

Creating and using effective learning outcomes



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Summary

This guide aims to provide academic staff with practical advice on how to create learning outcomes that describe in a clear and succinct way what learners should be able to do on successful completion of a course or program. Following an introduction and overview, the guide describes how to write learning outcomes that define the appropriate scope and level of learning, and how that learning might be assessed. This approach helps enable students to make sense of learning outcomes within their courses and to see the relationships between their learning activities and their assessment tasks. The guide includes practical tips and examples of effective learning outcomes, to illustrate good practice.

1. Introduction and context

A learning outcome is a description of what a student will be able to **do** on successful completion of a specific 'unit' of learning, irrespective of whether this is a single learning session, an individual course or a whole program. Typically, a course or program will have a set of learning outcomes that describe its major components, written in clear, succinct and unambiguous language. As a simple example:

Once you have read and made sense of this guide, you should be able to:

- 1. write effective learning outcomes for courses and programs within your discipline;*
- 2. align course learning outcomes with teaching, learning and assessment;*
- 3. explain course learning outcomes to students, so that they can see how they link to teaching, learning and assessment.*

The terminology of learning outcomes emphasises the central role of the learner in achieving the outcome, in contrast to earlier terminology which described learning in terms of lecturer-led aims and objectives. Another important feature of course learning outcomes is that they describe what a learner should be able to **demonstrate** as a result of their learning and therefore what can be **measured** as part of an assessment task linked to that learning outcome. The alignment of learning, teaching and assessment is a fundamental aspect of creating and using effective learning outcomes.

The language of outcomes-based education is used across the higher education sector in Australia and in many other countries. The Australian Learning and Teaching Council's project on academic standards (ALTC 2011) has defined '*threshold learning outcomes*', sometimes termed '*baseline academic standards*', for a number of disciplines, with broad statements that describe what pass-grade graduates should be able to do. As an example, the following learning outcomes were produced for Bachelor of Accounting graduates:

Bachelor graduates in Accounting will be able to:

- 1. exercise judgement under supervision to solve routine accounting problems in straightforward contexts using social, ethical, economic, regulatory and global perspectives.*

- 2. integrate theoretical and technical accounting knowledge which includes a selection of auditing and assurance, finance, economics, quantitative methods, information systems, commercial law, corporation law and taxation law.*
- 3. critically apply theoretical and technical accounting knowledge and skills to solve routine accounting problems.*
- 4. justify and communicate accounting advice and ideas in straightforward collaborative contexts involving both accountants and non-accountants.*
- 5. reflect on performance feedback to identify and action learning opportunities and self-improvements.*

These five learning outcomes aim to capture the major capabilities of all Australian graduates in Accounting. Note that they are broad outcomes, written without the fine details of syllabus or content.

The Australian Qualifications Framework (AQF 2011) also uses somewhat similar terminology to describe each qualification, based on the knowledge, skills and application expected on successful completion. As an example, for knowledge and skills of graduates from a Bachelor program (AQF level 7):

Graduates of a Bachelor Degree will have:

- 1. a broad and coherent body of knowledge, with depth in the underlying principles and concepts in one or more disciplines as a basis for independent lifelong learning*
- 2. cognitive skills to review critically, analyse, consolidate and synthesise knowledge*
- 3. cognitive and technical skills to demonstrate a broad understanding of knowledge with depth in some areas*
- 4. cognitive and creative skills to exercise critical thinking and judgement in identifying and solving problems with intellectual independence*
- 5. communication skills to present a clear, coherent and independent exposition of knowledge and ideas.*

Further details of the current AQF descriptors for (i) Bachelor and (ii) Coursework Masters programs are given in Appendix A.

While the AQF descriptors are not written exactly in the style of learning outcomes, it is relatively straightforward to recast these statements as formal learning outcomes. For example, AQF statement 4, from above, can be rewritten as a learning outcome:

Graduates of a Bachelor Degree will be able to: exercise critical thinking and judgement in identifying and solving problems with intellectual independence.

The Tertiary Education and Quality Standards Agency (TEQSA) is likely to take an outcomes-based approach to defining and monitoring learning standards, once operational.

All of these examples demonstrate that learning outcomes tend to be broad in their scope; they do not describe the details of discipline-based content of the type seen in a conventional syllabus, where the focus is often on 'working through the content'. Learning outcomes recognise that broader aspects of knowledge, skills and attributes are best captured through a short set of succinct statements. While there is no prescribed number, typically 4-8 learning outcomes are used per 'unit' of learning (e.g. a course or a program). Taken together, the set of learning outcomes for a course or program should provide a coherent description of the core competencies that a student should achieve on successful completion.

2. The structure of learning outcomes

Learning outcomes have a common structure, with a generic initial phrase (e.g. '*on completion...students will be able to:*'), followed by a series of statements, each of which has two main elements:

1. **a verb**, chosen to best describe the outcome in a demonstrable and measurable way, then
2. **a phrase** that provides the scope and context of the outcome.

The ALTC examples for Accounting graduates given in Section 1 illustrate this principle, with statements that illustrate (i) 'the right verb' followed by (ii) 'the right phrase'. It is only through careful consideration of each of these two elements that effective learning outcomes can be created.

3. Writing effective learning outcomes

You may be a new member of academic staff, with no direct experience of creating learning outcomes, an established member of staff looking to enhance a current course, or part of a teaching team aiming to revise current learning outcomes or create new learning outcomes as part of the development of a new course or program. In all of these cases, one approach is to begin by thinking about your course or program in a holistic way, listing its major aspects in terms of three distinct areas:

1. **Discipline-specific knowledge** (e.g. taxation law). Typically, this will form the basis of one or two specific outcomes, as in the examples on the previous pages. However, it is also important to recognise that it is acknowledged globally that *'the simple acquisition of knowledge is not enough to count as an education'* (Hunt 2011) and therefore a curriculum that is based only on knowledge-related outcomes will provide a limited learning experience for students, and it will not prepare them well for the world beyond their academic studies. It also does not address the higher-level learning that should be a key part of higher education programs.
2. **Discipline-specific skills** (e.g. solving accounting problems). Most learning involves practical outcomes, so you might consider the types of skills to be acquired during the program or course. This is a fundamental component of *'learning by doing'* (Scott 2008) and a key aspect of making learning happen (Race 2010).
3. **Other generic skills and attributes** (e.g. communication, teamwork, etc.). List which of the CQUniversity generic graduate attributes (CQUniversity 2010) apply within the course or program – it is also worth noting that these generic graduate attributes are also phrased in the broad terminology of learning outcomes. Employer organisations also recognize the value of these skills and attributes, since *'the challenges involved in adapting to new and changing workplaces also require effective generic skills'* (BCA 2011), as does the AQF (2011), which lists these under the headings: *'fundamental skills, people skills, thinking skills and personal skills'*.

Once you have this list, use it to create a set of learning outcomes that describes all of these aspects in the minimum number of separate outcomes, without any overlap between them.

A more direct approach is to begin by thinking about the broad capabilities and competencies that you expect students to achieve by the time they finish the course or program, by asking yourself the question *'What is it that I expect students to be able to do once they have completed the course/program?'* Then write these competencies as a short set of learning outcomes. Another approach is to start by thinking about how you

might assess the ability of your graduates. Naturally, program-level learning outcomes will be broader than those written for a single course within the program.

Creating effective learning outcomes is an iterative process, as part of curriculum development; feedback from other staff and students can help you to refine and enhance the learning outcomes for a course or program. Consequently, it is worth considering running an initial workshop where staff can collaborate to draft the learning outcomes for a course or program. Alternatively, where learning outcomes are drafted by a single person (e.g. a Course Coordinator, or a Head of Program), refining them is best done in consultation with colleagues, through a process of peer review and enhancement. It is also very helpful to look at other examples of well-written learning outcomes; new staff should seek advice and examples of good practice from academic colleagues and/or educational developers, as well as working with others to revise and improve their initial drafts. Section 4 provides some examples of effective learning outcomes, along with a brief commentary for each.

One approach to selecting ‘the right verb’ for each learning outcome is to consider the different types and levels of learning first described by Bloom et al. (1956) and subsequently revised and extended by others (e.g. Krathwohl et al 1964; Dave 1970; Anderson & Krathwohl 2001). This approach, sometimes referred to by the phrase ‘Bloom’s taxonomy’, recognises three types, or ‘domains’, of learning:

1. The cognitive domain (thinking)
2. The affective domain (feeling)
3. The psychomotor domain (doing)

Learning outcomes can be written for each domain, by choosing the appropriate verb, for example ‘*explain*’ (thinking), ‘*value*’ (feeling), ‘*perform*’ (doing). However, each domain is also regarded as having a hierarchy of different levels of learning. An example for each domain is shown in Tables 1-3. It is worth noting that there are several different variants and many websites providing more extensive lists of example verbs within each hierarchy, with no absolute consistency between them – a Google search on “*learning outcomes*” “*site:edu.au*” will provide you with weblinks to relevant sites across the Australian higher education sector.

Typically, the learning outcomes of introductory courses are based on notionally ‘lower’ levels of each domain, while more advanced learning outcomes often have a greater focus on the ‘higher’ levels of each hierarchy. However, to take such a simplistic approach ignores the fact that the phrase that follows the verb is probably more important in establishing the ‘level’ of the learning outcome. To illustrate this, most of us

would find it easier to ‘describe how to tie a shoelace’ than to ‘describe how string theory attempts to reconcile quantum mechanics and the theory of general relativity’, yet both statements begin with the same verb. This demonstrates how approaches based on the use of verbs such as those shown in Tables 1-3 are, to some extent, unsophisticated and unrealistic. Nevertheless, some people find this broad structure helpful in framing their learning outcomes, whereas others do not – follow whatever approach works for you, while working within the framework provided by the AQF descriptors (see Appendix A and AQF 2011). For more examples of so-called ‘Bloom’s verbs’, see Appendix B, or try a Google search on ‘Bloom’s taxonomy’+‘verbs’.

Table 1 The cognitive domain (thinking)

Level (low to high)	Description	Example verbs
1. Remembering *	recalling factual information	describe, list
2. Understanding	making sense of something	explain, interpret
3. Applying	using knowledge/information	apply, solve
4. Analysing	identifying parts and relationships	analyse, compare
5. Evaluating	making a judgement, based on criteria	create, design
6. Creating	putting information and ideas together in a novel way	assess, justify

(*Originally, these six levels were defined by Bloom et al. 1956 as: knowledge, comprehension, application, analysis, synthesis and evaluation – the above terminology is based on Anderson & Krathwohl 2001).

Table 2 The Affective Domain (feeling)

Level (low to high)	Description	Example verbs
1. Receiving	listen and be aware	focus, listen
2. Responding	participate actively	contribute, respond
3. Valuing	consider the worth of an item, idea or behaviour	propose, value
4. Organising	prioritise values in a systematic way	integrate, compare
5. Internalising	adopt and use a value system	practice, influence

Table 3 The Psychomotor Domain (doing)

Level (low to high)	Description	Example verbs
1. Imitation	repeat the actions of another person	copy, repeat
2. Manipulation	perform a task following written or verbal instruction	implement, perform
3. Precision	perform a task independently and reliably	show, complete
4. Articulation	develop methods to meet novel requirements	adapt, modify
5. Naturalisation	reach automated, unconscious mastery of a task	operate, manage

While compilations such as Tables 1-3 provide one view of the hierarchical nature of learning, offering some examples of verbs that can be useful when creating learning outcomes, you should not feel constrained to use only the verbs listed in the various 'Bloom's tables' that are available in publications and on websites. It is far better to choose and use the verbs that best reflect the learning outcomes for your course or your program, based on a clear rationale, rather than being restricted by the conventions and limitations of Bloom's taxonomy (for example, Bloom's taxonomy makes no mention of the reflective approach, or of evidence-based practice, both of which are important aspects of many programs). When creating learning outcomes, the most important aspects are to (i) select 'the right verb' and then (ii) follow this with 'the right phrase' in the context of your course or program.

4. Ten tips for creating and using effective learning outcomes

The following points list some important aspects to consider when writing, refining and applying learning outcomes:

1. ***It is best to avoid phrases such as 'demonstrate understanding of...', 'develop an appreciation of...', 'be familiar with...' or 'develop an awareness of...'.***
Because these phrases are broad and vague, they do not clearly describe the extent or depth of 'understanding/appreciation/familiarity/awareness', or how these aspects might be demonstrated or assessed. Despite this, you will still find similar phrases in some documentation across the sector.
2. ***Write your learning outcomes in a simple, direct and accessible style.*** Avoid complex, over-detailed statements. Use short and succinct phrases. It is not about 'how long and complex' but 'how short and succinct' you can make the learning outcome, while still conveying the overall message. Pare them back to their broadest, simplest terms. However, if you really feel that you must include some specific details, these are often best added at the end of the outcome, to provide the context (e.g. see the Bachelor of Accounting program learning outcomes 1 and 2 on page 2).
3. ***Use the smallest possible number of learning outcomes within each course or program.*** It is not about 'how many', but 'how few'. Having too many content-based learning outcomes for a course or program probably means that there may be an overemphasis on content detail - the examples given on page 2 show how to

structure a short set of outcomes to describe a whole degree program. With learning outcomes, it is always best to apply the maxim '*less is best*', and to follow Einstein's advice: '*make it as simple as possible, but no simpler*'.

4. ***Make sure that each learning outcome is distinct.*** Sometimes, teaching staff may try to reduce the number of learning outcomes in a course by combining two or more distinct outcomes, which results in a composite learning outcome that is less effective than a simple, unambiguous statement. While the conjunction 'and' can be used legitimately to link two related aspects of a learning outcome (e.g. '*...students should be able to make a decision and communicate this to...*', or '*...students should be able to operate effectively and efficiently...*'), it should not be used to join two very different learning outcomes together to form a single long composite outcome (e.g. '*students should be able to solve numerical problems and list the fundamental components of ...*'). The most effective learning outcomes are those that are concise and focussed, summarising a single broad aspect of learning with a single verb, followed by a single phrase, rather than being a complex mix of different aspects.

5. ***Consider the 'level' of each learning outcome.*** What combination of 'the right verb' plus 'the right phrase' is best? You will also need to consider how the learning outcomes are developed through the program, from introductory courses in the first year to advanced courses in the final year. Tables 1-3 can help with this process, e.g. programs with traditional curricula sometimes have a greater focus on fundamental knowledge and comprehension in the early years, with more advanced analytical and evaluative skills developed in the later years, taking a 'linear' approach based on Bloom's taxonomy. However, a more sophisticated and potentially more effective alternative is to take a 'spiral' approach to the development and deepening of all of the various types of learning by 'scaffolding' these across courses within a program (e.g. Bruner 1977).

6. ***Avoid 'double-dipping' across the curriculum.*** This should be considered as a key aspect of curriculum design, both within a course (avoid overlapping learning outcomes) and across a program (try to avoid repeating exactly the same learning outcome across several courses). This often means that several iterations are required to refine and enhance the learning outcomes across all courses within a program.

7. **Use the AQF and other national/international academic standards for program learning outcomes.** This has two main aspects: (i) these statements will help you set the appropriate level for your program learning outcomes; and (ii) mapping your program learning outcomes against such statements will help ensure that your program meets sector benchmarks and standards. Note that higher level qualifications require higher level learning outcomes (see Appendix A to compare AQF descriptors for Bachelor and Coursework Masters qualifications). Similarly, there may be prescribed requirements set down by professional bodies and other agencies, linked to external accreditation of the program. While these requirements should also help you to frame learning outcomes to meet these requirements, they cannot substitute for effective learning outcomes based on the Australian Qualifications Framework, which states that '*All the learning outcomes ... are evident in each qualification*' (AQF 2011).
8. **Include generic skills and attributes within your learning outcomes.** Learning is not just about discipline-specific content, but about all of the learning that occurs within a course or program. By including generic skills and attributes within your learning outcomes, you will ensure that students receive broad and balanced opportunities to learn the skills required for life beyond their academic studies. One example of this is in the increasing emphasis on internationalisation of the curriculum as an ongoing response to global changes in society. After graduation, discipline-specific knowledge will often need to be updated as part of lifelong learning. This is particularly true in contemporary society, where technological change and the provision of information in digital form continues to transform our lives. Consequently, the development of lifelong learning skills, including self-management and reflection, might be regarded as a fundamental aspect of learning at university; this is why '*responsibility and accountability for own learning*' is included within the AQF descriptor for graduates of a Bachelor degree (Appendix A).
9. **Align course learning outcomes with teaching practice and learning activities.** While many staff will begin the curriculum design process by writing learning outcomes for new or revised courses and programs, it is important to consider at the earliest possible opportunity how these outcomes will link into teaching and learning activities. Holistic and iterative consideration of learning, teaching and assessment is the best way to create alignment of all components in a way that maximises the benefits of an outcomes-based approach (Biggs 2003).

10. **Align course learning outcomes with assessments and feedback.** Because learning outcomes are about what students should be able to do, you can use the text of ‘the right verb’ and ‘the right phrase’ to consider how to assess this outcome. This is probably best illustrated using an example. For the learning outcome *‘the student should be able to prepare business reports in a succinct and professional style, following appropriate guidelines’*, this might be best assessed by asking student to write a report based on a business case study, following a set of guidelines provided at the start of the assessment task. The assessment criteria for such a task should also align with the learning outcome – for example it would be appropriate to use relevant phrases from the learning outcome such as *‘succinct and professional style’* and *‘following ... guidelines’* within the assessment criteria for this task. Feedback on the assessment task would then provide guidance to the student on how well they had met the learning outcome. Another good way to link learning outcomes and assessment is to use the same verb in the learning outcome and the assessment tasks (e.g. for a learning outcome that begins with the verb ‘explain’, you might use this verb within an essay topic or an exam question, and in any feedback). The weakest alignment is seen in courses where multiple outcomes are assessed across several different tasks. This also means that students are unlikely to see any clear relationships between learning outcomes and assessment. The importance of aligning learning outcomes and assessment is evident from the statement that *‘from our students’ point of view, assessment always defines the actual curriculum’* (Ramsden 1983).

5. Bringing learning outcomes to life

Make sure that you talk to your students about their learning outcomes, at least at the beginning and end of teaching sessions. Explain how they link to the various learning activities and, especially, how they relate to each assessment. If you use specific learning outcomes for taught sessions and learning activities, you should always ensure that you relate these back to the overall course learning outcomes. Similarly, the program learning outcomes provide an opportunity for discussion with students - for example, by explaining how the learning activities in a particular course align with the program learning outcomes. Without such direct and visible links, your learning outcomes will have no practical value to students and they are likely to be ignored.

Another important way to bring learning outcomes to life is through alignment with assessment and feedback, as outlined above. While it is feasible to assess more than

one learning outcome through a single, well-designed assessment task, the reverse is not necessarily the case. Therefore, it is often best to avoid assessing an individual course learning outcome through several different types of assessment (for example, assessing exactly the same course learning outcome through a combination of (i) an essay, (ii) a practical report, (iii) a group exercise and (iv) an exam), as this typically results in lack of clarity for students. It can also result in ‘assessment double-dipping’ and it also points to overassessment of the same learning outcome, increasing the workload for staff. A better approach is to recast and refine your learning outcomes until they are aligned with a single type of assessment. Note that this does not mean that a course with seven learning outcomes should have seven assessments; it is perfectly reasonable that some ‘capstone’ courses have a single assessment item, such as a thesis or portfolio, to assess all learning outcomes within the course – after all, a PhD is awarded on the basis of a written thesis, which is a single large assessment item. Similarly, this approach does not prevent the use of more than one item of the same type to assess a particular outcome, e.g. (i) an essay plan (ii) a first draft essay and (iii) an essay that has been revised, following feedback, to assess a learning outcomes linked to written communication.

Bringing learning outcomes to life can therefore be regarded as the final stage in a step-wise process that involves:

1. Thinking about each competency that students should have on successful completion of their learning;
2. creating the ‘right learning outcome’, using a combination of ‘the right verb’ followed by ‘the right phrase’;
3. designing appropriate assessment tasks to measure achievement of this learning outcome, using phrases from the learning outcome to demonstrate alignment with assessment;
4. providing appropriate feedback, based on criteria that align with the learning outcome;
5. engaging students in discussions that enable them to see how their learning activities and assessment tasks are linked to specific learning outcomes.

In short, learning outcomes are most effective when they become the focus of the learning experience of students.

6. A dozen examples of effective learning outcomes

The following learning outcomes have been taken from 2011 versions of CQUniversity course profiles; each is followed by a short explanation of the notable features:

On successful completion of this course, students should be able to:

1. *explain the various methods used to separate and characterise macromolecules, with particular reference to the purification of proteins* (from BMED19010).
[This is a straightforward knowledge-based outcome in an undergraduate course, covering ‘*various methods*’ but providing clear focus within the final section of the learning outcome. Here, it is appropriate to use ‘*and*’ to cover ‘*methods used to separate and characterise...*’ as these two processes are sequential].
2. *apply the principles of effective learning to their own study as the basis for successful lifelong learning* (from EDED11449).
[A good example of a well-constructed student-focussed learning outcome that clearly aligns with the national-level bachelor descriptor, in terms of ‘*taking responsibility for own learning*’, AQF 2011].
3. *review a specific knowledge domain and identify gaps worthy of research* (from COIS20079).
[This postgraduate learning outcome requires analysis and synthesis, both of which are regarded as higher-level cognitive skills within the hierarchy of Bloom’s taxonomy shown in Table 1].
4. *make an informed decision as to the likely outcome of a commercial fact situation, based on appropriate information* (LAWS19031)
[This advanced-level undergraduate outcome calls for judgement, which is an example of evaluation – the highest-level cognitive skill shown in Table 1].
5. *explain the use of Human Resource Management concepts in international and domestic contexts* (from HMRT20022).
[This outcome addresses discipline-based concepts from an international perspective to generate a learning outcome that clearly and effectively combines a discipline-specific aspect with a broader generic aspect within a single outcome – a similar approach can be taken for other generic skills and attributes such as team work, and professional/ethical practice, where these are a major focus in a particular course].

6. *compare and contrast the strategies and resources necessary in creating, growing, managing and ending a new venture* (from MRKT19034).
[This learning outcome requires analysis (Table 1) of a sequence of aspects of the topic, clearly explained in the second half of the learning outcome. Note also the effective use of 'and' in a list that specifies a sequence of items].
7. *Satisfy the requirements of an evolving dental practitioner, in terms of relevant interpersonal/team communication skills and professional attitudes/behaviours* (from new first year course in Oral Pathology and Diagnosis).
[This learning outcome addresses the requirements of an external body, with respect to professional attitudes and behaviours. Greater detail of these requirements will be found in the documentation of the professional body, in terms of their requirements for external accreditation of the program. This is therefore an example of how a detailed set of professional requirements can be 'captured' through a high-level learning outcome, without needing to repeat all of the detail specified by the professional body within the learning outcome.
8. *display, perform or otherwise exhibit the completed creative artefact/s, or equivalent/s, that they have produced* (from PERF20032).
[This learning outcome makes good use of multiple verbs at the start of the learning outcome to cover how the various types of creative artefacts could be shown, as part of a capstone course in postgraduate creative and performing arts programs – note the use of 'or' rather than 'and', to achieve this outcome.].
9. *use computer-aided drafting software, common drafting practices, Australian and industry standards, handbooks, guidelines and engineer's design notes to produce project drawings and documentation* (from ENAE12002)
[This is a discipline-specific practical outcome. Note that, while this learning outcome appears somewhat detailed, covering a number of specific items to be used, it avoids the pitfall of specifying a particular type of software or standard, which would then require revision when the software was upgraded or changed].
10. *assess the physical work environment including thermal, visual, aural and vibration* (from OCHS20029)
[a good example of a work-based learning outcome, covered as part of a work placement – this one requires student to go beyond knowledge and comprehension to apply the higher-level skills of analysis and evaluation – Table 1].
11. *Articulate the key values, ethics, principles and models of practice that characterise social and welfare work* (from SOWK11014)
[A good example of a learning outcome that covers the affective domain – Table 2]

12. *develop an individualised learning contract, to include identification of learning needs through to specification of the criteria which your work will be assessed* (from OCHS21027)

[An excellent example of how to structure a broad learning outcome with a focus on the process, rather than content – note also that to satisfy the learning outcome, the learner must take responsibility for the various aspects of the process, including the development of appropriate assessment criteria. This outcome moves the learner well away from regurgitation of content, placing them centre stage in guiding their own learning journey, which is particularly appropriate in the context of the postgraduate degree to which it contributes].

For program learning outcomes, your best approach at present is to consult the ALTC Learning and Teaching Academic Standards website (ALTC 2011) as a starting point for discipline-specific outcomes.

As a counter to this list, here are a few points on what to avoid when creating learning outcomes:

- too many outcomes that are focussed only on knowledge and understanding, with too much content detail, rather than considering how this will be used and applied in context.
- too many outcomes based on 'low-level' memorisation of knowledge, typically characterised by verbs such as 'describe' 'list', especially in advanced undergraduate courses and in postgraduate courses (use the words/phrases in the AQF descriptors to guide you – see Appendix A).
- too many outcomes based around cognitive outcomes – it is important to include practical skills and generic attributes (Section 3) to cover the other aspects of learning.

7. Further work

When you reach this point, you will have read through the basic principles and you should now be able to apply these to your course or program, based on the principle of '*learning by doing*' (Race 2010). Check back on the learning outcomes described at the start of this guide – do you feel that you have achieved these outcomes yet, or do you need to carry out additional tasks, e.g. do you need to look at more examples of effective learning outcomes for your discipline area, discussing these with experienced staff, or drafting some learning outcomes and then seeking feedback from colleagues? Another action that you might take is to draw up your own 'checklist' of what makes an effective learning outcome, based on the tips and advice within this guide, plus any wider reading.

8. References and sources for further study

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Appendix A (from Australian Qualifications Framework, April 2011)

AQF Bachelor Degree qualification type descriptor (level 7)

Purpose:

The Bachelor Degree qualifies individuals who apply a broad and coherent body of knowledge in a range of contexts to undertake professional work and as a pathway for further learning.

Knowledge:

Graduates of a Bachelor Degree will have a broad and coherent body of knowledge, with depth in the underlying principles and concepts in one or more disciplines as a basis for independent lifelong learning.

Skills:

Graduates of a Bachelor Degree will have:

- cognitive skills to review critically, analyse, consolidate and synthesise knowledge
- cognitive and technical skills to demonstrate a broad understanding of knowledge with depth in some areas
- cognitive and creative skills to exercise critical thinking and judgement in identifying and solving problems with intellectual independence
- communication skills to present a clear, coherent and independent exposition of knowledge and ideas.

Application of knowledge and skills:

Graduates of a Bachelor Degree will demonstrate the application of knowledge and skills:

- with initiative and judgement in planning, problem solving and decision making in professional practice and/or scholarship
- to adapt knowledge and skills in diverse contexts
- with responsibility and accountability for own learning and professional practice and in collaboration with others within broad parameters.

Volume of learning:

The volume of learning of a Bachelor Degree is typically 3 – 4 years

AQF Coursework Master Degree qualification type descriptor (level 9)

Purpose

The Masters Degree (Coursework) qualifies individuals who apply an advanced body of knowledge in a range of contexts for professional practice or scholarship and as a pathway for further learning.

Knowledge

Graduates of a Masters Degree (Coursework) will have:

- a body of knowledge that includes the understanding of recent developments in a discipline and/or area of professional practice
- knowledge of research principles and methods applicable to a field of work and or learning.

Skills

Graduates of a Masters Degree (Coursework) will have:

- cognitive skills to demonstrate mastery of theoretical knowledge and to reflect critically on theory and professional practice or scholarship
- cognitive, technical and creative skills to investigate, analyse and synthesise complex information, problems, concepts and theories and to apply established theories to different bodies of knowledge or practice
- cognitive, technical and creative skills to generate and evaluate complex ideas and concepts at an abstract level
- communication and technical research skills to justify and interpret theoretical propositions, methodologies, conclusions and professional decisions to specialist and non-specialist audiences
- technical and communication skills to design, evaluate, implement, analyse and theorise about developments that contribute to professional practice or scholarship.

Application of knowledge or skills

Graduates of a Masters Degree (Coursework) will demonstrate the application of knowledge and skills:

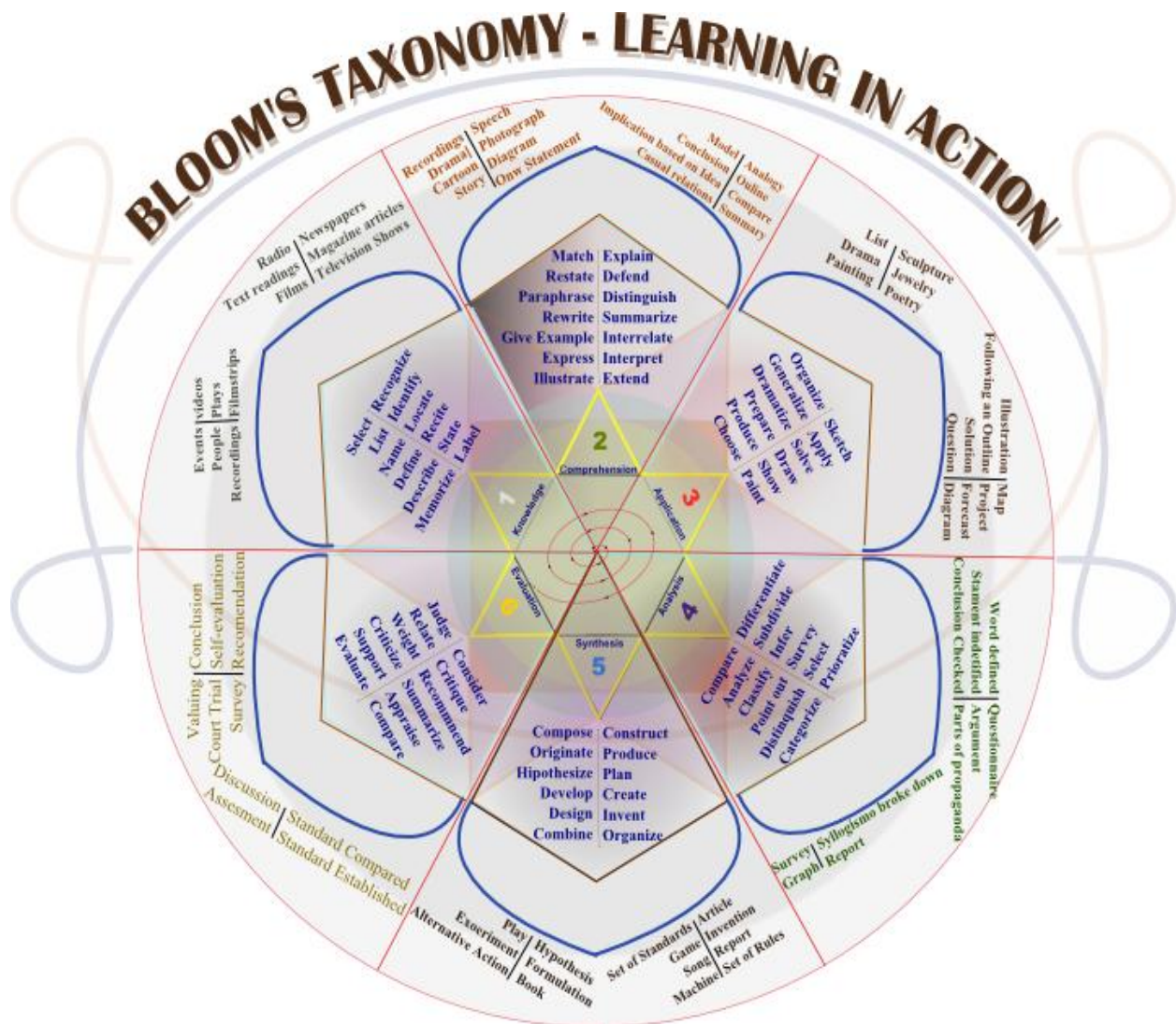
- with creativity and initiative to new situations in professional practice and/or for further learning
- with high level personal autonomy and accountability
- to plan and execute a substantial research-based project, capstone experience and/or piece of scholarship.

Volume of Learning

The volume of learning of a Masters Degree (Coursework) is typically 1 – 2 years; in the same discipline 1½ years following a level 7 qualification or 1 year following a level 8 qualification; in a different discipline 2 years following a level 7 qualification or 1½ years following a level 8 qualification.

Appendix B

Visual representation of Bloom's taxonomy for the cognitive domain, with examples of the different verbs that might be applied to each of the six levels.



From: Kennedy, D 2007 http://commons.wikimedia.org/wiki/File:Bloom%27s_Rose.png (viewed 28 May 2011). Note the deliberate choice of Wikipedia as the source of this image – creating lists of 'Bloom's verbs' is something that many people have tried, with lots of different examples on the web, many of dubious quality and often lacking in meaningful reflective scholarship or peer review.