## 1.   Introduction

Learning-outcomes-based qualification frameworks, such as the Higher Education Qualifications Sub-Framework (HEQSF, 2014), play an increasingly important role at international, regional, national and higher education sector levels. Learning outcomes are usually aligned to the level descriptors of a qualification framework using a horizontal dimension identifying learning domains such as knowledge, skills and competence (See *CHE Framework for Qualification Standards in Higher Education*, 2013) and a vertical dimension indicating how the complexity of learning increases from one level to another (See *SAQA NQF Level Descriptors*, 2012).

Learning outcomes can differ in terms of their intentions and details, sometimes defining outcomes at the qualification level, the programme level, the module level or even the learning outcomes of learning-teaching interactions of a teaching event or session. As depicted in **Figure 1**, at each of these different levels, the learning outcomes describe the specific knowledge, practical skills, values, and qualities and attributes of personal development at the appropriate level of cognitive complexity. Therefore, learning outcomes help to clarify the intentions of teaching-learning interactions, modules, programmes, and qualifications to students, university teachers, assessors, moderators, quality assurance authorities and other role-players. Therefore, adopting a nested approach, as depicted in **Figure 1**, the learning outcomes of a module should align closely with the learning outcomes of other levels. The exit level outcomes at a qualification level are summative statements explicitly describing the overarching learning outcomes (i.e. the totality of all the modules within a programme) to be achieved, whereas the learning outcomes at a module level will be more specific in terms of what students should be able to know and understand, be able to do and/or value having completed a single module.
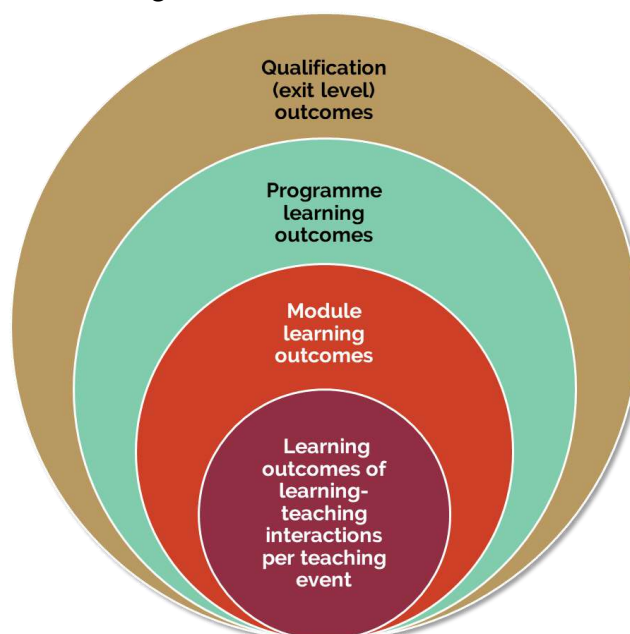
Figure 1: Different levels where learning outcomes are applicable

2.   The perceived added value of learning outcomes

The use of learning outcomes in higher education are perceived as adding value for several purposes, such as:

For students:
Learning outcomes help to direct the learning process and clarify what is expected during assessment. Clearly defined learning outcomes clarify what a student is expected to know and understand, be able to do and/or value having completed a module, a programme or a qualification. For learning outcomes to support students' learning, they must be visible not only in written format (e.g. module outline) but in practice throughout the learning and teaching process, as well as assessment of a module (or programme).

For university teachers/lecturers:
Learning outcomes help to inform learning-teaching interactions and support the learning process. Learning outcomes, through their alignment with levels of the *Higher Education Qualifications Sub-Framework* (HEQSF) (2014) and requirements of professional bodies (if applicable), are promoting a more systematic reflection on intended learning outcomes, the achievement of these learning outcomes and how these interact with and support the learning process.

For assessors and moderators:
Learning outcomes and associated assessment criteria support assessment practice by clarifying the criteria for success/failure and performance. Although learning outcomes and associated assessment criteria feature prominently in summative assessment, these also support formative assessment during the learning process.

For the University:
Learning outcomes facilitate the planning of a module or a programme as well as internal and external dialogue with various role-players. Learning outcomes provide an important reference point for quality assurance as the relationship between the intended and the achievement of these learning outcomes inform continuous module and/or programme review and renewal activities. Learning outcomes often inform decisions regarding articulation possibilities and the transfer of credits between qualifications and/or universities.

For society and the labour market:
Learning outcomes provide a common language allowing different stakeholders in the post-school education and training sector in SA, the labour market and society at large to clarify what students are expected to know and understand, be able to do and/or value having completed a module, programme or a qualification at a higher education institution. Therefore, learning outcomes have increasingly been regarded as a way to improve transparency and reduce barriers to transfer and progression across institutional and national boundaries.

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3.   What are learning outcomes?

At Stellenbosch University, learning outcomes and associated assessment criteria are integral aspects of a programme specification (e.g. completion of **Form A**) and a module specification (e.g. completion of **Form B**). Learning outcomes and assessment criteria describe **learning that matters** in a module (and programme), i.e. these statements clarify the learning intention by focusing pertinently on students' learning in the module (and programme).

At a module level, learning outcomes and associated assessment criteria **are carefully crafted and clearly defined statements** of what students are expected to know, understand and be able to do and/or value as a result of their learning on completion of the module (and programme) and how well they should be expected to achieve those outcomes. **Learning outcomes are thus unambiguous statements of what students are expected to achieve in a module and how they are expected to demonstrate that achievement**. Additionally, learning outcomes serve the purpose of directing the module content (i.e. knowledge, skills, competence, attributes, etc.) and form the basis for teaching, learning and assessment of a module.

However, learning outcomes are not simply statements that describe the content of the module (e.g. 'You will gain an understanding of X, Y and Z' – a list of topics to be covered), nor are they statements of what the university teacher intends to do. A learning outcomes-based approach to curriculum development moves away from the subject content (i.e. topics to be covered) to the learning process. Therefore, by adopting a learning-centred approach, students are regarded as active participants; therefore, learning outcomes explicitly state what students should achieve during this learning process. "Teaching is regarded as a catalyst for learning", whereby **students construct meaning through relevant learning activities** (Biggs, 2003:2).

The following curriculum decisions form an integral part of **constructive alignment** (Biggs, 2003:2):

- Defining the intended learning outcomes clearly;
- Selecting the appropriate learning-teaching interactions to facilitate students' learning;
- Assessing students' actual (or achieved) learning outcomes to determine how well these align with what was intended;
- Arriving at results (i.e. marks or grades) signalling achievement of the learning outcomes.

The relationship between these activities can be expressed as a loop where the interaction between what is intended and what has actually been achieved feeds into a continuous improvement process (See DeLTA cycle of the SU Centre for Teaching and Learning for more detail).

4.   How to define learning outcomes

A learning outcome is a statement about:

- What students are **expected to know, understand and be able to do and/or value** as a result of their learning;

- What can be expected of students **upon completion of a learning process** or period of learning (i.e. year, semester, number of weeks, etc.)

Learning outcomes should be:

Achievable	The learning outcome should **realistically set out what all students are expected to learn within a specified period of time** (e.g. year, semester, number of weeks, etc.). The expected learning should take the prior knowledge, skills and abilities of students who are eligible to enrol for the learning period into account.
Overarching	Learning outcomes do not match up to lists of topics, headings of subject content or chapters of a prescribed textbook(s), but **relate to the overall purpose, aims and exit level outcomes of a programme or qualification**. The sets of learning outcomes and assessment criteria at a programme level should be aligned to the learning outcomes and assessment criteria at a module level.
Unambiguous	Learning outcomes need to be **clearly defined and unambiguously described**. Avoid vague or ambiguous statements - ensure clarity on what should be learned and how well it should be learned. Consult proposed action words associated with the different levels of the appropriate taxonomy (i.e. cognitive, psychomotor and/or affective) in **Annexure 1**.
Understandable	The learning outcomes should be **easily understood** by all those who will be expected to use them. This would include students, university teachers, assessors and moderators, quality assurance agencies, professional bodies, employers, etc. The use of advanced technical or jargon-heavy language should be avoided.
Assessable and measurable	In order to determine whether learning outcomes have been achieved, they need to be **capable of being assessed by suitably qualified persons**, by some reasonable and manageable means, within the time-frame allowed by the programme and/or institutional requirements. It is therefore important to write learning outcomes in such a manner that the learning can be assessed through use of an assessment purpose (formative/summative/sustainable, etc.) and an assessment method (written test, project, oral presentation, etc.).
Significant	Every learning outcome specified should refer to the essential aspects of learning expected of students on completion of the learning period. It should not represent an exhaustive list of topics (subject content), but rather focus on the **significant learning achievements** expected of students.
Appropriately aligned	Learning outcomes should be appropriately aligned and benchmarked against the relevant NQF level descriptor of the module as well as Bloom's revised taxonomy (cognitive domain) or other relevant taxonomies.

When formatting intended learning outcomes, it is helpful to use the following words as the 'stem' of the learning outcome:

On completion of this module students should be able to:

The 'stem' of the learning outcome is then followed by:

- **An action word(s)** (i.e. a verb or verbs) that identifies the nature of the performance to be achieved or demonstrated. This verb(s) should indicate indicates what students are expected to be able to know, understand and/or do at the end of the period of learning.
  [See **Annexure 1** for suggested verbs benchmarked against the six levels of Bloom's revised taxonomy (cognitive domain) as re-defined by Anderson and Krathwohl (2001)].

- **Word(s) that indicate with what [i.e. object(s)] the student is acting during the learning process** [subject content knowledge/materials/techniques/tools/skills] in order to achieve the required performance.

- **Word(s) that indicate the nature or context of the performance to be achieved**. This component mainly provides the link to assessment criteria and level descriptors but is often omitted from learning outcome statements. If clear assessment criteria are defined to accompany learning outcomes, it is less important to include this component in the learning outcome statements.

For example:

Stem	On completion of this module, students should be able to
Action word	critique
Learning process	the use of learning outcomes
Context	in higher education curriculum development drawing on the published work of relevant scholars.

Apart from the cognitive domain of Bloom's revised taxonomy, it is also necessary to be aware of the affective domain (i.e. values, attitudes, beliefs, and ethics) and the psychomotor domain (i.e. skills, techniques, methods, etc.) of Bloom's taxonomy. In terms of the latter, Bloom and his colleagues did not complete detailed work on the psychomotor domain. Hence it is helpful to look at the hierarchy consisting of five levels of Dave (1970) and the seven levels of Simpson (1972). [See also *Writing and using learning outcomes: A practical guide* by Kennedy, Hyland and Ryan (2007) for a detailed description of these taxonomies].

In sum, a well-written learning outcome will:

- Be expressed as **a single sentence**;

- Contain **an appropriate action word** (i.e. verb) that indicates the required action that adequately describes what students are expected to know, understand, do and/or value on completion of the learning process. The choice of the action word should reflect the

appropriate level of cognitive complexity required of students as aligned to the cognitive domain of Bloom's revised taxonomy (Anderson & Krathwohl, 2000) or the appropriate level of any other relevant taxonomy (e.g. Simpson's (1972) taxonomy of the psychomotor domain).

- Contain **sufficient details** that indicate with what (i.e. scope and depth of theoretical knowledge) students will act or if the learning outcome focuses on the development of practical skills, details about the method(s), technique(s), equipment, technology, etc. should be included.

- Contain **adequate information about the context** in which the learning process will occur.

- Use vocabulary and concepts closely **aligned to the relevant NQF level and its descriptors**.

5. Additional sources of information

The following sources contain valuable information about learning outcomes:

Anderson, L.W. and Krathwohl, D.R. et al. (Eds.) *A Taxonomy of Learning, Teaching and Assessing: A revision of Bloom's Taxonomy of Educational Objectives*. Boston: Allyn & Bacon.

Biggs, J. & Tang, C. 2011. *Teaching for Quality Learning at University*. 4th ed. Maidenhead: SRHE & Open University Press.

Biggs, J. 2003. Aligning teaching for constructing learning. LTSN Generic Centre.
The Higher Education Academy. [Online]. Available from: https://www.advance-he.ac.uk/knowledge-hub/aligning-teaching-constructing-learning [Accessed: 19 July 2022].

Bloom, B.S. & Krathwohl, D.R. 1956. *Taxonomy of Educational Objectives: The Classification of Educational Goals, by a committee of college and university examiners. Handbook I: Cognitive domain*. New York: Longmans.

Butcher, C., Davies, C. & Highton, M. 2006. *Designing Learning: From module outline to effective teaching*. London: Routledge.

Kennedy, D. Hyland, A. & Ryan, N. 2007. Writing and using learning outcomes: A practical guide. [Online]. Available from:
https://www.researchgate.net/publication/238495834_Writing_and_Using_Learning_Outcomes_A_Practical_Guide [Accessed: 19 July 2022].

Moon, J. 2002. *The module and programme development handbook: A practical guide to linking levels, learning outcomes & assessment*. London: Routledge.

Moon, J. 2007. Linking levels, Learning Outcomes and Assessment Criteria. EHEA version. [Online]. Available from: http://www.ehea.info/media.ehea.info/file/Learning_Outcomes_Edinburgh_2004/77/4/040701-02Linking_Levels_plus_ass_crit-Moon_577774.pdf [Accessed: 19 July 2022].

Stellenbosch University. CTL resources. [Online]. Available from:
https://www0.sun.ac.za/ctlresources/outcomes/ or https://www.sun.ac.za/english/learning-teaching/ctl/t-l-resources/design-for-learning-teaching-and-assessment-(delta)-cycle [Accessed: 19 July 2022].

Toohey, S. 1999. *Designing course for Higher Education* Buckingham: SRHE & Open University Press.

Defining associated assessment criteria

1. What are associated assessment criteria?

Assessment criteria are clearly defined statements that **explicitly** describe the threshold standard of achievement relevant to learning outcome(s). A threshold standard specifies the standard of performance that students must reach in order to demonstrate the achievement of the relevant learning outcome(s). Therefore, professional bodies often provide clearly defined assessment criteria in documents outlining their requirements for programme accreditation.

Whereas learning outcomes define the intention of the learning activity to be achieved by students, the assessment criteria define the acceptable norms, standards, criteria and/or acceptable performance that students must reach, taking the disciplinary and practice-based contexts into account. An associated assessment criterion aligns on the one hand with the relevant learning outcome(s) and on the other hand with the appropriate assessment method. In criterion-referenced assessment, the associated assessment criteria of a module are used to inform the development of an assessment rubric to assess students' performance.

Consider the following questions when defining an assessment criterion:

- At which level of cognitive complexity, with reference to Bloom's revised taxonomy, is the learning activity aimed?
- Is this level of cognitive complexity in keeping with the threshold standards, norms, requirements and/or acceptable practice expected of practitioners in the domain of practice?
- What informs the learning process (i.e. topics, subject content, sources, techniques, methods, procedures, etc.)?
- Within which context will the learning process take place?
- What will typically be the result/product of the learning process, e.g. reports, documents, artefacts, case study, musical performance, etc.?

Intended learning outcome	Associated assessment criterion
Intended learning outcomes have to do with the **intentionality** (i.e. knowing why, knowing what and knowing how) of the learning action.	Associated assessment criteria have to do with the **normativity** (i.e. the required skilful performance expected based on acceptable threshold standards) of the learning action.
Intended learning outcomes are forward-looking hence focusing on what students should achieve in the future (i.e. on completion of the module students **should be able** to …)	Associated assessment criteria align directly to the learning outcome but is looking backwards hence focusing on what students **are able to demonstrate as achievement of their learning action**.

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An example from Theology (NQF level 5)

Intended learning outcome	Associated assessment criterion
On completion of this module students **should be able** to:	On completion of this module students **are able** to:
• Draw a timeline plotting the most important events in the History of Christianity. • Show important geographical locations (cities, regions, empires) of the period up to 1500 CE on a map. • Describe past Church-historical developments in relation to specific contexts (developed a historical consciousness). • Distinguish between different Christian Traditions (Roman Catholic, Greek Orthodox and Protestant). • Trace the growth of Christianity within the first thousand years CE. • Explain and give reasons why the study of history is important.	• Accurately draw and correctly complete a chronological timeline with the most important events in the History of Christianity. • Locate important historical places (cities, regions) up to 1500 CE on a map. • Explain why, in the context of the complexity of history, it is necessary to understand events in context. • Correctly distinguish between different Christian historical and Theological orientation (Roman Catholic, Greek Orthodox and Protestant). • Accurately and correctly name important events in the growth of Christianity during the first thousand years CE. • Give a reasonable, well-structured argument for the importance of studying history.

An example from Natural Science (NQF level 6)

Intended learning outcome	Associated assessment criterion
On completion of this module students **should be able** to:	On completion of this module students **are able** to:
• Define and demonstrate spatial awareness. • Describe the nature and history of cartography. • Characterize geodesy as it relates to precise measurements of geographic positions on the Earth. • Explain the use of coordinate systems and map projections. • Describe components of cartography, including map design and layout.	• Define and demonstrate spatial awareness by recognizing patterns on maps and correctly identifying spatial relationships. • Correctly describe the role of cartography in the evolution of GIS. • Correctly convert coordinates to/from degrees minutes seconds to decimal degrees for addition to maps. • Conceptualize data correctly into vector or raster data structures depending on application to demonstrate the nature of geographical data.

- Define the principles of data collection using surveying, remote sensing, census and sampling.
- Apply geospatial data to environmental, urban and physical geography problems.
- Work independently using GIS technology and spatial data.
- Apply critical thinking in solving spatial problems.
- Communicate geographically using maps, graphs and tables.

- Independently collect primary and secondary spatial data using GPS, internet databases, and web map services for use on maps.
- Create professional and aesthetically pleasing maps through thoughtful application of cartographic conventions.
- Select and combine appropriate visual variables to clearly represent geospatial data and communicate map content.
- Classify and generalize data, apply principles of colour and contrast, and choose projections and scales for maps of varying purposes.

An example from Management Sciences (NQF level 7)

Intended learning outcome	Associated assessment criterion
On completion of this module students **should be able** to:	On completion of this module students **are able** to:
• Apply relevant theories of situational management to resolving industrial relations conflicts in the context of enterprise bargaining.	• Evaluate different theories of situational management using pre-specified criteria and apply the relevant selected theory/theories to resolving industrial relations conflicts as presented in three selected case studies on enterprise bargaining in different industry sectors and/or contexts by compiling a detailed report on their findings and recommendations.

An example from Health Sciences (NQF level 8)

Intended learning outcome	Associated assessment criterion
On completion of this module students **should be able** to:	On completion of this module students **are able** to:
• Apply and integrate theoretical knowledge of the food service system including food safety, quality, and cost control in a work-based practice setting to be able to manage a large scale food service unit effectively. • Apply the principles of menu planning and recipe standardisation for normal and therapeutic diets to develop nutritional and	• Critically appraise and interpret relevant information and concepts regarding food safety, quality and cost control in a food service unit aimed at managing and be able formulate a detailed report that illustrates an in-depth understanding of all the components of a food service system.

culturally appropriate choice menus for large-scale food production or groups in communities.

- Critically analyse, apply and reflect on aspects related to managerial principles including motivation, conflict management, leadership, and disciplinary actions to ensure optimal personal management and performance in the workplace.

- Evaluate and critically assess food procurement, food preparation and production, and serving systems and their impact on the functioning of a food service unit.

- Apply sanitation, hygiene, and food safety (including HACCP) principles in a food service unit to ensure a high standard of food safety and quality.

- Apply the principles of stock control and cost control to ensure the cost-effective functioning of a food service unit by compiling and implementing a budget.

- Apply different methods of feedback and evaluation to determine client satisfaction in a food service unit and to ensure continuous monitoring and improvement of the quality of nutrition service delivery.

- Correctly use appropriate techniques to standardise recipes which comply with specific requirements for a therapeutic diet as well as the needs of the food service unit.

- Correctly use appropriate techniques to perform a hygiene audit and to determine client satisfaction in a specific foodservice unit to reduce food wastage and improve service delivery as outlined in a detailed report which illustrates an in-depth understanding of the process as well proficiency in written communication.

- As a group, apply relevant knowledge and information gained from reliable sources on a topic identified by the food service manager and synthesise key aspects into a coherently structured presentation to be communicated to non-specialist audiences and implemented in food service units.

- Demonstrate a detailed comprehension of the key principles of food service management, required for the large-scale production of meals, including methods of food procurement and stock control, implementation of food preparation and production in different food preparation systems, different food serving systems; as well as financial and human resource management; through application in the listed food service functions in a practical setting.

- Act in a professional manner in the practical training setting and show adherence to ethical and professional codes of practices by participating in a meaningful way in the execution of tasks, group discussions and teamwork.

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An example from Research Methodology (NQF level 9)

Intended learning outcome	Associated assessment criterion
On completion of this module students **should be** able to:	On completion of this module students **are able** to:
• Locate, analyse, critically appraise and synthesise information from a wide variety of sources in order to compile the literature review of the research proposal and to make informed decisions regarding research design and methodology.	• Identify a range of relevant and reputable sources of information including textbooks, journal articles, conference proceedings and other relevant printed and relevant electronic material to inform the research topic. • Analyse and critically appraise the information obtained from these relevant and reputable sources in order to extract key concepts and aspects to be considered in preparing a literature review on the research topic for a research proposal. • Synthesize the key concepts and aspects into a coherently structured literature review of acceptable length and word count using good academic writing skills to inform and support the research design and methodology relevant to the research topic.

Bloom's revised taxonomy of the cognitive domain (Anderson & Krathwohl, 2001)

Remembering	Understanding	Applying	Analysing	Evaluating	Creating
Retrieving, **recalling** or **recognising** (identifying) knowledge from memory. Remembering is when the memory is used to produce definitions, facts or lists, or recite or retrieve material.	Constructing meaning from different types of functions be they written or graphic messages. Understanding would include the following cognitive processes: **Interpreting** (clarifying, paraphrasing, representing, translating); **Exemplifying** (illustrating, instantiating); **Classifying** (categorising, subsuming); **Summarising** (abstracting and subsuming); **Inferring** (concluding, extrapolating, interpolating, predicting); **Comparing** (contrasting, mapping, matching); **Explaining** (constructing models).	Carrying out or using a procedure through **executing** (carrying out) or **implementing** (using). Applying related and refers to situations where learned material is used through products like models, presentations, interviews, simulations.	Breaking material or concepts into parts, determining how the parts relate or interrelate to one another or to an overall structure or purpose. Mental actions included in this function are differentiating, organising and attributing as well as being able to distinguish between the components or parts. **Differentiating** (discriminating, distinguishing, focusing, selecting) **Organising** (finding, coherence, integrating, outlining, structuring) **Attributing** (deconstructing)	Making judgements based on criteria and standards through checking and critiquing. Critiques, recommendations, and reports are some of the products that can be created to demonstrate the processes of evaluation. In the newer taxonomy evaluation comes before creating as it is often a necessary part of the precursory behaviour before creating something. **Checking** (coordinating, detecting, monitoring, testing) **Critiquing** (judging)	Putting elements together to form a coherent or functional whole; reorganising elements into a new pattern or structure through generating, planning or producing. Creating requires users to put parts together in a new way or synthesise parts into something new and different, a new form or product. This process is the most difficult mental function in the new taxonomy. **Generating** (hypothesizing) **Planning** (designing) **Producing** (constructing)

Source: Anderson, L.W. and Krathwohl, D.R. et al. (Eds.) *A Taxonomy of Learning, Teaching and Assessing: A revision of Bloom's Taxonomy of Educational Objectives*. Boston: Allyn & Bacon.

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A statement of a **learning objective** contains a **verb** (an action) and an **object** (usually a noun).

- The **verb** generally refers to [actions associated with] the intended **cognitive process**.
- The **object** generally describes the **knowledge** students are expected to acquire or construct. (Anderson and Krathwohl, 2001, pp. 4–5)

In this model, each of the colored blocks shows an example of a learning objective that generally corresponds with each of the various combinations of the cognitive process and knowledge dimensions.

Remember: these are learning *objectives*—not learning *activities*. It may be useful to think of preceding each objective with something like: "Students will be able to . . ."

*Anderson, L.W. (Ed.), Krathwohl, D.R. (Ed.), Airasian, P.W., Cruikshank, K.A., Mayer, R.E., Pintrich, P.R., Raths, J., & Wittrock, M.C. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of Educational Objectives* (Complete edition). New York: Longman.

Model created by: Rex Heer
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For additional resources, see:
www.celt.iastate.edu/teaching/RevisedBlooms1.html

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Simpson's (1972) taxonomy of the psychomotor domain

Category	Description of behaviour	Suggested action words	Examples
Perception	Sensory cues guide motor activity. This ranges from sensory stimulation through cue selection to translation.	Detect, hear, listen, observe, perceive, recognise, see, sense, smell, taste, view, watch, choose, describe, differentiate, distinguish, identify, isolate, relate, select, separate	Listening to the sounds made by guitar strings before tuning them. Recognising sounds that indicate malfunctioning equipment. Adjusts heat of stove to correct temperature by smell and taste of food. Estimates where a ball will land after it is thrown and then moving to the correct location.
Set	Mental, physical, and emotional dispositions that make one respond in a certain way to a situation.	Achieve a posture, assume a body stance, establish a body position, place hands, arms, etc., position the body, sit, stand, station	Using a computer mouse. Having an instrument ready to play and watching a conductor at start of a musical performance. Showing eagerness to assemble electronic components to complete a task. Acting upon a sequence of steps in a manufacturing process.
Guided Response	First attempts at a physical skill. Trial and error coupled with practice lead to better performance.	Copy, duplicate, imitate, manipulate with guidance, operate under supervision, practice, repeat, try, mimic, model, re-enact, repeat, reproduce, show, try	Using an instrument after observing an expert demonstrate the use of it. Following instruction to build a model.
Mechanism	The intermediate stage in learning a physical skill. Responses are habitual with a medium level of assurance and proficiency.	Complete with confidence, conduct, demonstrate, execute, improve efficiency, increase speed, make, pace, produce, show dexterity	Using a personal computer (or any other piece of equipment) with a medium level of proficiency.
Complex Overt Response	Complex movements are possible with a minimum of wasted effort and a high level of assurance they will be successful.	Act habitually, advance with assurance, control, direct, excel, guide, maintain efficiency, manage, master, organise, perfect, perform automatically, proceed	Displaying competence while playing a musical instrument e.g. piano. Operating a personal computer (or any other piece of equipment) quickly and accurately.

Category	Description of behaviour	Suggested action words	Examples
			Dismantling and re-assembling of various components of a piece of equipment with accuracy.
Adaptation	Movements can be modified for special situations, can combine and integrate related aspects of skill without guidance.	Adapt, reorganise, alter, revise, change, correct, customise, improve, manipulate, modify, practice	Responding effectively to unexpected experiences. Using skills developed learning to operate another machine (e.g. electronic typewriter) to operate a modern piece of equipment (e.g. personal computer). Performing a task using a machine that was not originally intended to perform that particular task.
Origination	New movements can be created for special situations. Internalised automatic mastery of the skill.	Design, originate, combine, compose, construct, produce, create	Developing a new way to perform an assembly line task in manufacturing. Creating a new routine e.g. gymnastics. Composing a new piece of music for a musical instrument.

Source: Simpson, E. 1972. *The classification of educational objectives in the psychomotor domain: The psychomotor domain*. Vol. 3. Washington, DC: Gryphon House.

Harrow's (1972) taxonomy of the psychomotor domain

Category	Description of behaviour	Suggested action words
Reflex movements	Automatic reactions	React, respond
Basic fundamental movement	Simple movements that can build to more complex sets of movements	Grasp, walk, stand, throw
Perceptual abilities	Environmental cues that allow one to adjust movements	Catch, write, explore, distinguish using senses
Physical abilities	Things requiring endurance, strength, vigour, and agility	Endure, maintain, repeat, increase, improve, exceed
Skilled movements	Activities where a level of efficiency is achieved	Drive, build, juggle, play (a musical instrument), craft
Non-discursive communication	Body language	Express and convey feeling and meaning through movement and actions

Source: Harrow, A.J. 1972. *A taxonomy of the psychomotor domain*. New York: David McKay Co.

For example

- Deliver effective local anaesthesia in the mandible and maxilla and identify the appropriate agents that may be used.
- Perform at least ten local anaesthetic administrations and evaluate your performance with the assistance of your lecturer/mentor.
- Demonstrate proficiency in Cardio-Pulmonary Resuscitation.
- Use a range of physiology equipment to measure physiological function.
- Operate the range of instrumentation specified in the module safely and efficiently in the chemistry laboratory.
- Administer successfully and in a safe manner with minimal risk to patient and operator, infiltration and regional nerve block anaesthesia.
- Present the methodology and findings of the research project in an oral report to an audience.
- Design a well-illustrated poster presentation to summarise the research project using a computer software programme such as MS PowerPoint.

- Examine a patient extra-orally and intra-orally.
- Use the following computer software effectively and skilfully: MS Word, MS Excel and MS PowerPoint.
- Perform a surgical dressing using an aseptic technique.
- Sketch the pump characteristic curve, pipeline curve, and the pump-pipeline operating point and show how each of these can be altered in a practical manner.
- Record an accurate impression of the mouth and identify all anatomical features of importance.

Source: Kennedy, D. Hyland, A. & Ryan, N. 2007. Writing and using learning outcomes: A practical guide. [Online]. Available from: https://www.researchgate.net/publication/238495834_Writing_and_Using_Learning_Outcomes_A_Practical_Guide [Accessed: 19 July 2022].

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Bloom's taxonomy of the affective domain

Category	Description of behaviour	Action words	Examples
Receiving	This refers to a willingness to receive information, e.g. the individuals accept the need for a commitment to service, listen to others with respect, show sensitivity to social problems, etc.	Act, adhere, appreciate, ask, accept, answer, assist, attempt, challenge, combine, complete, conform, co-operate, defend, demonstrate (a belief in), differentiate, discuss, display, dispute, embrace, follow, hold, initiate, integrate, justify, listen, order, organise, participate, practice, join, share, judge, praise, question, relate, report, resolve, share, support, synthesise, value.	Accept the need for professional ethical standards. Appreciate the need for confidentiality in the professional-client relationship Value a willingness to work independently. Relate well to students of all abilities in the classroom. Appreciate the management challenges associated with high levels of change in the public sector. Display a willingness to communicate well with patients. Resolve conflicting issues between personal beliefs and ethical considerations. Participate in class discussions with colleagues and with teachers. Embrace a responsibility for the welfare of children taken into care. Display a professional commitment to ethical practice.
Responding	This refers to the individuals actively participating in their own learning, e.g. showing interest in the subject, being willing to give a presentation, participating in class discussions, enjoying helping others, etc.		
Valuing	This ranges from simple acceptance of a value to one of commitment, e.g. the individuals demonstrate belief in democratic processes, appreciate the role of science in our everyday lives, show concern for the welfare of others, show sensitivity towards individual and cultural differences, etc.		
Organisation	This refers to the process that individuals go through as they bring together different values, resolve conflicts among them and start to internalise the values, e.g. recognising the need for balance between freedom and responsibility in a democracy, accepting the responsibility for their own behaviour, accepting professional ethical standards, adapting behaviour to a value system, etc.		
Characterisation	At this level the individuals have a value system in terms of their beliefs, ideas and attitudes that control their behaviour in a consistent and predictable manner, e.g. displaying self-reliance in working independently, displaying a professional commitment to ethical practice, showing good personal, social and emotional adjustment, maintains good health habits, etc.		

Source: Kennedy, D. Hyland, A. & Ryan, N. 2007. Writing and using learning outcomes: A practical guide. [Online]. Available from:

https://www.researchgate.net/publication/238495834_Writing_and_Using_Learning_Outcomes_A_Practical_Guide [Accessed: 19 July 2022].