ESSCE
Assessment Workshops

THE UNIVERSITY of EDINBURGH

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What do we mean by assessment?

A range of synonyms in English:

- Examinations, Evaluations, Appraisal, Judgements, Measurement, Review, Opinion, Consideration, Estimation

Practically:

- Taken to mean any 'formal' review of performance or ability – exams at any time, in-course assignments, practicals etc.

Our aim – for you …

- Write good MCQ questions
- Set a fair pass score
- Interpret item analysis
- Create effective assessments – emphasising educational impact
- Develop and use assessment vocabulary

The schedule…

0900 MCQ writing ***then coffee***
1100 Standard setting
1130 Psychometrics and Item analysis
1215 LUNCH
1315 Principles for designing assessments
1415 Designing your own assessments **& tea**
1540 Review and discuss designs
1620 Feedback forms and Close

Example MCQ – of SBA type

Mr. J.S., a 55 year old accountant presents to the emergency room with crushing chest pain which began three hours ago and is worsening. The pain radiates down the left arm. He appears sweaty. BP is 120/80 mm Hg, pulse 90 per minute and irregular. An ECG is taken.

What is the most likely change you will see in his ECG?

a) Inverted t-wave and elevated ST segment
b) Enhanced R wave
c) RSR' pattern
d) Increased Q wave and R wave

Case and Swanson (1998) Constructing Written Test Questions for the Basic and Clinical Sciences. NBME

Example SJT For FY1 Ranking in the UK

From UKFPO Website http://www.foundationprogramme.nhs.uk/pages/medical-students/SJT-EPM

You are looking after Mr Kucera who has previously been treated for prostate carcinoma. Preliminary investigations are strongly suggestive of a recurrence. As you finish taking blood from a neighbouring patient, Mr Kucera leans across and says "tell me honestly, is my cancer back"

How should you respond to Mr Kucera?

Example SJT For FY1 Ranking in the UK

From UKFPO Website http://www.foundationprogramme.nhs.uk/pages/medical-students/SJT-EPM

Rank in order: 1= Most appropriate; 5= Least appropriate

A. Explain to Mr Kucera that it is likely that his cancer has come back

B. Reassure Mr Kucera that he will be fine

C. Explain to Mr Kucera that you do not have all the test results, but you will speak to him as soon as you do

D. Inform Mr Kucera that you will chase up the results of his tests and ask one of your senior colleagues to discuss them with him

E. Invite Mr Kucera to join you and a senior nurse in a quiet room, get a colleague to hold your 'bleep' then explore his fears

What is a Situational Judgement Test?

From UKFPO Website http://www.foundationprogramme.nhs.uk/pages/medical-students/SJT-EPM

SJTs are:

- *a test of aptitude*
- *designed to assess the professional attributes expected of a Foundation doctor*
- *based on a detailed job analysis of an FY1 doctor*

SJT questions assess your judgement by presenting you with challenging situations you are likely encounter at work during the first year of an integrated Foundation Programme

Writing and Using MCQs

- Why use MCQs?
- T/F questions and Best of X
- Avoiding pitfalls in writing MCQs
- Steps for writing MCQs

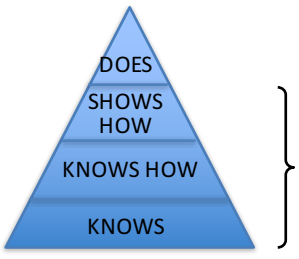
Why are MCQs useful?

- Saves marking time / acceptable
- CAN test knowledge, judgement & justifying
- Excellent sampling – reliable results
- Apparently fair to students – same questions
- 'Correct answer' is widely viewed / debated
- CAN offer focused feedback on each option
- Correlation with clinical tests and practice
- Tough testing in a safe environment
- Likely to be cost-effective……

Limitations of MCQs

- *Some* cognitive and practical skills cannot be examined in this format
- Students might rote learn - more likely if bad MCQs reward rote learning
- Students only able to *identify* the correct answers without understanding content.
- Students may favour book over experiential learning

What can we assess with MCQs?



Work-based practice

Artificial testing situations

MCQs mainly address *Knowing* and *Knowing How*

Miller GE. The assessment of clinical skills/competence/performance. Academic Medicine [Internet]. 1990;65(9)
Norcini JJ. ABC of learning and teaching in medicine: Work based assessment. BMJ. 2003 Apr 5;326(7392):753-5

What 'knowledge' can we assess with MCQs?

Knows and *Knows How* includes:

- Knowledge
- Comprehension
- Application
- Analysis
- Synthesis
- Evaluation

Much knowledge and **application of knowledge** relevant to practice of medicine: **describe, explain, diagnose, choose Ix, Mx, interpret, justify.**

Bloom, B.S., Krathwohl, D.R. & Masia, B.B., 1984. *Taxonomy of educational objectives: the classification of educational goals*. New York: Longman.

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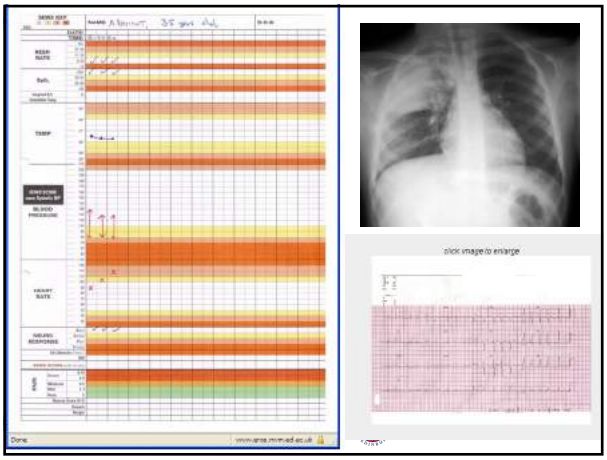

Writing good questions

1. Must be based on stated learning outcomes
2. Emphasis should be on the important
3. Test range of cognitive skills
4. Write as you go – after teaching/ lectures/ reading
5. Experiment and use the feedback / item analysis

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Terms for Single Best Answer Question

case based on examples from Case and Swanson 2008

www.nbme.org/pdf/itemwriting_2003/2003iwgwhole.pdf

STEM

46yr old w
pain, naus
tests show
137U/L, Al

The **most** likely diagnosis is:

Note the STEM includes the SCENARIO and the LEAD-IN QUESTION.
Normal ranges removed due to lack of space.

OPTIONS

a.Acute pancreatitis **(DISTRACTOR)**
b.Acute viral hepatitis **(DISTRACTOR)**
c.Ascending cholangitis **(KEYED/CORRECT ANSWER)**
d.Haemolytic hyperbilirubinaemia **(DISTRACTOR)**
e.Drug reaction with cholestatic jaundice **(DISTRACTOR)**

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A GOOD SCENARIO

- Authentic clinical context – think about patients seen.
- Addresses range of topics, diseases, clinical contexts.
- Emphasises the more important LOs/topics.
- Uses non-identifiable data and investigations.
- Follows the house-style for presenting the information.

Edinburgh MBChB House-style for SCENARIOS

- Allow **90 secs per question** – this will guide what goes into the question
- **Good structure**, 30-120 (max 150) words, concise description using present tense, no immaterial facts, does not deliberately mislead or include bad practice.
- **Includes information on some of the following in this order:**
  - age, gender (man/woman/boy/girl), symptoms, duration, the setting IF relevant, relevant past history, family history, social history
- Presents **examination findings** in this order:
  - temperature, pulse e.g. 90 bpm, blood pressure, respiratory rate e.g. 20 breaths per minute.
  - Mini-mental state examination and Glasgow coma score
- **Physical findings** giving positive/abnormal findings first
- **Results and investigations** in logical, standardised order giving normal ranges.
- Signs and symptoms of a clinical state e.g. dehydration, rather than the medical summary.

Data and Images in SCENARIOS

- Add data and/or images where possible and relevan rather than report findings only.
- To access teaching images/photographs in NHS Lothian you can seek a Medical Image Manager Use Profile.
  Contact: medical.photography@nhslothian.scot.nhs.uk
- Photographs need explicit written consent
- X-rays can be used IF they have **no** name/ ID, and have **no** additional features such as pathology or jewellery that might identify patient.
- ECGs – basically same rules as for X-rays

A GOOD QUESTION

- Tests a **range of learning outcomes** –biomedical /social science / ethics as well as diagnosis, clinical management and prescribing.
- Tests a range of **relevant cognitive skills** (recall of causes and drugs, interpretation of results, judgement of likely diagnosis).
- Asks for the single **BEST** answer and not which one is TRUE e.g.
  - *What is the **most** likely diagnosis?* (Others may be reasonable)
  - *What is the **best** description of the process?*
  - *What is the **most** likely site of the lesion?*
- Passes **the cover test**
- **Avoids** asking what does **NOT** apply e.g. what is the least likely diagnosis

A GOOD SET OF OPTIONS

- Similar in style and length – reasonably short
- Grammatically correct – all flow from the lead-in question without 'cueing' the correct answer
- Homogeneous (all treatments, or diagnoses as required by the question)
- All options plausible, familiar to students and possibly appropriate, BUT one is **better** than the others
- BEST (keyed/correct) answer is widely agreed by experts - conforms to UK practice and NICE/SIGN guidelines
- Listed in order e.g. alphabetically or numerically as appropriate (but drawback if re-using question)

Steps to Create SBA Questions

See Appendix Template

CHOOSE THEME /TOPIC / LOs e.g. Anatomy of hand

SKILL/ QUESTION

What is the best description of the anatomical lesion?

WRITE SCENARIO – e.g. Man with swan neck deformity of finger with photograph

OPTIONS:

1. Rupture flexor digitorum profundus tendons
2. Rupture flexor digitorum superficialis tendons
3. Rupture extensor digitorum tendons
4. Rupture extensor digitorum minimi tendon
5. Plausible alternative from students' misconceptions

Steps to Create SBA Questions

- Other Themes -

CHOOSE THEME / TOPIC / LOs e.g. Pathology

SKILL/ QUESTION –

What are the most likely findings at autopsy?

SCENARIO – ***Relevant limited*** details. e.g. man with chest pain worse on breathing, fever, ECG (provided). Avoid red herrings and traps. NB: Empirical data is usually ***more difficult***.

OPTIONS:

1. Inflammation of pleura
2. Inflammation of pericardium
3. Thrombus in the left main coronary artery
4. Plausible alternative from students' misconceptions
5. Plausible alternative from students' misconceptions

6 Take-home Messages on MCQs

Ideas for this talk were informed by:
www.nbme.org/pdf/itemwriting_2003/2003iwgwhole.pdf

1. MCQs correlate well with clinical exams
2. MCQs are reliable because of sampling
3. MCQs are fair due to reliability and same exam for all
4. SBA better than T/F for summative clinical exams
5. MCQs must be well-written and pass the cover test
6. MCQs can be improved with feedback and item analysis

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Who should pass?
- Standard-setting -

1. A fixed pass mark
2. A normative approach
   - a % fail or mean & SD
3. Alternative is to use criteria
   - qualitative marking
   - quantitative / scoring

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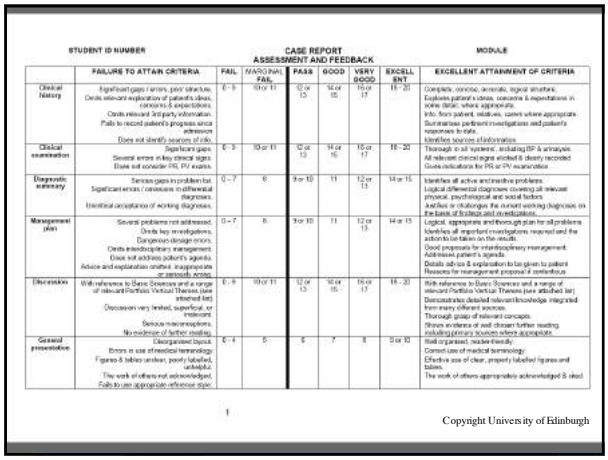

STUDENT ID NUMBER | CASE REPORT ASSESSMENT AND FEEDBACK | MODULE

	FAILURE TO ATTAIN CRITERIA	FAIL	MARGINAL FAIL	PASS	GOOD	VERY GOOD	EXCELLENT	EXCELLENT ATTAINMENT OF CRITERIA
Clinical history	Significant gaps / errors, poor structure. Omits relevant exploration of patient's ideas, concerns & expectations. Omits relevant 3rd party information. Fails to record patient's progress since admission. Does not identify sources of info.	0 - 9	10 or 11	12 or 13	14 or 15	16 or 17	18 - 20	Complete, concise, accurate, logical structure. Explores patient's ideas, concerns & expectations in some detail, where appropriate. Info. from patient, relatives, carers where appropriate. Summarises pertinent investigations and patient's responses to date. Identifies sources of information.
Clinical examination	Significant gaps. Several errors in key clinical signs. Does not consider PR, PV exams.	0 - 9	10 or 11	12 or 13	14 or 15	16 or 17	18 - 20	Thorough in all systems, including RP & urinalysis. All relevant clinical signs elicited & clearly recorded. Gives indications for PR or PV examinations.
Diagnostic summary	Serious gaps in problem list. Significant errors / omissions in differential diagnoses. Unrealistical acceptance of working diagnoses.	0 - 7	8	9 or 10	11	12 or 13	14 or 15	Identifies all active and inactive problems. Logical differential diagnoses covering all relevant physical, psychological and social factors. Justifies or challenges the current working diagnoses on the basis of findings and investigations.
Management plan	Several problems not addressed. Omits key investigations. Dangerous dosage errors. Omits interdisciplinary management. Does not address patient's agenda. Advice and explanation omitted, inappropriate or seriously wrong.	0 - 7	8	9 or 10	11	12 or 13	14 or 15	Logical, appropriate and thorough plan for all problems. Identifies all important investigations required and the action to be taken on the results. Good proposals for interdisciplinary management. Addresses patient's agenda. Details advice & explanation to be given to patient. Reasons for management proposal if contentious.
Discussion	With reference to Basic Sciences and a range of relevant Portfolio Vertical Themes (see attached list) Discussion very limited, superficial, or irrelevant. Serious misconceptions. No evidence of further reading.	0 - 9	10 or 11	12 or 13	14 or 15	16 or 17	18 - 20	With reference to Basic Sciences and a range of relevant Portfolio Vertical Themes (see attached list) Demonstrates detailed relevant knowledge integrated from many different sources. Thorough grasp of relevant concepts. Shows evidence of well chosen further reading, including primary sources where appropriate.
General presentation	Disorganised layout. Errors in use of medical terminology. Figures & tables unclear, poorly labelled, unhelpful. The work of others not acknowledged. Fails to use appropriate reference style.	0 - 4	5	6	7	8	9 or 10	Well organised, reader-friendly. Correct use of medical terminology. Effective use of clear, properly labelled figures and tables. The work of others appropriately acknowledged & cited.

Point	Description of Criteria for Academic Writing in a Foreign Language
10	A complicated, coherent, well-grounded text is created The main thought/thoughts or idea/ideas are conveyed. The text is coherent, logically organized, clearly structured, outlines the main ideas for a reader. Excellent usage of complicated special terminology and lexical collocations of a specialty language in the required context. Grammatical accuracy of academic writing. Appropriate length.
9	A clear, well-structured text is created outlining essential things. The main thought/thoughts or idea/ideas are conveyed. The text is coherent. Some complicated specialty terms are missed in the required context or some lexical collocations of the speciality language are misused. A few grammar mistakes. Appropriate length.
8	A text in which the idea is systemically developed and supporting ideas are provided is created. The main thought/thoughts or idea/ideas are conveyed, but not always in an appropriate form; some sentences or parts of a sentence are copied from the original text word for word. A text is not sufficiently coherent; basic points are appropriately outlined. Non-complicated specialty terms and lexical collocations of the specialty language prevail in the required context. A few grammar mistakes. Appropriate length.

Standard-setting

Definitions of Scores, Marks and Grades

Score = numerical value of correct answers

Mark = quality of performance

•Edinburgh MBChB Common Marking Scheme

Pass=60-69; Good=70-79; Very Good=80-89; Excellent=90-100.

Grade = quality of performance

•Edinburgh MBChB Common Marking Scheme

Pass=D; Good=C; Very Good=B; Excellent=A.

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Setting the Pass Score - Modified Angoff Method

Several judges – aware of level & course outcomes

Discuss the purpose of the test

Describe 'borderline students'

Consider difficulty & importance of each question

Estimate fraction of borderline students to answer each question correctly

Discuss major discrepancies, review real performance data, re-estimate

Average judges' estimates for questions and total

After exam, exam lead looks at item analysis as reality check

Consider Hofstee or Cohen to modify standard.

Estimating the pass score for an exam - Modified Angoff

	E1a	E1b	E2a	E2b	E3a	E3b	E4a	E4b	E5a	E5b	E6a	E6b	Sum of 'b's	Average 'b's
Q1														
Q2														
Q3														
Q4														
Q5														
								PASS SCORE FOR PAPER OUT OF 5						

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Who should pass? - Standard-setting

- For MCQs/OSCEs - Modified Angoff/Ebel
  - based on test **questions**
  - decided by **team** of experts
  - agree **pass SCORE** & convert to University **pass mark**
  - all students' scores are converted
- For OSCEs – Borderline +/- Regression
  - based on observing **candidates performance**
  - decided by **all** examiners
  - calculate **pass SCORE**
  - convert all scores as above

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Ideal Standard Setting Methods

Consult *enough* experts for judgements

Inform judgements with real test data

Employ diligence without overburdening

Are supported by research evidence

Are easy to understand and put into practice

Deliver credible standards

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Final word on standard setting

'Standard-setting can be tiresome but setting standards is just as important as setting the tasks and marking the output from the candidates.'

Professor Brian Jolly 1999

Standards are always arbitrary, but need not be capricious.'

WJ Popham 1978

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6 Take-home Messages on Standard-setting

1. Standard-setting is not a new activity
2. Criterion-referenced mark schemes set standards
3. Standard-setting process required for MCQs and OSCEs
4. Fixed mark & normative approach - variable standards
5. Process must be doable & credible – will affect validity
6. No absolute test of accuracy of standard-setting

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Psychometrics

- What does the assessment tell us?
- Was the assessment reliable and valid?
- How did the questions perform?
- Are there errors we need to fix, or changes we need to make?
- **Are we happy to let the results stand?**

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Psychometrics

- Most "high level" questions of reliability and validity will be dealt with by module organisers and assessment experts
- **BUT** if you are producing any assessment (MCQ questions, OSCE stations) you will need to know something about item analysis

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Item analysis

- Information about how each question/item performed
  - Used to evaluate your own performance as an assessor, author and educator
  - Used to evaluate student performance and confidence in results

Difficulty

- The proportion of candidates who got the question correct
- Scored from 0 (everyone got it wrong) to 1 (everyone got it right)
- Very useful and important to look at
  - Did the overwhelming majority get that "must know" question right?
  - What don't they know yet?

Difficulty

- A question has a difficulty of 0.15 (15% of the class got it right)
  - Why might this be?
  - What would you do about it?
- A second question has a difficulty of 0.95 (95% of the class got it right)
  - Why might this be?
  - What would you do about it?

Discrimination

- Exams are intended to discriminate
- Not everyone performs identically
  - Can we distinguish between high and low performers?
  - Can we identify how competent different candidates are?

Discrimination

- Higher numbers are better
  - A NEGATIVE number is especially worrisome
  - This means it discriminates in the wrong direction
  - Candidates who do well overall perform worse at this question
  - What causes low discrimination?

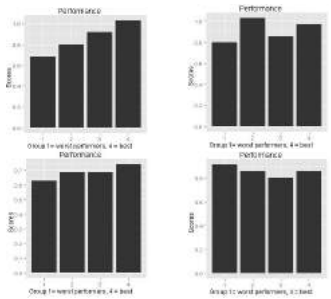
Item-total correlation

- Scores on a question are correlated with exam scores
  - Higher values mean the candidates who do well at this question do well overall
  - When values are close to zero the question tells us nothing about overall performance
  - When values are NEGATIVE this means candidates who do well on this question do badly overall

Visual Inspection

- Where possible, a visual overview helps
- Comparing group performance and trends helps clarify what is going on
- Plots, combined with key statistics, give an excellent overview of exam performance

Testing Group Performance



Common Problems with Items

- Too many very easy questions
- Poor distractors – think carefully if nobody has picked an option!
- Negatively discriminating questions make it difficult to tell who is competent and who is not

Things to do with item analysis

- Standard setting
  - How did they do compared to what you expected?
- Check competence
  - Are they able to get the 'must know' items right?
- Check spread of ability
  - Are the excellent and poor students different?
- Monitor teaching
  - Does a change in teaching equal change in scores?

Practical

- Look at some mock questions
- Discuss the good/bad points about the questions and what could be done to improve them
- Think about how the item analysis could inform teaching

Psychometrics

- What does the assessment tell us?
- Was the assessment reliable and valid?
- How did the questions perform?
- Are there errors we need to fix, or changes we need to make?
- **Are we happy to let the results stand?**

PRINCIPLE 1: Usefulness of Assessment depends on several factors

Reliability: Can it consistently discriminate?

Validity: Does it measure what was intended?

Cost effectiveness: Can we afford it – added value?

Acceptability: Will people agree to use it?

Educational impact: Does it have +ve influence?

UTILITY = R_w x V_w x C_w x A_w x E_w

van der Vleuten, C.P., 1996. The assessment of professional competence: developments, research and practical implications. Advances in Health Sciences Education, 1(1), pp.41–67.
van der Vleuten, C.P.M. & Schuwirth, L.W.T., 2005. Assessing professional competence: from methods to programmes. Medical Education, 39(3), pp.309–317.

Validity and Reliability

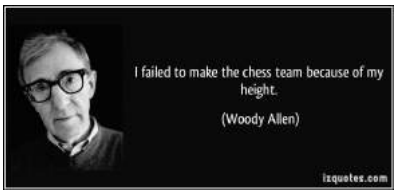
Validity: how confident we can be about the inferences and decisions we make on the basis of the results

– i.e. a defensible interpretation of scores (Messick 1989)

Reliability: consistently discriminates between students……

Messick, S. (1989). Validity. In R. L. Linn (Ed.), *Educational measurement* (pp. 13–103). Washington, DC: American Council on Education and National Council on Measurement in Education.

A reliable but invalid test



Reliability

- is necessary but not sufficient for validity
- determines upper limit of validity (Achilles heel)

Blueprinting Assessment to *reflect* Learning
A Prescribing Course

TYPES of MODULE LOs	Cognitive Skills	Practical Skills	Professional behaviours	Everyday action
MCQs Dec	MoA, SE, Monitor Interact			
OSCEs June	Use BNF and choose analgesics	Script & Explain a script	Respect Shared decision re drug	
MultiSource Feedback Dec: Formative June: Summative		Review of scripts & Comm-unication	Interpersonal skills, Diligence, Response to feedback,	Same activity in work situation

Assessment *affects* Learning

The results
- inform students about their own performance
- inform tutors about students' misunderstandings (diagnosis)
- inform tutors about standards of performance
- inform future tutors / employers about next stage of learning
- inform management / public about quality of education

Having assessment
- encourages learning that is tested - *but may get in the way*
- promotes certain learning approaches e.g. surface, strategic, deep
- develops learning more than teaching alone – *but consider anxiety*
- influences timing of learning
- focuses attention on certain components of curriculum
- may surface/clarify the (hidden) curriculum

Assessment *affects* Learning

What are the consequences of this principle?

1. assessments must match the learning outcomes (LOs)
2. good sampling of LOs required in every assessment
3. need (limited) variety of assessment types to cover K/S/B, personal preferences, and encourage understanding
4. plan the number, timing and frequency of assessments
5. students expect clarity about curricula and expected answer
6. consider role & timing of feedback and formative assessmer

PRINCIPLE 1: Usefulness of Assessment depends on several factors

Reliability: Can it consistently discriminate?

Validity: Does it measure what was intended?

Cost effectiveness: Can we afford it – added value?

Acceptability: Will people agree to use it?

Educational impact: Does it have +ve influence?

$$\text{UTILITY} = R_w \times V_w \times C_w \times A_w \times E_w$$

Van der Vleuten CPM. The assessment of professional competence: developments, research and practical implications. Advances in Health Sciences Education. 1996;1(1):41–67.

Van der Vleuten CPM, Schuwirth LWT. Assessing professional competence: from methods to programmes. Med Educ. 2005 Mar;39(3):309–17.

PRINCIPLE 1: Usefulness of Assessment depends on several factors

What are the consequences of this principle?

- we need to think about a combination of criteria when designing assessments
- there is no perfect assessment – so a programme of assessments to balance benefits and deficits is best
- when any one criterion is extremely low it will drastically reduce the usefulness of the assessment overall
- we cannot have valid exam results that are not reliable
- but we can have reliable exam results that are not valid

PRINCIPLE 2: Define the purpose of assessment first and design accordingly

Why assess?

Why Assess?

Record of achievement

Summative assessment
Reassure patients, public, taxpayers, employers

Promoting appropriate learning

Formative assessment and feedback
Steering effect
Lifelong learning

Quality control

Programme evaluation
Staff development

PRINCIPLE 2: Define the purpose of assessment first and design accordingly

What are the consequences of this principle?

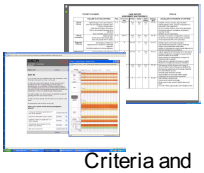
We need to be clear about purpose and adapt the:

- the setting, frequency of the assessment
- rigour e.g. no. of markers, training, marksheets
- emphasis/compromise on feedback
- spend in terms of money/time/staff effort
- weighting given to results for programme review/audit

PRINCIPLE 3: A Partnership – a need for Assessment Literacy

RULES OF PROGRESSION
EXPLANATION
ACADEMIC MISCONDUCT

Standard setting



Criteria and Mark Schemes

PRINCIPLE 3: A Partnership – a need for Assessment Literacy

Give them a go!
Formative assessment.
Giving feedback.
Self & Peer Assessment

Academic Feedback

Examples of pass, good & excellent performances

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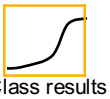
The Quality Assurance Agency for Higher Education

Reflects statutory guidance and evidence from literature?

Student and staff feedback

Principle 4: Check how your assessment is doing?



Class results
Attrition rates

Research.
Audit of adherence to policy

www.guardian.co.uk/pictures/image/0,854,3,113

Psychometric analysis?
- Reliability and Validity

Prepared for practice?
- Employers and alumn

Designing a programme of assessment to achieve its goals
- It's a matter of balance -

1415-1540 Design Your Assessments + TEA

This task emphasises students' needs in assessment and developing their assessment literacy

You are the **new multidisciplinary course team** meeting to plan the assessments for the Final Year 20 credit, 4-month course on Care of Elderly.

Learning outcomes for the course:

1. Describe the underpinning scientific principles of relevant diseases.
2. Consult with patients, with regard to ethical principles.
3. Make diagnosis & plan management taking account of psychosocial factors.
4. Perform cannulation.

Assessment tools for the course:

2 MCQ exams, 2 Clinical 'stations', Professionalism assessment, Case report

Divide out the cards in your group - read and discuss them.
Decide **when** each assessment tool will occur, whether it will be **formative** or **summative** and which **enhancements** you'll use around each.

BE PREPARED TO JUSTIFY ALL YOUR DECISIONS WRT 'UTILITY'

4+1 Principles for Effective Assessment

*	• Assessment affects learning – for good or ill
1	• Usefulness of assessment depends on several factors
2	• Know the purpose of assessment and adapt accordingly
3	• Assessment should be a partnership with students
4	• Check how your assessment is doing

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ESSCE Assessment Workshops

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