

Competency and Approach for its Evaluation

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Abstract

In this paper the overview of current scientific discussion about competency is presented and the approach for its evaluation proposed. The orientation of proposed evaluation is its utilization for three groups direct involved in educational process – students, professors, and firms.

Keywords: Competency evaluation

Introduction

Competency is under investigation since some decades. All enterprises around the world are looking for competent employees to improve their business performance and market position. Similar attempts one can observe in governmental institutions. Competency signs the value of just every employee in business and administration. Well established terms like Competency-based Education, Competency-based Learning, and Competency-based Teacher Education etc. underline the significance of competency especially for every qualification or educational activity. Focus of presented research is the evaluation of professional competence. Behavioral and functional competencies will be considered only in relation to professional competency. Some of behavioral competencies – e.g. communication competency – are important within the teaching and learning and therefore will be a part of current research.

Definitions

In presented research no difference between both terms - competence (competences) and competency (competencies) – today in use will be investigated. Discussion about both mentioned terms one can find e.g. in CPID publication “Competence and competency frameworks” /1/. Below the term competency will be used instead of both.

One of the new comprehensive investigations of the term competency is documented in “European e-Competence Framework 3.0” (e-CF) published by CEN /2/. In this publication different aspects of competencies discussed by many authors are presented and compared from different points of view. Presented here research is neither focused on the program or University deep scientific analysis of the history of competency nor on some contribution to its definition.

Following authors of e-CF in this publication competency will be considered as “a demonstrated ability to apply knowledge, skills and attitudes for achieving observable results” /2/.

Similar formulation for competency one can find in European Qualification Framework (EQF) – there competency is defined as “the proven ability to use knowledge, skills and personal, social and/or methodological abilities in work or study situations and in professional and personal development” /3/. Comparing both definitions one can note the used expressions “abilities” and “attitudes” are closed to each other.

Important for presented research is the definition of the competency in the book “Toward a competency theory of the firm”/4/. Here one can find following definition of competency – “...The individual's demonstrated capacity to perform, i.e., the possession of knowledge, skills, and personal characteristics needed to satisfy the special demands or requirements of a particular situation” /4/. All three referenced definitions of competency are related to utilization of knowledge and skill in some processes or situations and associated with individual attitudes or personal characteristics. In one of the most frequently cited books Ronald Barnett considered the competency from both perspectives: academic competency and operational competency /5/. Both perspectives can be considered in connection with knowledge and skill and more specific associated with dichotomy of theoretical and practice oriented knowledge as well as those associated with cognitive and practical skill /3/.

Another important aspect of competency discussed today in different publications is related to competency-based education. In this field researcher discuss the minimum competency, often correlated with tests or examinations as by students as by teachers. Exempli gratia one can find in /6/ and in publications cited there.

Common characteristic of competency

Competency frameworks proposed and established since many decades contain different competencies and long list of corresponding characteristics for qualitative and quantitative description of competencies. They cover various areas from the professional competency with the theoretical knowledge and skill till the social competency with cultural and gender knowledge and experience. In many cases the defined competencies are very specific and not applicable to other fields and cases to be investigated.

Vital point of presented research is the definition of the one common characteristic of competency universal regarding the groups to be examined and the fields to be investigated.

Which characteristic can be used as a common one?

The answer on this question is the *comparability*.

In what way one can build the analysis approach and evaluate the competency?

The basis for the answer here is given in the *evaluation approach of knowledge and skills* presented and discussed in the previous publications /7, 8, 9, 10, 11, 12, 13, 14/.

Described below scenario explains the approach and its application for evaluation in the practice.

Application scenario

Oft enough happened – your laptop is not working. To repair it you can consider following possibilities:

- a) To ask the son of your friend. He studies at the university in the fourth semester of bachelor in computer science. Probably he has theoretical and maybe practical knowledge to help you. This possibility is the cheapest one but will take time and you are vague about the success and quality of outcome.
- b) To bring the laptop to the next PC workshop. Technicians there had perhaps repaired some laptops and can help you. This opportunity will take less time but you have to pay a specific sum of money. Another useful thing is the guarantee you will get from the workshop.
- c) To check the yellow pages and another available search engines and to bring the laptop into the workshop specialized for your laptop. This workshop has the best rating in the town so the certified engineer know the laptop and possible problems with it and can definitely get you fast and qualified service support.

In the case a) one can speak about the knowledge in the field. In both definitions of competencies by EQF and e-CF presented above the essential point is its relation to knowledge and skill /2, 3/. This situation can be related to the case with the minimum competency discussed above. It was probably the goal of the minimum competency for bachelor in computer science – to be able to repair the computer. In such a situation no specific aspects related to the repairing procedure will be considered. No estimation of the resources to be used like time, price, etc. will be agreed and in addition to it no idea about guarantee will be discussed and fixed.

In the case b) the skill in the field of the problem solution will play the decisive role in the repairing process. This level without exact specification can be classified and related to medium competency. Important here is the experience gathered in similar situations. Based on this experience the technicians will be able to define the more or less exact time and other resources they need for the repairing of the laptop. It might be you will get the guarantee for the repaired component.

In the case c) the best available knowledge and skill will affect the repair. The certified engineer for your laptop can check it in few minutes, diagnose the fault, and get you the short explanation about its elimination. You will receive exact defined the list of needed resources will be used for the repairing. The shortest time needed for the procedure, exact information about details, precise calculation of the service, and guarantee for the next time period characterize this case the top competency. Analog to the cases before it is also based on knowledge and skills available in the selected workshop.

Evaluation approach

The evaluation process was systematical investigated in the last decade with respect to different application areas. Description of the results achieved one can find e.g. in /15/ and citations there. In presented research the relation to the object of evaluation will play the important role. According to D.R. Walling the evaluation can be subdivided into three classes/types – *before*, *during*, and *after* evaluation/16/. Taking into account the characteristics used for evaluation one can specify the *before* evaluation as predictive one focused on the available information about characteristics of the object or event to be evaluated. The evaluation concept will be developed corresponding to the imaginings and based on available real information. The *during* evaluation will be roughly related to the already started process where the object under evaluation plays (significant) role. Evaluation in this case can support e.g. some correction on the object to be evaluated during the process. The *after* evaluation is oriented on results of one or another process, events etc. where the object of evaluation plays important role.

The simple example for all three types is the attempt to clothe oneself for the visit to the theater:

The *before* evaluation will take place in your mind. You can check the wardrobe and some combinations in your mind doing something different e.g. when cooking or reading the newspaper.

The *during* evaluation will take place by looking in the mirror – it is possible to wear the skirt and matching the blouse or to change one's shirt.

The *after* evaluation will take place after the visit if somebody makes a compliment regarding your dress.

The most valuable type for the evaluation of the competence – see the scenario with laptop – is the *before* or predictive evaluation. In such a situation it is possible to estimate beforehand whether the decision to be made or the action to be carried out are the best one in the situation.

Proposed in EQF description of competency in terms of *responsibility* and *autonomy* is obviously related to *after* evaluation /3/. The before evaluation in terms of responsibility and autonomy can be realized only if the system (or team/department/community, etc.) delegate e.g. the responsibility and/or autonomy for decision making to carefully selected person and documented with this step his or her competency. But this careful selection is exact the definition of competency. And selected person has more or deeper knowledge and skills recognized compared to others.

Competency evaluation

Evaluation of competency can be realized based on available knowledge and skill based on adequate comparability tests among people in the group to be evaluated. Looking for the best competence one can use in such test the labels like the best student in the semester in physics. The other label can be the one of the five best professors in software engineering at the university or one of the best thirty innovative firms in the country. These examples can be extended or made more flexible e.g. if the evaluation will be related to different group: one or two years – instead of semester; all universities in the country – instead of particular university and so on. The level of evaluation will be defined by the evaluators according to the orientation of the task. The defined in EQF 8 levels of can be easy represented by the formal consideration of the professional field /3/. Instead of the relation to best 10% in the group one can define the capability to realize some work. The problems will appear if

somebody will try to define e.g. "...the most advanced and specialized skills..." and define the difference between them and "...specialized problem-solving skills..." /3/. As mentioned above one can do it without the metrics as a minimum competency or in the shortest time in the group as the top competency.

Summary and outlook

In this paper the competency and the approach for its evaluation are presented and discussed. Proposed approach can be easily implemented at different levels of evaluation in the practice. The discrepancies between both frameworks and described in EQF personal, social and methodological abilities or attitudes in e-CF were not investigated in this research as well as another intellectual and cognitive capabilities and capacities /2, 3/.

Further investigation and application of the approach proposed will contain the evaluation of competencies by students, professors and industry with relation to educational process. This will be done based on the results published in /8, 9, 10, 11, 12, 13, 14/ based on the approach for evaluation of professional knowledge, skill, and competence by professors, alumni/students, and industry presented in /7/.

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