Learning Outcomes and Competences – How are they related and should we use both of them in describing programmes in our University?

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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)

Three Broad Categories of Competences (DeSeCo - OECD)

The DeSeCo Project's conceptual framework for key competencies classifies such competencies in three broad categories. First, individuals need to be able to use a wide range of tools for interacting effectively with the environment: both physical ones such as information technology and socio-cultural ones such as the use of language. They need to understand such tools well enough to adapt them for their own purposes – to use tools interactively. Second, in an increasingly interdependent world, individuals need to be able to engage with others, and since they will encounter people from a range of backgrounds, it is important that they are able to interact in heterogeneous groups. Third, individuals need to be able to take responsibility for managing their own lives, situate their lives in the broader social context and act autonomously.

Use tools interactively
(*e.g.* language, technology)

Interact in heterogeneous groups

Act autonomously
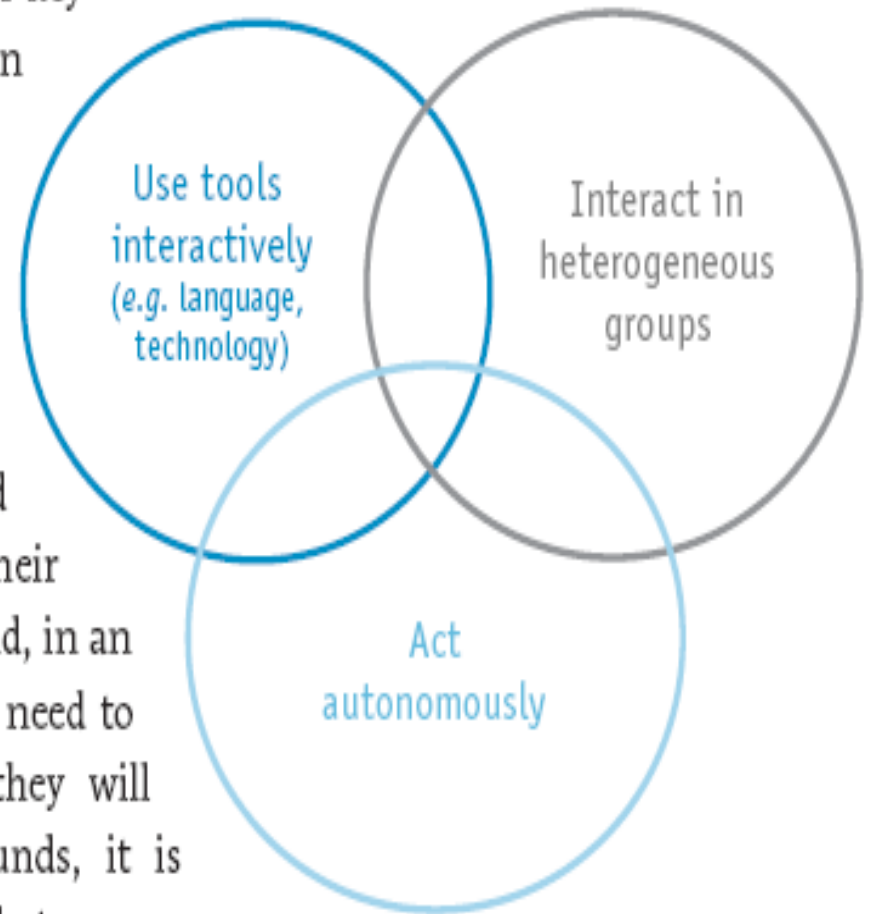
Competences in Nursing
(Miller et al)

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.

Higher Education and Training Awards Council of Ireland (HETAC)

- Describe competence in terms of demonstration and application of knowledge and skills in human situations:
- The unique characteristic of competence is the effective and creative demonstration and deployment of knowledge and skill in human situations.
- Competence draws on attitudes, emotions, values and sense of self-efficacy of the learner……..
- Competence refers to the process of governing the application of knowledge to a set of tasks and is typically acquired by practice and reflection.
- Competence also encompasses the extent to which the learner can acknowledge his/her limitations and plan to transcend these through further learning.
- While basic knowledge and skills can be described more or less independent of context, for the description of competence it is essential to make explicit the range of contexts in which the learner can demonstrate his/her competence.
- Competence outcomes can be stated in the form, "In a specified range of circumstances, a learner will be able to…."

Categories of Competence

(HETAC, NQAI)

- **Competence – context**. Human situations, whether occupational or general social and civic ones, supply the context within which knowledge and skills are deployed for practical purposes. Acting effectively and autonomously in complex, ill-defined and unpredictable situations or contexts requires higher levels of learning.

- **Competence – role**. When an individual joins a group, he or she is required to adopt appropriate roles within the group. This requires the application of social skills and an understanding of the tasks of the group. Higher levels of competence are associated with playing multiple roles as well as with roles requiring leadership, initiative and autonomy.

- **Competence – learning to learn**. Extent to which an individual can recognise and acknowledge the limitations of his/her current knowledge, skill and competence and plan to transcend these limitations through further learning. Learning to learn is the ability to observe and participate in new experiences and to extract and retain meaning from these experiences.

- **Competence – insight**. Ability to engage in increasingly complex understanding and consciousness through the process of reflection on experience. The competence of insight involves the integration of the other strands of knowledge, skill and competence with the learner's attitudes, motivation, values, beliefs, cognitive style and personality.

- 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 multiculturality
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 multiculturality.
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?

Teaching and Enhancing Generic Competences

- "Across Europe, it is clear that there are two main ways of teaching or enhancing generic competences.
- The first is the provision, as part of a degree programme, of separate course units / modules to enable students to master at least part of the generic competences, e.g. academic writing and oral skills and ICT competences."

- The second way is for generic competences to be developed as part of or integrated into subject programmes and modules
- Foster generic competences while teaching normal subject area material if there is awareness of the need to do so and if teaching strategies are designed taking generic competences into account.

(Tuning URL)

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)
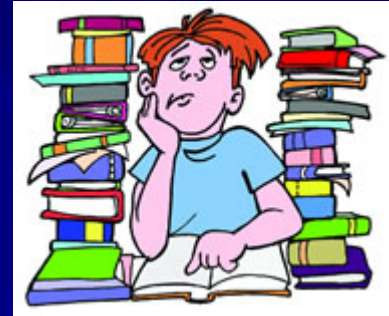
Competences of teachers
(Dept Education England, 1992)

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
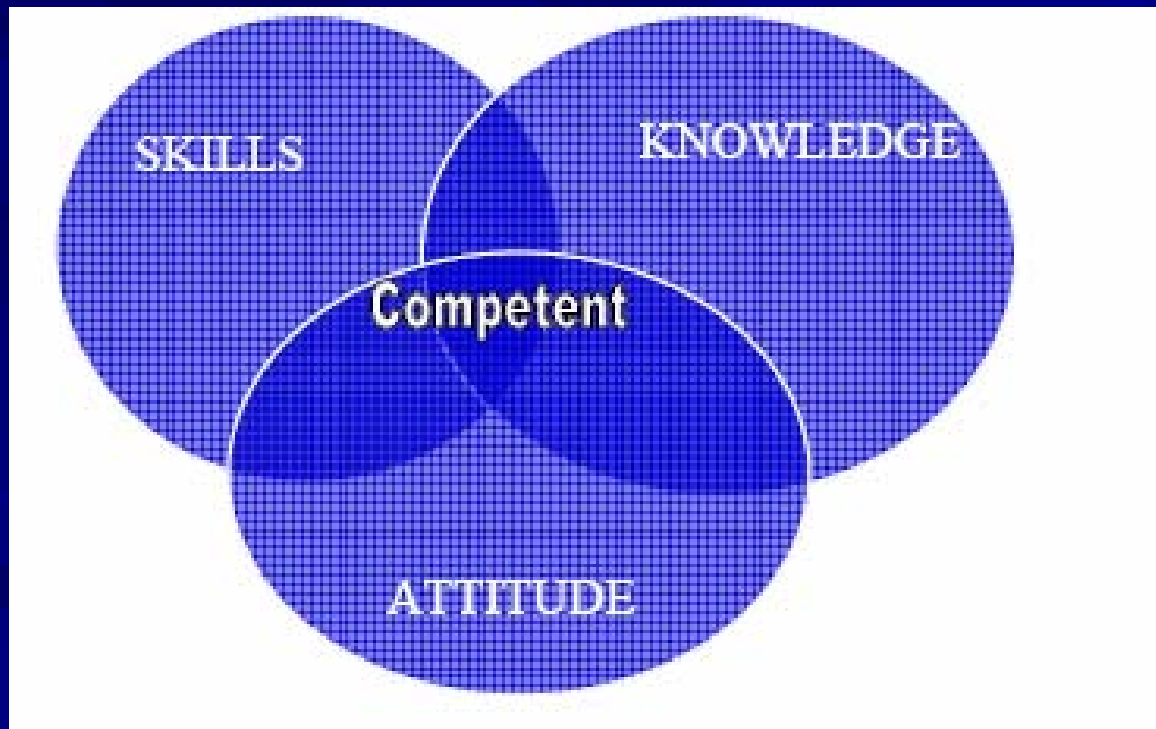
Assessment of Generic Competences

- "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".

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)

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 it 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!