diverse is your student group?
2. How will you find this out?
3. Does your institution have the following support services?*
 - International Students Support Service
 - Mature Students Support Service
 - Disability Service
 - Learning Support
 - Student Counselling
 - Teaching and Learning Centre
4. What services do they provide for you and your students?
5. How and when will you test your students' prior knowledge of your subject?
6. How and when will you test your students' literacy skills?
7. Are there any other skills you expect your students to possess, for example, specific IT Skills?

* *These are generic names for these services.*

1.2.1 Student Learning

In addition to diversity of culture, language, age and health, your students will certainly differ in how they learn and how effectively they learn.

LEARNING APPROACHES

Students may take different approaches to their learning in different modules. The approach they take will be influenced by their previous experience of education and how they perceive the demands of each new module that they encounter. Thus a student's approach to learning may vary from module to module and indeed, within a single module.

A student who adopts a 'surface' approach to learning has the primary intention of passing the module. A student who adopts a 'deep' approach to learning does so with the primary intention of understanding the module material (Marton and Saljo, 1976a; Marton and Saljo, 1976b). The following table sets out the key differences between these two approaches.

Table 1.2-
Deep and Surface Approaches to Learning
(Adapted from Lublin 2003:3-4)

Deep Approach	Surface Approach
Student's Primary Purpose: to understand the material or subject.	Student's Primary Purpose: to pass the module.
Student's Method: actively engages with material/subject and links new information to previous experience and knowledge.	Student's Method: memorises material and considers new information in isolation from previous experience and knowledge.
Student's Motivation: interest.	Student's Motivation: fear of failure.
Student's Study: reads beyond module requirements.	Student's Study: tends to stick closely to the required reading.

The two positions described above represent opposite ends of the approaches to learning spectrum. In practice, most students will adopt a position on the spectrum according to how they perceive the requirements of the module. Very few students adopt a wholly deep or wholly surface approach in any given situation. What then are the factors which influence students' approach to learning?

Summarised in the table opposite are the range of factors known to foster surface approaches to learning. Many of the factors which promote a deep approach to learning are the exact reverse of those listed below.

Table 1.3
Factors influencing a Surface Approach to Learning

- Lack of clearly stated learning outcomes or poorly articulated ones
- Too much content
- Unrealistically heavy workload
- Threatening assessment system
- Assessment which primarily tests students' recall of information
- Bored or aggressive teachers
- Lack of choice over what is to be learned

At the beginning of the module design process you need to be aware that your students are capable of taking different approaches to learning depending upon a range of factors, most of which you can influence, including the way you design modules and the teaching and assessment methods you employ.

Students' Intellectual and Ethical Development

Your students' readiness to accept the challenges of learning in higher education is also influenced by their stage of intellectual and ethical development. There are a number of different models of intellectual and ethical development described in the literature (Baxter Magolda, 1992; King and Kitchener, 1994; Perry, 1999). The table below summarises the essential similarities between them.

Table 1.4
Summary of Models of Intellectual and Ethical Development
(Adapted from Felder and Brent, 2005:65)

Stages	Characteristics
1.	Students believe that every intellectual and ethical question has one correct answer and that their teachers know what that answer is.
2.	Multiple viewpoints may be valid and authorities including teachers may not be correct.
3.	Final rejection of notions of certainty of knowledge and the omniscience of authorities.
4.	Recognise the need to base judgements on the best available evidence within the given context, even in the face of uncertainty and ambiguity.

Intellectual and ethical development is not necessarily linked to age or physical development. Most students enter university at Stage 1 and they do not necessarily progress to Stage 4 by graduation.

Thinking Points

1. How soon should students' Stage 1 conceptions be challenged?
2. What methods can be employed to support students' intellectual and ethical development without threatening them to such an extent that they retreat into a surface approach to learning?

1.2. Contexts

Much of what we do as teachers in higher education is shaped by global, national, institutional and professional contexts, in other words the broad learning environment. Consideration of these contexts provides a framework within which we are expected to operate effectively.

1.3.1 International Context

Arguably, the most influential international force on higher education in this century is the Bologna Process which is based on the 1999 Bologna Declaration and which aims to achieve an integrated European Higher Education Area (EHEA). 47 nations have signed up to the process to date and there is strong interest from the Asia Pacific region, South Africa and North America.

The intended outcomes of the Bologna Process are:

1. *comparable degrees;*
2. *uniform degree structures;*
3. *establishment of a credit point system based on student workloads and learning outcomes;*
4. *increased mobility for students, academics and administrative staff;*
5. *comparable quality assurance mechanisms;*
6. *promotion of the European dimension in higher education.*

(European Commission/EACEA/
Eurydice, 2015.)

Thinking Points

1. How has the Bologna Process influenced your institution's teaching and learning policies and practices?

1.3.2 National Context

We encourage readers to keep abreast of developments in national higher education policy and strategy. The following sources may be useful as a starting point.

**Table 1.5
Selection of Government Agencies
for Higher Education in Republic
of Ireland**

In Republic of Ireland

Higher Education Authority
<http://www.hea.ie/>

National Strategy for Higher Education
<http://www.hea.ie/en/policy/national-strategy>

National Forum for the Enhancement
of Teaching and Learning in Higher
Education

<http://www.teachingandlearning.ie/>

Quality and Qualifications Ireland <http://www.qqi.ie/Pages/Home.aspx>

In addition to government agencies, there are also a range of national and international member-based professional societies whose main aim is to support the development of good practices in teaching and learning in higher education. This booklet produced by AISHE in collaboration with the National Forum is an example of the type of support materials produced by these societies.

We encourage you join one or more of these as an easy way of keeping abreast of current trends, research and practices in higher education. The following list is not exhaustive. There are also many discipline specific societies devoted to improving teaching and learning in higher education.

**Table 1.6
Selection of Societies for Higher
Education in Ireland**

All Ireland Society for Higher Education
(AISHE)
www.aishe.org

Educational Developers in Ireland
Network (EDIN)
<http://www.edin.ie/>

International Conference on Engaging
Pedagogy (ICEP)
<http://icep.ie/>

The Irish Enquiry / Problem-based
Learning Network (FACILITATE)
<https://pblfacilitate.wordpress.com/>

National Academy for the Integration
of Research, Teaching and Learning
(NAIRTL)
<http://www.nairtl.ie/>

1.3.3 Professional Context

If you are an academic in one of the professional disciplines you will be aware of the role played by your professional body in accrediting educational programmes. The guidelines and requirements laid down by professional bodies may be specified in many different ways such as standards of competence, learning outcomes, lists of topics and even contact hours per topic. Whatever form these expectations take you should be sure that your module conforms in every respect.

Thinking Points

1. Is your module part of a programme accredited by a professional body?
2. How will you find out what the professional body requires and whether your proposed module will meet those requirements?
3. What skills and disciplinary knowledge do employers expect from graduates of the programme of which your module is a part?

1.3.4 Institutional Context

Institutional priorities, policies and practices can and do shape the environment within which students learn.

Thinking Points

1. If your university is 'research intensive' what are the implications for teaching and learning?
2. Does your institution have a strategy for teaching and learning and if so what are its main features?
3. Does your academic unit have a strategy for teaching and learning? If so, and what are its main features and how will it influence the design of your module?
4. How will your institution's regulations affect your module? Is there anything specific you need to keep in mind for this particular module?

Summary

We commenced the module design process in Part 1 by inviting you to consider your students and the contexts in which teaching and learning will occur. By recognising the features or attributes of your students which are likely to impact upon their learning – enrolment numbers, age profile, background, employment, learning approaches and intellectual and ethical development - you can accommodate them and thereby help them to learn more efficiently and effectively. When designing and teaching your module you will be working within a number of different contexts – international, national, institutional and possibly professional. Forces within these contexts will affect your module in different ways. We have suggested a number of resources which should help you to keep abreast of contextual issues and their possible implications.

Further Reading:

Griffiths, S. (2010) *Teaching for Inclusion in Higher Education: A Guide to Practice* (Dublin: Higher Education Academy, AISHE, HEA) (online). Available: <http://www.aishe.org/resources/griffiths-2010/> (20th June, 2015).

Palfreyman, D. and McBride, D. (eds) (2007) *Learning and Teaching Across Cultures in Higher Education* (New York: Palgrave MacMillan).

Ryan, J. (2007) *A Guide to Teaching International Students* (Oxford Brookes University: OCSLD).

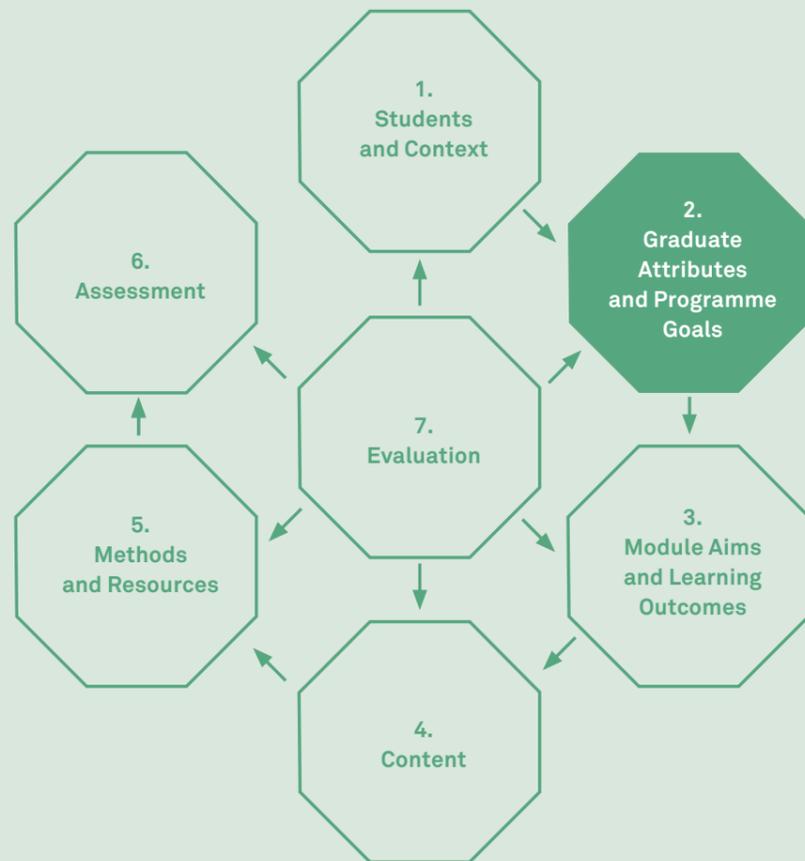
Carnegie Foundation for the Advancement of Teaching (online). Available: www.carnegiefoundation.org (20th June, 2015).

The Official Bologna Process Website <http://www.ehea.info/> (online). Available: (20th June, 2015)

Part 2.

Graduate Attributes & Programme Goals

Figure 2.1 Model (Graduate Attributes and Programme Goals)



Reader Learning Outcomes

By the end of Part 2 you should be able to:

- define a learning outcome;
- recognise the value of learning outcomes to module designers, students and employers;
- define graduate attributes;
- define a programme goal;
- recognise the relationship of graduate attributes and programme goals to your module.

The most general of these outcomes are graduate attributes and programme goals which are usually specified at the commencement of the curriculum design process.

2.1.2 Graduate Attributes

Graduate attributes which are also known as graduate competencies or qualities, usually describe a set of outcomes which all graduates of a particular institution can be expected to achieve - irrespective of their chosen discipline. In this sense each list of graduate outcomes will be a unique reflection of that institution's shared values and beliefs about the broad purpose of higher education.

The following graduate attributes are drawn from Dublin City University's Generation 21 programme (DCU, 2015). The list is broadly indicative of the types of graduate attributes articulated by higher education institutions internationally. However the specific configuration is unique to DCU and reflects the institution's vision of the relationship between the DCU graduate, the wider society and the world of work.

Learning Outcomes

Modules sit within a broad curriculum framework consisting of graduate attributes and programme goals both of which are types of learning outcome.

Key Learning Point

A learning outcome is a statement specifying a desired change in students' behaviour, skills, knowledge or attitudes.

A learning outcome specifies what it is students should know and be able to do by the end of a learning activity. This activity may be as long as a programme leading to the award of a degree, a module covering one academic year or indeed a single class. Hence learning outcomes may be written at different levels of generality.

Table 2.1
Dublin City University Graduate
Attributes

Creative and Enterprising

DCU students are encouraged to be innovative in their approaches to problem-solving. DCU graduates will be adaptable and willing to pursue new ideas.

Solution-Oriented

DCU emphasises the use of evidence and understanding as guides to action. DCU graduates will be adept at applying knowledge to issues encountered in the workplace and in society

Effective Communicators

DCU motivates students to appreciate the importance of communication in all its dimensions. DCU graduates will be able to draw on appropriate skills to negotiate effectively, to collaborate, and to influence others

Globally Engaged

DCU encourages students to be locally and globally aware, to value tolerance and cultural diversity, and to be committed to civic engagement. DCU graduates will understand the importance of engaging with their communities in an ethically responsible manner.

Active Leaders

DCU focuses strongly on the development of leadership skills. Graduates will appreciate that it is their personal responsibility to take the initiative and to effect change for the better in every walk of life.

Committed to Continuous Learning

DCU promotes a spirit of inquiry, reflection and evaluation. DCU graduates will have learned that knowledge is not fixed or static, and that insights and skills can always be deepened and developed

Top Tip

The Generation 21 Programme showcases useful resources for integrating development of graduate attributes into degree programmes. <http://www.dcu.ie/generation21/index.shtml>

The challenge for module designers is to interpret their institution's graduate attributes in the context of their discipline and module, for example, what does it mean to be a globally engaged history graduate?

It should be noted that while it is not necessary that each graduate attribute be taught and learned in each module it is essential that each be acquired or developed to an appropriate level at suitable points across the programme.

Key Learning Point

Where possible, you should collaborate with other module designers to ensure that all graduate attributes are covered appropriately and explicitly over the length of the programme.

Thinking Points

1. Does your university or college publish a list of graduate attributes?
2. If so, how will your module contribute to the achievement of these attributes by your students?

2.2 Programme Goals

Programme goals are learning outcomes describing in broad discipline-specific terms what students should know and what they should be able to do on completion of a programme of study.

VALUE OF PROGRAMME GOALS
TO STUDENTS AND EMPLOYERS

Programme goals give students a very broad idea of the knowledge and skills they can expect to have acquired on successful completion of a programme. They also clarify for potential employers among others the knowledge, skills and attitudes they can expect a successful graduate to possess.

VALUE OF PROGRAMME

GOALS TO MODULE DESIGNERS

Programme goals provide module designers with a framework on which a coherent and comprehensive academic programme can be developed. To ensure such coherence becomes a reality module designers should collaborate closely. Programme goals may differ in their specificity according to disciplinary requirements. Programme goals for professional programmes may be quite specific as in Table 2.2 below or they may be much more general as in Table 2.3.

Table 2.2.
Programme Goals
for Nursing in the Republic
of Ireland (Nursing and Midwifery
Board of Ireland, 2014).

The programme learning outcomes will enable the nursing graduate to:

- Demonstrate professional values to fulfil the role of registered nurse to deliver safe, high quality compassionate, ethical, legal and accountable practice across the life spectrum and in diverse settings.
- Practise as a competent registered nurse to assess, plan, prioritise, deliver and evaluate nursing care based on a comprehensive and systematic assessment of health and nursing needs in consultation with the person receiving such care.
- Demonstrate the capacity for self awareness, reflective practice, leadership and professional scholarship to review and maintain competence through continuing professional development.

Table 2.3
Programme Goals for the
Two Subject Moderatorship

Two Subject Moderatorship
Programme Learning Outcomes

Students who have successfully completed their programme of study in the Two Subject Moderatorship will be able to show:

- a comprehension of the theory, concepts, methods and processes pertaining to two distinct fields of learning;
- a detailed knowledge, of two specialized areas, some of it at the current boundaries of the subjects;
- that they can apply this knowledge and comprehension in a manner that indicates a thorough and informed approach to their work, and have competences typically demonstrated through devising and sustaining arguments, and formulating and solving problems within their fields of study;

- that they have a mastery of a number of specialized skills and tools which they can use selectively to address complex problems and, particularly in the case of the major subject, to conduct an advanced research project under closely guided supervision;
- that they have the ability to gather, evaluate and interpret relevant data to inform independent judgments which include reflection on relevant social, historical, literary, linguistic, philosophical, aesthetic, scientific or ethical issues;
- that they can act effectively, under guidance, in a peer relationship within multiple, complex and heterogeneous groups;
- that they can communicate information, ideas, problems and solutions to both specialist and non-specialist audiences;
- that they have developed those learning skills that are necessary for them to continue to undertake further study with a high degree of autonomy.

(TCD, 2015)

Key Learning Point

Where possible, you should collaborate with other module designers to maximise programme coherence.

Thinking Points

1. Does your degree, diploma or certificate programme publish programme goals?
2. If so, how will your proposed module contribute to the achievement of these goals by your students?

Summary

In Part 2 we introduced learning outcomes as an organising basis for programme and module design and highlighted the value of programme goals for module designers, students and employers. In your own institution, you may encounter graduate attributes and / or programme goals to which your module will be expected to contribute. Programme goals may be quite specific in the case of the professional disciplines. In other instances, there may be neither formal graduate attributes nor programme goals, but there will probably be implicit expectations of graduates of specific programmes. Whatever the case, as a module designer you should collaborate with colleagues to ensure that your proposed new module is compatible with others in the programme and that it contributes to its goals, whether these are expressed formally or are informal expectations.

Further Reading

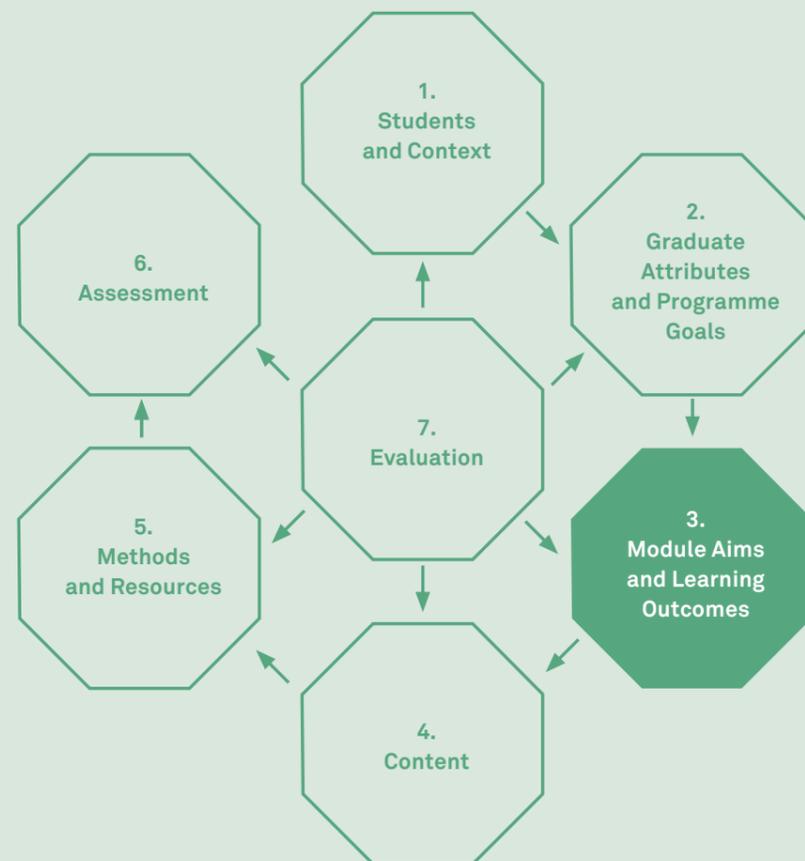
National Qualifications Authority of Ireland (2009) *The National Framework of Qualifications* (on line). Available: <http://www.nfq.ie/nfq/en/index.html> (20th June, 2015).

Barry, S. and Prosser, M. (eds) (2004) 'Generic graduate attributes: citizens for an uncertain future', *Higher Education Research and Development* 23 (3).

Part 3.

Teaching Aims & Module Learning Outcomes

Figure 3.1
Model (Module Aims and Learning Outcomes)



Reader Learning Outcomes

By the end of Part 3 you should be able to:

- explain the purpose of teaching aims and their relationship to learning outcomes;
- Identify the types of learning outcomes most commonly used in higher education;
- explain the purpose of the various types of learning outcomes;
- explain the purpose of levels within types of outcomes;
- write module learning outcomes that indicate to students what they need to learn in order to pass the module.

Module Title:

Ireland, Britain and Western Europe 400-1000 – Part B

Teaching Aim:

This module deals with the exciting political, ecclesiastical and cultural development of early medieval Europe, with a particular emphasis on Ireland and Anglo-Saxon England. Attention is focused on the origins of institutions (for example, monasticism, towns, national kingships) which were to shape European society subsequently. It concentrates on the end of the Roman Empire and all the consequences this had for Britain and Europe. It then examines the different types of Christian conversion that were to have such a profound impact on Europe generally and finishes with an examination of Visigothic Spain.

Adapted from Barry, 2008.

Teaching aims and learning outcomes can be seen as different sides of the same coin. Teaching aims focus on the teacher's intentions with regard to the nature and direction of the module while outcomes focus on what the students will learn.

Teaching Aims

Teaching aims provide an introduction to a module by outlining its scope in terms of content to be covered by the teacher and possibly its place within the degree programme. Aims focus on what the teacher intends to do rather than what is expected of students. The main value of specifying teaching aims in the context of our model is that the very act of articulating your aims for the module can help you to clarify what it is you want your students to achieve. For example:

Module Title:

Statistical Analysis 1

Teaching Aims:

This module aims to give students an understanding of how statistical analysis may be employed to solve real-world problems. Specifically, this module introduces students to the fundamentals of statistical analysis and how to apply these fundamentals to real-world problems using the built-in libraries in excel. Students also have the opportunity to reinforce their problem-solving skills by developing solutions to statistical problems and implementing those solutions.

Adapted from Sharp, 2011

Types and Levels of Learning Outcomes

In this section we shall examine some types of learning outcomes applicable to modules in universities and colleges.

2.2.1 Types of Learning Outcomes

We distinguish between three broad types of learning outcomes:

1. *intellectual skills;*
2. *practical (generic and discipline specific) skills;*
3. *attitudes and values.*

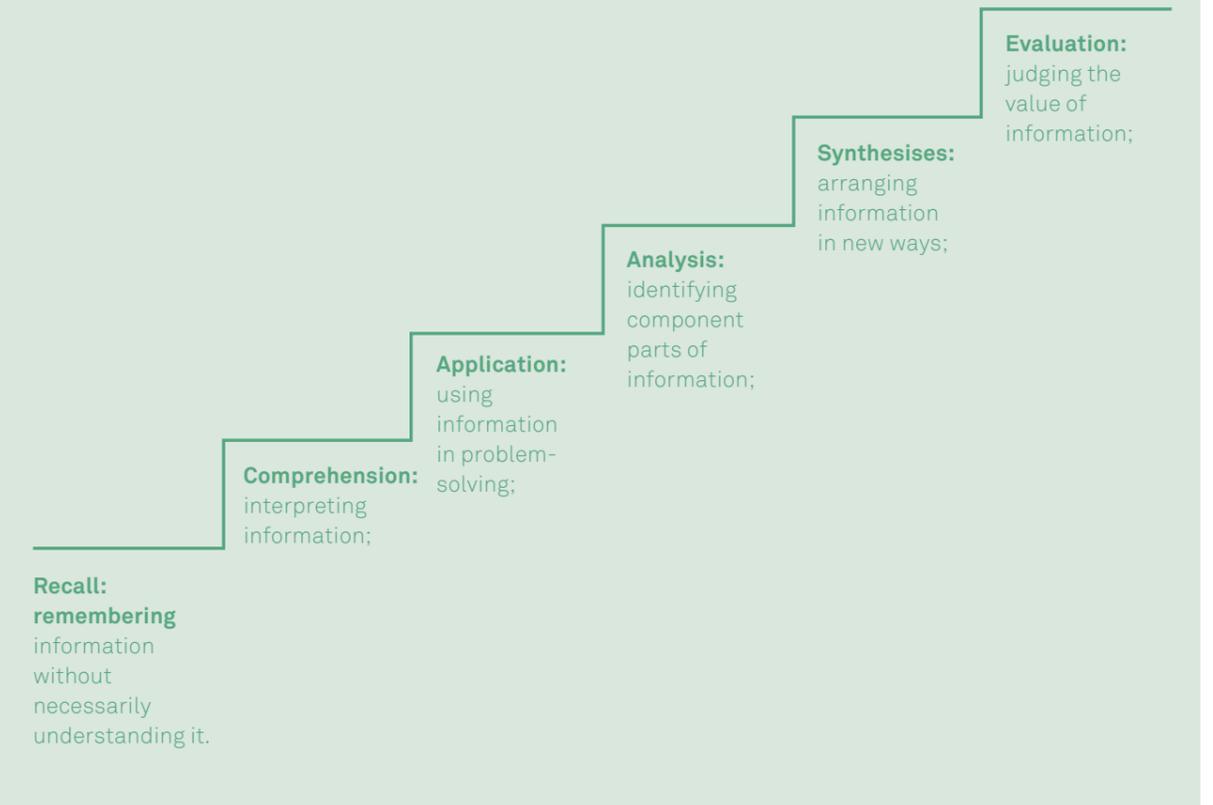
We recognise that it is not always obvious whether a skill should be classified as intellectual or practical and the distinction between them is somewhat artificial but this is not a major concern in the context of designing a module where the important consideration is that you identify the full range of skills which students will need to demonstrate by the end of your module.

LEVELS OF INTELLECTUAL SKILLS

The acquisition of disciplinary knowledge for its own sake is an important feature of a university education but we also want students to use this knowledge in various ways depending on their stage of progression. In their first year for example, it may be enough that students simply recall information they have learned, but in later years we expect students to use knowledge in more sophisticated ways which require higher order intellectual skills such as analysis.

This idea leads to the concept of a taxonomy or classification of learning outcomes related to intellectual skills development. The most widely known taxonomy of this type was developed by Bloom and associates (Bloom et al 1956) and more recently revised by Anderson and Krathwohl (2001).

Figure 3.2
Taxonomy of Intellectual Skills Development
(Adapted from Anderson and Krathwohl, 2001).



The taxonomy commences with ‘Recall’ at the lowest level and moving up to ‘Evaluation’ at the highest. Each level needs to be interpreted in the relevant disciplinary context. Using ‘Analysis’ as an example, in medicine it may be equated with diagnosis of a patient’s illness. In chemistry, it may mean discovering the constituent parts of a complex molecule. ‘Synthesis’ may similarly mean treatment of the patient’s illness or the development of a new drug. In practice this means that the module designer must identify the appropriate level of achievement, for example ‘Analysis’ and write a learning outcome using a verb relevant to the particular discipline and appropriate to the level of achievement.

An important point to note about the taxonomy is that each level subsumes those below it, for example, to design a bridge - **synthesis** - it is necessary to **recall** the basic principles of statics and dynamics and to **apply** concepts and principles to new situations.

LEVELS OF PRACTICAL (GENERIC AND DISCIPLINE-SPECIFIC) SKILLS

Generic Practical Skills

These skills are also known as key, transferable, core and soft skills and they are often related to institutional graduate attributes.

Graduates in possession of well developed generic skills are sought after by employers. This list summarises commonly identified generic practical skills:

1. *written and oral communication skills;*
2. *teamwork skills;*
3. *leadership skills;*
4. *time management;*
5. *Independent or lifelong learning skills.*

Until quite recently such skills were usually taught and learned implicitly within many programmes.

The credit level descriptors for higher education produced by the Southern England Consortium for Credit Accumulation and Transfer (SEEC, 2010) is a useful guide to developing increasingly complex practical generic skills outcomes which will challenge your students and encourage them to take greater responsibility for learning as they progress through the programme. Thus, for example:

Discipline-specific Practical Skills

These are the practical skills required of graduates in specific disciplines. For example an engineering graduate may be required to write computer programmes. Typical discipline specific practical skills are:

- *laboratory skills;*
- *clinical skills;*
- *information search and retrieval;*
- *use of appropriate research methodologies;*

- *statistical skills;*
- *numerical skills;*
- *performance skills.*

Once again we note that it is possible to adapt the relevant parts of the SEEC framework (SEEC, 2010) to provide guidance for the development of practical discipline specific skills outcomes which are applied in increasingly complex and unpredictable situations and practised with greater levels of autonomy by students.

Table 2.4
Writing Generic Practical Skills
(adapted from SEEC (2010) pp.11-14).

Year	Skill – Team and Organisational Working
1.	Can work effectively with others and recognises the factors that affect team performance.
2.	Can interact effectively within a team, giving and receiving information and ideas and modifying responses where appropriate.
3.	Can interact effectively within a team, recognise, support or be proactive in leadership, negotiate in a professional context and manage conflict.
4.	Works effectively with multiple teams as leader or member. Clarifies tasks and makes appropriate use of the capacities of team members resolving likely conflict situations before they arise.

Table 2.5
Writing Discipline-specific Practical Skills
(adapted from SEEC (2010) pp 11-14).

Year	Application	Autonomy in Skill Use
1.	Can operate in predictable defined contexts that require use of a specified range of standard techniques.	Is able to act with limited autonomy under direction or supervision with defined guidelines.
2.	Can operate in situations of varying complexity and predictability requiring application of a wide range of techniques and information sources.	Able to act with increasing autonomy with reduced need for supervision and direction with defined guidelines.
3.	Can operate in complex and unpredictable contexts, requiring selection and application from a wide range of innovative or standard techniques and information sources.	Able to act autonomously with minimal supervision or direction within agreed guidelines.
4.	Can operate in complex, unpredictable and/or specialised contexts, requiring selection and application from a wide range of advanced techniques and information sources.	Acts with initiative in decision-making and accessing support, within professional or given guidelines, accepting full accountability for outcomes.

Attitudes and Values

Attitudes and values have always been part of the higher education curriculum. As in the case of some practical skills, certain attitudes and values have often been ‘taught’ and ‘learned’ implicitly. For example, plagiarism has always attracted a penalty. More recently the requirement for formal acknowledgement of the work of others has been made more explicit to first year undergraduates and emphasised both as a formal requirement and an expression of a scholarly and ethical value.

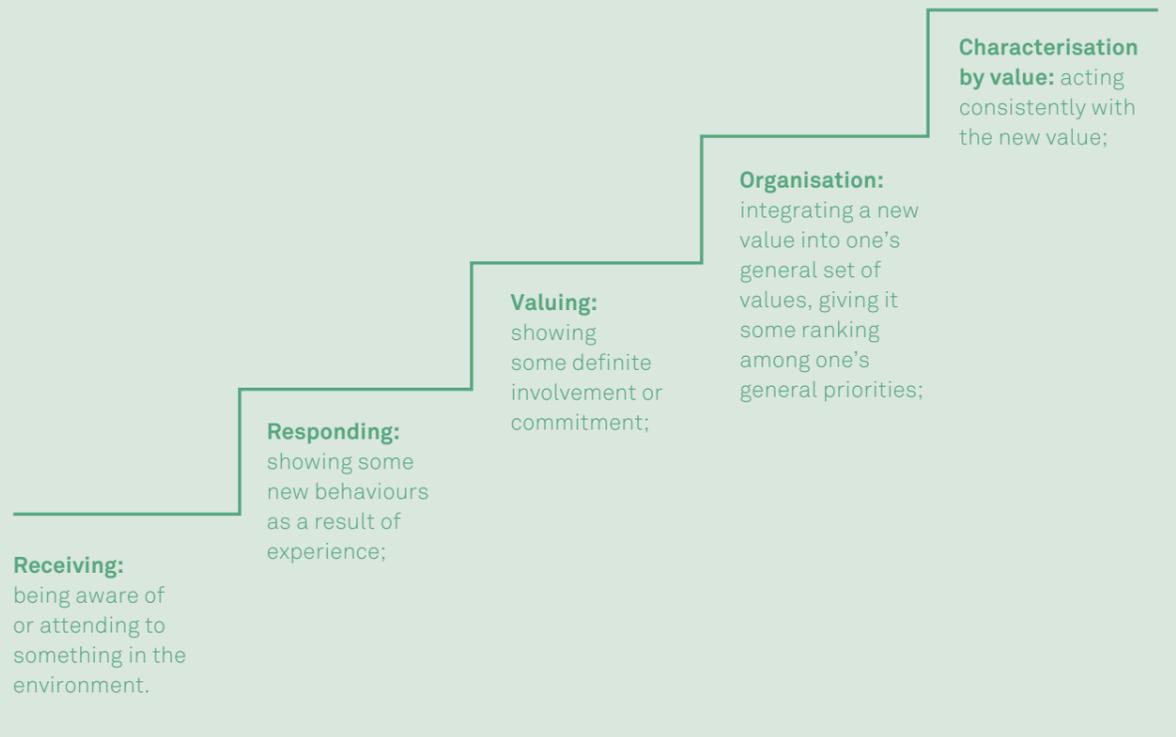
Institutional graduate attributes may provide broad statements about attitudes and values which will need to be interpreted by the module designer.

Professional bodies also prescribe specific attitudes and professional values.

The best known taxonomy of educational outcomes related to attitudes and values was developed by Bloom, Krathwhol, and Masia (1956-1964). Here, we will use an adaptation of Bloom’s original which describes five possible levels or ways of responding to a new value or attitude. As with the hierarchy of intellectual skills outcomes, each level subsumes all those beneath it, thus ‘valuing’ an attitude assumes one is ‘aware’ of the attitude in the first place

* *These levels are not intended to relate to particular years in an academic programme.*

Figure 3.3
Taxonomy of Values Development
(Adapted from Huitt, 2001.)



Using Huitt (2001) as a guide we can write increasingly more sophisticated learning outcomes to reflect the desired development of students’ scholarly values on the issue of plagiarism. For example:

(Receiving)

By the end of this module students should be able to recognise how plagiarism may occur both intentionally and unintentionally in academic work

(Responding)

By the end of this module students should be able to use their knowledge of plagiarism to ensure they avoid it in their own work by appropriate referencing of sources.

Top Tip

If your students are in the early stages of their intellectual and ethical development* you should be careful not to set module learning outcomes related to attitudes and values at too high a level. This is particularly the case if your module falls within the early years of a degree programme.

* See Table 1.4’ on the next line after ‘Degree programme’

Practical Advice on Writing Module Learning Outcomes

You should check whether your institution has formal specifications on how to write outcomes but the following template will give you a general guide.

Module Writing Template

1. A SET OF MODULE LEARNING OUTCOMES SHOULD BE PREFACED WITH THE FOLLOWING:

By the end of this module you should be able to...

- *The use of ‘you’ rather than ‘students’ is meant to personalise the subsequent learning outcomes so that each student will recognise what he or she is individually expected to do.*
- *The use of ‘will’ rather than ‘should’ is not recommended because unlike teaching aims, the achievement of learning outcomes is not under the teacher’s control and it is possible that some students will fail to achieve one or more outcomes.*

2. THE PREFACE SHOULD BE FOLLOWED BY THE LIST OF DESIRED OUTCOMES. FOR EXAMPLE:

By the end of this module you should be able to...:

1. *list some factors which may affect student learning;*
2. *distinguish between deep and surface approaches to learning;*
3. *discuss the implications of students’ learning approaches for teaching;*
4. *write appropriate learning outcomes for your modules;*
5. *empathise with the challenges facing students whose first language is not English.*

- Note that the first word in each of the outcomes statements is a verb. The use of a verb here is intentional because it indicates what students will need to do to demonstrate their learning.
 - We strongly suggest you do not commence your outcomes statements with verbs such as 'understand', 'appreciate' or phrases such as 'be familiar with'. These otherwise useful verbs and phrases are not assessable, that is, they do not tell students what they must actually be able to do, in order to demonstrate their learning. How do you demonstrate 'understanding', 'appreciation' or 'familiarity'?
3. LEARNING OUTCOMES ARE STATEMENTS OF WHAT STUDENTS MUST DEMONSTRATE TO PASS A MODULE AND REPRESENT THE MINIMUM ACCEPTABLE STANDARD.
- Statements of what students must do to achieve grades higher than a pass are matters of assessment criteria which should be made explicit to students but they should not be included in the learning outcomes. We shall discuss assessment criteria in Part 6.
 - There is no 'right answer' to the question of how many learning outcomes to specify for a module. The number of outcomes listed should depend on a range of factors including the length of the module, the amount of time students can reasonably be expected to spend on this module outside of class, the complexity of the subject material, the resources available to students, and less tangible factors such as student motivation and their levels of intellectual development. As a broad guide however, if the learning outcomes address the three areas; intellectual skills, practical skills and attitudes and values there should be no more than ten.

Top Tip

If you find yourself writing a learning outcome that commences with 'understand', ask yourself what your students will have to do to demonstrate their understanding? The answer to this question should give you a more specific and therefore more useful learning outcome.

Thinking Points

1. Does your module aim provide students with a useful introduction to the module and its place in the programme?
2. Do your module learning outcomes indicate to students what they need to learn in order to pass the module?
3. Do your learning outcomes cover the range of intellectual skills, practical skills (generic and discipline specific) and attitudes and values that are essential to the module?
4. Have you avoided using words such as 'understand' and 'appreciate' and phrases such as 'be familiar with' in your list of learning outcomes?
5. Do your learning outcomes conform to institutional requirements and preferred format?
6. Have you checked your institution's website for guidance on writing aims and outcomes?

Summary

Traditionally, module design in universities has emphasised acquisition of intellectual skills (knowledge). Recently however, pressure from employers and governments has led to a greater and more explicit emphasis on the development of practical skills and appropriate attitudes and values, but not however, at the expense of knowledge. Module designers therefore, need to ensure that practical skills, attitudes and values are included as learning outcomes at appropriate levels.

Further Reading

Anderson, L. W. and Krathwohl, D. (eds) (2001) *A Taxonomy for Learning, Teaching and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives* (New York: Longman).

Kennedy, D. (2007) *Writing and Using Learning Outcomes: A Practical Guide* (Cork: University College Cork).

Moon, J. (2002) *The Module and Programme Development Handbook*. (London: Kogan Page), Chapter 5.

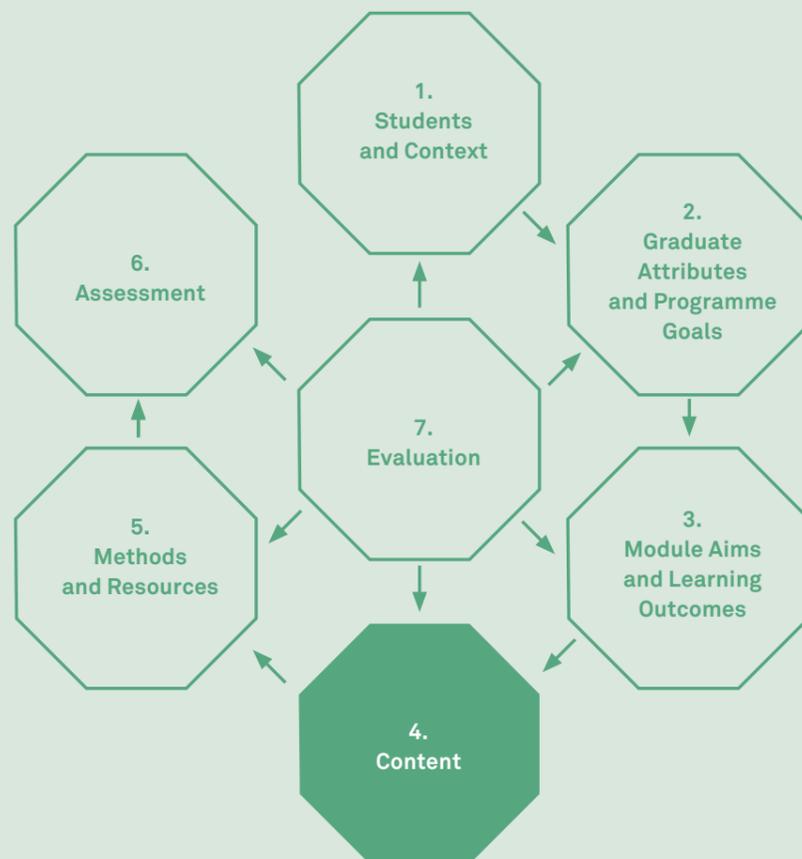
SEEC (2010) *Credit Level Descriptors for Higher Education*. Southern England Consortium for Credit Accumulation and Transfer (online) Available www.seec.org.uk (16th June, 2015).

Trinity College Dublin Careers Service Transferable Skills (online) Available https://www.tcd.ie/Careers/downloads/Transferable_Skills_flyer.pdf (16th June, 2015).

Part 4.

Content Selection and Sequencing

Figure 4.1
Model (Content Selection and Sequencing)



Reader Learning Outcomes

By the end of Part 4 you should be able to:

1. assess the impact of your discipline's curriculum approach to content selection and structuring;
2. recognise the need to select content rather than simply accept it as a given;
3. discuss the role of content selection in influencing students' approaches to learning;
4. distinguish between content which is essential to know and that which is nice to know in the context of learning outcomes;
5. select content which is most likely to assist students to achieve the module learning outcomes.

Having written your module aim and learning outcomes, your next step having due regard to the resources available to you is to choose appropriate content.

Selection Versus Assumption of Content

The two following 'curriculum ideologies', "discipline-based" and "social critical" are those which we believe to be most prevalent in higher education.

1. The Discipline-based Approach

- *Most university modules follow the structure of knowledge in the discipline.*

- *Modules are divided into topics based around important information, facts and concepts and structured in some rational manner such as chronological or causal.*
- *Breadth of content is desirable, as undergraduate students are expected to acquire a broad picture of the field.*

2. The Socially Critical Approach

- *This approach seeks to develop a critical consciousness in students.*
- *Students become aware of the present ills of our society and are motivated to alleviate them.*
- *Content is drawn from the pervasive and significant problems of the day.*
- *Content is usually organised around investigations, themes or projects.*
(Toohey, 1999:49-50, 63-65)

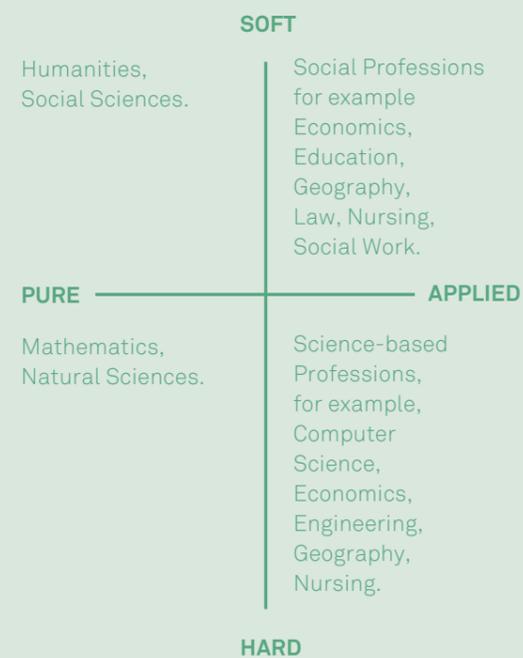
Thinking Point

Which of these 'ideologies' characterises the approach to curriculum design for undergraduate programmes in your discipline? If neither fits, how would you describe your discipline's approach?

Another way of characterising different approaches to curriculum design and in particular, the selection and structuring of content is by way of analysing fundamental differences between disciplines. Becher and Trowler (2001), distinguish between groups of disciplines as either hard-pure, hard-applied, soft-pure or soft-applied.

Neumann, Parry and Becher (2002) have used these distinctions to examine the implications for curriculum design. The following diagram plots the positions of the major disciplines in relation to Becher and Trowler's distinctions. Note that some disciplines, for example, Nursing, Economics and Geography, may exhibit both hard and soft characteristics.

Figure 4.2
Disciplinary Differences
(Adapted from Becher and Trowler, 2001:36).



The following points summarise this diagram in relation to curriculum design.

Hard-pure Disciplines

- *Knowledge is cumulative.*
- *In the junior years of undergraduate programmes the focus is traditionally on providing students with a knowledge base, the focus being on recall and comprehension of key facts and concepts.*
- *In senior years of undergraduate programmes, students acquire disciplinary understanding with a focus on analysis, synthesis and evaluation.*

Soft-pure Disciplines

- *During their undergraduate programmes, students may return to similar areas of content with increasing degrees of subtlety and insight.*
- *Students may be confronted in their junior years with current debates in the discipline or recent theorising.*
- *The process of understanding the discipline begins in the junior years.*

Hard-applied Disciplines

- *Knowledge is cumulative as in the hard-pure disciplines.*
- *Techniques are mastered progressively, in linear sequence.*

Soft-applied Disciplines

- *The characteristics of soft-pure disciplines are embodied but with an applied focus.*
- *Techniques are developed through a reiterative process.*

(Neumann et al 2002).

These distinctions may provide module designers with broad guidance about the selection of content. For example, an introductory physics module would be unlikely to include the most recent advances in quantum theory simply because the students would not have the mathematical base to handle the content. On the other hand an introductory module in English (a soft-pure discipline) could well introduce students to the latest theories in literary criticism.

Analysing one's disciplinary predisposition in relation to curriculum design is necessary but not sufficient to ensure the appropriate selection of content for two reasons. Firstly, you may find yourself in an academic unit which does not follow a traditional discipline-based approach to curriculum design as outlined above. Problem-based Learning for example, which is used most often in 'hard-applied' disciplines turns the traditional approach on its head by introducing students to higher order problem solving in the junior years of the programme. Secondly, whether you choose to follow disciplinary tradition or not, you are still left with little guidance on the quantity of content to include in your module. Take for example an Introductory Module on World War Two.

- 1. Where should the module begin**
 - a. Intellectual origins of fascism?
 - b. World War 1 and the Treaty of Versailles?
 - c. Events of 1939?
- 2. When should the period covered end**
 - a. Events of 1945?
 - b. Rise of the Cold War?
- 3. Which important battles should be included**
 - a. El Alamein?
 - b. Midway?
 - c. Stalingrad?
 - d. Others?
- 4. How much attention should be given to social and political aspects?**
- 5. How much attention should be given to the 'great leaders' - Churchill, Roosevelt, Stalin, Mussolini, Tito and Hitler?**
- 6. How much attention should be given to the Holocaust?**
- 7. How much attention should be given to the role of neutral countries?**

In science-based disciplines the problem is both simpler and more complex. On the one hand it is relatively easy to exclude out of date knowledge. No physics module would now include the characteristics of electronic valves in detail and no chemistry module would deal with the finer points of phlogiston theory. On the other hand, on what basis can we exclude knowledge which is not out of date?

The explosion of knowledge in the sciences is reflected in modules with ever more content which is increasing in complexity. Thus, for example, fifty years ago basic quantum mechanics was taught in final year physics modules. The topic is now frequently found in introductory modules.

Failure to face these issues leads to an inevitable result – curricula become ever more crowded as new material is added with older material being retained. And, as noted in Part 1, overcrowded curricula are one of the main causes of surface approaches to learning which do not promote retention of knowledge in the longer term.

How then should you select module content? We assert that content should be selected on the basis of what students **need** to know and **need** to be able to do in order to achieve the learning outcomes, that is, to pass the module. Undoubtedly there is always content which it would be **nice** for students to know, particularly the more able students, but such content should be introduced with care. The following example demonstrates this distinction.

Programme:

BSc in Science (Nursing), TCD.

Target group:

Undergraduate nursing students who will be registered as nurses in Ireland.

Module:

NU1S06 Sociology of Health and Illness

Outcome:

By the end of this module, students should be able to critically explore how social factors such as class, ethnicity and gender affect health and life span.

Content:

Students need to know about Travellers as an Irish minority ethnic group. [While it would be nice for them to have an international perspective on ethnicity as a factor affecting health and life span of ethnic minority groups in other countries, the inclusion of such topics does not directly address the needs of the target student group who wish to become registered nurses in Ireland. Hence, the health problems of Australian Aborigines could be mentioned in this context but they would not be the main focus of attention].

Adapted from Brennan, 2014.

Another way of looking at this issue is to ask what content can be left out rather than what needs to be put in.

Top Tip

Choose only that content which will enable students to achieve the desired learning outcomes.

Sources of Assistance

Having identified your disciplinary predisposition in relation to content selection and sequencing, and referred back to the module learning outcomes for more specific guidance in content selection, you can find other sources which should be exploited to further refine your selection.

– **Academic Colleagues**

Academic colleagues will have ideas about what they consider to be core content which students need to know. Where your module is a pre-requisite for others, it is important to discover what your colleagues believe your students should learn in order to prepare them for those later modules. You may also find it useful to contact colleagues teaching similar modules in other institutions

– *Textbooks can be another useful source but you should be careful to choose content which matches your module learning outcomes.*

– **Client Academic Units (Service Modules)**

The distinction between ‘essential to know’ content and ‘nice to know’ content is particularly important in service modules where it is essential that the service provider liaise with the client unit to discover just what it is that their students need to know.

– **The Profession**

Information on the current requirements for professional accreditation varies greatly in detail. Discussions with employer groups can highlight useful information related to graduate destinations, future trends for the profession and changing graduate requirements.

– **Students and Graduates**

Student feedback from previous cohorts can uncover issues related to the quantity and complexity of content as well as identifying topics students find particularly interesting, relevant and challenging.

– **Your Own Research Interests**

This should not be your prime consideration but if you can select content which you are enthusiastic about, you are more likely to pass this enthusiasm on to your students.

Sequencing Content

The primary consideration in sequencing content should be to use the approach which is most likely to assist your students to achieve the specified learning outcomes.

Approaches to sequencing content which you may find useful*:

- *Time, for example, chronological sequencing;*
- *degree of complexity, for example, from simple to complex where content learned later in the module subsumes earlier content;*

- degree of difficulty, for example, commence with simple skills and move on to more difficult ones;
- forms of expression, for example, literature module divided into poetry, prose and drama;
- functional systems, for example, systems of the human body;
- significant processes, for example, life cycle of an employee from recruitment to retirement.

(Toohey, 1999:92-93).

Note: These approaches are not mutually exclusive, for example, a literature module may be divided by forms of expression with each form treated chronologically.

Thinking Points

1. How would you describe your discipline or teaching area in terms of Becher and Trowler's (2001) categories – soft or hard, pure or applied?
2. In what ways might this description influence the choice of content in your proposed module?
3. Given your proposed learning outcomes what content do you need to include and what can you safely reject?
4. What can you expect students to have learned from previous modules?

5. Is your module a pre-requisite and if so what content will your students be expected to know and what should they be able to do in later modules?
6. Have you checked with colleagues, employers, students, graduates to maximise selection of appropriate, relevant and interesting content?
7. What approaches will you use to sequence content?

Further Reading

Becher, T. and Trowler, A. (2001) *Academic Tribes and Territories*, 2nd edn (Buckingham: SRHE and Open University Press), Chapters 2 and 3.

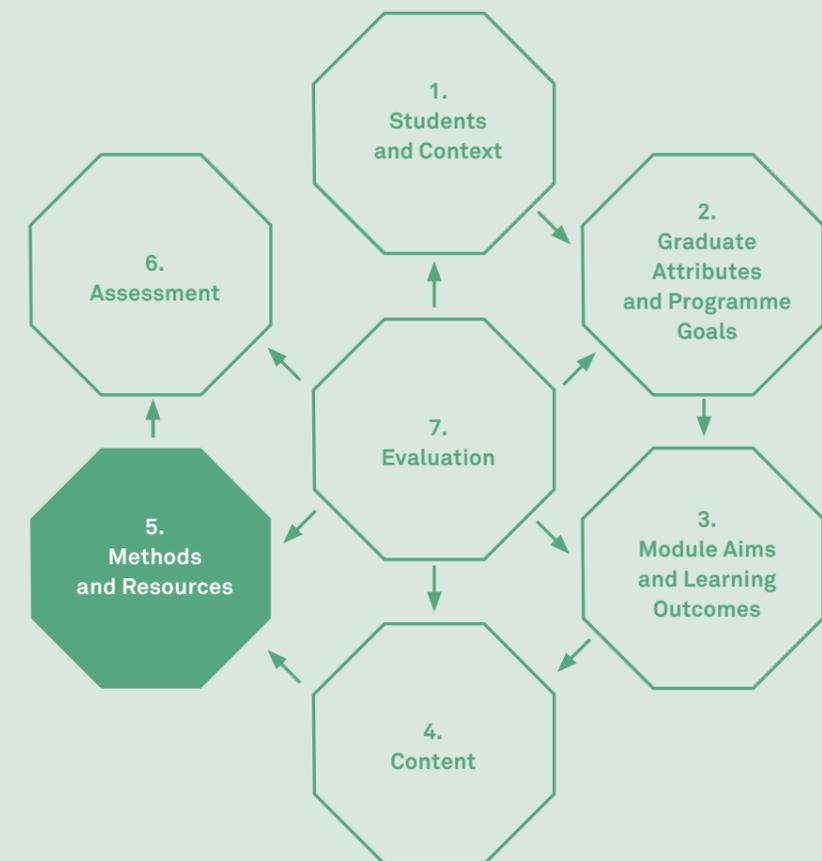
Nelson Laird, T. F. Shoup, R. Kuh, G.D. Schwarz. M.J. (2008) 'The effects of discipline on deep approaches to student learning and college outcomes', *Research in Higher Education* 49, 469-494.

Neumann, R. Parry, S. and Becher, T. (2002) 'Teaching and learning in their disciplinary contexts: a conceptual analysis', *Studies in Higher Education* 27 (4), 405-417.

Toohey, S. (1999) *Designing Modules for Higher Education* (Buckingham: SRHE and Open University Press), Chapter 4.

Part 5. Teaching and Learning Methods

Figure 5.1
Model (Teaching and Learning Methods)



Reader Learning Outcomes

By the end of Part 5 you should be able to:

1. recognise a range of teaching and learning methods widely used in higher education;
2. identify the factors which may influence your choice of teaching and learning methods;
3. compare strengths and weaknesses of traditional lectures and problem-based learning.

Thinking Point

Examples of passive methods would be the traditional expository lecture and demonstrations. You may have noted that in both these instances, while the students may be passive, the teacher is likely to be extremely active. Who do you think is likely to be doing the most learning – teacher or students?

Methods for the Acquisition of Intellectual Skills

You may recall Figure 5.2 from Part 3. This version shows the links between the various levels of learning outcomes and teaching and learning methods. Broadly, learning outcomes focussing on recall and comprehension of material can be achieved through active or passive learning methods. Higher order skills on the other hand require active methods of learning.

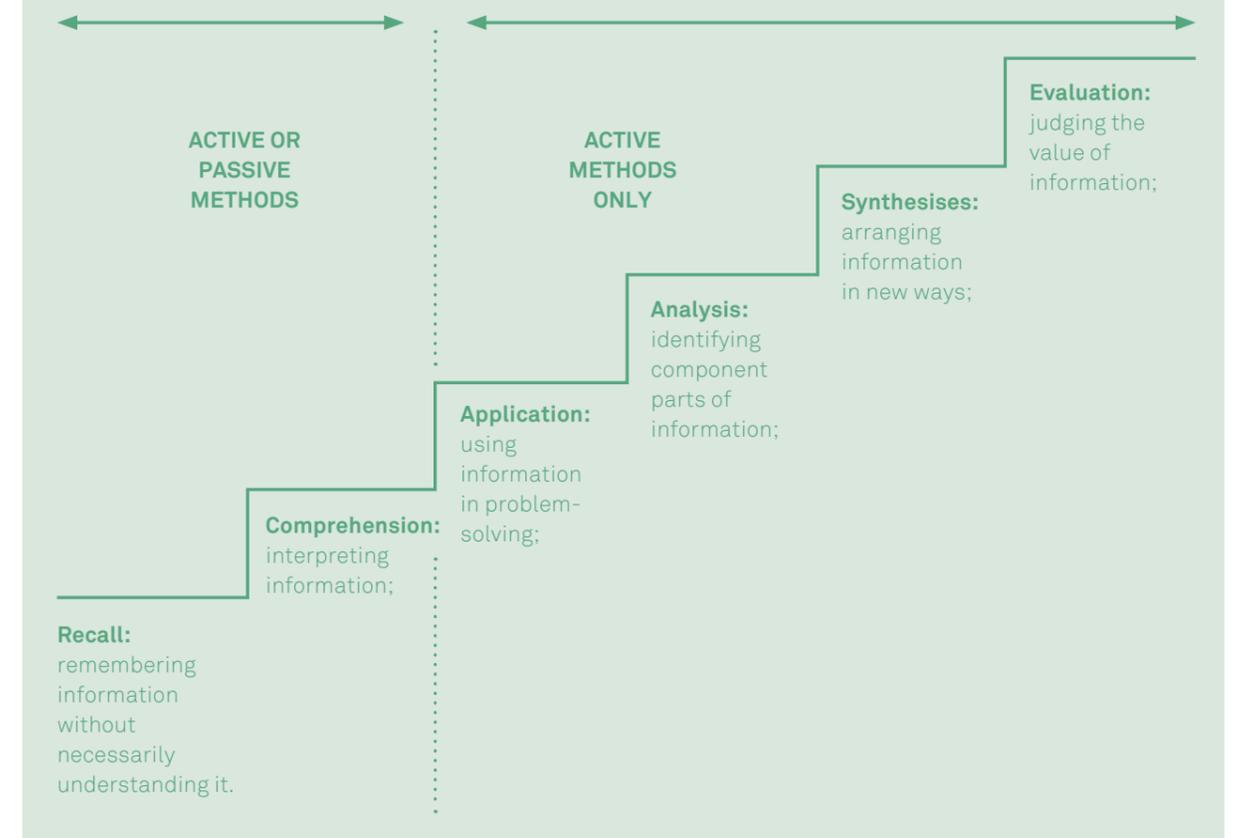
As with the selection of content there is a range of factors in addition to learning outcomes which will influence choice of teaching and learning methods.

Factors which May Affect Selection of Teaching and Learning Methods

The primary consideration in selecting teaching and learning methods should be the extent to which they assist students to achieve the learning outcomes. Other considerations include disciplinary traditions that favour particular teaching and learning methods as well as the availability of resources such as appropriate physical spaces.

The extent to which teaching and learning methods may be considered to promote active or passive learning should also be a consideration. Ideally we want all our students to be active learners. We want them to engage with the module material, with other students and with us in an active search for meaning and understanding.

Figure 5.2.
Taxonomy of Intellectual Skills Development
(Adapted from Anderson et al 2001).



LECTURES

As early as 1972, Bligh (1998) found in his review of the research literature on the efficacy of lectures that the evidence overwhelmingly indicated that while the traditional fifty minute expository lecture was as effective as other means in imparting information, it was much less effective than other means at encouraging students to learn actively and to develop higher order intellectual skills, practical skills and values.

The table below adapted from Race (2007) as well as from our own experiences, provides some salutary insights on what students actually do in lectures.

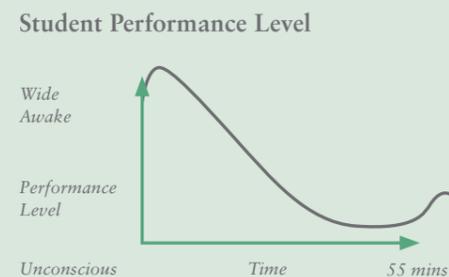
Table 5.1
Student Activities in Lectures
(Adapted from Race, P. 2007:109)

Fantasise	Doodle	Copy from the lecturer
Sleep	Watch the clock	Send notes to other students
Look at other students	Gaze out of window	Think about assignments
Read irrelevant things	Copy from the Screen	Do assignments for other modules
Listen to their IPods	Summarise	Worry about personal matters
Read and send texts	Feel unwell	Whisper to other students

Which of the activities above is likely to result in students' learning from such lectures? 'Summarising' which requires the student to engage actively with the material is the only activity listed above which may result in higher level learning.

Bligh (1998) citing a study by Lloyd provides another way of considering this issue. Lloyd conducted an observational study in which he plotted student learning performance against time in a typical 50 minute expository lecture. The study results summarised in Figure 5.3 are certainly depressing.

Figure 5.3
Student Performance Levels in Lectures
(Adapted from Bligh, 1998:56)



Lloyd's conclusions, although based on research conducted 40 years ago still present real challenges for the module designer today, particularly as lecturing continues to be the most popular teaching method used in universities. A partial solution, and it is only partial, is to make lectures less expository and more interactive.

Thus, changing student activity regularly during the fifty minute lecture restores learning performance – at least temporarily.

The following list, while not exhaustive, describes a range of fairly straightforward active learning techniques which can be easily incorporated into lectures.

Table 5.2
Active Learning Techniques for Lectures

Interactive Handouts: these contain skeletal notes and diagrams which students complete during the lecture.	Read a Handout or PowerPoint Slide: invite students to read a quotation and note their views on it.
Read your Notes: give students time to check their notes and fill in any gaps.	Share your Notes: ask students to explain their notes to the person next to them and highlight differences for plenary discussion.
Ask your Questions: ask students to write precise questions about the lecture material. Invite them to ask their questions of the people around them. Invite a few questions from the whole class. Do this at the end of a section of the lecture rather than at the end.	Set a Test: set a few short questions on the lecture material. You can use multiple choice questions. Present the questions visually, for example, on PowerPoint or a flip chart.
Set a Problem: set a simple problem based on the principles you have just taught them.	YouTube: show a clip – with instructions about what to look for.
Hands Up: have a vote on a contentious issue.	Ask About It: invite students to ask about the implications of what you have dealt with so far in the lecture.
Summarise: give students time to summarise the lecture for themselves.	What Next: invite students to consider what they need to do to further their knowledge of this topic and when they might do it.
Brainstorming: divide the class into groups of 3-6. The groups generate ideas on a topic then bring them back to the class for discussion. Brainstorming is particularly useful for generating ideas and encouraging students to talk.	Buzz Groups: divide the class into groups of 2-3 students to discuss a topic or question for a short period. This activity builds the confidence of shy students.

Finally, it should be noted that even lectures which incorporate active learning techniques will generally only improve students' recall and comprehension of material. To assist students to attain higher order intellectual skills **and** practical skills **and** values we need to consider other teaching and learning methods such as laboratories, tutorials, seminars, e-learning, projects, case studies, field work and work-based learning to name but a few.

It is beyond the scope of this guide to explore these methods however some useful references are supplied under 'Further Reading'. Instead, we propose to examine Problem-Based Learning or PBL which, in terms of student activity is the polar opposite of the traditional lecture. PBL is the best known and most widely used of the Enquiry-Based Learning or EBL methods. EBL is a broad umbrella term used in higher education to describe a range of methods including PBL, fieldwork, case studies and individual and group projects that share as their defining feature a process of student-led enquiry (Barrett et al, 2005).

In its pure form the PBL process commences with the presentation of an authentic, open-ended and often ill-defined problem to students **before** they receive any related curriculum inputs such as lectures or directed readings. Problems are designed to motivate and guide students to achieve the required learning outcomes by resolving the problem. The process is student-centred and group-based. Learning is characterised by a specific type of small group tutorial in which the student groups work collaboratively assisted by a tutor who acts as facilitator and guide (Dochy et al, 2003: 553-554).

PBL is used primarily in professional education where the efficient application of knowledge to complex problems is required as well as skills in team working and lifelong learning. Students develop practical skills in team work, such as, team leadership, negotiation, giving and receiving feedback and time management and discipline specific practical skills in information retrieval and analysis.

Thinking Points

1. How will you ensure that the teaching and learning methods employed are responsive to the diverse needs of students studying your module?
2. How can you capitalise on the diverse range of knowledge and skills that your students bring to the module?
3. Will the learning activities enable all students' to develop skills to meet the module learning outcomes?

An Alternative View of Practical Skills

We have hitherto described the acquisition of generic and discipline specific practical skills as ends in themselves. Another perspective however, is that they are **enabling** skills, through the practice of which students acquire and demonstrate the higher order intellectual skills. Thus in a tutorial for a 'soft' discipline such as English Literature, students exercise oral communication skills and work co-operatively to analyse disciplinary issues and they demonstrate their competence in analysis through written communication skills.

In laboratory classes favoured by the 'hard' disciplines, students commonly work in small groups to acquire those team working skills which are required by employers. But, from a different perspective, **through** working in teams, students are **enabled** to engage in higher order intellectual skills such as research (the sciences) or design (architecture or engineering).

Because practical skills are both a means and an end, it is vitally important that module designers select teaching and learning methods which support students to develop relevant practical skills in addition to the discipline-based intellectual ones.

Summary

Teaching and learning methods should be selected primarily on the basis that they will assist students to achieve the module learning outcomes. Students are more likely to achieve higher order learning outcomes if they are provided with opportunities for active learning. While there are techniques for encouraging students to engage actively with the material presented in the traditional lecture format, in general lectures are useful only in assisting students to recall and comprehend information. They are of little use in assisting students to achieve learning outcomes relating to practical skills and values. We would therefore encourage teachers to consider enquiry-based learning methods such as PBL when designing modules.

Thinking Points

1. What are the most appropriate teaching and learning methods to assist your students to achieve higher order intellectual skills, practical skills and values?
2. Are your proposed teaching and learning methods outside the range normally used in your academic unit? If so, how will you justify their use to your colleagues?
3. Will your choice of teaching and learning methods encourage your students to engage actively with the content?

Further Reading

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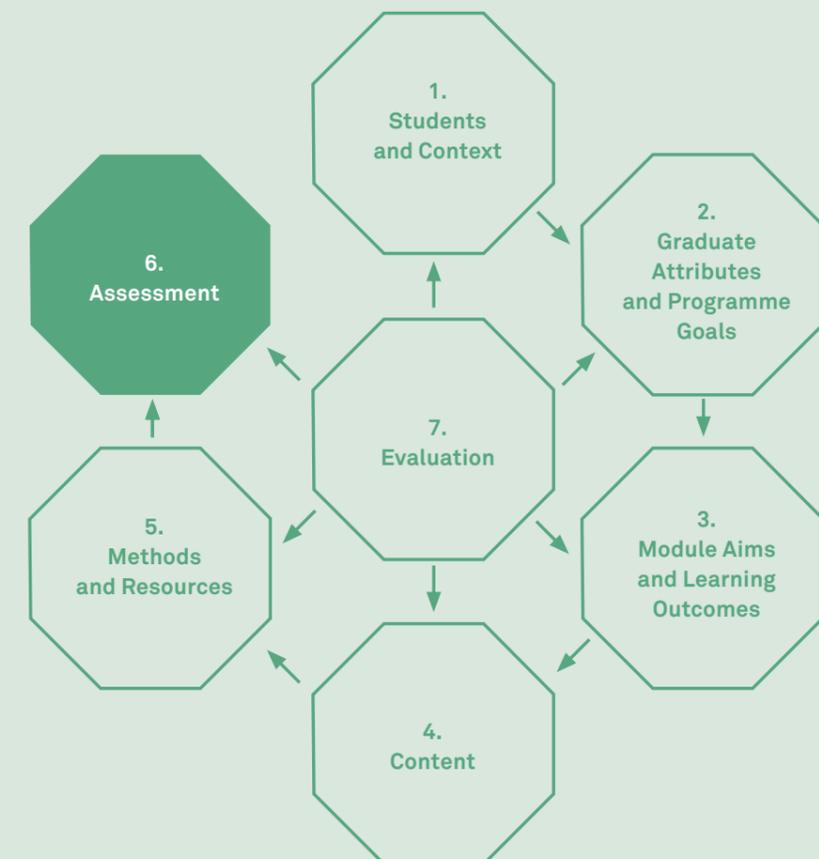
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Part 6. Assessment

Figure 6.1
Model (Assessment)



Reader Learning Outcomes

By the end of Part 6 you should be able to:

1. list the purposes of assessment in higher education;
2. recognise and begin to apply a range of innovative assessment methods;
3. select assessment methods which are aligned with your module learning outcomes.

To paraphrase Biggs (2003), students learn what they think will be assessed therefore we should make sure that we assess what it is important for them to learn.

What are the Purposes of Assessment?

Assessment may have summative and formative purposes. Harvey (1998:7) has defined this distinction as follows: “When the cook tastes the soup it is formative: when the guest tastes the soup it’s summative.”

More formally, the following table draws out some of the key differences.

Table 6.1
Formative and Summative Assessment Characteristics

Issue	Formative Assessment	Summative Assessment
Primary Purpose	Provides feedback to students and suggests improvement.	Determines the extent to which students have achieved the learning outcomes. The results of summative assessment are the basis for administrative decisions such as grading student achievement or determining levels of honours.
Timing	During module.	During module and /or at the end of the module.
Processes	Formal or informal.	Formal

Note: the distinction between formative and summative assessment is not entirely clear cut as summative assessment may provide the student with feedback, although this is not its primary purpose.

The table below lists a range of possible purposes for formative and summative assessment.

Table 6.2
Assessment Purposes

Formative Assessment	Summative Assessment
As a learning activity.	To grade or mark.
To give feedback to students.	To pass or fail.
To give feedback to staff.	A licence to practice.
To enhance student motivation.	To allow students to proceed.
To diagnose students’ strengths.	To predict student success.
To diagnose students’ weaknesses.	Peer benchmarking.
To Improve teaching.	Public relations, respectability and accountability.

An assessment task may be a learning activity in itself, provided adequate and timely feedback is given to assist the student to improve future performance. Such assessment also provides you with feedback which may highlight the need for changes **during** the module such as spending more time on a topic than was originally planned or modifying a teaching or learning approach.

Where the only assessment task is summative, such as an end of module examination, students may find it difficult to accurately evaluate their progress which can lead to unnecessary stress. On the other hand regular feedback, including positive feedback, may increase students’ confidence and hence their motivation.

It is possible to set purely formative assessment tasks. In practice however, students may not engage with tasks that do not contribute towards a final mark or grade, despite their value as learning experiences. It is, therefore, important that summative assessment tasks are accompanied by formative feedback, which implies that such assessment takes place during the module as well as at its end. Alternatively students could receive feedback on assignment drafts before submitting the final product for summative assessment.

Top Tip

Assessment should provide feedback to students to help them to improve their learning as they progress towards the outcomes as well as a fair and transparent measure of their final achievement.

Thinking Points

1. How many of the formative purposes of assessment listed in Table 6.2 are addressed by the assessment tasks on your module?

GRADING SYSTEMS

Norm and criterion-referencing are the two most commonly used assessment systems in higher education. Norm-referencing distributes marks along a bell-shaped curve which assumes a normal distribution of achievement regardless of the student cohort. In an extreme case all students on a module may achieve the learning outcomes but, if norm referencing is applied, then a predetermined proportion of them will be awarded a fail grade. Such a system does not improve the motivation of weaker students.

Criterion referencing on the other hand assesses student achievement against a set of predetermined criteria which should be based on the module learning outcomes. Using this approach it is possible for the whole class to achieve a pass grade or better.

You may also find that your programme has a generalised set of grading criteria which is applicable to all summative assessment tasks in the programme. Ideally you should use this information to assist you in developing specific assessment criteria for each assessment task in your module.

The following excellent example from a module in Sensory Analysis demonstrates how use of assessment criteria assists in determining grades.

Honours Level 1.

- Demonstrates knowledge of the sensory principles and techniques.
- Applies knowledge skilfully to solve sensory problems.
- Selects the most appropriate techniques to solve sensory problems including:
 - *collecting experimental data,*
 - *analysing and drawing conclusions from the data,*
 - *reporting the results clearly and concisely in a written report,*
 - *reflecting on how effective the experiment was in solving the problem and making adjustments and improvements where necessary.*

Honours Level 2. 1 and Honours level 2.2

- As above.
- Failure to select the appropriate technique and an inability to reflect upon and improve the sensory procedure will downgrade the mark from a First to a Second.

PASS

- Demonstrates knowledge of sensory principles and techniques.
- Attempts to apply the knowledge skilfully to solve sensory problems
- Produces a clear and concise written report of attempts to solve the sensory problem.

FAIL

- If you fail to learn the basic sensory principles or do not make an attempt to satisfactorily complete the project work then you will fail this module.

Adapted from Walters, M. and Pawsey, R,
2001:175-176

Top Tip

Publishing specific grading criteria for each assessment task is helpful for students and staff. Students are more likely to understand the level of achievement required. Consistency between markers is improved and it is easier to justify grades awarded and to write meaningful feedback.

Thinking Point

1. What grading system is used in your academic unit?
2. Is the marking criteria used in your module specific to each assessment task and readily available to students?

What Should We Assess?

An obvious answer may be that our task is to assess students' retention and understanding of the module content. There are a number of difficulties with this approach.

Firstly, it is impossible to assess students' recall let alone comprehension of every item of content taught in a typical university or college module. The common answer to this problem is to assess a selection of content in the form of an unseen examination on the basis that students will be forced to 'learn' everything on the module.

In reality students respond in one of two ways: they take a gamble on what will appear in the examination only learning that material or in attempting to 'learn' everything they are forced into surface approaches to learning.

The final problem with this approach is that attempting to assess students' recall and comprehension of **all** module content leaves little room for assessing higher order intellectual skills, practical skills and values.

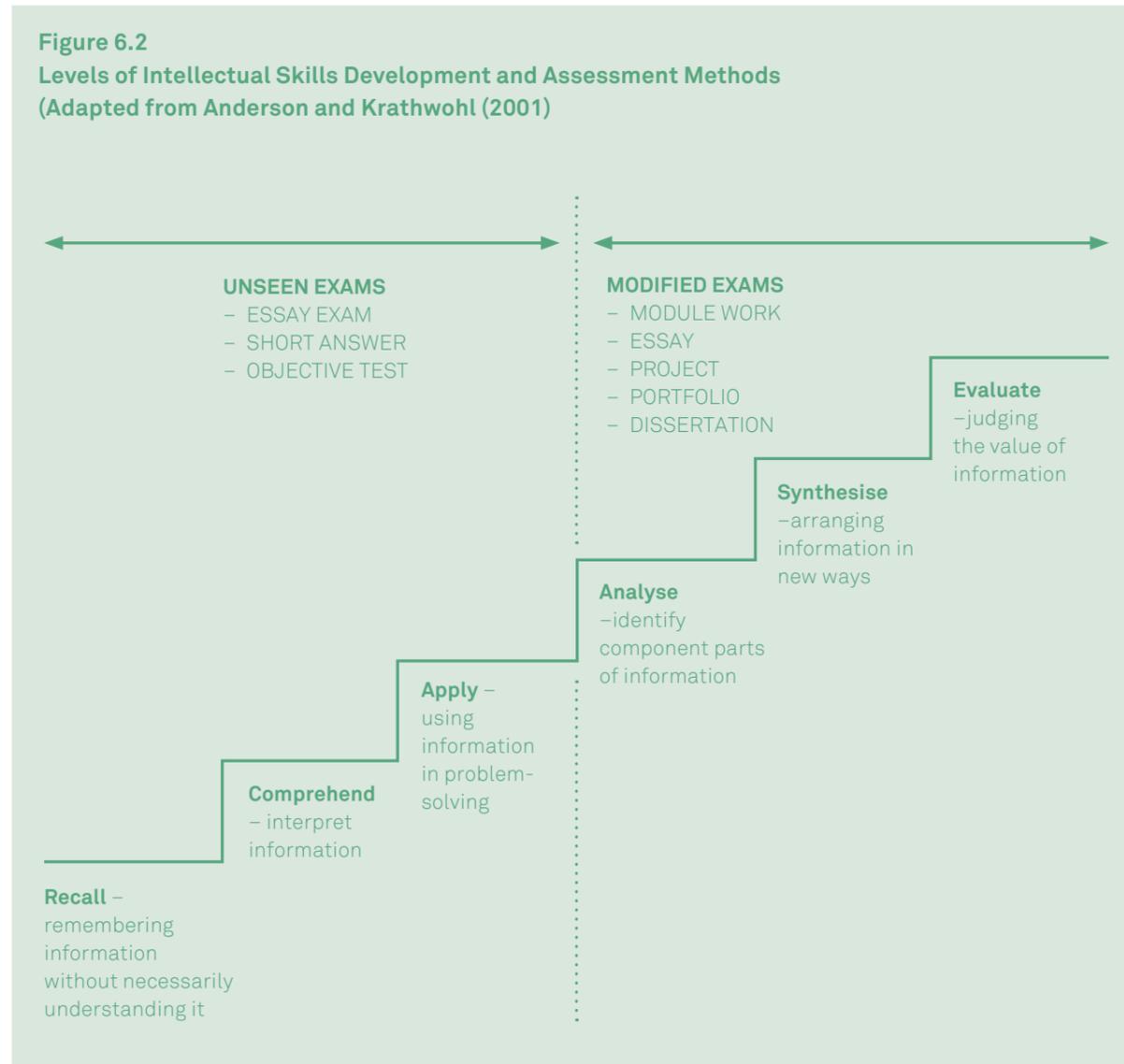
Top Tip

You can't assess students' knowledge of all content in a module but you can and should assess their achievement of all the learning outcomes

How Should We Assess?

We have encouraged you to consider using the full range of learning outcomes covering the acquisition of intellectual skills, practical skills and values. The next challenge is to select the methods which will best assess these outcomes.

Assessing Intellectual Skills Outcomes



We used a version of the figure above to introduce the idea of levels of intellectual skill development. Here it is used to summarise the relationship between those levels and assessment methods. Just as the higher levels of intellectual skills subsume the lower, so the methods suggested for assessing the higher level skills (analysis and above) can also

be used to assess the lower order skills (from recall to application). Conversely, unseen examinations in their various forms are not an effective way of assessing the higher order skills, although essay type unseen examinations may adequately assess students' ability to recall and organise material under time constraints.

We have recommended that your list of module learning outcomes at university and college level should include some or all of the higher order intellectual skills from analysis to evaluation and have argued that these skills are not adequately assessed by traditional unseen examinations including most objective tests.

How then can such skills be adequately assessed? Figure 6.2 provides some possibilities which we shall consider in turn.

MODIFIED EXAMINATIONS

The most common form of modified examination is the Open Book Examination where students have access to sources of information such as primary sources, textbooks and their own lecture notes. It is important that the question(s) set do not simply require students to retrieve the right answer from the resources they have brought into the examination. Rather the purpose of these resources should be to assist students to demonstrate their higher order thinking. Open book examinations reduce, but do not entirely eliminate the stress associated with any kind of formal examination.

Seen examinations where students are given the questions in advance can do much to alleviate examination related stress. In our experience they have the added advantage of discriminating between students who take a surface approach and those who take a deeper approach. The former will attempt to memorise (often unsuccessfully) a model answer in preparation for the examination while the latter group will have used the preparation time to consider the question from different perspectives in order to deepen their understanding of the topic.

COURSE WORK

Essays written during a module are much more likely to be learning activities than unseen examinations provided the appropriate questions are set, that is, questions which require students to research, analyse and synthesise information to produce a coherent and sustained argument.

One of the major disadvantages of essays is the amount of time they take to mark. Asking students to submit an essay plan rather than a complete essay still requires them to research the topic and to set out their argument, albeit in point form. The limitation of such a modified essay is that it does not assess higher order writing skills.

Projects, whether individual or group, should enable students to engage actively with the discipline. The project topics, either set or negotiated, should be complex and wherever possible authentic, that is, reflecting 'real life' issues. Alternative approaches and solutions should be possible and projects should require original or creative thinking. More sophisticated projects are normally set in the later years of a programme when students have acquired a substantial knowledge and skills base. Dissertations are essentially extended projects involving research.

There are advantages, however, to introducing less sophisticated projects early in the programme. They are highly motivating and should enable students to get a feel for what it is to practice their chosen discipline or profession. Thus for example, first year engineering students can be set the project of designing and building a simple object and presenting the object to their peers.

Portfolios may take a number of different forms from collections of artefacts which demonstrate students' achievement of particular learning outcomes such as those prepared by students in the visual arts, to a series of structured reflections on critical incidents occurring during the module. The latter type of portfolio is used extensively in professional disciplines such as education to assist students to link theory to the development of their own practice. Effective implementation of such portfolios relies heavily on provision of adequate training and feedback for students' particularly around the process of reflection.

Portfolios can be a particularly useful method for encouraging students to develop beyond the formal learning outcomes for example, to explore areas of particular interest to themselves. Enabling students to have at least some choice over what they study is a key feature of assessment which promotes a deep approach to learning.

Thinking Point

For your learning outcomes beyond recall, comprehension and possibly application what types of assessment tasks are you using to capture student learning?

ASSESSING PRACTICAL SKILLS, VALUES AND ATTITUDES OUTCOMES

Wherever possible you should integrate the assessment of intellectual and practical skills outcomes and values into a single assessment task. Thus, for example a poster project may assess generic practical skills in time management and oral and written presentation as well as those

intellectual skills related to researching the project topic. In the case of discipline specific practical skills an essay will assess information retrieval along with information analysis and evaluation. A complex case study in engineering, medicine or business can involve ethical dilemmas which students must resolve with reasons for their decisions.

Whatever the assessment task, it is important to allocate marks for successful demonstration of practical skills, values and attitudes based on explicit criteria and followed up with relevant feedback on performance. The following examples provide a good demonstration of the relationship between a practical skill outcome, assessment task, associated criteria and feedback.

Generic Practical Skill Learning Outcome:

by the end of this module students should be able to communicate the findings of their research to a peer group scientific audience.

Assessment Task:

Each student will give a 15 minute presentation of their research project findings and be prepared to answer audience questions.

Generic Practical Skill

Assessment Criteria:

Quality of oral presentation – clarity, pace, audibility; use of audio-visual aids; sequencing of material; level of difficulty of material in relation to the audience expertise; keeping within the allotted time.

Assessors:

Formative (peers), Summative (teacher)

Feedback:

Formative assessment will be provided to each student by their peers in the form of completed presentation checklists based on the assessment criteria. Summative assessment in the form of a grade will be provided by the teacher. Individual grades will be based on how well each student presentation addressed the assessment criteria.

Discipline-Specific Practical

Skill Learning Outcome:

by the end of this module students should be able to use a range of statistical analyses and apply them to real data sets.

Assessment Task:

Each student will produce a written research report representing a compilation of the research process experienced by each student from the initiation of a hypothesis to the statistical analysis and presentation of data.

Assessment Criteria:

appropriate range of statistical methods employed; statistical analyses performed accurately; statistical data presented clearly. Assessors: Formative and summative (teacher)

Feedback:

Summative assessment in the form of a grade based on the extent to which the student meets the assessment criteria and formative assessment consisting of written comments including identification of statistical errors will be provided to each student.

The two previous examples were drawn from different aspects of one multi-faceted assessment - a final year research project for an undergraduate science module. There are, however, discipline-specific practical skills which are usually assessed separately such as laboratory, fieldwork and clinical skills.

Discipline-Specific Practical

Skill Outcome:

by the end of this module, students should be able to safely apply the principles of Cardiopulmonary Resuscitation (CPR) in the practice setting.

Assessment Task:

individually, students will perform CPR on the manikin provided.

Trends in Assessment

Student assessment in higher education has undoubtedly evolved over the past twenty or so years both in terms of purpose and method. The following table indicates some of these trends. You should note that we are not suggesting that assessment practices we have labelled as traditional will or should disappear. Both ends of the assessment spectrum have their strengths and weaknesses.

Table 6.3
Trends in Assessment
(Adapted from Brown, Bull
and Pendlebury, 1997:13; Biggs,
2003:156-159; Race, 2005:95-100).

Traditional Approaches	Recent Approaches
Lecturer-led	Student-led
Implicit Criteria	Explicit Criteria
Content	Skills
De-contextualised Assessment	Contextualised Assessment
Convergent	Divergent
Feedback	Feed-forward
Marking Templates or Schemes	Assessment Rubrics

LECTURER-LED AND STUDENT-LED ASSESSMENT

Traditionally, the teacher sets the assignment task or examination question, marks and grades the work, and returns it to the student with comments. This approach to assessment is likely to remain the dominant one for the foreseeable future.

There are two aspects to student-led assessment. The first of these is the situation where students negotiate the assessment task and/or marking criteria with the teacher. Advantages of this approach are improved student motivation and development of reflective skills.

Students are much more likely to be motivated when they have some influence over selection of tasks and they can focus their efforts on areas of particular interest to themselves. By negotiating the assessment criteria students are forced to confront what it is they are actually expected to do as well as the standard they are expected to achieve.

The second aspect of student-led assessment is self and/or peer assessment. The main advantage of each of these approaches is that students develop skills in the evaluation of their own performance and that of their peers. As Nightingale (1992) notes:

“ Many teachers have been struck by the incongruity of a system which claims to develop professionals capable of monitoring their own performance and that of their peers but which give students the message that they do not have the capacity and cannot be trusted to evaluate their own learning.”
(Nightingale, 1992:7)

Self and peer assessment may be formative or summative but if the latter, marking criteria should be very clear. The teacher should carefully monitor the assessment for consistency and the proportion of marks allocated to the task should not significantly affect the overall grade for the module.

Whether formative or summative, successful self and peer assessment requires students be trained adequately both to mark their own or others' work and to give and receive useful formative feedback.

IMPLICIT AND EXPLICIT CRITERIA

It may well be true that we, as teachers know a 'First' when we see one and that we can grade accurately on this basis, but our skill and experience in this regard is of little use to students when they try to work out what they have to do to get a 'First'. It may also well be the case that our ability to recognise a 'First' is related to the time of day when marking is done and the number of assignments to be marked. Explicit criteria not only assist the teacher to ensure consistency, but also inform students about what they need to do and the standard required to get good results.

CONTENT AND SKILLS ASSESSMENT

The trend towards assessing skills does not mean that content is not assessed but rather it is assessed in the context of developing intellectual and practical skills and values. The purpose of a university education is no longer seen by society as simply the acquisition of a body of knowledge. In addition to mastery of disciplinary knowledge, graduates are expected to possess a range of higher order intellectual skills and practical skills as well as professional values and attitudes all of which contribute to life-long learning.

DE-CONTEXTUALISED AND CONTEXTUALISED ASSESSMENT

In its simplest form, de-contextualised assessment tests students' knowledge **about** things, that is, their recall and comprehension of information. An example would be being able to recall the symptoms of a stomach ulcer.

Contextualised assessment on the other hand tests students' capacity to **do** things. Such assessment may also be 'authentic' in the sense that it requires students to do things that they would do in the real world and it may also be 'integrated' in the sense that the task assesses a range of intellectual and practical skills and attitudes or values. Thus the example of de-contextualised assessment given above could be contextualised by setting it in a simulated or real clinical environment in which the student is asked to diagnose and suggest treatment for certain symptoms in a fifty year old woman who doesn't speak English and who has a very limited income.

CONVERGENT AND DIVERGENT ASSESSMENT

Convergent assessment assumes there is one 'right' answer to the question or one 'right' way of performing the task and tends to focus on the assessment of lower order skills. For example, 'what is the chemical composition of water?'

Divergent assessment asks questions for which there may be more than one 'right' answer or more than one way of going about the task. For example, 'how would you set about designing a housing development for retired people?' Generally, divergent assessment tasks encourage the development of the higher order skills.

FEEDBACK AND FEED-FORWARD

Feedback answers the student question 'How did I do in that assessment task?' while feed-forward should answer the question, 'How can I do better next time?' Useful and timely feedback and feed-forward are both essential to student motivation and learning.

MARKING TEMPLATES OR SCHEMES
AND RUBRICS

The main purpose of a marking template or scheme is to provide guidance to markers but not to students. Rubrics on the other hand are useful for both markers and students. They describe the levels of performance for a particular task which are derived from explicit, predetermined assessment criteria and they can be designed to assess outcomes across a range of disciplines.

Rubrics can be useful in promoting a unified feedback / feed-forward approach. Students receive clear and concise feedback on their performance of the completed task as well as information on the skills and knowledge they should bring forward to their next task and what they need to do better or differently next time. With requirements for fast turnaround of marked work and feedback, rubrics are adaptable to online learning platforms such as blackboard where they are easily stored and accessible to teachers, students and moderators (Cox et al, 2015).

The following rubric is from a first year nursing module: Communication and Essential Skills for Nurses. Students are filmed performing clinical skills in a simulated ward environment. Individually, they review their performance using relevant clinical research literature as a guide and submit a short written reflection. The main focus of this assessment is to test students' ability to perform a clinical skill, to evaluate their own performance against the relevant literature, and to organise their evaluation using a structured reflective framework.

Table 6.4
Example Assessment Rubric.
Adapted from Neill and Timmons (2014).

Rubric based on a grid developed by Margaret Price and Chris Rust, Oxford Brookes University.

	CRITERION	100-70 (1.1)	69-65 (2.1)	64-60 (2.2)	59-50 (3rd)	REFER/FAIL (49-0)
Presentation & style						
1	Presentation of assignment	Shows a polished and imaginative approach to the topic	Carefully and logically organised	Shows organisation and coherence	Shows some attempt to organise in a logical manner	Disorganised/ incoherent
2	Clarity of expression (incl. accuracy, spelling, grammar, punctuation).	Fluent writing style appropriate to document. Grammar and spelling accurate.	Language fluent. Grammar and spelling accurate.	Language mainly fluent. Grammar and spelling mainly accurate.	Meaning apparent, but language not always fluent Grammar and/or spelling contain errors	Meaning unclear and/or grammar and/or spelling contain frequent errors
Conforming to instructions/clarity of objectives.						
4	Attention to purpose	Has addressed the purpose of the assignment comprehensively and imaginatively	Has addressed the purpose of the assignment coherently and with some attempt to demonstrate imagination	Has addressed the main purpose of the assignment	Some of the work is focused on the aims and themes of the assignment	Fails to address the task set
5	Referencing	Referencing is consistently accurate	Referencing is mainly accurate		Some attempt at referencing	Referencing is absent/ unsystematic
Content and knowledge						
6	Use of literature/ evidence of reading	Has developed and justified using own ideas based on a wide range of sources which have been thoroughly analysed, applied and discussed	Able to critically appraise the literature and theory gained from variety of sources, developing own ideas in the process	Clear evidence and application of readings relevant to the subject; uses indicative texts identified	Literature is presented uncritically, in a purely descriptive way and indicates limitations of understanding.	Either no evidence of literature being consulted or irrelevant to the assignment set.
Practical/Interpersonal/Interpersonal Skills						
7	Performance Skills	Can perform complex skills consistently with confidence. Able to choose an appropriate response from a repertoire of actions, and can evaluate own performance.	When given a complex task can choose and perform an appropriate set of actions to complete it adequately. Can evaluate own performance.	Able to perform basic skills with awareness of the necessary techniques and their potential uses and hazards. Needs external evaluation.	Able to perform basic skills with guidance on the necessary technique. Needs external evaluation.	Fails to perform even basic skills.
10	Self-criticism (include. reflection on practice)	Is confident in application of own criteria of judgement and in challenge of received opinion in action and can reflect on action.	Is able to evaluate own strengths and weaknesses; can challenge received opinion and begins to develop own criteria and judgement.	Is largely dependent on criteria set by others but begins to recognise own strengths and weaknesses.	Dependent on criteria set by others. Begins to recognise own strengths and weakness.	Fails to meaningfully undertake the process of self criticism.
11	Independence/ Autonomy (include. planning and managing learning)	With minimum guidance can manage own learning using full range of resources for discipline; can seek and make use of feedback.	Identifies strengths of learning needs and follows activities to improve performance; is autonomous in straight forward study tasks.	Can work independently within a relevant ethos and can access and use a range of learning resources.	Can undertake clearly directed work independently within a relevant ethos and, with some guidance, use the standard learning resources.	Unable to work independently, needing significant guidance on methods and resources.
12	Self Presentation	Adopts a style of self presentation and selects from a range appropriate interpersonal skills consistent with the individual's aims and the needs of the situation.	Can be flexible in the style of presentation adopted and interpersonal skills used.	Can adopt both a formal and informal style, and uses basic interpersonal skills appropriately.	Can adopt both a formal and informal style, and uses basic interpersonal skills but not always matching the needs of the situation.	No obvious sense of self and/ or interpersonal skills and/or skills used inappropriately.
13	Time management/self management	Plans well ahead, sets self determined deadlines, and uses contingency planning.	Always meets deadlines. Plans management of work and monitors progress against plan.	Almost always meets deadlines. Makes plans and implements them in a satisfactory manner.	Usually meets important deadlines, but often despite lack of planning.	Rarely meets deadlines. Unable to make and implement plans.

Thinking Point

1. What online learning platform does your institution support?
2. What support is available from your academic development unit or information and technology services to develop an online rubric for your module?

Summary

The way we assess students has a profound influence on what they learn and how they learn it. We need to recognise that it is not feasible to assess all the content covered in a typical university or college module. What we can and should do is assess our students' achievement of all the module learning outcomes. To do this, we must ensure that the assessment tasks are aligned with the learning outcomes, that is, that they actually assess students' achievement of the outcomes. One assessment task may be designed to assess multiple outcomes, and where possible, feedback to students should be timely and useful in assisting them to improve their future performance.

Thinking Point

1. Does your proposed assessment scheme adequately address all the module learning outcomes?
2. Which of the proposed assessment tasks is a learning activity in itself?
3. Are there formative as well as summative tasks in your assessment scheme?
4. Does the assessment advantage or disadvantage any particular group of students?

Further Reading

Biggs, J and Tang, C. (2007) *Teaching for Quality Learning at University*, 3rd edn (Maidenhead: SRHE and Open University Press). Chapters 9, 10 and 11.

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Part 7.

Evaluation

Reader Learning Outcomes

By the end of Part 7 you should be able to:

1. identify the purposes of module evaluation;
2. apply some fundamental concepts and methods of module evaluation to improve your own module design and implementation;

- *teaching and learning methods and resources;*
- *assessment.*

It is important that stage 1 evaluation occurs at each step in the design process rather than at the end. It is unlikely that you will achieve the best fit or alignment between each step in the design process by taking a wholly linear approach. For example if you select a group project as the major assessment task you may need to go back a step and include in the teaching/learning methods some small group activities to accustom students to working in groups. You may then need to go back a further step to content selection and include topics such as group dynamics and project management.

SOURCES OF EVALUATIVE INFORMATION

The main informal source will be members of your collaborative network such as academic unit colleagues, professional staff from your institution's academic development unit, colleagues from other institutions teaching similar modules and external examiners. We appreciate that your time frame for module design will probably be limited and that the evaluative part of the process will need to be fairly informal and efficient. Hence your main evaluative tool is likely to be discussion either face to face or by email.

Your institution's module approval process will be your main tool for formal evaluation. It is important that you familiarise yourself with the relevant documentation before starting the module design process to ensure that your module meets institutional requirements.

The final part of our model concerns evaluation which has three stages. The first stage is conducted as an integral part of each step in the module design process. The second stage is undertaken during module delivery and the third after the module has run.

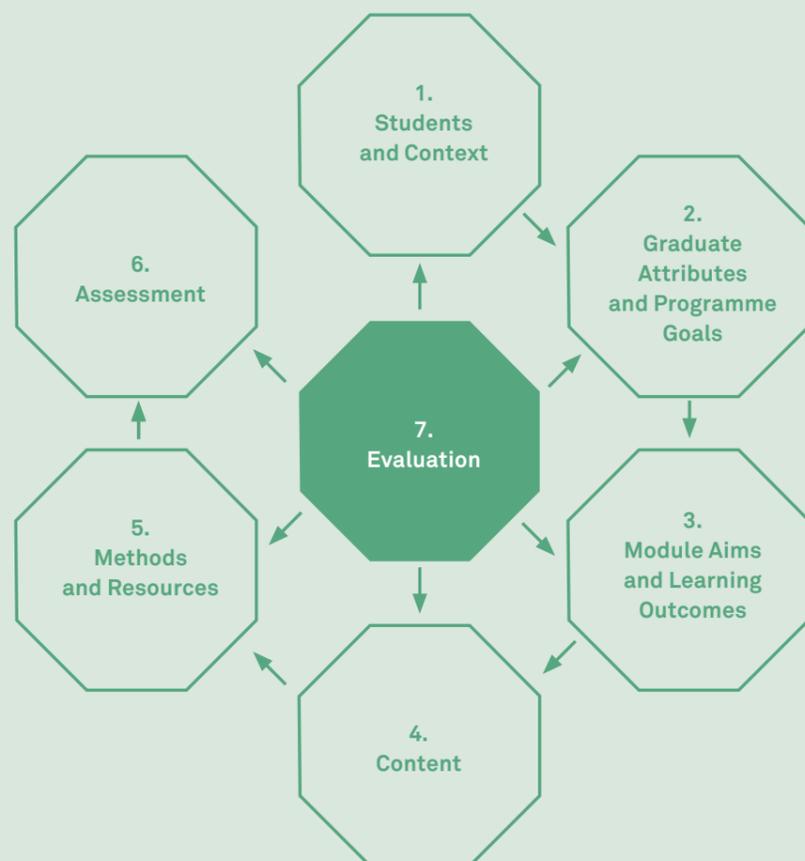
Technically speaking, we are proposing that you conduct a **formative** evaluation with the primary purpose of improving your module for the ultimate benefit of your students.

Stage 1: Pre-Implementation Evaluation

The main purpose of stage 1 evaluation is to ensure as far as possible and **prior to implementation**, that the module design is student-centred, outcomes-based and that there is strong alignment between the constituent parts:

- *students and context;*
- *graduate attributes and programme goals;*
- *module aims and learning outcomes;*
- *content;*

Figure 7.1
Model (Evaluation)



Thinking Point

1. How will you integrate Stage 1 evaluation into your module design process?
2. Have you allocated sufficient time to allow for effective stage 1 evaluation?
3. Who will you invite to participate in the stage 1 module evaluation?
4. What aspects of the module design will you ask them to comment on?
5. Do you understand your institution's module approval process?
6. Who will you invite to check that your module meets the formal requirements for approval?

Stage 2: Implementation Evaluation

The main purpose of stage 2 evaluation is to improve the learning environment for the **current** cohort of students by monitoring the module **during** implementation.

SOURCES OF EVALUATIVE INFORMATION

The most obvious difference between stage 1 and stage 2 evaluations is that in this phase you have students studying your module and they should be your primary source of information.

FEEDBACK FROM STUDENTS

In general, students can provide useful information on the following matters:

- *clarity of module expectations including learning outcomes;*
- *clarity of module requirements, for example, assessment;*
- *quality of classroom teaching;*
- *adequacy of assessment feedback;*
- *accessibility of learning resources and support.*

The best known method of obtaining student opinion is the questionnaire but focus groups and classroom assessment are increasingly popular alternatives.

QUESTIONNAIRES

The usefulness of questionnaires depends largely on their design. The following points may be helpful.

- *Questionnaires should be anonymous so that students can express their opinions freely.*
- *Wherever possible they should be piloted with peers and a small group of students to avoid ambiguous or irrelevant questions.*
- *Both closed and open questions should be used.*
- *Questionnaire fatigue can occur if students are asked to complete them too frequently without receiving feedback and particularly where they see no improvement in areas they have identified as problematic.*

Top Tip

Your academic development unit or quality unit may be able to assist you in questionnaire design, administration and analysis.

FOCUS GROUPS

Focus groups enable structured discussions about modules and teaching. They overcome some of the disadvantages of questionnaires by permitting students to comment on matters which are of major interest to them and, in addition, students are able to explain the reasons for their opinions. In addition, focus groups may be used to follow-up issues which have been uncovered by questionnaires or other means.

On the other hand, some students may feel inhibited in expressing their opinions freely, and as focus groups may consist of only a small proportion of the class they may be unrepresentative. Finally, teachers may be inexperienced in leading structured discussions and may find it difficult to elicit useful responses from the students.

Maximising the advantages of focus groups and minimising the disadvantages requires some care. The following points may be useful.

- *Make sure each student in the group understands its purpose.*
- *Set a few ground rules such as:*
 - everyone should contribute;
 - no one should dominate the discussion;
 - we shall keep to an agenda.

- *If you are inexperienced in leading structured discussions or fear that students may not be frank in front of you, ask a colleague from your academic unit or one of the professional staff from your institution's academic development unit to facilitate the group.*
- *Open the discussion by asking an open-ended question such as, 'What are the strengths and weaknesses of the module?' or 'What areas of the module need improvement?'*
- *Set an agenda involving no more than five or six broad questions.*
- *Choose a neutral and comfortable location (not your office).*
- *Restrict the group size to about ten students chosen at random.*
- *Where the class size is large, you may consider a larger focus group divided into sub-groups.*

CLASSROOM ASSESSMENT

"Classroom assessment helps individual college teachers obtain feedback on what, how much, and how well their students are learning. Faculty can then use this information to refocus their teaching to help students make their learning more efficient and more effective."
(Angelo & Cross, 1993:3)

Angelo & Cross (1993) attribute the following advantages to classroom assessment:

- *it benefits both students and teacher;*
- *it is formative rather than summative – classroom assessments are seldom graded and almost always anonymous;*
- *assessment can be tailored to specific situations;*
- *it is ongoing;*
- *it is rooted in good teaching practice.*

Angelo and Cross (1993) provide a large number of classroom assessment techniques and case studies spread over a wide range of disciplines. However they recommend that teachers should start by using the simplest techniques possible. The following examples are two simple techniques that can be adapted for use in a range of disciplinary contexts.

- *The Classroom Quiz*
 - Set 10 (or fewer) simple questions based on previous lecture material.
 - Reveal the questions to the students.
 - The students answer the questions in the first 5 minutes of the lecture.
 - The students exchange papers and mark them.
 - By show of hands, the teacher discovers which questions caused the most problems and hence the material which may need revision or clarification.
 - The students also discover their weak areas of knowledge.

- *The Minute Paper*
 - a. At the very end of a lecture, ask the students to write down (a) the three most important things they learned in the lecture and (b) any area which needed clarification.
 - b. Collect and analyse the responses.
 - c. React appropriately during the next lecture.

Note that the amount of time involved in preparation and collection of information is minimal, although analysis may take longer.

FEEDBACK FROM COLLEAGUES

In stage 2 evaluation, students are the main source of information but academic colleagues and other peers can provide a useful additional perspective, particularly in relation to your classroom performance.

PEER OBSERVATION OF TEACHING

The following guidelines are offered to maximise the benefits of peer observation.

- *The teacher and observer should agree on procedures.*
- *The observer should be introduced to the students and the reason for his/her presence explained.*
- *The observer (and any recording equipment) should be located a discreet location but one from which both the teacher and most students can be observed.*

- *The observer should not interact with either the teacher or the students by way of interruption or intervention.*
- *It is good practice (resources permitting) for the observer to be present in a number of classes.*

It is always necessary for a peer to be informed about the information the teacher is seeking. In the context of class observations, this is best done by providing the peer with a checklist to be completed during the class.

Top Tip

Checklists and proformas are useful resources for peer observation of teaching. The following checklists and proformas are copyright free.

http://webfuse.cqu.edu.au/Courses/2009/T1/EDED20484/Resources/Peer_Observation_Resources/HERDSA_Peer_Obs_Extract.pdf

Another useful tool is the video camera. Giving feedback is much more effective when the observer can point out behaviours as seen from the camera's (i.e. the students') perspectives.

Whatever the method used, both teachers and observers should be careful not to confuse effectiveness with style. There is no one 'best' personal style where teaching is concerned.

Thinking Point

3. What resources for Stage 2 evaluations are available from your academic unit and from your institution's academic development unit?
4. What kind of information do you want to collect?
5. When do you plan to collect the information?
6. How will you use this information to improve the learning environment for the current student cohort?

SOME ETHICAL CONSIDERATIONS

1. *If the teaching on your module is shared with colleagues (including postgraduate teaching assistants) you should gain their permission before asking students to comment on their performance.*
2. *Ensure that your colleagues understand the purpose of the evaluation and who will have access to the evaluation results.*
3. *In general, the results of formative evaluations should remain confidential to those being evaluated, for example, you and fellow teachers.*

Thinking Point

At what point will you involve your teaching colleagues in the evaluation process?

Stage 3: Post Implementation Evaluation

Post implementation evaluation is conducted towards the end of the module or shortly after completion. The primary purpose is to improve the module learning environment for the next student cohort. A secondary purpose may be to meet institutional quality assurance requirements which typically include some form of end of year student evaluation.

SOURCES OF EVALUATIVE INFORMATION

Students and External Examiners are the key information sources for final stage evaluation.

FEEDBACK FROM STUDENTS

Where the evaluation is conducted at the end of term after classes have ceased, online questionnaires are the most efficient method of capturing student feedback. Survey software such as Survey Monkey also makes data analysis and reporting relatively easy.

Depending on the focus and level of detail in your stage 2 evaluation you may only need feedback on a small number of global questions.

Thinking Point

What aspects of the module worked well for you?

What aspects of the module didn't work so well for you?

Please suggest how the module could be improved.

FEEDBACK FROM EXTERNAL EXAMINERS

External Examiner feedback for stage 3 evaluation will focus primarily on the quality of the outputs or products of student learning from your module (essays, posters, laboratory reports, examination scripts).

To make an informed evaluation the External Examiner will need some or all of the following information.

- *Programme goals and structure*
- *Module descriptor listing learning outcomes, teaching and learning methods and assessment tasks.*
- *Assessment criteria for each task*
- *Institutional grading system*
- *Spreadsheet of marks awarded to each student for this module*
- *An indicative sample of student work from each grade band.*

Thinking Point

What resources for stage 3 evaluations are available from your academic unit and from your institution's academic development unit?

What kind of information do you want to collect?

When do you plan to collect the information?

Summary

Evaluation should be an integral part of the module design process to ensure the best possible alignment between each of the steps described in our model. This approach is likely to highlight problems or issues relating to one or more of the steps which may require some redesign to maximise alignment.

The major sources of evidence for stage 1 evaluation will be members of your collaborative network.

When the module is implemented for the first time, it will be necessary to evaluate the effectiveness of the module design in practice. This, we have called stage 2 evaluation and the major source of evidence will be your students. Academic colleagues may also be a useful source of feedback, in particular for commenting on classroom activities. Students should always be informed of the results of evaluation as soon as possible even if the changes (to which they may have contributed ideas) cannot be implemented until the following year.

In stage 3 evaluation students are best placed to give feedback respectively on the quality of the learning process as a whole while External Examiners can feedback on the quality and standard of the products of learning.

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Conclusion

Our purpose in writing this guide was to provide a systematic approach to module design for early career academics and their more experienced colleagues who don't have time to read the vast and often confusing literature on module design in higher education. We have tried to simplify the key issues while fully acknowledging the complex range of factors influencing the process.

We believe that designing or redesigning a module should be an enjoyable and creative part of the teaching role and hope you will find it so too. We hope that you will be encouraged to explore in greater detail the issues you personally identified while reading this guide and designing or redesigning your module.

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