

Learning Outcomes and Competences – How are they related?



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“The relationship between learning outcomes and competences is a complex area – the subject of some debate and no little confusion”.
(Adam, 2004)

Some Introductory Points

- There is considerable confusion in the literature with regard to the meaning of the term *competence* and the relationship between competences and learning outcomes.
- Competence is also written as competency (Plural: competences, competencies).

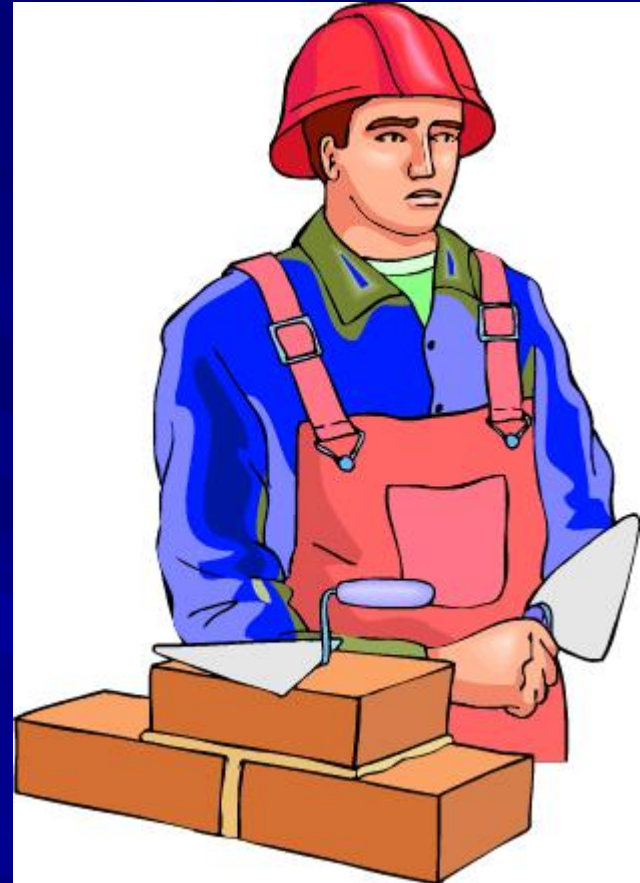
Competence - what does this term mean?

- It is difficult to find a precise definition for the term competence. The situation is summarised by Winterton et al (2005) as follows:
“There is such confusion and debate concerning the concept of ‘competence’ that it is impossible to identify or impute a coherent theory or to arrive at a definition capable of accommodating and reconciling all the different ways that the term is used.

(Winterton et al., 2005)

Competence in terms of Skill

- “Some take a narrow view and associate competence just with skills acquired by training”
- Adam (2004)
- “Competence probably replaces, albeit at a more sophisticated level, the concept of skills. That doesn’t necessarily make it easier to understand what competencies are, let alone how they are to be recognised” - Brown and Knight (1995).



Competence – Skills and Knowledge

“Standards development should be based on the notion of competence which is defined as the ability to perform the activities within an occupation. Competence is a wide concept which embodies the ability to transfer skills and knowledge to new situations within the occupational area. It encompasses organisation and planning of work, innovation and coping with non-routine activities. It includes those qualities of personal effectiveness that are required in the workplace to deal with co-workers, managers and customers.”

Training Agency UK (1989)

Competence – a broad definition

Competence is “a dynamic combination of attributes, abilities and attitudes. Fostering these competences is the object of educational programmes. Competences are formed in various course units and assessed at different stages. They may be divided into subject-area related competences (specific to a field of study) and generic competences (common to any degree course)”.

The ECTS Users' Guide (2005)

- “A competency is more than just knowledge and skills. It involves the ability to meet complex demands, by drawing on and mobilising psychosocial resources (including skills and attitudes) in a particular context.”
- “For example, the ability to communicate effectively is a competency that may draw on an individual’s knowledge of language, practical IT skills and attitudes towards those with whom he or she is communicating.” (OECD)

Competences in Nursing

(Miller et al)

Miller et al discuss two types of competences:

- Narrow view and equate competence with performance, i.e. the ability to perform nursing tasks.
- Broader view of competence in terms the ability of the nurse to integrate cognitive, affective and psychomotor skills when delivering nursing care.



- The various definitions of competence are not very specific but just give some sort of indication of what is meant by a competent person (Neary, 2002)

“It would be pointless to suggest that there is a single definition. Competence includes a broad range of knowledge, attitudes and observable patterns of behaviour which together account for the ability to deliver a specified professional service. The competent individual can correctly perform numerous (but not necessarily all) tasks, many of which require knowledge, theories, principles of social sciences or comprehension of the social and cultural factors that influence the climate. Competence in this sense also involves adoption of a professional role that values human life.”

(Neary, 2002)

What are Generic Competences?

- Generic competencies are transferable multifunctional knowledge, skills and attitudes that people could learn and develop in different ways and learning environments and apply across a variety of job and life contexts (Fung et al)



European Focus on Competences

- Tuning Project
- DeSeCo Project (Definition and Selection of Competencies)
- General suggestion that on finishing their studies, students should have acquired a series of general competences common to all courses.
- DeSeCo Project – “How are key competencies defined by policymakers in different national contexts? Concluded that “there is no single concept and recommended a pragmatic approach in which competencies should be conceptualised as the necessary prerequisites for meeting complex demands”

Examples of Generic Competences

SAARD (Self-Assessment of All-Round Development Questionnaire
Research project identified 14 generic competencies:

- Communication
- Creative thinking
- Critical thinking
- Cultural Appreciation
- Emotional Intelligence and Psychological wellness.
- Entrepreneurship
- Global outlook
- Healthy lifestyle
- Interpersonal Effectiveness
- Leadership
- Life-Long Learning
- Problem Solving
- Social and National Responsibility
- Teamwork

Tuning Project

- *Tuning Educational Structures in Europe* was initiated in 2000. In this project, the term competence is defined as follows:

“Competences represent a dynamic combination of knowledge, understanding, skills and abilities. Fostering competences is the object of educational programmes. Competences are formed in various course units and assessed at different stages”.



The Tuning Project made a distinction between generic and subject specific competences.

Describes three types of generic competences:

- Instrumental competences: cognitive abilities, methodological abilities, technological abilities and linguistic abilities.
- Interpersonal competences: individual abilities like social skills (social interaction and co-operation).
- Systemic competences: abilities and skills concerning whole systems (combination of understanding, sensibility and knowledge; prior acquisition of instrumental and interpersonal competences required)

Generic Competences (Tuning)

- 1 Capacity for analysis and synthesis
- 2 Capacity for applying knowledge in practice
- 3 Planning and time management
- 4 Basic general knowledge in the field of study
- 5 Grounding in basic knowledge of the profession in practice
- 6 Oral and written communication in your native language
- 7 Knowledge of a second language
- 8 Elementary computing skills
- 9 Research skills
- 10 Capacity to learn
- 11 Information management skills (ability to retrieve and analyse information from different sources)
- 12 Critical and self-critical abilities
- 13 Capacity to adapt to new situations

- 14 Capacity for generating new ideas (creativity)
- 15 Problem solving
- 16 Decision-making
- 17 Teamwork
- 18 Interpersonal skills
- 19 Leadership
- 20 Ability to work in an interdisciplinary team
- 21 Ability to communicate with non-experts (in the field)
- 22 Appreciation of diversity and multiculturalism
- 23 Ability to work in an international context
- 24 Understanding of cultures and customs of other countries
- 25 Ability to work autonomously
- 26 Project design and management
- 27 Initiative and entrepreneurial spirit
- 28 Ethical commitment
- 29 Concern for quality
- 30 Will to succeed

Questionnaire for academics issued by Tuning Project

Rank in order of importance the 17 generic competences

1. Ability to work in an interdisciplinary team.
2. Appreciation of diversity and multiculturalism.
3. Basic knowledge of the field of study.
4. Basic knowledge of the field of the profession.
5. Capacity for analysis and synthesis.
6. Capacity for applying knowledge in practice.
7. Capacity for generating new ideas (creativity).
8. Capacity to adapt to new situations.

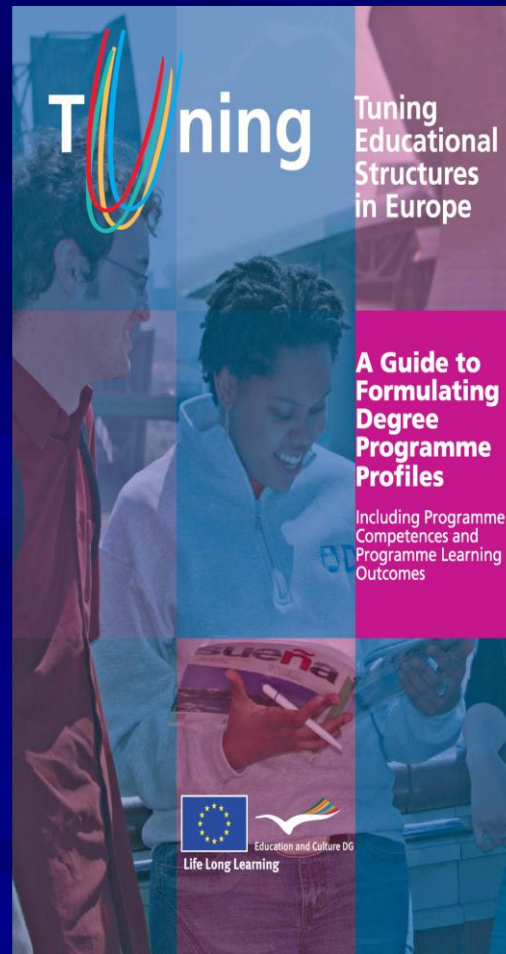
Tuning competences (continued)

9. Capacity to learn.
10. Critical and self-critical abilities
11. Decision making.
12. Elementary computing skills (word processing, database, other utilities).
13. Ethical commitment.
14. Interpersonal skills.
15. Knowledge of a second language.
16. Oral and written communication in your native language.
17. Research skills.

From the list of competences in Tuning Project:

- Many of these competences are of very general nature that it is difficult to understand what is meant by them.
- Without this clarity, assessment of these competences would be extremely difficult if not impossible.
- There does not appear to be any rules or guidelines for the writing of competences – some of the Tuning competences are written in terms of “ability”, some in terms of “capacity”, others are written in terms of skills and commitment whilst others are written in terms of knowledge.
- Are Generic Competences = Transferable Skills?

Beware of this Tuning Publication



What is wrong with this Tuning Publication?

The authors of this publication:

- Have invented their own incorrect definition of learning outcomes and give incorrect information on how to write Learning Outcomes
- Use a definition of Competences which is in conflict with the definition of Competence used in the European Qualifications Framework.
- Are confused about the relationship between Competence and Learning Outcomes and Incorrectly links learning outcomes to competences
- Confuses the concept of learning outcomes with the assessment of learning outcomes. The authors do not appear to realise that the extent to which a learning is achieved is measured by the assessment of the learning outcome.
- Incorrectly link learning outcomes to particular levels in degree programmes.
- Many of the exemplars given of Learning Outcomes are incorrectly written.
- Give misleading statements implying that in order to be compliant with Bologna you must be compliant with Tuning. The authors fail to point out that the Bologna Process does not require any compliance with Tuning project.
- Fail to point out the problem with Competences and Quality Assurance Systems.
- A dreadful publication!

Learning Outcomes, Degree Profiles, Tuning Project and Competences

Including a review of “Tuning Educational Structures in Europe. A Guide to Formulating Degree Programme Profiles – Including Programme Competences and Programme Learning Outcomes” Published by the Competences in Education and Recognition Project 2 (CoRe2)

Andy Gibbs
Declan Kennedy
Anthony Vickers



This paper outlines the background to the role of Learning Outcomes in the Bologna Process and discusses module learning outcomes, programme learning outcomes and programme specifications used to describe the intended learning outcomes of Higher Education programmes. The concept of constructive alignment is also discussed and exemplar material is provided to assist colleagues in higher education to implement constructive alignment in their programmes. A review is then undertaken of the above Tuning publication and serious concern is expressed regarding its content. The authors conclude that the confusion generated by this publication could seriously damage the considerable progress made in implementing the Bologna Process in many countries. The authors emphasise the fact that the Bologna Process can be fully implemented without reference to the Tuning Project.

Gibbs, A, Kennedy D and Vickers A (2012) Learning Outcomes, Degree Profiles, Tuning Project and Competences. *Journal of the European Higher Education Area* 15 (5) 71 – 87

Framework for Competence (Jarvis, 1985)

Three main components:

- **Knowledge and understanding** of relevant academic disciplines, psychomotor elements, interpersonal skills, moral values.
- **Skills** to perform the psychomotor techniques, interact with members of the role.
- **Attitudes** that result in a knowledge and commitment to professionalism, a willingness to play the role in a professional manner.

Competence Framework

- “Practitioners and teachers argue that competence is more than knowledge and skills. Values, critical thinking, professional judgement, formulation of attitudes, the integration of theory from the humanities and the sciences are also competencies.”

(Neary, 2002)



Competences of teachers

(Dept Education England, 1992)

Subject Knowledge

Newly qualified teachers should be able to demonstrate:

- An understanding of the knowledge, concepts and skills of their specialist subjects and of the place of these subjects in the school curriculum.
- Knowledge and understanding of the National Curriculum and attainment targets and the programmes of study in the subjects they are preparing to teach, together with an understanding of the framework of the statutory requirements.
- A breadth and depth of subject knowledge beyond programmes of study and examination syllabuses in school.

Subject Application

Newly qualified teachers should be able to:

- Produce coherent lesson plans which take account of National Curriculum and attainment targets and of the school's curriculum policies.
- Ensure continuity and progression within and between classes and in subjects.
- Set appropriately demanding expectations for pupils.
- Employ a range of teaching strategies appropriate to the age, ability and attainment levels of pupils.
- Present subject content in clear language and in a stimulating manner.
- Contribute to the development of pupils' language and communications skills.
- Demonstrate ability to select and use appropriate resources, including Information Technology.

Class Management

Newly qualified teachers should be able to:

- Decide when teaching the whole class groups, pairs or individuals what is appropriate for particular learning purposes.
- Create and maintain a purposeful and orderly environment for the pupils.
- Devise and use appropriate rewards and sanctions to maintain an effective learning environment.
- Maintain pupils' interest and motivation.



- Some of the competences listed above are statements of a general nature, e.g. “demonstrate understanding of the knowledge, concepts and skills.
- Other competences are learning outcomes e.g. “produce lesson plans”, “present subject content..”, “create and maintain..”
- Thus, competences with a narrow focus can be written as learning outcomes.

Competence and Competency

- Some authors (Boam and Sparrow, 1992; Hendry, Arthur and Jones 1995; Mitrani, Dalziel and Fitt, 1992; Smith, 1993) use the term competency (plural competencies) when referring to occupational competences.
- However, other authors treat the terms competence and competency as being synonymous (Brown, 1993, 1994; McBeath, 1990).
- Hartle (1995) describes competency as a characteristic of an individual that has been shown to drive superior job performance and refers to visible competencies of knowledge and skills as well as underlying elements of competencies such as characteristics and motives.
- Elkin (1990) associates competences with micro-level job performance and competencies with higher management attributes.

- Cockerill (1989) describes output competences such as effective presentation skills, with input competencies such as self-confidence (Winterton et al., 2005).
- Burgoyne (1988) distinguishes “being competent” (meeting the demands of the job) from “having competencies” (possessing the necessary attributes to perform competently).
- Woodruffe attempts to distinguish between competence and competency by describing competence as aspects of the job which an individual can perform with competency referring to a person’s behaviour that underpins competent performance.
- Tate (1995) agrees with Woodruffe’s definition and warns against confusing “input competencies with output competences”.

- Burgoyne (1988) distinguishes “being competent” (meeting the demands of the job) from “having competencies” (possessing the necessary attributes to perform competently).
- Woodruffe (1991) describes competency as “an umbrella term to cover almost anything that might directly or indirectly affect job performance”. He attempts to distinguish between competence and competency by describing competence as aspects of the job which an individual can perform with competency referring to a person’s behaviour that underpins competent performance



A Venn diagram consisting of three overlapping circles. The top-left circle is labeled 'SKILLS', the top-right circle is labeled 'KNOWLEDGE', and the bottom circle is labeled 'ATTITUDE'. The central area where all three circles overlap is labeled 'Competent' in a larger, bold font. The circles are filled with a blue grid pattern.

SKILLS

KNOWLEDGE

Competent

ATTITUDE

Psychomotor

Cognitive

SKILLS

KNOWLEDGE

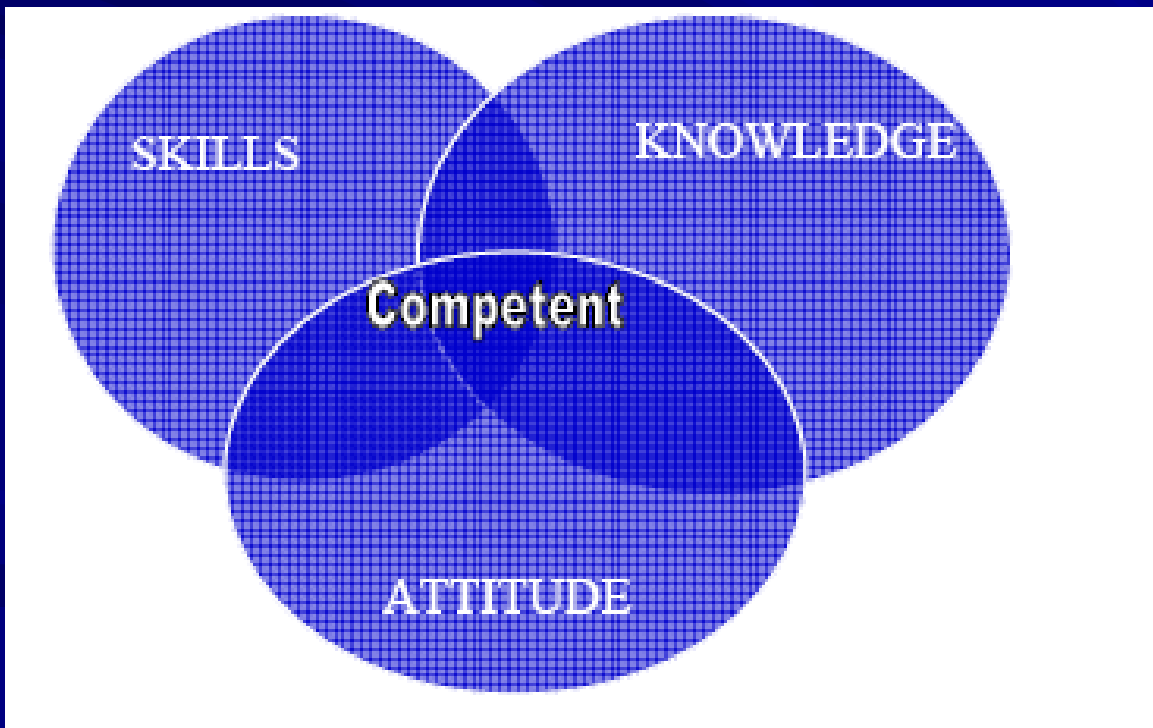
Competent

ATTITUDE

Affective

Assessment of Generic Competences

- “Some competences are poorly defined so that an analysis of them is somewhat difficult....This lack of precision makes analysis and critical evaluation difficult” (Boni and Lozano, 2007)



Relating competences, objectives and learning outcomes

- The relationship between competences, objectives and learning outcomes is discussed by Hartel and Foegeding (2004) in area of Food Engineering.
- In this paper they define competence as “a general statement detailing the desired knowledge and skills of students graduating from our course or program”.



Competence:

- The student should be able to use the mass and energy balances for a given food process.

Objectives:

- Understand scope of mass balances in food processing systems.
- Understand appropriate use of mole fractions and mass fractions in mass balances

Learning outcomes:

- Describe the general principles of mass balances in steady state systems.
- Draw and use process flow diagrams with labels on flow streams for mass balance problems.
- Solve mass balance problems associated with food processing operations.
- Design and solve mass balances for complex process flow systems, including batch mixing problems, multiple stage flow problems, problems with multiple inflows and outflows, recycle streams and multiple components, and processes where chemical reactions take place.

Hartel and Foegeding (2004)

- The learning outcomes written by Hartel and Foegeding specify precisely what it is expected that the students will be able to do in order to demonstrate that they have acquired this particular competence.



Competence within a specific profession

- “Chambers has provided a useful definition of competence: The behaviour expected of beginning independent practitioners. This behaviour incorporates understanding, skills, and values in an integrated response to the full range of circumstances encountered in general professional practice. This level of performance requires some degree of speed and accuracy consistent with patient well being but not performance at the highest level possible. It also requires an awareness of what constitutes acceptable performance under the circumstances and desire for self-improvement”.

(Oliver et al., 2008)

- Oliver et al. (2008) do not appear to distinguish between the terms **competence** and **competency** as the definition of competence that they quote is from a paper discussing competency.
- Oliver et al (2008) describe competences as broad statements that outline the knowledge, skills and attitudes of the new graduate.
- They also state that competences may be considered similar to aims and may be supported by learning outcomes.
- They point out that assessment of competence does not just relate to skill but also requires appropriate knowledge and attitudes, including self awareness, i.e. an ability to recognise personal strengths and weaknesses.

They describe the link between competences and learning outcomes as follows:

“Learning outcomes support the competences, are at a greater level of detail and form the basis of both learning and assessment. Properly constructed, competences and learning outcomes are precisely formulated to indicate what the students should know about, what the students should understand, and what the students should be able to do and how well, using language and context that indicates the level at which they will be assessed.”

(Oliver et al., 2008)



Competency in Dentistry

Chambers describes competencies in terms of what dentists do on a regular basis to meet patients' needs. He discusses competencies in terms of psychomotor skill performance and understanding of what is being done and supported by professional values:

Dentistry has tended to solve this problem by emphasising the mechanical and the detailed while avoiding those things that are difficult to measure... Competencies is a comfortable term that finds its way into conversation when a general word is needed referring to good dentistry. I have never met anyone who is against competent dentists. But it is also difficult to be precise about what exactly that means.

(Chambers 1994)

Competence – a “fuzzy” concept (Van der Klink and Boon)

- Van der Klink and Boon (2002) describe competence as a “fuzzy concept”
- On the positive side they state it is a “useful term, bridging the gap between education and job requirements”.

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Competencies: the triumph of a fuzzy concept

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Abstract: This article investigates the current popularity of the concept of competencies. After a brief exploration of perspectives on the concept of competencies, a study will be presented that was conducted in order to gain more insight into the backgrounds of the current status of this concept and to investigate competency-based practices. The study investigated the applications in enterprises and higher education. The last section summarises the main findings and raises some issues that need further elaboration.

Van der Klink and Boon (2002) attempt to trace the different interpretations of the concept of competence within the educational systems of various countries:

There is considerable confusion about what competency actually means... First, differences can be observed between nations along the lines of different national educational policies and different types of relations between education and the labour market, many of which have an historic origin. In the British approach it refers to the ability to meet the performance standards for functions and professions such as those developed for National Vocational Qualifications (NVQs) in the UK. In the USA, competencies refer to the skills, knowledge and characteristics of persons, that is traits, motives and self-concept, which contribute to performance excellence. More than in the UK or the USA, the German perspective stresses a holistic view of competency. It is not just a random collection of skills and knowledge. Competencies are defined as integrated action programmes that enable individuals to perform adequately in various job contexts within a specific profession

(Van der Klink and Boon, 2002)

Learning Outcomes and Competences



Declan Kennedy / Áine Hyland / Norma Ryan

Abstract

There is wide variation in the literature regarding the interpretation of the meaning of the term competence. This interpretation ranges from a description of competence in terms of performance and skills acquired by training to a broad overarching view that encompasses knowledge, understanding, skills, abilities and attitudes. Due to the lack of clarity of the concept of competence, assessment of competences can be very difficult. Some authors warn against associating competence exclusively with skills, others distinguish between the terms competence and competency whilst others treat these terms as being synonymous. The essential problem appears to be that these terms are liberally used as general terms to refer to various aspects of job performance without any attempt being made to give precise definitions of the terms. While various efforts have been made to arrive at a single definition of the term competence, no agreement has been reached and there is still wide variation of meaning between various cultures and between different professions. This is in contrast to the clear definition of the concept of learning outcomes found in the literature. It is recommended that if the term competence is being used, the definition of competence being used in the particular context should be stated and also that competences should be written using the vocabulary of learning outcomes.

THE EUROPEAN QUALIFICATIONS FRAMEWORK FOR LIFELONG LEARNING

DESCRIPTORS DEFINING LEVELS IN THE EUROPEAN QUALIFICATIONS FRAMEWORK (EQF)

		KNOWLEDGE	SKILLS	COMPETENCE
<p>Each of the 8 levels is defined by a set of descriptors indicating the learning outcomes relevant to qualifications at that level in any system of qualifications.</p>		<p>In the context of EQF, knowledge is described as theoretical and/or factual.</p>	<p>In the context of EQF, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) and practical (involving manual dexterity and the use of methods, materials, tools and instruments).</p>	<p>In the context of EQF, competence is described in terms of responsibility and autonomy.</p>
LEVEL 6**	<p>The learning outcomes relevant to Level 6 are</p>	<ul style="list-style-type: none"> → advanced knowledge of a field of work or study, involving a critical understanding of theories and principles 	<ul style="list-style-type: none"> → advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study 	<ul style="list-style-type: none"> → manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts → take responsibility for managing professional development of individuals and groups
LEVEL 7***	<p>The learning outcomes relevant to Level 7 are</p>	<ul style="list-style-type: none"> → highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research → critical awareness of knowledge issues in a field and at the interface between different fields 	<ul style="list-style-type: none"> → specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields 	<ul style="list-style-type: none"> → manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches → take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams
LEVEL 8****	<p>The learning outcomes relevant to Level 8 are</p>	<ul style="list-style-type: none"> → knowledge at the most advanced frontier of a field of work or study and at the interface between fields 	<ul style="list-style-type: none"> → the most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice 	<ul style="list-style-type: none"> → demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research

Conclusions

- There is no single definition of the term competence. Descriptions of the term competence range from that of a broad overarching attribute to that of a very specific task. This is in contrast with the clear definition of the concept of a learning outcome found in the literature .
- One of the big problems encountered when using competences is that there does not appear to be any clear guidelines on how they should be written. In contrast to this, the guidelines for writing learning outcomes are very clearly laid out in the literature.
- In general, if someone achieves a Learning Outcome they reach a level of competence. Competence may be viewed as a result of achieving a set of Learning Outcomes in the workplace.
- Achieving of Learning Outcomes is a stage on a way to becoming competent, i.e. Learning Outcomes and Competences can complement each other but we must be careful how we define competences.

“One of the reasons for the debate about the usefulness of managerial competence may be the soft focus and blurred edges of the term ‘competence’. Social science has the habit of taking a word from our common vocabulary and altering the meaning by its adoption as a technical or academic term. This process is still happening to ‘competence’ and a common consensus has yet to be established as to what the word should mean when used in management applications.

(Brown, 1994)

“The fact that the concept of competencies serves as a remedy for solving rather different problems probably has to do with its diffuse nature. It is actually an ill-defined concept with no clear content, thus allowing ample interpretations. This major vagueness is partly caused by the application of the concept in various countries, different settings and for different purposes. Its vagueness is probably at the same time the explanation for its prominent status today but it makes it difficult to use the concept as a sound cornerstone for designing HRD [Human Resource Development] and educational practices.”

(Van der Klink and Boon, 2003)

Recommendations

- It is obvious from the literature that within certain professions, the term competence has a shared meaning. Hence, there is no problem with using the concept of competence since there is a common understanding of its meaning among the members of that profession.
- The problem arises when the term competence is used in a general context without defining what is meant by the term.
- Given the considerable confusion in the literature, if the term competence must be used, then its meaning needs to be clearly defined for the context in which it is being used.

- Therefore, in order to avoid confusion it is recommended that when using the term competence, the following guidelines should be followed:
 1. State the definition of competence that is being used in the particular context.
 2. To ensure clarity of meaning, write competences using the vocabulary of learning outcomes, i.e. express the required competence in terms of the students achieving specific programme learning outcomes or module learning outcomes.

- Since there is not a common understanding of the term competence, learning outcomes have become more commonly used than competences when describing what students are expected to know, understand and/or be able to demonstrate at the end of a module or programme.
- The “fuzziness” of competences disappears in the clarity of learning outcomes!

In short, use Learning Outcomes to clarify what is meant by a statement of Competence.



The End!