INTEGRATION OF KEY COMPETENCES IN THE NORMAL LECTURE TURNS OF BASIC ACADEMIC STUDIES

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ABSTRACT
Soft skills or better in Europe called key competences are essential for everyone in the working life and often stay in the shadow of traditional lectures. Because they are competences and no qualifications, the key competences must be trained in real situations. Therefore, a special situation in the lectures must be created. This paper will show without many efforts you can do it and train key competences.
With relation to the subject of the lecture (Physics, Mathematics, Economics….) you look at great persons like Newton, etc. The work is to write an application for a job of this person. Afterwards you present this application at one or group of headhunters. The headhunter could be the person, who gives the lectures on this special subject.
The experience of the model is reported, and all chances and disadvantages connected to the task will be discussed.
Keywords: soft skills, key competences, definition, portfolio

INTRODUCTION

Soft skills Key competences or often said soft skills (see next chapter) has become in the last 20 - 30 years more and more essential, because the working environment has changed and is changing. In former times you learned it step by step in the first and/or second job after the university. This situation has rapidly changed. Today the employers demand that the new employees which has no experience in the job world should also master key competences. E. g. intercultural competences are in the global working world essential for many people. Appliers for a new job are preferred, which can show personal experience. This could be studying in a foreign country for one or two semesters. Also, social work in a country far away are a proof. E. g., if somebody helps in a children's home in India before going to the university. That is a training by performance. But not all students have such a CV.

Therefore, during the academic courses of studies, the "normal" students have to get a basic idea of key competences and parallel to the traditional subjects they have to be trained to perform better in the new working world. Starting at beginning of their student life it is essential because otherwise they cannot reach the level which is demanded.

BASIC

The term key qualifications were pushed by Mertens (Mertens, 1974). But before we look at this development, some basic definitions must be made concerning knowledge, crafts and skills and on the other side qualifications and competences.

Knowledge and skills are essential components for full participation in society (OECD, 2005, p. 3). Additionally, crafts, defined as basic manual skills, must also be another component. Participation does not mean that you can work in a normal, not high sophisticated job. In this case, you need more than basic knowledge.

In the next step, qualifications are to be defined to see the differences and overlaps. One representative definition the following, which has been analogously translated: Qualifications are knowledge, skills, crafts, which should be used for special tasks or jobs. Qualifications are determined from the view of external demands and not from the view of the individual person. They are ancillary to professional competences and professional decision-making and responsibility. (The original citation is: „Unter Qualifikationen werden Fertigkeiten, Kenntnisse, Fähigkeiten und Wissensbestände im Hinblick auf ihre Verwertbarkeit für bestimmte Tätigkeiten oder Berufe verstanden. Qualifikationen werden aus der Sicht der Nachfrage und nicht aus der Sicht des Subjekts bestimmt. Sie sind den beruflichen Kompetenzen und der beruflichen Handlungskompetenz untergeordnet bzw. sind als deren integrale Bestandteile zu sehen." (Heffels, 2007)). You can say that they are embedded. This fact is schematically shown in figure 1.

The proof of qualification often is done by written tests or interviews. In the academic world, persons can gain a certificate to demonstrate a qualification like for example a diploma. But sometimes qualification can also be learned on the informal way like experience. It will be shown that a better way is to proof qualifications with practical experience.

Like you see in figure 1 competences are the outer circle, which involves all. The OECD defines competences: "A competence is more than just knowledge and skills. It involves the ability to meet complex demands, by drawing on and mobilizing 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, 2005, p. 4)

The European Commission says: "Competences are defined here as a combination of knowledge, skills and attitudes appropriate to the context. Key competences are those which all individuals need for personal fulfilment and development, active citizenship, social inclusion and employment." (EU, 2006).
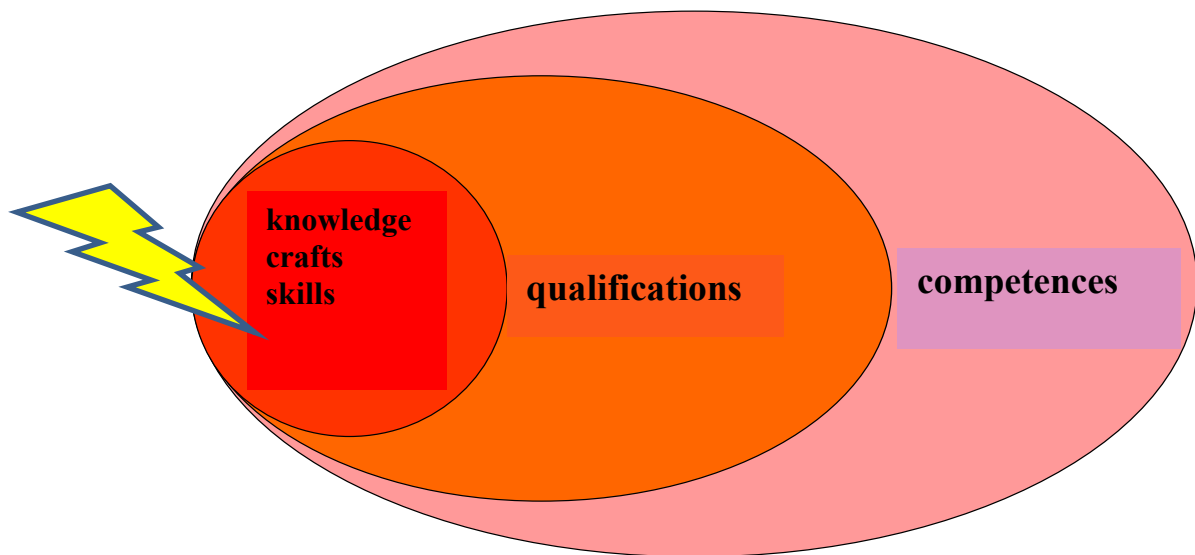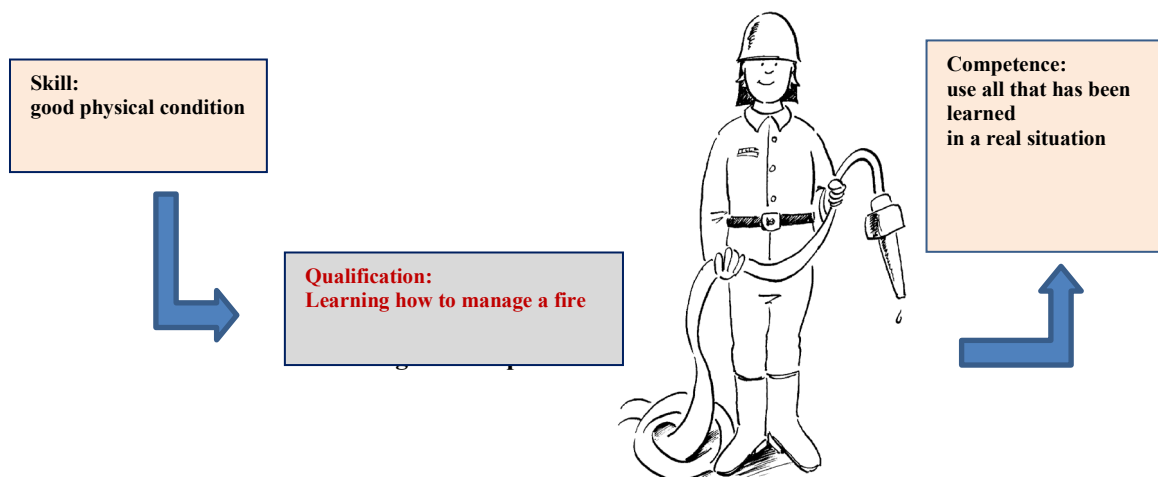

Figure 1. How the different items are embedded. (adapted from Erpenbeck, 2009)

To make it clearer a simple example of a fire brigade man is shown in figure 2.

What are the consequences for testing competences? Qualification can be tested e. g. in a written test or in a multiple-choice test, like mentioned above. As competences are a complex construct with allows a person to resolve problems successfully in variables situations (Weinert, 2002), competences must be checked in a real situation. You call it performance test. If you look at figure 2, the fireman has to show under supervision and helping in a real fire situation the acting of himself.

In the next step the contents of key competences must be defined. In the 80th decade last century in Germany the discussion about key qualifications were pushed. (Mertens, 1974) Richter (Richter, 1995) divided key qualifications into three main dimensions, which up to now you can find as the basic structure in figure 3, which show methodical competences, social competences and self-competences.
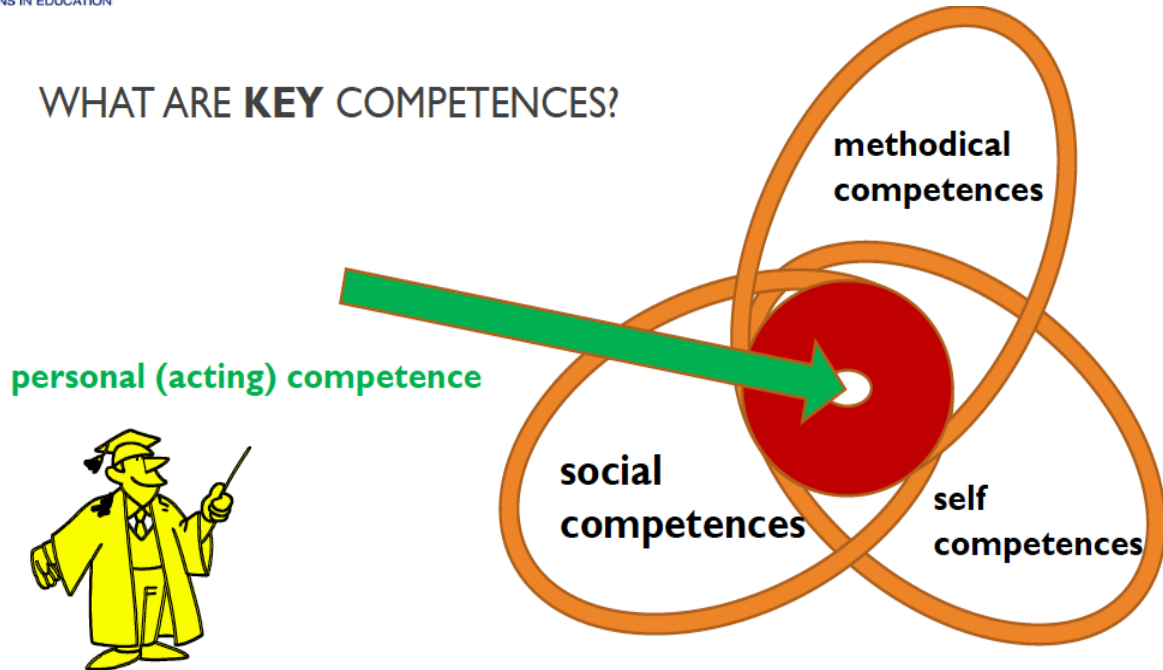
WHAT ARE **KEY** COMPETENCES?

Figure 3. The basic dimensions of key competences (adapted from Richter, 1995)

What are typical key competences in the different fields? In table 1 some examples are shown. In the literature other authors expanded the fields of the competences like computing competences, competence in communication in different language, etc. (EU, 2006)), which are not further discussed here. A more expanded definition also given by the OECD in the DeSeCo Program (Defining and Selecting Competencies: Theoretical and Conceptual Foundations). (Rychen, 2000) In the international context, this definition is used very often as basic definition, because it was one of the first global definitions. In this paper the above given definitions (OECD, 2005) are used.

Some authors define key competences mostly as soft skill in a very splitted way, which may be more than 60 categories e. g. (Schulz, 2008; Taylor, 2016). This might be good in some cases, but for a basic learning step the mentioned three areas are enough.

Table 1: Examples for the different areas of key competences

competences	methodical	social	personal
Examples	problem solving	communication	self-conscious
	time based actioning	project-management	self-management
	presentation	team-management	motivation
	learning techniques	relation-management	stress-management

Today key competences are more important than specialized know-how of the working field. This know-how is a requirement. The lonely engineer, worker, etc. is not used anymore, because the products became so complex, that only a group or lots of smaller groups can create the product. Big software programs are a very obvious example. E. g. the right communication or project-management is essential for the success. One main part of an application to a new job is an interview one subject in a subcategory. (Cimatti, 2006) The OECD expanded the term of key competences to manage the whole life (OECD, 2005). In the future, the development will be to broader fields, which are relevant in all situations of a person. A similar classification like Richter (Richter, 1995) in this context is done by Fugate. (Fugate, 2004)

There are many possibilities to integrate key competences at the university (e. g. Abbas, 2013; Anthony, 2014; Ramlall, 2015). Mostly it is done in relation to the later job, which is a main aspect. Now an example is described which can be integrated in many subjects at schools and universities.

SPECIAL CONSIDERATIONS
The training of key competences should start in the first semester. If the students leave the university, they should be able to manage their life, especially in relation to their job. The students have an age between 18 and 22 years when they enter the university. Half of them have no working experience., which means they are coming directly from school. The other half has already a recognized occupation requiring formal training. The experience of applying for a job in the future is low. That means basic key competences have to be trained

The basic idea is that a situation is created in relation to the special subject but can be arranged in every subject. The following scenario is played:

The lecturer is a headhunter, who needs a person for a job. The students should apply for this job but in the role of a famous person of the special lecture. This situation can be done in every subject.

A list of possible persons for some subjects are shown in table 2:

Table 2: Possible persons for the tasks of the student

Subject	Physics	Mathematics	Computing	Economy
Persons	Einstein	Gauß	Zuse	von Mises
	Newton	Mandelbrot	Jobs	Mundell
	Celsius	Eratosthenes	Berners-Lee	Solow
	Planck	Laplace	Ritchie	Marx
	Bohr	Pascal	Zuckerberg	Selten
	Laue	v. Neumann	Hollerith	Hayek
	Hertz	Euler	Wozniak	Frisch

The students have to do the following steps:

> *1. to choose one famous person*
> *2. to write a CV of this person*
> *3. to write a motivation letter*
> *4. to send the letter to the head-hunter*
> *5. to create a PowerPoint-presentation about the chosen CV*
> *6. to participate in an application interview*

It does not matter if the famous person is dead or alive. The students must make an investigation of this person, which they have chosen. One important item is to find out the real character. This fact must be mirrored especially in the motivation letter and is essential for the interview. Of course, the headhunter (= lecturer) knows the character of the applying person. This process is an example of a performance test. Is the student afraid in the interview and you get the impression that he is shy? Or is he stammering? Or getting nervous, because the beamer drops down? And, and, and,…… You must create a special artificial and difficult scenario to simulate real life.

REALIZATION

At first, there are some additional lectures in the basics tasks like writing a letter and a CV. A special focus is made on the presentation. The real life shows e. g. at conferences, that a lot of people make boring presentations. If you are applying for a job, the headhunter has not only this one person. He has to take attention of a bunch of candidates. The strategy is to be kept in mind. One item is an impressive presentation that can be remembered within seconds. A good presentation is not enough.

One problem is the number of students. If everyone makes the whole procedure as a single person, it takes a lot of time for the lecturer. Because it is a basic step to train key competences, you can make small groups of four to six students and act like one applying candidate. In the interview, everybody has to answer questions to avoid that some are fellow runners who want to pass with a minimum of effort.

It was performed in two lectures: Physics and computing, but in different degree courses. Physics was in the course in the mechanical engineering section and computing in the course for getting a degree in computer science. In both cases it is suitable. But you could see significant differences in the students´ behaviour.

Some students from the engineering department dressed better because they recognized the situation. A lot of computing students were nerds and had no idea that the real world is working a little bit in another way. *Self-marketing* was no word in their vocabulary. Writing the CV is a method, which both groups learned and applied. In the presentation were slight differences. The engineering group generated more easily interpreted graphic images of their carrier. (Remember, it is the carrier of a great physicist.). Because all the students have not much practice standing before an audience, they behave in the same way with not much self-confidence. Organizing themselves they do without supervising and therefore difficult to evaluate.

To look back, what key competence tasks did both groups trained?

- *making a presentation (slides)*
- *presenting before an audience*
- *getting self-confidence*

- *writing a CV (application) --> lecturer*
- *organizing themselves (time)*
- *performing self-marketing*

I think it was a great experience for them. If you look realistically it was a small step into their later life.

SUMMARY
In this paper is shown to train key competences must not be combined with big efforts for the lecture. It is a general concept, which can be used in every subject or department. Also, it can be performed in bigger classes. The students are learning in the closed world within the university, which gives more self-confidence in the beginning. It is a small but maybe first step, to prepare them for their later life.

REMARK
This paper is an extended version of the presentation hold at the conference in Prag 2019, which was published in the conference proceedings. (TOJET special issue, Vol. 1 -Oct 2019). Title of the presentation: Integration of soft skills in the normal lecture turns of basic academic studies.

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