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# HELP package for partners unfamiliar with Learning Outcome approach

**Introduction**

Since this is described as a HELP package for AQUA-TNET members unfamiliar with the Learning Outcome approach, it is clearly not the place for an academic appraisal of the whole area, for nothing is more likely to put the potential user off. It has become a vast and complex area, all the more so because it seems to have become an obligatory buzzword in curricular circles.

The description of curricula in terms of knowledge, skills, competences and learning outcomes was recommended in ministerial statements at Bologna and Copenhagen Process conferences in Prague (2002), Copenhagen (2002), Berlin (2003), Maastricht (2004), Bergen (2005), Helsinki (2006 and London (2007). Stephen Adam (Edinburgh Bologna Conference on Learning Outcomes, 2008) says "It is interesting to note that Learning outcomes were not mentioned in the original 1999 Bologna Declaration or in the Prague Communiqué 2001. Since then they have appeared in every new ministerial Communiqué, culminating in the most recent London (2007) pronouncement where no less than four separate references were made. They have gradually assumed greater importance as the practicalities of implementing radical educational reforms across Europe were encountered."

Little wonder that many teachers are somewhat apprehensive, because it is true that the use of the learning outcomes approach changes the emphasis from teacher-centred content (teacher as the fount of all knowledge and wisdom!) to a student-oriented approach. This has serious implications for teaching, learning and assessment practices.

Do not despair: we recommend that all anxious beginners consult a handbook "*Writing and Using Learning Outcomes: a Practical Guide*" prepared by Dr Declan Kennedy, University of Cork, Ireland, which is an AQUA-TNET partner (See Annex 1 for specific details). It is clearly and succinctly written and is extremely helpful. Section 2, which shows in detail how to write learning outcomes, is a must for all practitioners, even experienced ones. It is freely available and can be downloaded as a pdf file from http://www.bologna.msmt.cz/files/learning-outcomes.pdf.

For those who wish to delve deeper into the subject, we recommend the CEDEFOP booklet entitled "The shift to Learning Outcomes: Conceptual, political and practical developments in Europe" (CEDEFOP, 2008). This is also freely available online from the CEDEFOP website at http://www.trainingvillage.gr/etv/Information_resources/Bookshop/publication_details.asp?pub_id=494

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For those who wish to have an up-to-date view on current thinking, we recommend Stephen Adam's Report on "Learning Outcomes Current Developments In Europe: Update On The Issues And Applications Of Learning Outcomes Associated With The Bologna Process" given at the Bologna Seminar: Learning outcomes based higher education: the Scottish experience in February 2008, Edinburgh, Scotland. The final version of this report is available online at http://www.ond.vlaanderen.be/hogeronderwijs/bologna/BolognaSeminars/documents/Edinburgh/Edinburgh_Feb08_Adams.pdf

A quick resume of three of the Conference conclusions are useful for AQUA-TNET partners at this stage.

- **The first** is that **"**Learning outcomes are the basic building blocks of European higher education reforms, and that this approach is at the heart of the paradigm shift from teacher to student-centred learning**."**

- **The second conclusion** draws attention to" the danger of learning outcomes being implemented in a false or superficial way in response to external pressures and the need to recognize that such a complex and multidimensional reform cannot be easily or rapidly achieved. The learning outcomes-based approach needs time to develop, embed itself and mature in a way that respects and reflects local priorities, diverse needs and national traditional of Bologna countries. Training in the writing and implementing of learning outcomes should be a priority."

- **The fifth conclusion** notes that" there is a perceived lack of clarity about some of the key terms associated with the introduction of learning outcomes in different countries (competences, workload) which is likely to impede implementation."

- **The sixth conclusion** notes that" there is uncertainty about whether learning outcomes should be written at 'threshold' or 'average' or 'modal' level, and recommends that outcomes should normally be written at 'threshold' level to facilitate recognition and mobility."

- **The eleventh conclusion** notes that "there remains a degree of scepticism about the value and the appropriateness of the learning outcomes approach in the context of higher education." **(!) (my exclamation point)**

Below are set out a few valid reference points concerning the learning outcomes approach and debate, likely to be of assistance to AQUA-TNET partners in the current situation.

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**Useful background information**

We have already indicated at AQUA-TNET core group meetings and Annual Events, that the term 'competence' is capable of more than one meaning, and that this is something that is causing some confusion (European Qualifications Framework Launch, Brussels, June 2008).

Stephen Adams (see above) has commented that "some take a narrow view and associate competence just with skills acquired by training". The TUNING project uses the term to represent a "dynamic combination of knowledge, understanding, skills and abilities" (p.9, TUNING educational structures in Europe: Universities contribution to the Bologna Process, 2006). The TUNING Initiative goes on to differentiate between subject-specific competences and generic competences, making further distinctions between:

- instrumental competences (cognitive abilities, methodological abilities, technological abilities and linguistic abilities)
- Interpersonal competences (individual abilities like social skills )social interaction and cooperation)
- Systemic competences (abilities and skills concerning whole systems).

The ECTS user's Guide describes competences as "a dynamic combination of attributes, abilities and attitudes."

The EU's eight key competences (developed by expert groups from Member States in 2005) are based on knowledge, skills and attitudes, with not attempt to define by level. These are:

- Communication in mother tongue
- Learning to learn
- Mathematical competence and basic competences in science and technology
- Digital competence
- Communication in foreign languages
- Interpersonal, intercultural and social competences and civic competence
- Entrepreneurship
- Cultural expression

Already quite a welter of different definitions and usages of competences, and given there acknowledged links to learning outcomes, before setting out on the path of describing course content/curricula in terms of learning outcomes, the writer has to be very clear about what is being undertaken.

Learning outcomes are statements of what a learner is expected to know, understand and/or be able to demonstrate at the end of a period of learning. They are explicit assertions about the outcomes of learning - the results of learning. Learning outcomes are concerned with the achievements of the learner rather than the intentions of the teacher (expressed in the aims of a module or course). They can take many forms and can be broad or narrow in

nature. They are usually defined in terms of a mixture of knowledge, skills, abilities, attitudes and understanding that an individual will attain as a result of his or her successful engagement in a particular set of higher education experiences. In reality, they represent much more than this. They exemplify a particular methodological approach for the expression and description of the curriculum (modules, units and qualifications) and level, cycle and qualifications descriptors associated with the Bologna reforms.

It is however their association with the European Qualification Framework (EQF) which has brought the issue to the forefront. Improving the transparency of qualifications is a fundamental part of the effort to bring training and education in the EU into line with the needs of the knowledge-based society (main Lisbon objective). The EQF is to operate as a meta-framework, which acts as a translation device between different national qualification systems. Each national qualification system needs to link to internationally agreed reference levels, if the system is to work smoothly and transparently. The EQF reference levels have been set at eight levels, which indicate what learners with a qualification at a specific level should know and be capable of doing, irrespective of where or how this knowledge and ability were acquired. The EQF makes it possible to compare qualification in terms of learning outcomes, in place of previous comparisons of course content.

It is this last point that makes it imperative that all partners fully understand the implications, before starting out on the process. If even the acknowledged expert, Stephen Adams, utters serious caveats (see below) then it behoves the rest of us who do not share his level of expertise to take heed.

**Caveat**

"The move to learning outcomes must not be underestimated in terms of the difficulties associated with it. One difficulty is the complex relationship between learning outcomes and competences. The relationship between learning outcomes and competences is a complex and contested area; the subject of some debate and no little confusion. 'Competence' and 'competences' are often used in association with learning outcomes in a number of ways. 'Competence' can broadly refer to aptitude, proficiency, capability, skills and understanding, etc. However, some take a narrow view and equate competence just with skills acquired by training. It should be recognised that there is no common understanding or use of the term and the matter is further complicated when apparently similar terms are used in translation. Learning outcomes are commonly expressed in terms of competences or skills and competence. The loose use of all these terms in an almost interchangeable way does lead to confusion, therefore the development of a common terminological understanding should be encouraged.

A further difficulty associated with learning outcomes is that the danger of fake and superficial reforms is ever present. Progress with learning outcomes is naturally slow and difficult; their implementation cannot and should not be rushed." (S. Adam. "Learning

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Outcomes Current Developments In Europe: Update On The Issues And Applications Of Learning Outcomes Associated With The Bologna Process" given at the Bologna Seminar: Learning outcomes based higher education: the Scottish experience in February 2008, Edinburgh, Scotland)

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# Annex 1

## WRITING AND USING LEARNING OUTCOMES (DR. D. KENNEDY, 2007)
-SUMMARY-

**(by dr. Maarten Raes)**

## The Bologna agreement (1999)

Aim: to improve the efficiency and effectiveness of Higher Education (HE) in Europe. This will done within the European Higher Education Area (EHEA).

The traditional ways of describing qualifications and qualification structures need to be improved and made more transparent. By 2010, the content of all modules and programmes in 3rd level institutions of the EU should be written in terms of learning outcomes.

Some other key points of the Bologna Declaration:
**(1)** every student graduating will receive a Diploma Supplement automatically and free of charge;
**(2)** a transferable system of academic credits (European Credit Transfer System: ECTS) will be introduced;
**(3)** programmes will be comprised of two main cycles:
- First cycle, lasting a minimum of three years (min. 180 ECTS credits) (*Bachelor*)
- Second cycle, leading to the Msc degree (usually 120 ECTS credits) (*Master*)

A third cycle (*PhD*) was included later on to ensure a closer link between the EHEA and the European Research Area (ERA);
**(4)** the European dimension in the EHEA will be promoted by:
- inter-institutional cooperation
- inter-institutional mobility
- common or comparable curricula

## Contribution of learning outcomes in the Bologna agreement

**Adoption of a system of easily readable and comparable degrees.**
Learning outcomes can be used as a common language for describing qualifications.

**Promotion of mobility between institutes.**
Increased transparence will facilitate student exchange.

**Establishment of a system of credits.**
Credits can only be obtained after successful completion of the work required/appropriate assessment of the learning outcomes.
The workload of a full-time student during one academic year is set as 60 ECTS.

**Promotion of cooperation in quality assurance.**
Learning outcomes can be used as a common standard for quality assurance.

**Promotion of the European dimension in EHEA.**
A common terminology will simplify cooperation between institutes (joint degrees/integrated study).

**Increased flexibility.**

*e.g.* lifelong learning

**Increased transparence.**
Due to the application of learning outcomes, it will become very clear to the student what is expected of him/her.

## Definition of learning outcomes

Learning outcomes are a student-centered approach, which is opposite to the currently used teacher-centered approach. When applying this latter approach, it is always difficult to state precisely what the student has to be able to do. This becomes much easier when applying the student-centered approach.

The student-centered approach focuses on what a learner is expected
**(1)** to know;
**(2)** to understand;
**(3)** to be able to demonstrate
after completion of a process of learning. This approach is therefore also regarded as an *outcome-based* approach.

In contrast, the teacher-centered approach focuses mainly on course content. In short, the question should not be "What did you do/learn to obtain your degree?", but "What can you do/ demonstrate now that you have your degree?"

Definition: "*Learning outcomes are statements of what a student is expected to know, understand and/or be able to demonstrate after completion of a process of learning.*"

Learning outcomes describe evidence of education in three domains:
**(1)** the cognitive domain (*knowledge*: know, understand, demonstrate);
**(2)** the affective domain (*attitude, values*);
**(3)** the psychomotor domain (*physical skills*)

A process of learning can be:
**(1)** 1 lecture
**(2)** 1 module
**(3)** 1 course or programme

## Aims? Objectives? Learning outcomes? Competences?

Definitions:

***Aims*** are a broad, general statement of the teaching intention (its general purpose), *i.e.* the general content of a lecture/module/programme. *e.g.* "*To introduce students to climate change*"

***Objectives*** are a specific statement of the teaching intention (what teaching hopes to achieve), *i.e.* they indicate one of the specific areas the teacher intends to cover in a block of learning. *e.g.* "*Students should understand the impact of human activities on global change*"

Objectives may be written both in terms of teaching intention or expected learning. In this regard, they are ambiguous and confusing.

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***Learning outcomes*** are clear statements of what the student is expected to achieve and how he/she is expected to demonstrate this achievement.

***Competences*** are a combination of attributes in terms of knowledge and its application, skills, responsibilities and attitudes.

The term competence is not well-defined and there is no common understanding in literature about its meaning and application.

## How to write learning outcomes?

It is important to keep in mind the definition of learning outcomes when writing them: they specify the essential learning for a course/module/programme, *i.e.* the minimum acceptable standard for passing it. As a result, it is recommended to limit the number of learning outcomes per course/module/programme, and focus on the relevant and important ones. Going into too much detail is not recommended. Although the number of learning outcomes depends on the size of the course/module/programme, a number **between 4 and 10** (optimally 6-8) **per package** is generally sufficient.

Learning outcomes should be expressed **in simple, unambiguous terms**, so that they are clearly understood by everyone involved and so that they **can be easily and validly assessed**. Learning outcomes should be **observable** and **measurable**. In short, each outcome should comprise only **one sentence** with **one verb**, and should avoid unnecessary jargon.

Writing learning outcomes always implies the use of an "**Action Verb**" (*e.g. describe*) and an "**Object**" (*e.g. morphology of the human eye*). The key word her is 'to do', and learning outcomes should reflect the representation of learning, not the learning itself. So, one should **avoid vague terms** like *know*, *understand*, *be aware*, *learn*, *be familiar with*, *appreciate*... when writing learning outcomes. The *action* or *active* **verb** should preferably **start the sentence**, and should be followed immediately by the object, which is then followed by a phrase that gives the context.

The learning outcomes of a module should **relate to** the overall outcomes of the **programme**.

Always work out for yourself whether the learning outcomes are **realistic** to be achieved within the time and resources available. Ask colleagues and former students whether the learning outcomes **make any sense** to them.

Precede your list of learning outcomes with **"On successful completion of this course/module/programme, the student should be able to..."**

Learning outcomes of **programmes** are not simply the sum of the learning outcomes of all the modules in the programme. For programmes, there are **two** different **types** of learning outcomes: (1) learning outcomes that can be assessed during the programme and (2) learning outcomes that can **NOT** be assessed during the programme, but that give an indication to employers of the standard of practical performance (*aspirational learning outcomes*).

**Course mapping** (*i.e.* making an overview of learning outcomes of the different modules) can also aid in understanding the learning outcomes of a programme.

The process of writing learning outcomes has been made much easier by the work of Bloom *et al.* (1956): *Taxonomy of Educational Objectives*, in which he develops a classification of levels of thinking, from **facts** as the lowest level, to the process of **evaluation** at the highest

level. According to Bloom, *knowing* (COGNITIVE DOMAIN) is composed of 6 successive levels, with each level depending on performance at the lower ones. Below, these 6 levels are provided with a corresponding list of relevant action verbs:

**1. Knowledge**

Knowledge is the ability to recall or remember facts without necessarily understanding them.

*action verbs*: arrange, collect, define, describe, duplicate, enumerate, examine, find, identify, label, list, memorise, name, order, outline, present, quote, recall, recognise, recollect, record, recount, relate, repeat, reproduce, show, state, tabulate, tell

**2. Comprehension**

Comprehension is the ability to understand and interpret learned information.

*action verbs*: associate, change, clarify, classify, construct, contrast, convert, decode, defend, describe, differentiate, discriminate, discuss, distinguish, estimate, explain, express, extend, generalise, identify, illustrate, indicate, infer, interpret, locate, paraphrase, predict, recognise, report, restate, rewrite, review, select, solve, translate

**3. Application**

Application is the ability to use learned material in new situations (*e.g.* solving problems).

*action verbs*: apply, assess, calculate, change, choose, complete, compute, construct, demonstrate, develop, discover, dramatise, employ, examine, experiment, find, illustrate, interpret, manipulate, modify, operate, organize, practice, predict, prepare, produce, relate, schedule, select, show, sketch, solve, transfer, use

**4. Analysis**

Analysis is the ability to break down information into its components (understanding of organizational structure).

*action verbs*: analyse, appraise, arrange, break down, calculate, categorise, classify, compare, connect, contrast, criticize, debate, deduce, determine, differentiate, discriminate, distinguish, divide, examine, experiment, identify, illustrate, infer, inspect, investigate, order, outline, point out, question, relate, separate, sub-divide, test

**5. Synthesis**

Synthesis is the ability to put parts together.

*action verbs*: arrange, assemble, categorize, collect, combine, compile, compose, construct, create, design, develop, devise, establish, explain, formulate, generalise, generate, integrate, invent, make, manage, modify, organize, originate, plan, prepare, propose, rearrange, reconstruct, relate, reorganize, revise, rewrite, set up, summarise

**6. Evaluation**

Evaluation is the ability to judge the value of material for a given purpose.

*action verbs*: appraise, ascertain, argue, assess, attach, choose, compare, conclude, contrast, convince, criticize, decide, defend, discriminate, explain, evaluate, grade, interpret, judge, justify, measure, predict, rate, recommend, relate, resolve, revise, score, summarise, support, validate, value

Try to challenge the students by using learning outcomes from the **higher categories** of Bloom's taxonomy.

**Bloom *et al.* (1964)** developed an analogous classification to describe the way we deal with things *emotionally* (AFFECTIVE DOMAIN), consisting of 5 categories:

**1. Receiving**
A willingness to receive information.

**2. Responding**
Active participation of the student in his/her own learning.

**3. Valuing**
Ranges from simple acceptance of a value to one of commitment.

**4. Organisation**
*i.e.* The process that an individual goes through to bring together different values, resolve conflicts among them and start to internalize the values.

**5. Characterisation**
The individual has a value system in terms of his/her beliefs, ideas and attitudes that control their behaviour in a consistent and predictable manner.

*action verbs*: act, adhere, appreciate, ask, accept, answer, assist, attempt, challenge, combine, complete, conform, co-operate, defend, demonstrate (a belief in), differentiates, discuss, display, dispute, embrace, follow, hold, initiate, integrate, justify, listen, order, organize, participate, practice, join, share, judge, praise, question, relate, report, resolve, share, support, synthesise, value

Although *skills and coordination* (PSYCHOMOTOR DOMAIN) are much less studied in the field of education, several taxonomies have also been developed here, describing a progression from simple observation to mastery of physical skills.

**Dave (1970)** proposed:

**1. Imitation**
Observing another person's behaviour and copying it.

**2. Manipulation**
The ability to perform actions by following instructions and practicing skills.

**3. Precision**
The ability to carry out a task with few errors; become more precise without the presence of the original source. Develop smooth and accurate performance.

**4. Articulation**
The ability to coordinate a series of actions by combining two or more skills.

**5. Naturalisation**
High level of performance naturally; skills are combined, sequenced and performed consistently with ease.

*action verbs*: adapt, adjust, administer, alter, arrange, assemble, balance, bend, build, calibrate, choreograph, combine, construct, copy, design, deliver, detect, demonstrate, differentiate (by touch), dismantle, display, dissect, drive, estimate, examine, execute, fix,

grasp, grind, handle, heat, manipulate, identify, measure, mend, mime, mimic, mix, operate, organize, perform (skillfully), present, record, refine, sketch, react, use

**Simpson (1972)** developed a more detailed hierarchy:

**1. Perception**
The ability to use observed cues to guide physical activity.

**2. Set (mindset)**
The readiness to take a particular course of action.

**3. Guided response**
Trial-and-error attempts to acquire a physical skill, leading to an increasingly better performance.

**4. Mechanism**
Learned skills become more habitual; movements can be performed with some confidence.

**5. Complex overt responses**
Physical activities involving complex movement patterns are possible.

**6. Adaptation**
Skills are well-developed; the individual can modify movements to deal with problem situations.

**7. Origination**
Creativity for special situations is possible.

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## Learning outcomes, teaching and assessment...

The golden rule is: all learning outcomes should always be assessable. There are two types of assessment techniques:

**(1)** direct assessment: *e.g.* written examinations, project work, theses...
**(2)** indirect assessment: *e.g.* surveys of employers, comparison with peer institutions...

A teacher should seek to reach an alignment between teaching methods, assessment techniques, assessment criteria and learning outcomes, making learning outcomes more transparent and expectations more clear for the students. There should also be a dynamic equilibrium between teaching strategies (from teacher to student) and learning outcomes and assessment (feedback from student to teacher):

"*Teaching activities (teacher) and learning activities (student) should be direct towards a common goal.*" This can only be achieved when the curriculum is reflected in the assessment...

"*In preparing for the assessment, the student will learn the curriculum.*" For the student assessment is the curriculum. Assessment is also the driving force for learning.

So, a successful interaction between teaching, assessment and learning should look like this:

**Identify aims and objectives**
**→ write learning outcomes**
**→ develop a teaching/learning strategy so that the student can achieve the learning outcomes**
**→ Design an assessment method to test achievement of the learning outcomes**
**→ If necessary, modify content**

Assessment at the beginning of, or during, the programme, with the aim to inform both the teacher and the student about the student's progress, is called *formative assessment*. It gives feedback to both the teacher and the student, enabling the teacher to make decisions about the direction of the teaching and indicating to the student how to improve his/her learning and performance. *Formative assessment* is part f the teaching process rather than the grading process.

*Summative assessment* is assessment that tries to summarise student learning, usually at the end of the programme. This is the assessment which produces a measure for achievement: a grade or score.

An important aim is to reach *constructive alignment*, *i.e.* if there is alignment between what we want (learning outcomes), how we teach (curriculum) and how we assess (assessment), education will be most effective.

*Grading criteria* can be used to assess student performance above the basic threshold set by the learning outcomes. They are statements that indicate what a student should demonstrate to achieve higher grades.

Using a *scoring guide*, or *rubric*, one can identify areas for improvement with each student. *Rubrics* are grading tools used to describe the criteria used in grading the performance of students.

## The future of learning outcomes

It is clear from the above that outcome-based education, *i.e.* education that works with learning outcomes, has many advantages in comparison with the traditional teacher centered approach. Below, these advantages will be summarized again.

1. clear and well-written learning outcomes help students with their choice of a module or programme, and in this regard they improve effective learning;
2. students know better what is expected of them;
3. it enables students to focus more on what is important in the course;
4. students have a better idea of their progress;
5. feedback allows teachers to adjust their curriculum so that the learning outcomes can be achieved (reconceptualise from the student's point of view);
6. clearly defined learning outcomes + feedback allow teachers to select an appropriate teaching and assessment strategy;
7. in general, well-defined learning outcomes help both teachers and students to focus on the essential, *i.e.* what a student is expected to know, understand and/or be able to demonstrate after completion of a process of learning (*cf.* definition);
8. learning outcomes help to ensure consistency across modules and programmes;
9. on a larger scale, consistency and transparency will enable better communication, cooperation, mobility and credit transfer between institutes;
10. transparency will also enable better quality control;
11. clear learning outcomes provide clear information to employers

In conclusion, it is important to mention that learning outcomes can only lead to confusion or a lack of intellectual challenge to students when they are too confined.

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