

# **Evaluation of Professors' Competencies from the Perspective of University Education**

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## **Abstract**

In this paper the criteria and the application procedure for evaluation of competencies by professors are presented and discussed. The outgoing point for this research is the new presented in the paper "Approach for evaluation of professional knowledge, skill, and competence by professors, alumni/students, and industry" /7/. The application of this new approach presented below is focused on professors and lecturers teaching in different programs at the university. The main aspects and crucial points for research presented are the flexibility and the objectivity of the evaluation. Decisive attributes and their application within evaluation process are explained in detail.

**Key words:** Evaluation of professors' competencies, University education

## **Introduction**

Scientific discussion about competency has many facets and perspectives /1, 2, 3, 4, 5, 6/. Current research is focused on the evaluation of professional competence by individuals represent three groups involved in the educational process at the university /7/. Corresponding approach is discussed and figured out in the paper "Competency and approach for its evaluation" /8/.

Analog to the previous publications /9, 10/ professors represent in this research the decisive group within educational process in certain study program at the university. They are directly connected with all activities of educational process and can influence it based on their knowledge, skill and competencies. This influence can be considered from different perspectives – professors teach at the university and therefore they have to have didactical capabilities and concepts for knowledge and skill delivering. On the other side professors are involved in some research programs or projects where they follow their own interests and hence contribute to improvement of own professional knowledge and skill. Accordingly professors work as with students as with industry, the third group direct affected the

educational process. Professors work with students in regular lectures and labs, in research and development projects at the university, and in those in cooperation with firms. In all these activities professors apply their professional knowledge, skill, and one or another competency. Following the proposal presented in /8/ the decisive factor for the evaluation of professors' competency is their comparability along knowledge and skill characteristics discussed in /9, 10/. Even because of the best skill and/or knowledge available in the project team selected professor will take e.g. the responsibility about one or another decision. According to this approach competency represents some kind of capability rating in the group in selected field. It could concern professional knowledge, intellectual capacities, and skill. To define the competency of one person isolated without comparison with capabilities of others can lead to ineffective or inefficient decisions and actions. Exact based on this specific enterprises make the projects with particular professors (or university?). Also students compare of professors at the university and make a decision about e.g. the supervision of their graduation projects. In both cases several candidates for the job or task will be compared and as a result the (most) competent one will be selected. Considered alone professional knowledge and skill of individual professor is no guarantee for the good project or team leader. Competency includes many other dimensions and qualities /8/. In the recent scientific discussion about competency and qualification it can be considered 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" /1/.

According to the investigation presented in /8/ it is difficult to formulate the universal definition of competency (or competence?). In present research the competency is considered as a factor and criterion of educational processes at the university /7/. This paper is focused on evaluation of professors' competencies. Proposed in /8/ approach is oriented on comparability of various suitable characteristics used to describe individual capabilities including knowledge and skill. Consequently in the definition of the competency one can utilize characteristics defined in /9/ and /10/ for evaluation of professors' knowledge and skill.

### **Characteristics of competency by professors**

Generally the consideration of competency can cover a long list of characteristics related to professors teaching at the university, participating in research or working in one or another administrative unit e.g. committee. For instance one can speak about teaching competency if the selected professor can use different didactical concepts and tools to improve the learning effects by students. Students are willing and will learn also if the professor has no didactical concept and stupid read from the book. But in such situations students will check the other possibilities and may be change to another professor. Decisive for this action is the competency based on various individual capabilities. One professor can for instance explain the topic faster; another will take into account more aspects of content to be understood, etc. More detailed consideration can lead to special teaching competency in particular subject or application area like game programming, thermodynamics, business statistics and many other subjects relative to the study program under evaluation. In similar way one can consider the results of the learning process and related professional competency. It could be the

professional competency aligned on the orientation of the educational program like computer science, mathematics, physics, philosophy, business administration etc. From more detailed view it could be oriented on single subjects like data bases in bachelor program computer science or special functions in master program mathematics. Because of diversity of the study programs at different universities and also because of huge amount of subjects delivered in these programs it seems to be impossible to consider in this research and to define the competency related to all possible subjects. In every individual project one can follow the rules formulated and explained below.

The teaching competency will be proposed to evaluate based on the didactic capabilities, content, and presentation or more generally communication competency. It can be evaluated based on results achieved. Even if the management of comparability - groups, topics, etc. will bring some problems, this way one can use the quantitative characteristics allowed the comparison of selected person with others. Based on approach proposed in /8/ one can declare if selected professor efficient and effective uses the time at the university to teach his or her subjects in particular program. Moreover it is possible to bring the results into line with proposed three levels of competency /8/. As an example – the top competency will sign the teaching in the planed time with 100 % students passed the exam; the medium competency will be defined for the case if 70 till 90% of students passed the exam; the minimum competency is then defined accordingly if 50 till 70% of candidates will succeed. Additionally the grades or the number of attempts can be also used as evaluation criteria. All mentioned criteria for the teaching competency are dependent on capabilities and competency of students. The grades achieved by them can be considered as students' competency. Therefore the evaluation will be to some degree imprecise per definition.

Certainly it is possible to investigate the teaching competency in detail – if professor use the special material and/or forms like media, e-learning, webinars or visits of partner firms with students. Intensity and duration of lectures, project meetings, consultations, etc. depends on subject specifics and resources available in every particular situation. According to this there exist no general rules or frames for such consideration and appropriate evaluation. In this research we use the general statements like those formulated by Dreyfus and Dreyfus – “competence comes only after considerable experience actually coping with real situations in which the student notes or an instructor points out recurrent meaningful component patterns” – and specify it by particular circumstances and conditions of evaluation /11/.

Following the evaluation concept and its specification for knowledge and skill listed below criteria can be used for evaluation of professors' competency /7, 8, 9, 10/. According to the approach presented in /7/ the evaluation will contain two phases or steps – in the first one professor (or administration) will gather the needed information and submit it to the evaluation committee. Afterwards this information will be evaluated by students and representatives of industry regarding the educational process and the value of individual professors in the program, university, region, etc.

***Teaching competency – lectures, seminars, supervision of graduation projects***

Table 1. Evaluation criteria for professors' teaching competencies

<i>Decisive Attributes</i>	<i>Specification</i>	
Teaching competency	University:	
	Program:	
	Subject(s):	
	Semester:	Quantity
	Students:	Quantity
Supervision competency	University:	
	Program:	
	Bachelor/master/PhD projects:	Level/ Quantity
	Semester projects:	Semester/ Quantity

Presented in the Table 1 specification and its quantification can be defined based on the documents about every professor available at the university.

***Research and development competency – projects, publications, presentations***

Table 2. Evaluation criteria for professors' research competencies

<i>Decisive Attributes</i>	<i>Specification</i>	
Research and development projects	Field/Subject related to:	
	Grant of (EU, Country, Local, etc.):	Level/ Amount:
	Duration:	Amount:
Publications	Subject:	
	Kind of publication (paper, monography, report, patent, etc.):	Level/ Quantity
	Qualification (ISBN, ISSN, Scopus):	Level/ Quantity
	WEB materials:	Amount:
Presentations	Kind of conference/meeting (international, regional, local)	Level/ Quantity
	Kind of presentation (invited, full paper, poster)	Level/ Quantity
	Proceedings (ISBN, ISSN, Scopus):	Level/ Quantity

The situation will change itself if for instance language, gender, intercultural, administrative, or others soft and social skills have to be evaluated /9/.

***Soft and social competency – communication, language, administration, gender***

Table 3. Selected evaluation criteria for professors' soft and social competencies

<i>Decisive Attributes</i>	<i>Specification</i>	
Intercultural competency	Kind of experience:	Description:
	Level/Duration:	Level/Quantity:
Language competency	Kind of experience:	Description:
	Level/Duration:	Level/Quantity:
Communication competency	Kind of experience:	Description:
	Position/Duration:	Level/Quantity:
Administrative competency	Kind of experience:	Description:
	Position/Duration:	Level/Quantity:

There exist no standard concept and/or rules for such evaluation. These competencies play often the crucial role in different kinds of decisions. They build the basis for the job responsibility, administrative position at the university, committees or in projects, etc. The proposal for the evaluation approach of the soft and social competencies is presented in the Table 3.

The list of the decisive attributes presented is not exhaustive and can be extended based on particular interest and orientation of the university, evaluation committee, etc.

## Framework and evaluation procedure for professors' competencies

According to the approach presented in /7/ professors' competency evaluation is based on submitted by them and other available information. For instance the information about the teaching and about research activities is stored in the database at the university and can be used for statistical evaluation toward the determining of competency. Following the approach in the completing step this information will be evaluated by representatives of both other groups – students and industry. The corresponding part of framework for evaluation of competency by professors is presented in the Table 4.

In the column *Level of practice relevance* representatives from industry will get their grades (e.g. from 0 to 1) and score the importance of selected competency from their point of view. Based on this value the information submitted and presented in the previous column will be weighted and forwarded into the last column of the framework. This way the competency level(s) achieved by professors can be estimated and used for further decisions. The results of evaluation will appear in the last column after the comparison with other professors. Professor with grades among the best 10% in the program or university wide will get the top competency. Those ranged between best 30% and best 10% will get the medium competency level. And between best 50% and best 30% - the minimum competency. These numbers are not obligatory and represent a proposal could be changed accordingly. Also the list of attributes can be changed – if the university focus is research the commission can add some special criteria or use a kind of weighting for selected ones and change this way the framework. In universities with strong orientation on teaching, research activities are less significant and therefore the only one or two attributes can be applied for evaluation of research competencies by professors.

Table 4. Part of extended framework for professors' research competencies

<i>Decisive Attributes</i>	<i>Specification</i>		<i>Level of practice relevance</i>	<i>Competency level: (top, medium, minimum)</i>
Research and development projects	Field/Subject related to:			
	Grant of (EU, Country, Local, etc.):	Amount:		
	Duration:	Quantity		
Publications	Subject:			
	Kind of publication (paper, monography, report, patent, etc.):	Level/Quantity		
	Qualification (ISBN, ISSN, Scopus):	Level/Quantity		
	WEB materials:	Amount:		
Presentations	Kind of conference/meeting (international, regional, local)	Level/Quantity		
	Kind of presentation (invited, full paper, poster)	Level/Quantity:		
	Proceedings (ISBN, ISSN, Scopus):	Amount		

Analogous procedure will be used for the competencies presented in the Table 3. This part of the framework is presented in the Table 5. Difficulties here appear in the comparison with other professors. Even for the language competency where different grades for the corresponding courses could be used it is not easy to establish the top 10% part of the group. It depends e.g. on the focus on written or spoken capabilities. In the first case the writing of reports and/or documents play the important role where in the second one the presentation of papers at the conferences, exhibitions or communication with partners or employees is essential. Very difficult is also to establish and quantify the other listed in the Table 3 competencies. If for instance some professors were a team leaders in small projects at the university and another ones worked as the project leader assistants in the big firm projects the definition of the competency level will be a difficult task. Even working in the same project at different managerial levels will bring some definitions problems.

The second last column to the right will be filled by students analogous to the situation explained before. All points gathered by single professor can be summarized to evaluate his or her individual competency. The last column will contain the defined top, medium or minimum competency for particular criteria calculated as proposed above. Based on results in the group related to semester and specialization one can calculate the individual professors' competency in particular program at selected university. Detailed comparison of attributes discussed above allows formulation and interpretation of strengths and weaknesses of the education with respect to university, study program, specialization, teaching procedures etc. Using this knowledge university can improve the orientation of the particular program. On the other side the results achieved by industry evaluation can document the interest in specific competencies by university graduates in different jobs in (local) business.

Table 5. Extended framework for students' soft and social competency

<i>Decisive Attributes</i>	<i>Specification</i>		<i>Level of research relevance</i>	<i>Competency level: (top, medium, minimum)</i>
Intercultural competency	Kind of experience:	Description:		
	Level/Duration:	Level/Quantity:		
Language competency	Kind of experience:	Description:		
	Level/Duration:	Level/Quantity:		
Communication competency	Kind of experience:	Description:		
	Position/Duration:	Level/Quantity:		
Administrative competency	Kind of experience:	Description:		
	Position/Duration:	Level/Quantity:		

## Summary and outlook

In presented research the procedure for the competency evaluation by professors and the rules for its application in the practice is described and discussed. Important feature of the approach used is its flexibility, scalability, and objectivity /7/. These aspects support the applicability of the approach in various environments and situations.

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## References

- /1/ The European Qualifications Framework for Lifelong Learning (EQF), 2008, [http://www.ond.vlaanderen.be/hogeronderwijs/bologna/news/EQF\\_EN.pdf](http://www.ond.vlaanderen.be/hogeronderwijs/bologna/news/EQF_EN.pdf)
- /2/ European e-Competence Framework (e-CF), 2014, <http://www.ecompetences.eu/>
- /3/ Competence and Competency Frameworks, 2015, <http://www.cipd.co.uk/hr-resources/factsheets/competence-competency-frameworks.aspx>
- /4/ Towards a competence theory of the firm (Editors N.J. Foss, C. Knudsen), 2003, Routledge, London
- /5/ R. Barnett: The Limits of Competence: Knowledge, Higher Education and Society, 1994, Open University Press, Buckingham
- /6/ UNESCO ICT Competency Framework for Teachers, 2011, <http://www.unesco.org/new/en/unesco/resources/online-materials/publications/unesdoc-database/>
- /7/ W. Bodrow, R. Simon: "Approach for evaluation of professional knowledge, skill, and competence by professors, alumni/students, and industry", in Proceedings of ITDT 2014, pp. 3-6, Berlin, Taganrog, Växjö
- /8/ W. Bodrow, R. Simon: "Competency and Approach for its Evaluation" 2016, in Print
- /9/ W. Bodrow, A. Atisman: "Evaluation of Professor's Knowledge", in Proceedings of ITDT 2014, pp 6-12, Berlin, Taganrog, Växjö
- /10/ W. Bodrow: "Evaluation of Professors' Skills from the Perspective of University Education", in Proceedings of ITDT 2015 pp 26-33, Berlin, Taganrog, Madrid
- /11/ Dreyfus, S.E., and Dreyfus, H.L. A five-stage model of the mental activity involved in direct skill acquisition. Operations Research Center, University of California, Berkeley, CA. 1980