

UNIVERSITY OF MALTA

L-Università ta' Malta

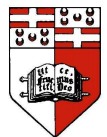
Guidelines for the writing of effective learning outcomes

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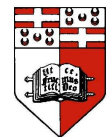
Student-Centred vs. Tutor-Centred

- Traditionally study-units & programmes were designed starting from content
- After deciding on the content, teachers planned how it was to be taught and then assessed it
- This approach, focusing on the teacher's input, is called the teacher-centred approach
- Using this approach, it is not always easy to identify precisely what the student must be able to do in order to pass the study-unit or programme
- At universities, there is now a shift from teacher-centred to student-centred teaching approaches
- The current focus is on *what students are expected to be able to do* at the end of a study-unit or programme



What are Learning Outcomes?

Learning outcomes are brief, clear, specific statements that describe what the learner is expected to achieve as a result of instruction. The focus is therefore on the student.

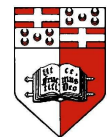


What is the Difference between Aims and Outcomes? (1)

Aims of study-units or programmes are *broad* general statements of teaching intention and should

- indicate what the tutor intends to cover in a block of learning in terms of *general* content and direction
- be written in terms of *teaching intention* rather than student learning

e.g. “To familiarise students with modes of satiric writing in eighteenth century literature.”

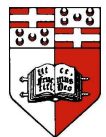


What is the Difference between Aims and Outcomes? (2)

Learning Outcomes should

- *be brief, clear and specific*
- indicate what the learner is expected to achieve and how s/he is expected to *demonstrate* that achievement
- be written from the *student's point of view*
- be written in a manner whereby learning can be assessed through the use of an appropriate assessment method
- be derived closely from and consistent with the aims

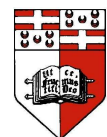
e.g. “By the end of this study-unit, students will be able to provide a written analysis of the relationship between the language of satire and literary form by close examination of a selected number of eighteenth century texts.”



What is the Difference between Aims and Outcomes? (3)

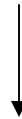
Therefore...

- **Aims** are more concerned with teaching and the management of learning
- **Outcomes** are more concerned with the learning that is actually to be achieved by the learner

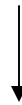


Relationship between aims and learning outcomes of programmes, study-units and lectures

Programme (aims and learning outcomes)



Study-unit (aims and learning outcomes)



Lecture (aims and learning outcomes)



What is the Difference between Objectives and Outcomes? (4)

- There is confusion in the literature as to whether learning objectives belong to the teacher-centred approach or to the student-centred approach
- ‘Objectives’ complicate the situation, since they may be written in terms of teaching intention or expected learning outcomes, *i.e.*, some refer to teaching and some to learning
- Learning outcomes are more precise, easier to compose and far clearer than objectives
- For these reasons, it is recommended that course information is provided solely in terms of learning outcomes



Purpose of Learning Outcomes (1)

1. Programme and Study-unit Design

- Help ensure consistency of delivery across study-units and programmes
- Clarify areas of overlap between study-units and programmes
- Highlight the relationship between teaching, learning and assessment
- Help the development of assessment criteria and more effective, varied assessment
- Help determine precisely the key purposes of a course and how the components of the syllabus fit together

2. Quality Assurance

- Increase transparency and comparability of standards between and within qualifications
- Possess greater credibility and utility
- Act as points of reference for establishing and assessing standards



Purpose of Learning Outcomes (2)

3. Students

- Specify exactly what the student will be able to achieve
- Afford clear information to help students with their choice of study-units and programmes
- Afford clear information to employers and higher education institutions on achievements/characteristics associated with particular qualifications

4. Mobility

- Contribute to the mobility of students by facilitating the recognition of their qualifications
- Improve the transparency of qualifications
- Simplify credit transfer
- Provide a common format that helps promote lifelong learning and can assist in creating multiple routes through and between educational systems



Constructing Learning Outcomes (LO)

An LO should ideally contain three parts that deal respectively with:

1. **BEHAVIOUR:** an action verb to describe what participants will be able to do as a consequence of a learning activity
2. **CONDITION:** an environment or situation in which the student will perform the behaviour or the tools/information they will be given when they demonstrate their learning
3. **CRITERIA:** describing the limits or range of an acceptable response, *i.e.* addressing the question of how well the learner has to perform for one to be able to say that the LO has been achieved?



Behaviour (1)

This part of the Learning Outcome requires a **verb** as it refers to an **observable** change in behaviour as a result of learning. The use of action verbs is important as they clarify what the learner will **do** to **demonstrate** understanding. For example:

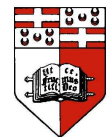
- list
- describe
- demonstrate
- calculate
- report
- compare
- analyze
- explain



Behaviour (2)

The following verbs **should be avoided** since they are not observable and are **therefore difficult to measure**:

- appreciate
- cover
- realise
- be aware of
- familiarize
- study
- become acquainted with
- gain knowledge of
- understand
- comprehend
- know
- learn



Condition

How will the behaviour be performed?

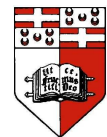
- What is given?
- What is not given?
- What are the variables?
- What tools are provided?
- In what situation/environment must the behaviour be performed?



Criteria

Effective learning outcomes indicate the nature (in context or in terms of standard) of the **performance required** as evidence that the learning was achieved. This component is the main link to assessment and level descriptors. For example:

- How often?
- How well?
- How many?
- How much?
- How will we know the outcome has been achieved?



Learning Outcome: Example 1

“Given a set of data the student will be able to compute the standard deviation.”

Condition - Given a set of data

Behaviour - the student will be able to compute the standard deviation

Criterion (implied) - the number computed will be correct.



Learning Outcome: Example 2

“Students will be expected to list at least 3 characteristics that are present in most sustainable residential housing and apply these characteristics to an existing residential project.”

Condition - given an existing residential project

Behaviour - list and apply the characteristics

Criterion - 3 characteristics



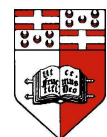
Learning Outcome: Example 3

“Given a learning outcome, the student will be able to develop an appropriate multiple-choice question to measure student achievement of the outcome.”

Condition - given a learning outcome

Behaviour - develop a multiple-choice question

Criterion - an appropriate multiple-choice question



Learning Outcome: Example 4

“Within the context of a class situation, students will be able to demonstrate and evaluate the use of appropriate examples of positive reinforcement for the purpose of the improvement of behaviour.”

Condition - within the context of a class situation

Behaviour - demonstrate and evaluate

Criterion - appropriate examples



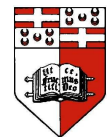
Learning Outcome: Example 5

“At the end of this study-unit, students will be expected to be able to analyse and interpret a text in detail, using different approaches from literary, rhetorical and/or linguistic theories.”

Condition - a text is provided for analysis and interpretation

Behaviour - analyse and interpret

Criterion - detailed analysis/interpretation using different approaches



Learning Outcome: Example 6

“On completion of this study-unit, students will be expected to produce an in-depth project, working in specific media, demonstrating competency in advanced artistic production.”

Condition - in-depth/specific media

Behaviour - produce/demonstrate

Criterion - competency in advanced artistic production



Learning Outcome: Example 7

“Students will be expected to describe and critically appraise, by means of an in-depth essay, the ways in which clinical information and decision making are shared in a clinical setting.”

Condition – clinical setting

Behaviour –describe/appraise

Criterion – critical appraisal/in-depth essay



Learning Outcome: Example 8

“Given a case study, students will be able to analyse key managerial issues in a particular industry or company and propose appropriate managerial solutions to the situation.”

Condition - given a case study

Behaviour - analyse/propose

Criterion - appropriate managerial solutions



Improving your Learning Outcomes (1)

Low quality LO: “Students will be familiar with the sites of injection for local anaesthesia during childbirth.”

Comments:

- Too general, more appropriate as an aim
- What will the learner have to do to show they have achieved this outcome? (links to assessment)
- No observable/measurable change in behaviour
- No reference is made to criteria or conditions

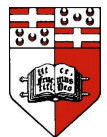
The LO can be improved as follows:

Behaviour

Condition

Criteria (implied,
must be correct)

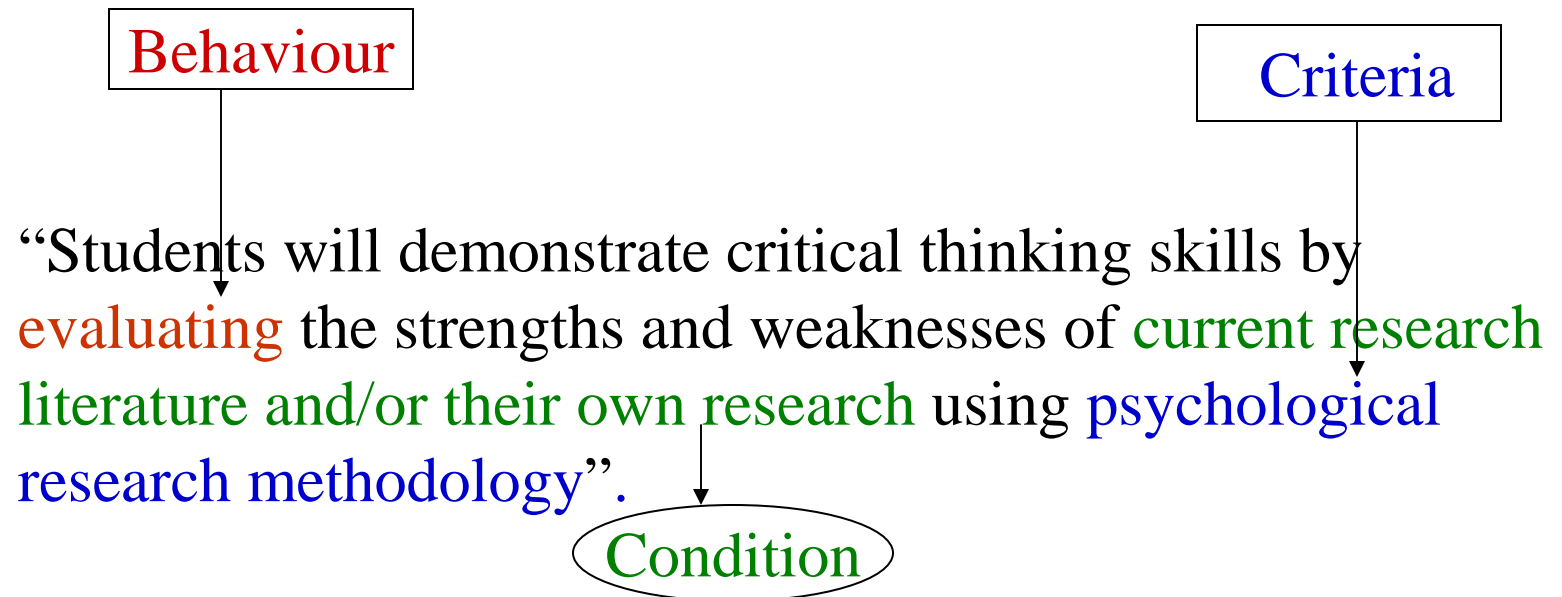
“By the end of this study-unit, students will be able to demonstrate on prosected specimens and models the sites of injection for local anaesthesia during childbirth.”



Improving your Learning Outcomes (2)

Low quality LO: “By the end of this programme, students will demonstrate the ability to think critically about research in psychology.”

The LO can be improved as follows:



Improving your Learning Outcomes (3)

Low quality LO: “On completion of this unit, students will be familiar with the application of molecular graphics to drug design.”

The LO can be improved as follows:

“On completion of this unit, students should be able to **apply** the principles underpinning the use of molecular graphics in the design of drugs to **illustrate general and specific cases** through a **computer-based presentation.**”

Condition

Behaviour

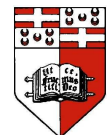
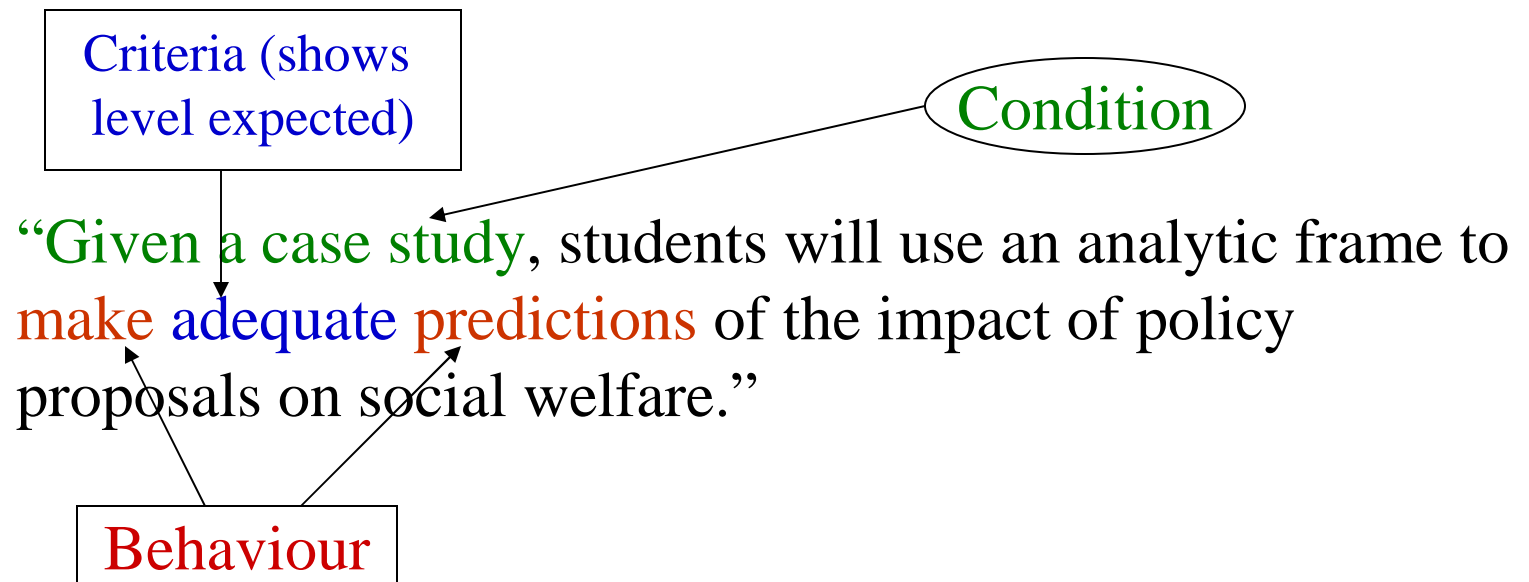
Criteria



Improving your Learning Outcomes (4)

Low quality LO: “Students will demonstrate an understanding of the impact of policy proposals on social welfare.”

The LO can be improved as follows:



Improving your Learning Outcomes (5)

Low quality LO: “Students will gain knowledge of professional practice in the lawyer-client relationship.”

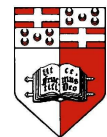
The LO can be improved as follows:

Condition

“On presentation of case studies, students will be expected to identify instances of unprofessional practice in the lawyer-client relationship”

Behaviour

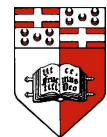
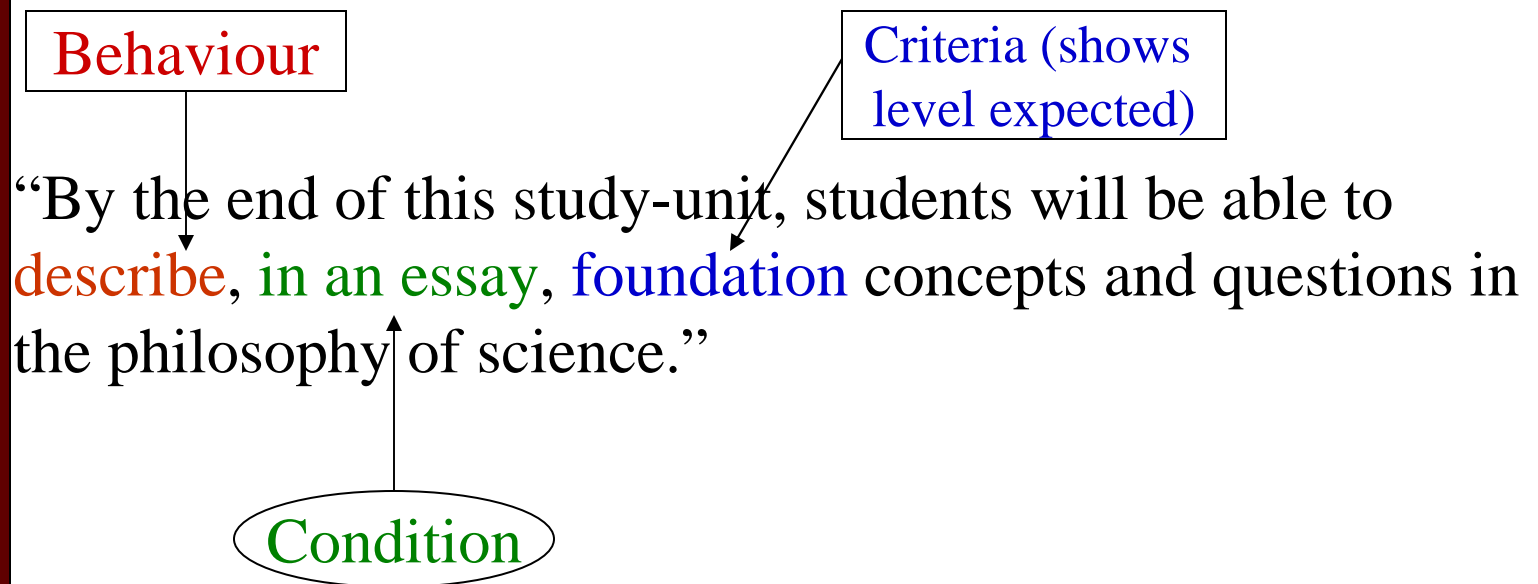
Criteria (implied,
must be correct)



Improving your Learning Outcomes (6)

Low quality LO: “Students will be introduced to elementary concepts and questions in the philosophy of science.”

The LO can be improved as follows:

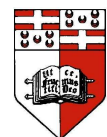


Improving your Learning Outcomes (7a)

Low quality LO: “Students will develop their capacity to compute, analyse, interpret and report basic descriptive and inferential statistics.”

The main issues with this LO are:

- It is very broad
- Different knowledge units are involved which could be better dealt with as distinct, separate outcomes
- How are students expected to demonstrate development?



Improving your Learning Outcomes (7b)

The learning outcome can be improved as follows:

“At the end of this study-unit, students will be able to:

1. **Compute** basic descriptive statistics & inferential **statistics** during **practical sessions and a final exam**
2. **Analyse** basic descriptive and inferential **statistics** computations during **practical sessions and a final exam**
3. **Interpret** basic descriptive and inferential **statistics** during **practical sessions and a final exam**
4. **Prepare** a **concise paper reporting** on and **explaining** the results of **statistical** exercises conducted during practical sessions.”



Learning Domains

Bloom's (1956) taxonomy of educational outcomes differentiates between 3 domains of learning:

- **COGNITIVE** (education tends to emphasize the skills in this domain)

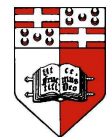
What the learner knows

- **PSYCHOMOTOR**

What the learner is able to do/perform

- **AFFECTIVE**

Beliefs, values and attitudes



The Cognitive Domain (1)

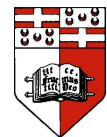
**Bloom specified six levels of Cognitive Learning as follows
(from lowest order processes to the highest):**

1. *Knowledge*: observation & recall of information; knowledge of major ideas; mastery of subject matter e.g. compiling a list
2. *Comprehension*: demonstrate understanding of terms, concepts & principles; translate knowledge into new contexts; interpret facts, compare & contrast; order, group & infer causes e.g. explaining things in your own words
3. *Application*: apply concepts & principles to solve problems e.g. making calculations



The Cognitive Domain (2)

4. *Analysis*: break things down into their elements, formulate theoretical explanations; organisation of parts; recognition of patterns e.g. interpreting results
5. *Synthesis*: create something; use old ideas to create new ones; generalise from given facts; relate knowledge from several areas e.g. designing a research instrument
6. *Evaluation*: make value judgements, make choices using standards of appraisal & reasoned argument; recognize subjectivity; compare & discriminate between ideas e.g. criticising a piece of research



The Psychomotor Domain (1)

Simpson (1972) specified SEVEN levels in the psychomotor domain as follows (from lowest order processes to highest):

1. *Perception*: using sense organs to obtain cues about a motor activity e.g. repeat oral/written instructions for performing an experiment
2. *Set*: demonstrating readiness to take a particular action e.g. explain the series of steps involved in a process
3. *Guided response*: early stage of learning a performance skill including imitation & trial-and-error e.g. following stepwise instructions



The Psychomotor Domain (2)

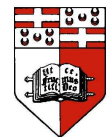
4. *Mechanism*: later stage of learning a performance skill when it can be performed with proficiency e.g. follow the same procedure smoothly & confidently
5. *Complex overt response*: skilful performance of a complex movement pattern e.g. performing a routine procedure quickly & accurately
6. *Adaptation*: skills that are so well-developed that the individual can modify them to fit the situation e.g. alter a routine procedure to deal with an unfamiliar problem
7. *Origination*: creating new movement patterns based on highly developed skills e.g. developing a new procedure to deal with new situations



The Affective Domain (1)

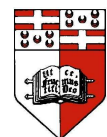
Bloom specified five levels in the affective domain as follows (from lowest order processes to the highest):

1. *Receiving*: attending to a stimulus e.g. listening to instructions
2. *Responding*: reacting to a stimulus e.g. participating in a discussion
3. *Valuing*: attaching value to an object, phenomenon, behaviour or principle e.g. demonstrate by means of action or expression an appreciation of good teamwork



The Affective Domain (2)

4. *Organisation*: organising different values into the beginning of an internally consistent value system
e.g. adopt a systematic approach to problem solving
5. *Characterising*: internalising a value system & behaving accordingly in a pervasive, consistent & predictable manner e.g. display self reliance, work independently & diligently, act ethically



Verbs associated with the Cognitive Domain

| | |
|----------------------|---|
| Knowledge | list, define, tell, describe, identify, show, label collect, examine, tabulate, quote, name, outline, recognise, state |
| Comprehension | summarise, describe, interpret, contrast, predict, associate, distinguish, estimate, differentiate, discuss, extend |
| Application | apply, demonstrate, calculate, complete, illustrate, show, solve, examine, modify, relate, change, classify, compute |
| Analysis | analyse, separate, order, explain, connect, classify, infer, arrange, divide, compare, contrast, select, distinguish |
| Synthesis | combine, integrate, modify, rearrange, substitute, plan, create, design, compose, formulate, prepare, compile |
| Evaluation | assess, decide, rank, grade, test, measure, recommend, convince, select, judge, explain, support, conclude, compare, appraise, evaluate, justify, interpret, critique |

Verbs associated with the Psychomotor Domain

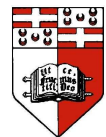
| | |
|-------------------------------|--|
| Perception | choose, describe, detect, differentiate, distinguish, identify, isolate, relate, select |
| Set | begin, display, explain, move, proceed, react, show, state, volunteer |
| Guided Response | copy, trace, follow, react, reproduce, respond |
| Mechanism | assemble, calibrate, construct, dismantle, display, manipulate, measure, mend, mix, organise, sketch |
| Complex Overt Response | same as Mechanism but includes adverbs such as quicker, more accurate, automatic etc. |
| Adaptation | adapt, alter, rearrange, reorganise, revise, vary, change |
| Origination | arrange, build, combine, compose, construct, create, design, initiate, make, originate |

Verbs associated with the Affective Domain

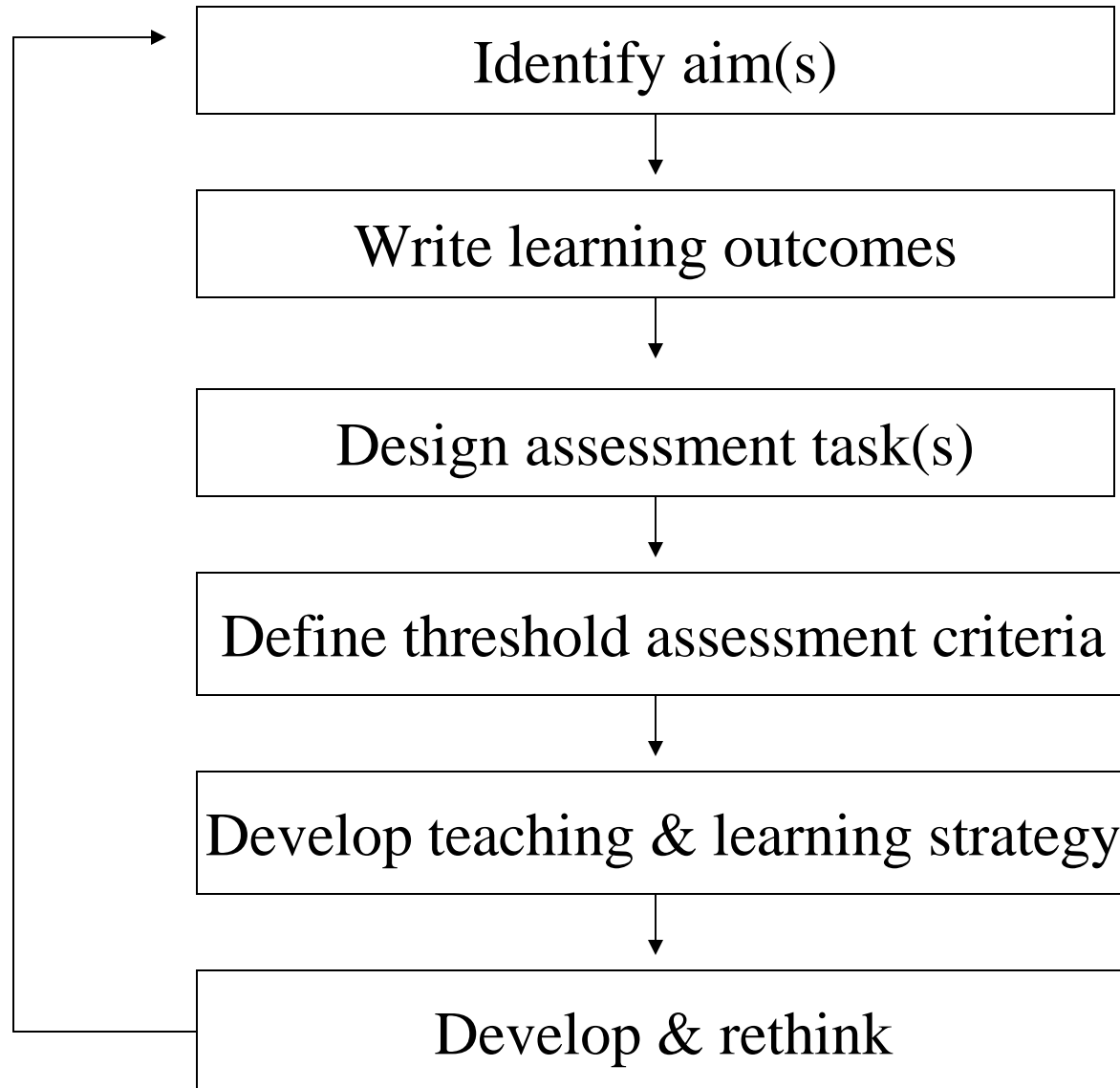
| | |
|-----------------------|---|
| Receiving | ask, choose, describe, follow, give, hold, identify, locate, name, point to, select, sit, erect, reply, use |
| Responding | answer, assist, aid, comply, conform, discuss, greet, help, label, perform, practise, present, read, recite, report, select, tell, write |
| Valuing | complete, demonstrate, differentiate, explain, follow, form, initiate, invite, join, justify, propose, read, report, select, share, study, work |
| Organisation | adhere, alter, arrange, combine, compare, complete, defend, explain, formulate, identify, integrate, modify, order, organise, prepare, relate, synthesise |
| Characterising | act, discriminate, display, influence, listen, modify, perform, practise, propose, qualify, question, revise, serve, solve, verify |

Steps to Writing Learning Outcomes

1. Identify the aims of the study-unit/programme
2. Classify the outcome (cognitive, etc.)
3. Identify the level of learning required of the student
4. Choose a specific action verb for each outcome
5. Decide how you will measure the achievement of the outcome
6. State success criteria



The Outcomes Process



Characteristics of Good Learning Outcomes

The following acronym helps to check that an LO has the required characteristics: **SMART**

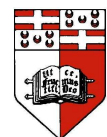
1. **S**pecific: accurately states what the successful student is expected to achieve
2. **M**easurable: open to assessment which accurately assesses whether or not the outcome has been achieved
3. **A**chievable: should be within the range of abilities of the student
4. **R**elevant: should be relatable to the key aims of the programme
5. **T**ime scaled: must be achievable within the duration of the study-unit/programme



Checklist for the writing of LOs (1)

Learning Outcomes should be:

- written in terms of observable and measurable behavioural outcomes
- succinct and concise
- aligned with the instructional activities and assessments
- realistic, taking into account prior knowledge, available time and learning opportunities
- clear and written in language that is understandable to students
- kept to a manageable (small) number



Checklist for the writing of LOs (2)

When writing learning outcomes:

- use only one action verb per learning outcome and target one specific aspect of expected performance
- include action verbs
- avoid vague verbs such as *know* and *understand*
- write in terms of what the learner will do, not what the instructor will do
- for LO's of study-units, check that they fit within the overall programme aims
- specify appropriate conditions for performance



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