Learning outcomes to build bridges in a transparent higher education structure

International seminar on learning outcomes (lo)
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Impact of the Bologna process on use of LO

The conclusions of the Berlin conference (September 2003) of the ministers in charge of higher education included:

> ***Degree structure***: *'Ministers encourage the member states to elaborate a framework of comparable and compatible qualifications for their higher education systems, which should seek to describe qualifications in terms of* ***workload, level, learning outcomes, competences and profile.***
>
> *They also undertake to elaborate an overarching framework of qualifications for the European Higher Education Area.*
>
> *Ministers invite the Follow-up Group to explore whether and how shorter higher education may be linked to the first cycle of a qualifications framework for the European Higher Education Area'*

Why qualification frameworks and LO's

- Because of Erasmus mobility in general and the Bologna process in particular need for more transparency in European education qualifications not only in terms of titles held but also in terms of what students were able to do;
- A first attempt to facilitate student exchanges was implemented by using ECTS with the stress on workload;
- At the same time there was a shift from teacher centred and input approach to student centred and output-based approach;
- The Tuning project did ground-breaking work to enhance transparency in European HE by defining commonly accepted professional and **learning outcomes** in five main areas (Mathematics, Geology, Business, History and Educational Sciences). It opened up a debate on the nature and importance of subject-specific and general **competences,** involving all stakeholders, including academics, graduates and employers;

Concepts used: learning outcomes

- A learning outcome is a written statement of what the successful student/learner is expected to be able to do at the end of the module/course unit or qualification. (Adam, 2004)
- Learning outcomes describe what students are able to demonstrate in terms of knowledge, skills and attitudes upon completion of a programme. (Quality Enhancement Committee, Texas University)
- **Learning outcomes** are statements of what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills and competence(OJ EU, 2008).
- **Competence** means the proven ability to use knowledge, skills and personal, social and/or methodological abilities *[attitudes]*, in work or study situations and in professional and personal development.

  In the context of the European Qualifications Framework, competence is described in terms of responsibility and autonomy(OJ EU, 2008).

Concepts used - learning objectives - LO

- **Learning objectives** are concerned with **teaching** and the **teacher's intentions** expressed in the aims of a module or course.

	Objective	Outcome
Programme level Example from ITC, PolyU	To stimulate the enquiring, analytical and creative ability of students, so that they can be sensitive to economic, technological, and political changes in the global environment, catch opportunities and develop the business.	Students will demonstrate sensitivity and an ability to analyse and enquire into the economic, technological, and political changes in the global environment to identify opportunities and creatively develop the business.
Subject level Example from CSE, PolyU	To establish an understanding of the fundamental principles of fluid mechanics and to introduce their applications in situations that are of concern and relevance to a practising civil engineer.	Students will be able to apply the fundamental principles of fluid mechanics to situations that are of concern and relevance to a practising civil engineer.

Source: http://www.polyu.edu.hk/obe/GuideOBE/DefiningIntendedLearningOutcomes.pdf

Concepts used

- **Generic competences/LO**
- Both the Tuning project and the shared qualification descriptors (Dublin descriptors) that were developed within the Joint Quality Initiative (JQI), include generic competences (skills and knowledge) and include attributes like the capacity to learn, the capacity for analysis and syntheses etc (ENQA, 2008).
  - Can be found in EQF for LLL and QF-EHEA
    Each cycle descriptor offers a generic statement of typical expectations of achievements and abilities associated with the qualifications that represent the end of that cycle
  - Can include transversal professional competences/LO
    - Can differ according to level and country, partly included in level descriptors for EQF and QF-EHEA
    - Communication, Problem solving, Working with others, Leadership,
- **Subject specific competences/LO**

  Should be developed for each of the modules/subjects

Concepts used: Conclusion

- The loose use of all these terms in an almost interchangeable way does lead to confusion and the development of a common terminological understanding should be encouraged(12).
  - Therefore limit ourselves to definition of LO in Glossary to the EQF
- Learning outcomes should not be straightjackets;
  - Therefore not too detailed
- At the international level, learning outcomes represent a way to communicate external reference points. They will by definition be much broader and less precise than any national descriptors.(13)

12. Adam, 2004

13. ENQA, 2008

Characteristics of good LO

- **What are the characteristics of good learning outcomes?**
- Learning outcomes have three distinguishing characteristics.
  - The specified action by the learners must be observable.
  - The specified action by the learners must be measurable.
  - The specified action must be done by the learners.
- Learning outcomes can be found at the level of a programme, a subject or a unit.
- Ideally they are defined in collaboration with the labour market.

Learning outcomes: Benefits

- **Learning outcomes can:**
  - Help to guide learners in their learning in that they explain what is expected of them, in turn helping them to succeed in their studies.
  - Help staff to focus on exactly what they want students to achieve in terms of both knowledge, skills, attitudes and competences
  - Help staff to define what the assessment criteria will be and differentiate between different grades .
  - Provide a useful guide to inform potential candidates and employers about the general knowledge and understanding that a graduate will possess.

How to write Learning outcomes?

- A learning outcome is written so that it can be measured or assessed. The specified action by the learners must be observable, measurable and done by the learners. Thus, learning outcomes are the basis for an assessment program that focuses on what student can do either upon successful completion of a course or upon graduation from a program.
- A good learning outcome will have the following characteristics: It will have **a verb that identifies what action the student should be able to perform**. It will also denote the conditions under which the student should demonstrate mastery.
- A good starting point for writing learning outcomes is Bloom's taxonomy

Learning outcomes

- **Table 1—Bloom's taxonomy (Bloom 1956)**
- **Keywords**

I. Knowledge: remembering information	Define, identify, label, state, list, match
II. Comprehension: explaining the meaning of estimate	Describe, paraphrase, summarize, information
III. Application: using abstracts in concrete	Determine, chart, implement, situations prepare, solve, use, develop
IV. Analysis: breaking down a whole into parts	Point out, differentiate, distinguish, component discriminate, compare
V. Synthesis: putting parts together to form integrated whole	Create, design, plan, organize, a new and generate, write
VI. Evaluation: making judgments about the materials or phenomena	Appraise, critique, judge, weigh, merits of ideas, evaluate, select

Different teaching/learning strategies for different LO

Learning Outcomes		Teaching Strategy	Learner Activity
Knowledge ↕	Transmit / Inform	Lecture Reading Tutorial Researching	Reproduce learning Linking to theory Clarify and expand Self-directed learning
	Engage	Discussion Question and Answer Peer Teaching/Learning Web-based Teaching	Interpreting knowledge Clarify knowledge providing multiple perspectives; self insight exploring learning; Providing multiple perspectives;
Skills ↕	Practice	Seminar Class Presentation Field Trip	Clarify knowledge Presentation skills Experiential
	Application	Laboratory Demonstration Games Problem solving Case Study Group work	Apply theory to practice Deepen understanding Exploring learning Transform knowledge Appraising; synthesing Transform knowledge

Source: Higgs and McCarthy (2005)

Different assessment strategies

Learning Outcomes		Teaching Strategy	Learner Activity	Assessing for Learning
Knowledge ↕ Skills	Transmit / Inform	Lecture Reading Tutorial Researching	Reproduce learning Linking to theory Clarify and expand Self-directed learning	Essay exam; Open Book exam Reflective Journal Assignment
	Engage	Discussion Question and Answer Peer Teaching/Learning Web-based Teaching	Interpreting knowledge Clarify knowledge providing multiple perspectives; self insight exploring learning; Providing multiple perspectives;	Interview; Presentation; Viva Quiz Self and peer assessment; Portfolio; Project Computer Assisted Assessment
	Practice	Seminar Class Presentation Field Trip	Clarify knowledge Presentation skills Experiential	Presentation; Project Presentation Project
	Application	Laboratory Demonstration Games Problem solving Case Study Group work	Apply theory to practice Deepen understanding Exploring learning Transform knowledge Appraising; synthesing Transform knowledge	Practical Assessment; Lab Reports Practical Assessment Set problems in Exam Case Study Assessment Group Project

Source: Donally and Fitzmaurice (2005)

The Flemish experience: using LO to asses programmes in HE

- Accreditation is a three-step approach: self-evaluation, assessment and accreditation;
- Assessment and accreditation take place at the level of programmes;
- Involves all stakeholders (management, lecturers, students, social services and employers);
- Is carried out by peers and by experts from the relevant field of study/profession;
- The basis for the assessment are the level descriptors of the HE Act (based on Dublin descriptors) and a domain specific qualification framework .
- This DSQF is compared to the LO at programme, subject and unit level.

The Flemish experience: using LO to assess programmes in HE

- Subject specific LO at programme level (Bachelor in IT)
  - Upon completion of the programme the student must be able to
    - Analyse thorougly the needs of the client, propose an IT system that meets these needs and describe them in detail in a preliminary study
    - Analyse and develop a software-system that can be implemented immediately
    - Design a qualitative blueprint for a computer network, servers and back-up system starting from a well defined assignment
    - Completely implement a software system with a team, starting from a blueprint and test the software application taking into account efficiency, coding standards and quality
    - To implement a computer infrastructure consisting of networks, computer systems and services.
    - To maintain the existing software and adapt it to the needs of the client
    - To communicate on IT problems orally and in writing in foreign languages (French, English) accurately, clearly and understandably as well with specialists as with laymen and offer and explain solutions.

Using LO to make students progress in a transparent HE system

- What is the profile of the programme the student has successfully achieved? Academic or more professional?
- At what level of NQF or QF-EHEA is the programme?
- What are the generic/ subject specific LO that students have acquired?
- What are the LO that students need to progress successfully on the ladder of HE (pre-requisites)?
- Can the student progress immediately or does he/she need a bridging programme?

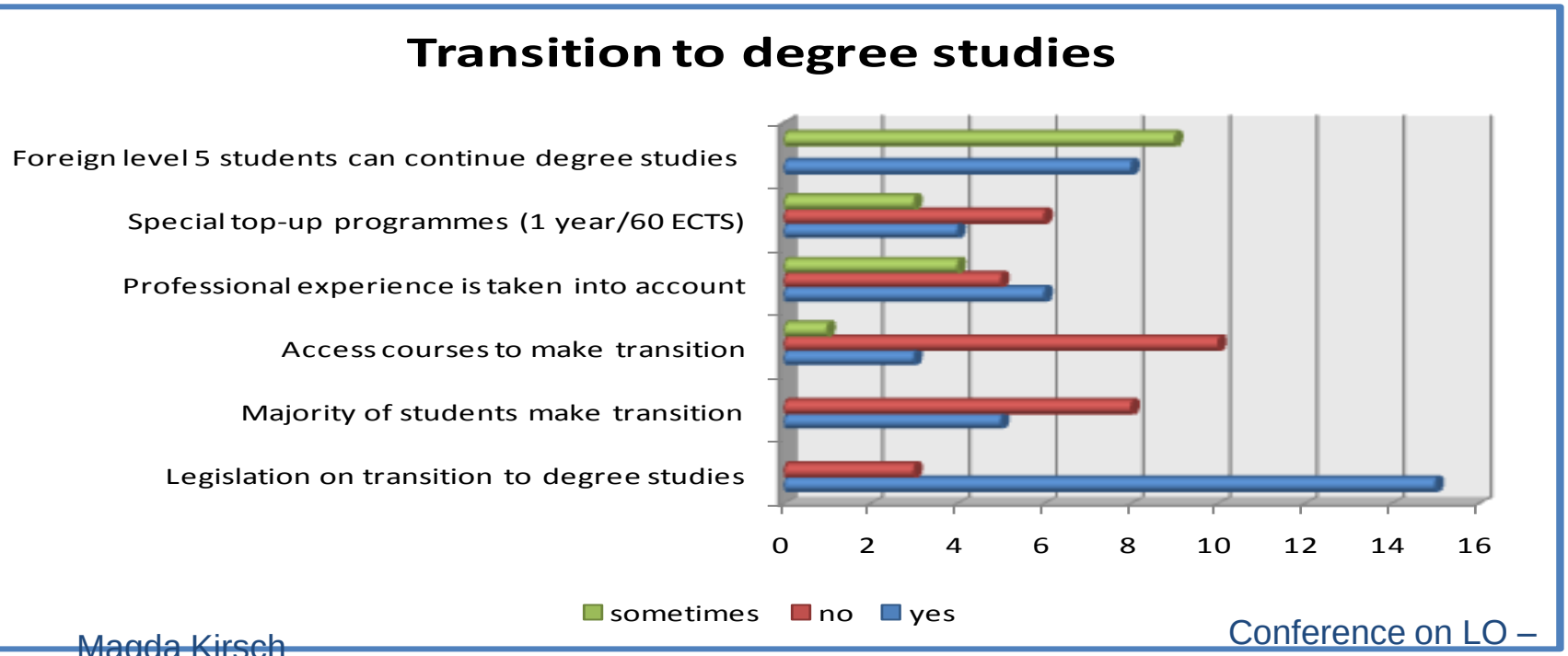
Example: Progression from SCHE to bachelor studies

Bridging course not compulsory: LV, MT, UK (EWNI + SC)

Bridging course compulsory: Benl, IE

Exam: TR

In some countries 120 ECTS can be transferred: CY, FR, IE, NL, NO, UK



Example: Progression from SCHE to bachelor studies

- Why these differences?
  - In some countries SCHE/ L5 is totally integrated within the first cycle – same programme (e.g. Norway, Iceland)
  - In other countries there are clear educational pathways and articulation of programmes from SCHE to bachelor level (UK, France)
  - In a number of countries SCHE is provided in different institutions (BE nl, Befr, SI etc.) with a difference in focus;
    - In those countries a comparison of the LO at the end of the programme at level 5/ SCHE and the LO required to progress to a 3rd/ 2nd year level 6/ 1st cycle is necessary.
  - Also the workload might differ.

Example: Progression from SCHE to bachelor studies – bridging modules in BEnl

- All students must attend a bridging module
  - Before starting the bridging module L5 students must have certain prerequisite competences (the minimum knowledge, skills and attitudes students must have to start the module) ;
  - Competences/ LO of students who have successfully finished level 5 studies are listed and compared with the final LO at level 6;
  - Gaps are defined and roadmaps are made to define the LO that must still be achieved to obtain a qualification at level 6;
- Problems that are encountered
  - The LO are clustered in different modules/units;
  - The starting competences of students at level 5 and level 6 are different;
  - Until now no clear common learning pathways and no clear articulation of programmes at level 5 and 6;

Example: Progression from SCHE to bachelor studies – bridging modules in BEnl

- Therefore in the future collaboration agreements must be signed between university colleges and centres providing L5 education;
- The listing and comparison of the LO at L5 and L6 also had a secondary effect:
  - Students can progress from level 5 to level 6
  - The dropout of students at level 6 can be reduced because students can be reoriented towards level 5;
- The same procedure is used for students who want to progress from a Professionally oriented bachelor programme towards an academic Master's programme.

Tools to assess and compare programmes

- Tuning project:
  - With the close of Tuning Phase IV, specific brochures have been produced for each of the subject areas covered by the Tuning Project.
  - These brochures concentrate on the first two cycles of the Bologna three–cycle system.
  - http://www.unideusto.org/tuningeu/publications.html
- Per subject area the groups developed a taxonomy for structuring course programmes according to learning outcomes. The bases on which a learner can perform in the labour market ("Can do statements") are subject–specific and subject–independent (generic) competences

Success factors for using LO to create bridges in HO

- **Structured** collaboration between different institutions providing HE (universities, university colleges, other institutions);
- Paying attention to the **articulation of programmes** at different levels of HE;
- Collaboration between different institutions and **departments** when drafting **subject specific LO** clearly defining which LO are expected at what level;
- Collaboration with industry, representatives of the labour market.

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Thank you for your attention !

Any questions?