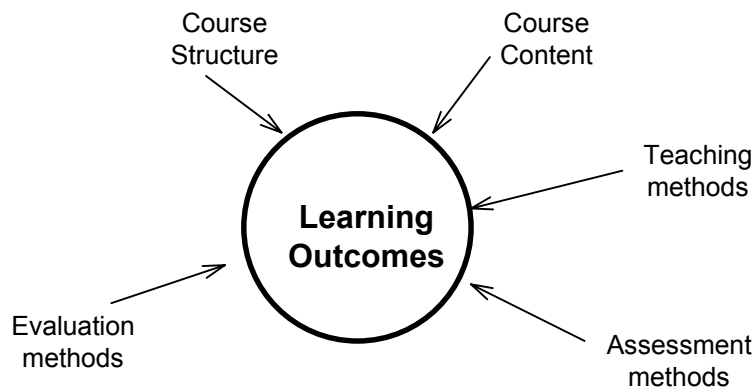


Learning Outcomes

A Practical Guide



A discussion document to encourage debate and feedback

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1. Acknowledgements

Production of this document would not have been possible without the help of many people within the School of Health Sciences. As is usually the case we uncovered a significant amount of work that has already been carried out and would like to thank all those who brought the material to our attention. Much of this material has been incorporated into the present document.

Thanks must go to Jane Stewart (Postgraduate Institute of Medicine & Dentistry at Newcastle) who has developed a rating scale to assess the competencies of pre-registration house officers which we used to derive a number of examples of learning outcomes for this document.

The cartoons are by Edwin Rostron and appeared in a undated publication; 'Teaching and managing large groups - a collaborative guide' compiled by Sally Brown of the educational service at the Sutherland building, Sunderland University.

Important Note:

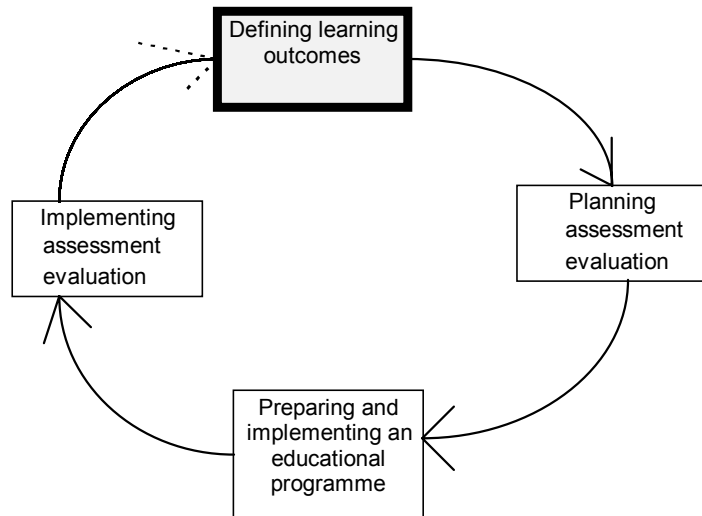
This document has been produced to encourage debate concerning the use of learning outcomes. It is expected that the document will undergo many revisions before a final user friendly version is produced. It is not written from an 'expert' perspective but rather from that of the user. The writing style therefore attempts to be informal and hopefully relatively light-hearted.

Any comments, including corrections and suggestions would be most welcome and should be directed to either of the authors; addresses and emails can be found at the front of this document.



2. Learning outcomes and the educational process

The development of learning outcomes should not be considered in isolation from other educational activities such as course design and evaluation. Guilbert (1987) provides a useful graphical explanation of the relationship which he calls the 'educational spiral'. It is given below in a slightly simplified version:



The above is basically nothing more than the well known audit cycle which itself is based upon the standard 'Plan → implement → evaluate' concept. The historical development of this approach is described clearly in Fitz - Gibbon (1996).

The diagram illustrates how desirable it is to define measurable learning outcomes in any course *in order to facilitate monitoring and evaluative feedback from a number of perspectives including that of the students, teachers and any quality assurance bodies.* However, this document will be specifically concerned with the students perspective. Incongruities between any of the above aspects, i.e. the planning implementation

and evaluation stages, is a major reason why courses fail to live up to expectations. It is also something that the Quality Assurance Agency for Higher Education (QAAHE) looks very closely at with regard to match / mismatch. The subject review (December 1997) Handbook from QAAHE asks, in the subject review 'aide-mémoire'

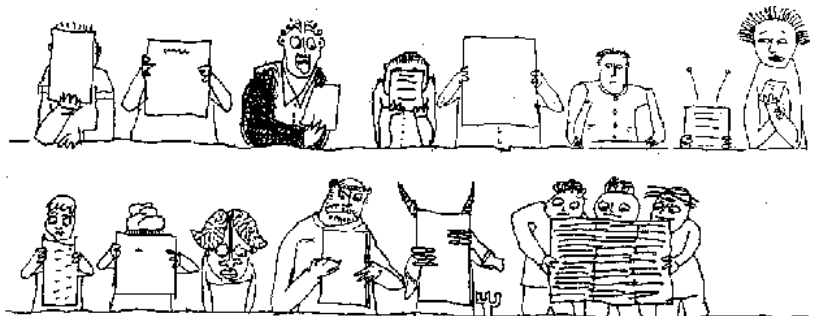
"Is the programme of teaching, learning and assessment activities appropriate in terms of intended learning outcomes . . ."

Just to labour this point:

"The key to a good course or curriculum design is to forge educationally sound and logical links between ... learning outcomes, teaching learning methods, and the assessment of student learning." (Newble & Cannon, 1994)

Newble & Cannon (1994), provide a table showing clearly the link between learning outcomes, teaching content /method and learner assessment.

The idea of stating the desired outcomes at the start is also reflected in most standard project management methods where you start with defining the 'deliverables'. Once you know what you want it's just a question of working out how you get there and what you need to achieve it in the required time scale! Sounds simple.



3. Learning outcomes

3.1 What are they?

McAvoy (1985), provides an interesting history of learning objectives from the time of Cicero. Different writers have defined and named the same concept very differently of which further details are provided in the appendix. For this practical guide we will be pragmatic.

A course has overall **aims** which can be broken down into learning outcomes which can then be further divided up into smaller, more specific ones. Writers use different terms for various levels of specificity, such as 'aims, goals, objectives and outcomes', 'general, intermediate and specific professional tasks', or 'course, units and elements' for NCVQ's. Various writers also specify a varying number of levels. The important point to realise is that at the lowest level a learning outcome has the following key characteristics:

Key point:

A student learning outcome is a defined outcome of a learning process that can be assessed in some way i.e. it is measurable

Examples of some learning outcomes

- 1. In an anatomy module, the ability to describe the muscle insertion points in the Femur.*
- 2. In a public health module, being able to describe the effect Chadwick had upon various law reforms.*
- 3. In a community care module, being able to demonstrate the appropriate behaviour when visiting a patient at home.*
- 4. In a clinical skills module, the ability to demonstrate effectively basic resuscitation techniques on a mannequin.*
- 5. For a stage three student, the ability to perform an appropriate examination.*
- 6. For a pre-registration house officer, the ability to collate all patient information for ward rounds.*

Further examples can be found in the appendix.

A learning outcome may also possess additional characteristics which are discussed below.

3.2 Aspects of learning outcomes

Many people say that learning outcomes should be SMART:

Aspect	Description	Example
<u>S</u>pecific	Contains an unambiguous action verb	Administer, List, Categorise, Contrast, Define, Operate, Identify, Analyse, State etc.
<u>M</u>easurable	It should be assessable	Obtain a mark of more than 40% for a set of MCQs
<u>A</u>chievable / <u>A</u>greed	The learner should be able to achieve the objective. If you are using a student centred approach the outcome should also be agreed with the student	For a Stage 3 student obtaining blood
<u>R</u>elevant	Be related to the general aims of the course and thereby 'professionally relevant'	
<u>T</u>imed	Specify by when the outcome should be achieved. This can also mean 'sequenced' that is the position of the outcome in relationship to those that have gone before and follow on.	By the end of the session, module, within 6 weeks etc. This learning outcome is designed to follow on from those defined in module XXX

Once again many writers have provided additional criteria. Possibly the most important are two criteria which combine elements of specificity and timing:

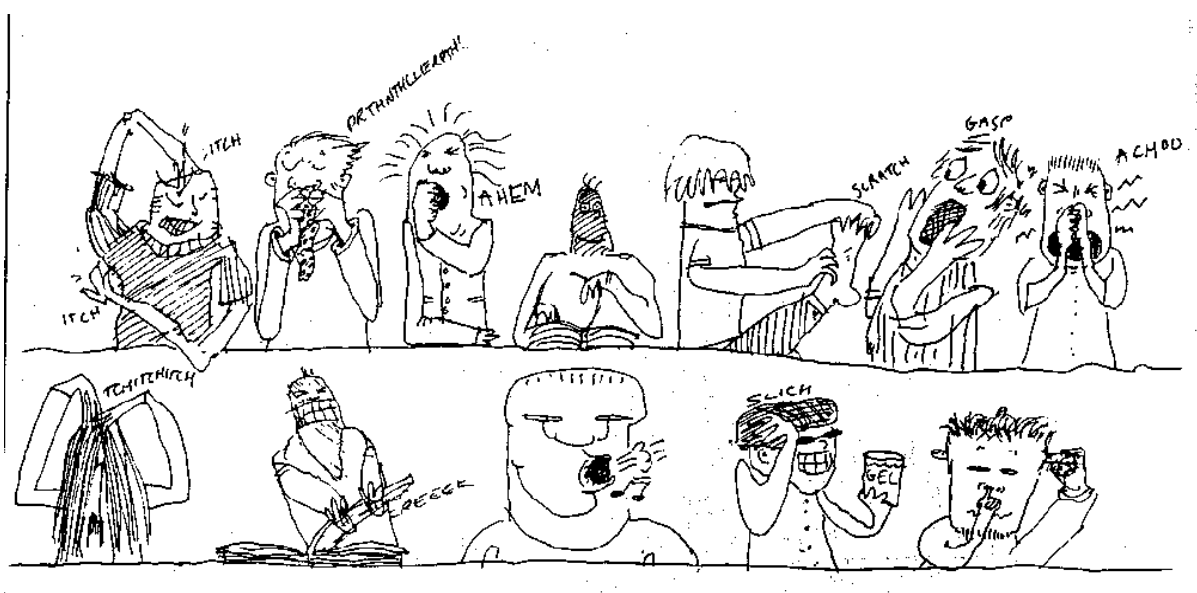
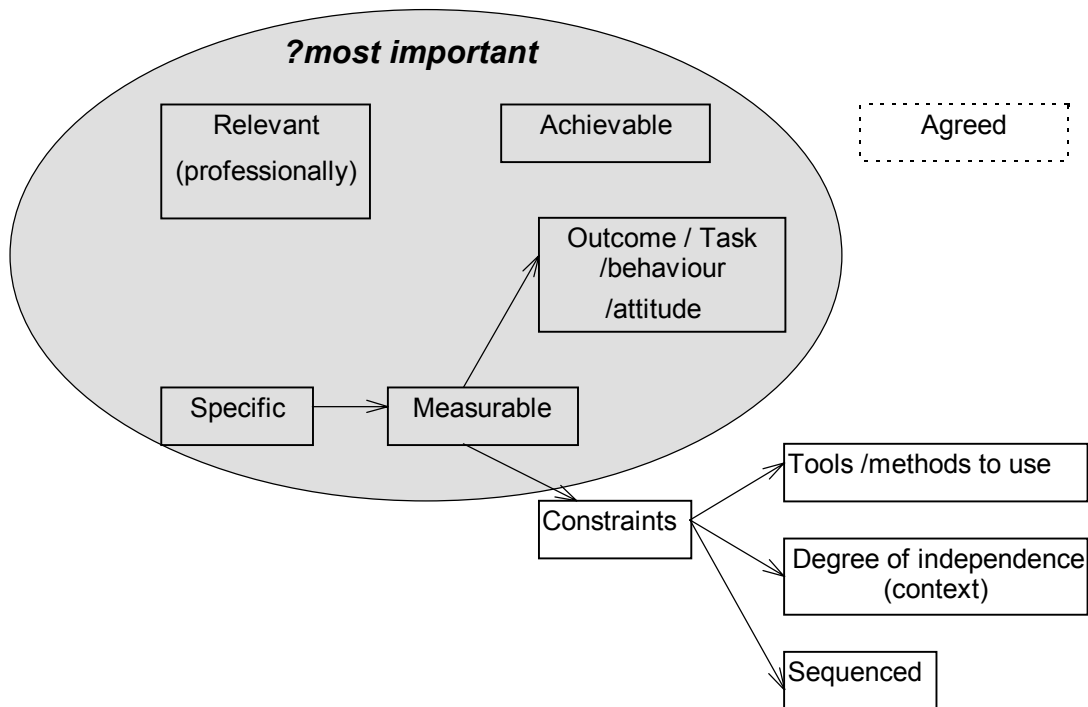
Aspect	Description	Example
Constraints	Specifics and constraints such as a particular situation and / or time scale	[carry out a routine patient examination].... <i>within a hospital environment within 30 minutes</i> . This characteristic is very important to consider in medical education as skills are often expected to be performed in increasingly complex situations at different stages of training.
Tools	Similar to the above but this aspect can be thought of as things that facilitate or validate the learning outcome.	Using the standard clerking form for the specialty The assignment should be produced using Word for Windows.....

Saxton considers a learning outcome to consist of three aspects:

- Behaviour we want from the learner
- Degree of independence required
- The complexity and / or significance of the situation in which the learner is expected to demonstrate this learning.

The last aspect could easily be incorporated into the other criteria listed in the above tables while the other two are already included.

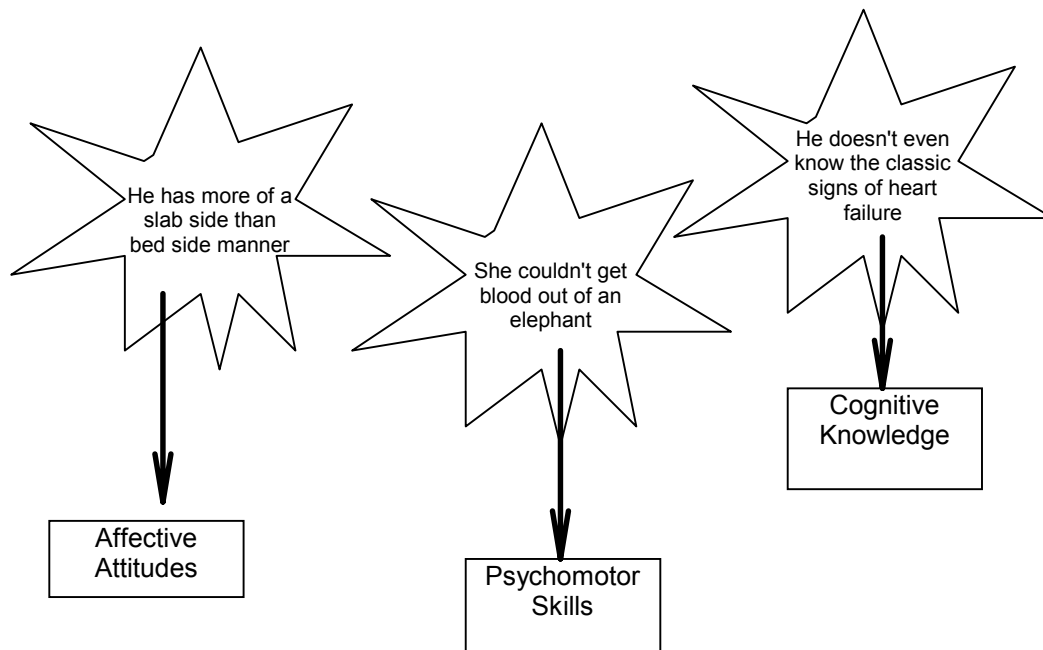
It must be realised that the above list should not be considered to be prescriptive but just a general guideline. It is possible to construct learning outcomes which do not possess all the above characteristics, as the examples throughout this document will demonstrate. The diagram below attempts to summarise the above information.



3.3 Types ('domains') of learning outcomes

Learning outcomes are often perceived as being 'behavioural'. However this is not necessarily the case as we shall see in examples presented latter in this section. Writers tend to separate learning into three domains for which each has had several, often conflicting, taxonomies developed.

- Cognitive - Knowledge
- Psychomotor - Skills
- Affective - Attitudes



In practice most learning outcomes do not purely belong to one domain.

Another way of looking at this classification is as follows, after Guilbert, (1987):

- Cognitive - Knowledge - Means the information handling aspect
- Psychomotor - Skills - Means the practical techniques that can be developed
- Affective - Attitudes - Means the temperament exhibited. Guilbert (1987, p137) considers this to be equivalent to communications skills - read on.

Exercise

Both Reece & Walker, (1997) and Guilbert, (1987) provide useful exercises, along with answers of which an abstract is provided below.

Cover up the three right hand side columns, score each learning outcome and then compare your answer with the printed answer. Guilbert warns that there is not a correct answer. If yours is different from his it is probably due to ambiguity in the wording used.

Learning outcome	Domain		
	Knowledge	Skills	Attitude
Check the availability of equipment needed for emergencies (drugs, instruments, beds), using a checklist.	✓✓		
Treat, in order of urgency, several patients who arrive at once.	✓✓	✓✓	✓
Support the vital functions of a child, in accordance with an <i>ad hoc</i> outline of procedures.	✓	✓✓	✓
Avoid any action that could endanger the life of the child.	✓✓		
Reassure the child.			✓✓
Explain to the parents why the child must be kept in hospital.	✓		✓✓
Offer moral support to the parents.			✓✓
Decide to move the patient.	✓✓		
Plan the move.	✓✓		
Prepare a newborn baby for transfer.	✓	✓✓	✓
Prepare a child for transfer.	✓	✓✓	✓
Explain to the parents how the administrative structures involved in admissions and departures function.	✓✓		✓
Identify the various administrative structures involved in a referral.	✓✓		✓
Distribute the work among health personnel assigned to the emergency service.	✓✓		✓
Elicit the reasons for various surveillance activities from nursing staff.	✓		✓✓
Explain the reasons for various surveillance activities to nursing staff.	✓✓	✓	✓
Reassure the mother of a child admitted to hospital.	✓		✓✓

Although each domain will now be considered separately it must be realised that often a learning outcome may possess characteristics from more than one domain.

Exercise:

Choose a particular topic in your specialist area and list below some learning outcomes you expect the student to attain.

3.3.1 Starting from where the learner is at

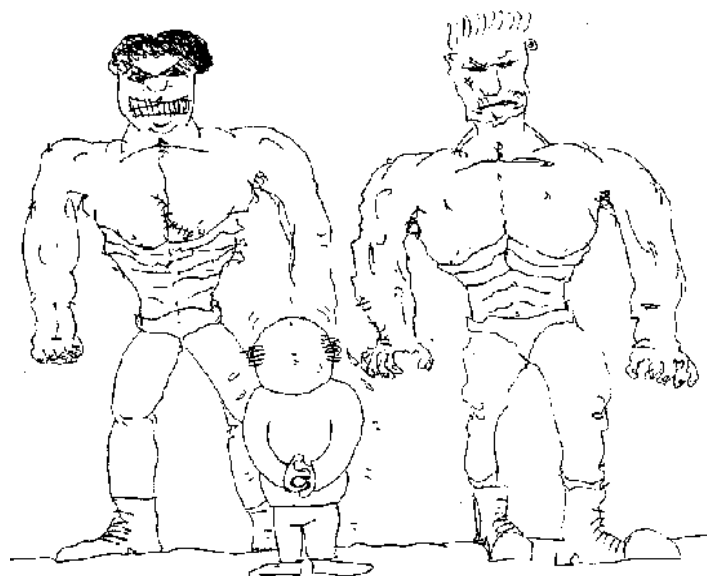
Besides classifying learning outcomes into the three domains, each domain is further divided into a number of levels, frequently referred to as a taxonomy. Each level represents a certain degree of complexity for that particular domain. The levels are ranked in order of complexity, analogous to the 'grade exams' for learning a musical instrument.

When designing a course it is useful to consider these various levels and consider where the students are at for a particular learning outcome, as well as how far up the levels you may wish them to progress.

Key point:

When designing a course it is sensible to start at the place the students are at and work upwards by using the levels for each of the domains.

The various complexity levels for each of the domains will now be discussed.



3.4 Cognitive / Knowledge domain

Saxton states that one of the easiest ways to derive learning outcomes in this domain is to use Bloom's well established taxonomy of cognitive objectives which consists of six levels. However, we find this number of divisions unwieldy and propose the following four levels suggested by Reece & Walker (1997, p265) as more useful.

Level (after Reece and Walker 1997)	Description	Example
Knowledge	Recognises and recalls facts.	List the main causes of Ascites.
Comprehension	Interprets or summarises given information.	Presentation of a patient on a teaching ward round. Explain the functions of the kidney in relation to common pathologies.
Application	Uses information to solve a problem.	The student having completed the cardiology module is capable of making a valid diagnosis of mitral regurgitation when presented with the appropriate patient.
Invention (analysis etc.)	Compares, contrasts, analyses, judges.	The student faced with a pathological condition for which s/he has not been prepared is able to get on the right track by applying scientific methods and a sound experimental approach (taken from Guilbert p139).

In contrast to the above four levels Guilbert, (1987, p138) recommends only three;

- Recall of facts
- Interpretation of data
- Problem solving.

The original Bloom six level taxonomy along with a medical example, can be found in the appendix.



3.5 Psychomotor / Skills domain

As with the previous domain different writers propose a different number of levels. Reece & Walker (1997, p68) present a five level taxonomy from the work of Dave (1975), whereas Guilbert suggests a three level taxonomy which is presented below:

Level	Description	Example
Imitation	Observes skills and attempts to repeat it	Carry out simple suturing under supervision. A student nurse who has seen intramuscular injections performed before her several times tries to imitate the movements involved using a orange (Guilbert p138).
Control	Can carry out skill according to a set procedure. Also able to differentiate between several skills and choose the appropriate one. Can also combine several skills in sequence ('Articulation')	The student becomes accustomed to carrying out certain acts while performing routine minor surgery under supervision (Guilbert p138).
Automatism	A high degree of proficiency is obtained and the skills are completed automatically ('Naturalisation')	An experienced nurse washes a bed-ridden patient carefully and without causing any discomfort; or a physician deftly intubates a road accident victim in the mist of the surrounding confusion (Guilbert p138).

Another interesting classification of skills, directly related to medical students, are those suggested in the Core Competencies Project (DFEE, 1997 p7):

Level	Description	Example
Foundation	Student should be able to perform competently, though performance may not be required routinely by the PRHO.	Measuring and recording vital signs and growth parameters. Insertion of nasogastric tube or urinary catheter. Take swabs for microbiology.
Level 1	On qualifying the student should be competent to perform skill without direct supervision.	Venepuncture, insertion of a intravenous cannula into a peripheral vein, manage an intravenous line, set up and operate a syringe driver, perform a vaginal delivery. 12 lead ECG. Perform pulse oximetry in a very sick patient.
Level 2	On qualifying the student should be able to perform with direct supervision , with the aim of becoming competent by the end of the PRHO year.	Measure CVP, set up a blood transfusion, Insertion of a chest drain, abdominal paracentesis, complete request forms for; x-ray, blood tests, blood transfusion. Complete; death certificates, cremation forms, discharge summary.
Level 3	On qualifying the student should have observed the skill and be able to describe it to a clinician and simply to a patient.	Insertion of a CVP line, exercise ECG, endoscopy of upper and lower GI tract. Colposcopy. Echocardiogram, angiogram, bronchoscopy.

The above classification makes use of the idea of a 'constraint' as discussed on page 6.

3.6 Affective / Attitudes domain

Guilbert, (1987) appears to take very much a behavioural view of attitudes. To give you some idea an extended quote is provided below:

". . . The dictionary tells us that an attitude is '*behaviour representative of feeling or conviction: a persistent disposition to act either positively or negatively towards a person, group, object, situation or value*' (Webster).

.....We shall restrict this domain to everything concerning relations between health personnel and the members of the community they will serve. It will therefore be almost entirely a matter of *interpersonal relations*. This is why it is referred to as a communication skill." (Guilbert 1987, p137).

Guilbert then suggests three levels of attitudes.

Level	Description	Example
Receptivity / attention	Sensitivity to the existence of a certain phenomenon and indicates a willingness to receive.	Noticing the anxiety of a patient awaiting the result of a laboratory test for a disease that can have serious consequences (Guilbert p137).
Response	Sufficient interest in the noticed phenomenon to do something about it	In the case described above, the response would be to say a few reassuring words to the patient so that she does not feel alone (Guilbert p137).
Internalisation / empathy	The phenomenon has found a place in your scale of values and has effected you long enough for you to adapt yourself to the value system of the other person. This enables you to adapt your attitude to the other person <i>as if</i> you were experiencing the same phenomenon yourself.	Having noticed the anxiety of a patient awaiting the result of a laboratory test for a disease that can have serious consequences, your attitude will show that you care about their anxiety and are ready to help them cope with it. This does not mean that you have internalised their anxiety but you have internalised the attitude that enables you to offer them effective help.

For those readers who are interested in investigating alternative taxonomies Reece & Walker (1997), provide an alternative taxonomy adapted from that of Krathwohl et al (1964).

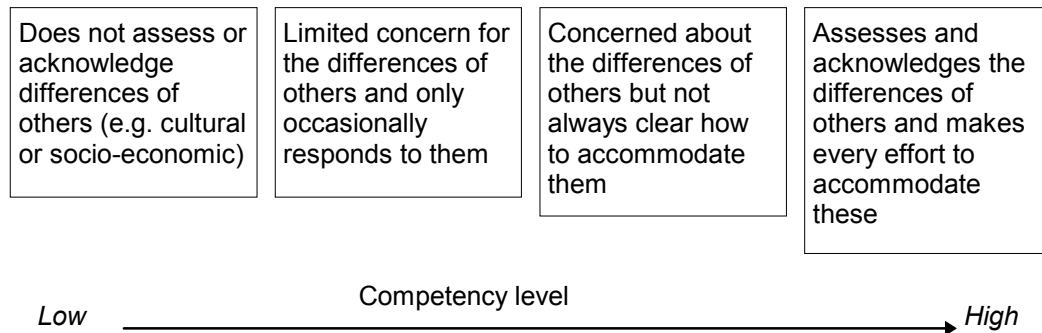
3.6.1 Developing attitudinal learning outcomes

Nowadays it is not just adequate to assess the academic aspect of most courses. It is also necessary to consider various 'life' and 'professional' skills. This issue was highlighted in 'Tomorrow's Doctors' (GMC, 1993) and is likely to be a focus for QAAHE assessments. While these are often the most difficult to state they are also those that tend to produce the greatest misunderstanding between teacher and learner. However, any attempt to state explicitly what is often implied implicitly is welcomed by most learners, even if they disagree with it! Here are some more examples of this type of learning outcome:

- Demonstrating the necessary attitude to working co-operatively with others in a group
- Interpreting and responding to other peoples' feelings and behaviour
- Demonstrating the correct attitude to teaching and organising group activity (from Saxton)
-
- Dealing appropriately with relatives of patients in ITU
- Working appropriately in a multi disciplinary team
- Showing appropriate consideration when carrying out painful / embarrassing procedures

In the last three above examples the word 'appropriately' is equivalent to the level of internalisation in the previous table. Saxton provides a nice example of how you can develop a scale, similar to the levels defined in the previous table to facilitate grading of students. Taking the last example above:

Skill: Consideration given to others



3.7 Other Sources of information

An introduction to developing learning outcomes called 'A guide to writing learning outcomes by Judy Saxton, Health and Community Studies, Sheffield Hallam University (tel. 0742 532425) is available from John Spencer or Robin Beaumont. We also have a number of the references cited in this document.

If anyone has any information they think would be useful we would be most grateful if you would let us know.

4. How do you set about writing learning outcomes?

There are four main stages to developing learning outcomes:

1. Decide your starting point
2. Develop your template
3. Develop your learning outcomes
4. Schedule
5. Review

4.1 Decide your starting point

Saxton suggests that one way is to look at the indicative content of a traditional syllabus and develop learning outcomes from that. Newble & Cannon (1994), suggest other ways objectives can be derived including the use of critical incidents.

Alternatively, this being the preferred method, is to derive learning outcomes at the very start, as the diagram on page 4 illustrates. Taking this approach you would consider the course aims and progressively break them down to eventually produce the learning outcomes.

4.2 Develop your template

Clearly different individuals will want to develop learning outcomes at different levels of complexity. Some individuals may be happy with defining learning outcomes which do not specify various constraints /tools or the actual level within a particular domain to be attained. It is therefore a good idea for the individual to list the various characteristics s/he feels happy to consider when developing learning outcomes.

It should be noted that learning outcomes concerning psychomotor skills often also specify constraints such as degree of independence. See page 6 to review the main characteristics of a learning outcome along with the examples on the same page and those in the appendix if you feel unhappy with this point.

Exercise A:

Looking at the diagram on page 7, list the characteristics you feel happy to consider when writing a learning outcome. List any additional ones you think are important.
--

Looking at the diagram on page 8, which would you say was the most and least important domain for your learning outcomes to concentrate on?

Looking at the table on page 11, showing the levels of cognitive activity, which levels do you want to use?

Looking at the table on page 12, showing levels of skill development, which levels do you want to use?
--

Looking at the table on page 13, showing levels of attitudinal development, which levels do you want to use?
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Exercise B:

Using the responses you gave in the above exercise now develop a one page template to act as a aide-mémoire when developing a learning outcome.

An example is given below:

<p>Which domain? Cognitive / Skill / Attitude (<i>circle one</i>)</p> <p>Which levels? (<i>Consider the relevant domain(s) below - synonyms in square brackets</i>)</p> <p>Cognitive (<i>circle one</i>):</p> <ul style="list-style-type: none">Knowledge [list/recall]Comprehension [explain]Application [solve problem]Analysis [discuss] <p>Skills (<i>circle one</i>):</p> <ul style="list-style-type: none">ObservesPerforms under direct supervisionPerforms under minimal supervisionPerforms competently unsupervised <p>Attitude: Receptive[aware of] / Appropriate responses (<i>circle one</i>)</p> <p>Any constraints?: end of session / module / exam + dates etc. (<i>circle one</i>)</p> <p>Any tools / methods to use?: forms / software / techniques / methods etc. (<i>circle one or more</i>)</p> <p>The learning outcome:</p> <p>Remember to check for:</p> <ul style="list-style-type: none">• Relevance to overall module aims• Suitability of position in course.• Suitability for intended learners.

4.3 Develop your learning outcomes

Now you have decided both the source from where you are going to derive the learning outcomes and have also developed a template, you can now start to develop the actual learning outcomes.

We will now turn to two more important issues, the actual number of learning outcomes that should be developed for a typical session and the actual process of developing them.

4.3.1 How many learning outcomes?

Regarding the question of how many learning outcomes is appropriate for a session, a module, a course etc., we have been unable to find any 'evidence based' guidance in the literature. However, common sense / gut feeling suggests that one should limit the number of stated outcomes (a) since it may be impossible to achieve them in the session, and (b) since their effect becomes diluted and confuses the students. We therefore recommend;

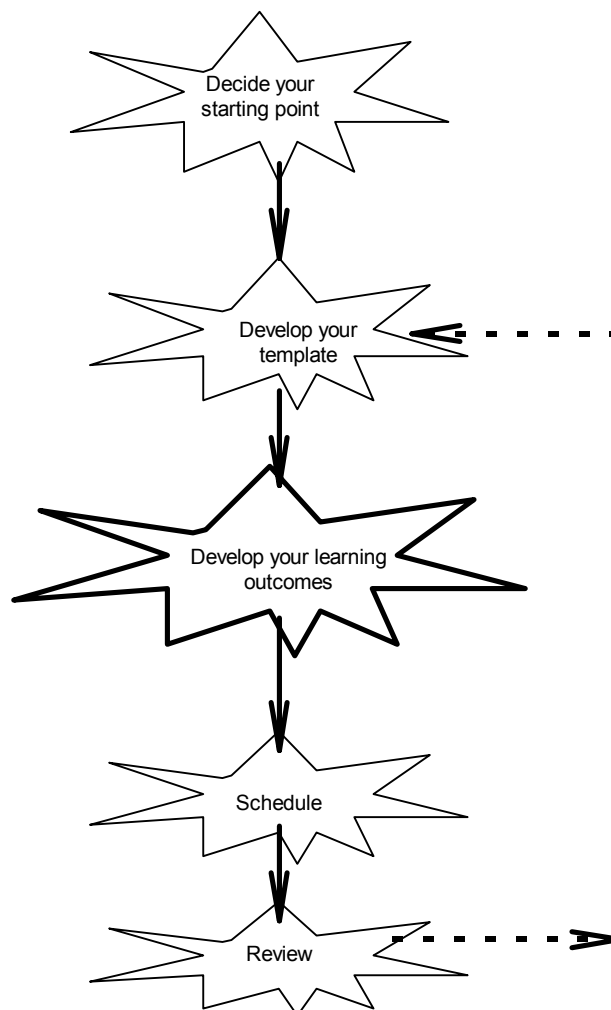
Depending upon the detail of your learning outcomes you will expect to develop anything from 3 to 10 for an average session.

4.4 Schedule

Once you have a set of learning outcomes, you might want to put them into some type of order, alternatively you may have developed them in a orderly fashion.

4.5 Review

To review the learning outcomes you've devised how about getting a group of peers or even ex-students! The criteria you use to review them with can be from a number of sources, this document including the SMART framework, your own template or those that your reviewers suggest.



5. Afterthought

Although there has been a substantial move towards outcome driven teaching and learning in higher education, including medicine, it is only one of many theoretical frameworks and has its limitations. It has its roots in behavioural psychology and can be said to see education in 'assembly line' terms, hence the production of skills and competencies. The learner uses these to be able to function in, and adapt to a changing environment. There is a tendency for the learner to find the knowledge 'external', since the learning process is devised and controlled by the teacher. The major critiques of this tradition focus on this issue; and on the fact that it is neither possible to derive outcomes for all learning nor can everything that can be learnt be reduced to small steps.

Several attempts have been made to incorporate other approaches into the learning outcome framework. Stenhouse, (1975) discusses 'process' rather than outcome measures from a humanistic perspective. The postmodernist school have also considered education in general (e.g. Usher & Edwards 1994). Unfortunately there does not appear to be anything specifically concerned with medical education, although Fox (1993) discusses a postmodernist view of health in general. This is possibly an area for research.



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The above references are deliberately not produced in a strictly standard format, for example full names are given of those individuals readers' of this document may wish to contact.

Appendices

1. Examples of learning outcomes

- **Apply knowledge of liver pathology to a set of patients notes with known liver pathology**

The above learning outcome is:

Domain: mainly cognitive; application level.

Level of independence expected from the learner: minimal.

- **Apply knowledge of liver pathology to a patient with an unknown history by examining the patient**

Domain: Cognitive; analysis level. Skill level; automatism. The patient may show no signs of liver pathology or alternatively some other pathology which may mimic it to a greater or lesser extent.

Level of independence expected from the learner: minimal; the learner may vary the examination based upon findings while examining?

No constraints/tools specified.

- **By the end of the session and related directed study you should be able to: discuss the need to ration health care resources, recognise the concepts of rationing and priority setting and their inherent problems, differentiate between approaches to rationing health care resources including explicit priority setting and describe the Oregon experiment (taken from MBBS Stage 2 medicine in Society, Module 3 Study Guide)**

Set of four learning outcomes for a session.

Domain: Cognitive; various levels (discuss = analysis level; recognise / differentiate /describe = comprehension).

Constraints / tools: constraints only mentioned.

By the end of the session and related directed study you should be able to: describe the different theories of ageing and their contribution to our understanding of the ageing process, describe the changes in intellectual ability which occur with advancing age, discuss the findings of cross-sectional versus longitudinal studies in relation to the ageing process and identify examples of the ageing process in all age groups (taken from MBBS Stage 2 Medicine in Society Module 3 Study Guide).

Set of four learning outcomes for a session.

Domain: Cognitive; various levels (discuss = analysis level; identify/describe = comprehension).

Constraints / tools: constraints only mentioned.

We would be most grateful for additional examples that people find useful.

2. Bloom's cognitive taxonomy

Bloom (1964) devised a six level hierarchy. The lowest level, 'knowledge' representing fact retrieval and the highest, 'evaluation', the process of making some value judgement based upon a range of information. Details along with medical examples are provided below:

Level	Explanation - from Miller, Sadler, Mohl & Melchiode 1991
Knowledge	The recall of specifics or related facts. This process emphasises the psychological processes of remembering. It includes knowledge dealing with specific facts, trends, classification and theories as well as procedures employed in a specific subject field. Knowing the major risks for a patient with a particular illness would be an example of this level.
Comprehension	This represents the lowest level of understanding. Comprehension involves making use of an idea without necessarily relating it to other material or realising its full implication. Examples are interpreting the meaning of a graph or predicting the continuing spread of a contagious disease.
Application	The use of abstractions or principles to solve problems. These may be in the form of generalisations or theories which must be remembered and applied. Examples include applying scientific terms discussed in a paper to other situations, or solving health problems using scientific knowledge.
Analysis	The breaking down of complex information into simpler parts to understand how they are related or organised. Analysis is intended to clarify and provide an understanding of the interactions between elements. An example would be relating a patient's previous symptoms to a current medical condition.
Synthesis	The process of combining concepts to constitute a new whole. This includes creating completely new products such as writing a composition or developing a differential diagnosis for a patient.
Evaluation	Making value judgements based on some given criteria or standard. Comparing two different medical procedures regarding patient prognosis is an example of this level.

Saxton suggests a list of questions to help decide the level for a particular learning outcome:

Level	Question
Knowledge	What do you expect the learner to know?
Comprehension	How do you expect them to convey what they understand? (i.e. interpretation, recognition)
Application	How can they apply their knowledge and beliefs? (i.e skills)
Analysis	How can they analyse their learning? (i.e. elements, relationships and organisation)
Synthesis	How can they synthesise their learning? (i.e. construct, plan develop a new set of abstract relationships)
Evaluation	Can they evaluate using their learning? (i.e. make judgements, appraise)

3. Different definitions of learning objectives

Much of the information in this section has been taken from McAvoy 1985, Guilbert 1987 and Reece & Walker 1997.

Tyler 1949	Mager 1962	Gagne & Briggs 1974
<p>Behaviour</p> <p>The kind of behaviour to be developed by the student</p>	<p>Behaviour - 'What'</p> <p>Identify and name the overall behaviour act (terminal behaviour)</p>	<p>Action</p> <p>Behaviour defined by an action verb</p>
<p>Content</p> <p>The content or area of life in which the behaviour is to operate</p>	<p>Conditions - 'How'</p> <p>Define the important conditions under which the behaviour is to occur (gives and/or restrictions and limitations)</p>	<p>Object</p> <p>Describe what is produced or processed</p>
	<p>Criteria (standards) - 'How well'</p> <p>Define the criteria of acceptable performance</p>	<p>Situation</p> <p>Situation that faces learner when asked to carry out objective</p> <p>Tools and other constraints</p> <p>'How must the performance be carried out</p>

Guilbert 1987 bases his work on that of Mager of which the most recent publication he gives is 1973. Guilbert considers the act + the content + the condition = the task. Therefore for him an educational objective is a task + criteria.

1. Example of a complex session plan

Title of session Subject area Location Length Level Date

Group characteristics Group size

Relevant previous knowledge Recap previous topics

Time (mins approx.)	Topic	Prompt	Teaching technique	Student activity	aids / refs

References - personal	References - for students
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Remember: Recap at end, Anything assessment related,

Follow up activities.

Next topic

Close session THANK GROUP (continued overleaf)

Example of a complex session plan (continued).

Learning outcomes for session:

Knowledge	Skills	Attitudes

1. Example of a user friendly session plan

Aims:

Learning outcomes:

Entry behaviour / knowledge of learners:

Teaching content and process:

Time	Content	Teacher activity	Learner activity	A/V aids or material