

Evaluation of university education and its indicators

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Abstract: The paper deals with the fundamental concept in the field of the quality of education and research activities and competencies of university teacher. The teacher acquires and develops them throughout his/hers career, in the preparatory stage and in the lifelong learning. Competencies are necessary for qualified and professional performance and they create professional standard. Professional standard fulfils its purpose only when its connected with the evaluation of the teachers. To support optimal education of students then leads to the development of advanced concepts and models of staff development. The authors of the paper describe evaluation process at The Czech University of Life Sciences. Within this process opinions of students and teachers of the teaching process and implementation of the university teachers' key competencies are analyzed.

Key words: education, competencies, professional standard, models of development, evaluation

Introduction

People are the most precious capital of every school. One of the most important factors (from the perspective of improving the quality of school work) is perfect and better utilization of the internal potential of teaching staff and other employees. Practical experience shows that school can be only as good as the people who work in it. (Světlik, 2009, 266) Armstrong's definition which states that "People and their collective skills, abilities and experience, together with their ability to use them in the interest of employers' organizations, are now seen as something that contributes significantly to the success of an organization and make a significant source of competitive advantage" (Armstrong, 2007, 35) can be applied especially in the education process.

There is necessary to apply a feedback in schools, as well as in other fields of human communication. This is such kind of management that evaluates the real, not expected activity and. In this system are implemented results of last actions. (Vybíral, 2000, 180) This phase must be done in education through monitoring and evaluation of results. Formulated objectives, chosen methods, partial results of learning, etc. must be checked. (Kalhous, Obst, 2009, 403)

The term evaluation has become one of the most frequent concepts in educational theory and practice. Pedagogical dictionary term "evaluation" is defined as "identifying, explaining the situation, the level of quality, efficiency of the education process." Self-assessment or self-evaluation are other terms which are used together with evaluation. This systematic process can be performed as by institution as by individual. Within this process, achievement of objectives is stated, based on predetermined criteria. University education is under great social pressure and closely watched by the public. For this reason, there is necessary that the quality of education in universities is demonstrable, visible to inform the public that the quality of education really exists and is available. (Slavík, 2012a, 195)

The basic term of teaching and research activities is a teacher's competence. Competence can be understood as excellent ability. Competence expresses complex knowledge, skills, attitudes and experiences that are target categories of professional education in conditions of universities, which are still changing. (Slavík, 2012a, 74) The system of evaluation of the educational process illustrates the quality education and must be proven, visible and presented to the public. Each university should implement its evaluation. An increasing internationalization of university education underlines the need of the evaluation process.

As an example of education evaluation, a model at the Czech University of Life Sciences (CULS) is used. This process is provided by the Institute of Education and Communication (IEC) for eight years. A positive evaluation survey is the fact, that teachers don't consider the evaluation as a negative aspect any more, but they feel it as an inspiration to improve their work and often as positive result of their

teaching quality. Many educators have concluded that it is necessary to improve their teaching and they requested for individual observations. Thanks the evaluation, there is possible to assess which of the university teacher's competencies are not sufficiently developed and there must be implemented measures leading to their obtaining and deepening.

Methodology

A questionnaire survey method was the main method used, followed by an analysis of the results and their interpretation. The aim was to infer the causes of the detected condition. Another tool used consisted in individual observations. Six-grading scale were chosen for the evaluation of submitted items, grade 1 marked the minimum rating level (the lowest satisfaction of the respondent), grade 6 expresses the maximum level rating (highest satisfaction). Since 2005/2006 until 2011/2012, totally 579 teachers and 12.621 students were included into the survey.

Table 1

Number of teachers and students in the last three years

Year	Respondents	FEM	FAFRN	FE	FFWS	FES	ITA	IEC	CULS
2011/2012	Teachers	32	24	12	8	9	3	4	92
	Students	787	375	214	176	153	50	132	1887
2010/2011	Teachers	34	24	10	9	8	3	4	92
	Students	770	426	170	202	104	40	162	1874
2010/2009	Teachers	28	17	7	7	11	6	3	79
	Students	675	253	216	109	259	91	118	1721

Source: SLAVÍK a kol., 2012b

Table 1 shows that 92 teachers and 1887 students were selected for the evaluation of the teaching process at the CULS in the academic year 2011/2012.

Competences towards Professional Standard

The development of competences continuously leads towards the formation of professional standard (Vašutová, 2001). The complex of pedagogical competences can be divided into the following categories:

Discipline and subject competence

An educator:

- has mastered a systematic body of knowledge of specialisation in an appropriate scope and depth;
- is able to apply practical experience in the specialisation to the educational content of the subject of study;
- is able to transform knowledge of the respective scientific and technical disciplines into the educational content of the subject of study;
- is able to integrate inter-disciplinary knowledge with the subjects of study and create inter-subject links;
- is able to identify and process information in the field of specialization, and has user skills in the field of information and communication technology (ICT).

General educational competence

An educator:

- has mastered the processes and conditions of education at university on both theoretical and practical levels, combined with a deep knowledge of psychological, social and multicultural aspects;
- is able to use the context of education and understands the educational systems, and the trends in their development, related to the system of vocational education in particular;
- is able to support the development of individual qualities in the students, in their field of interest and vocation;
- has knowledge of the rights of a child and student, and respects them in educational work;
- has a high level of creativity, flexibility and adaptability for the education process.

Educational (didactic) competence

An educator:

- is able to transform the methodology of knowledge of the given discipline into the way of thinking of students in the given subject of study;
- is able to choose the most suitable methods, forms and aids for the teaching process with regard to educational goals;
- is able to use Information and Communication Technologies for the teaching process and for the support of students' learning;
- is able to lead students towards self-responsible learning.

Diagnostic and intervention competence

An educator:

- is able to use the methods of educational diagnosis in teaching on the basis of the knowledge of individual prerequisites of students and their developmental specificities, and is able to diagnose social relations in the class;
- is able to identify students with specific learning and behaviour disorders and to tailor the selection of the subject matter and teaching methods to their capabilities;
- has mastered the methods of giving guidance to gifted students;
- is able to recognize in students a social pathological manifestation such as bullying and battering, and knows the possibilities for their prevention and remedy, which he can apply;
- has a good command of methods for ensuring study discipline in the lectures and seminars and is able to solve educational situations and educational problems.

Social and communicative competence

An educator:

- has mastered the means of creating a favourable working environment (teaching climate) in lecture and seminars on the basis of the knowledge of social relations among students;
- has mastered the means of professional socialisation of students and is able to apply them in practice;
- is able to handle demanding social situations at university and outside the university and is able to help students;
- knows the possibilities and limits of the impact of out-of-school environment, peers and media on students, and is able to analyse the causes of negative attitudes and behaviour of students and to use corrective measures;
- has mastered the means of communication in education in the lecture;
- is able to apply efficient methods of communication and cooperation with parents and social partners of the university.

Management and legislation competence

An educator:

- has a basic knowledge of the legislation and other regulations and documents related to the performance of his profession, his environment and the profession for which he prepares students and is able to use them in instructional practice;
- is familiar with educational policy, has a good knowledge of the conditions and processes of functioning of a university;
- is familiar with administrative work related to keeping records of students and their educational results, and is familiar with record keeping and reporting;
- is able to develop projects on the level of an institutional cooperation, both domestic and international.

Professional and personality cultivating competence

An educator:

- has a general grasp of educational issues in philosophical, cultural, political, legal and economic fields, and is able to apply them to shape attitudes and value orientations of students;

- is able to represent his profession on the basis of mastering the principles of professional ethics, and has mastered the patterns of professional behaviour;
- has the necessary personality prerequisite for cooperation with colleagues and other members of educational staff;
- is capable of self-reflection on the basis of self-assessment and evaluation, using different entities;
- has physical resistance and physical fitness;
- has moral integrity.

Models of teachers' professional development

During the professional development of university teacher career we can realize that there are some typical steps of building pedagogical competences. It can be described and simplified in the following models. (Figure 1; Figure 2). Efficient professionals use both models but gradually they decrease using the rules and more they tend to improvisations. But it must be competent improvisation.

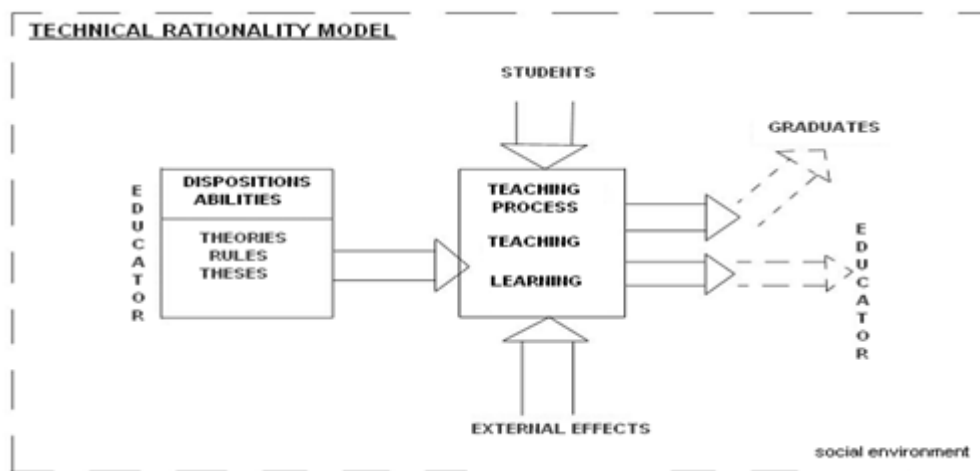


Figure 1. Thinking before acting

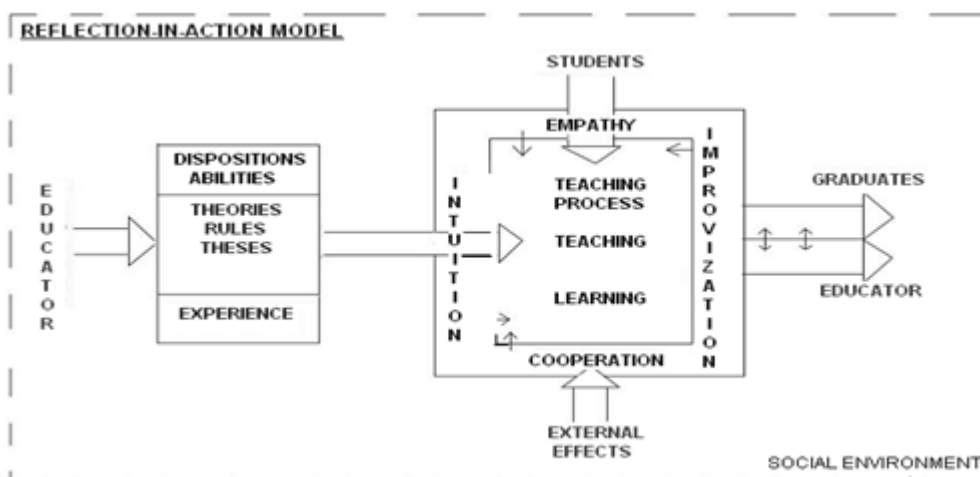


Figure 2. Thinking in reflective conversation with the situation

Results and discussion

From the very extensive results of the survey, there is a collection of those which are connected with pedagogical competencies of university teachers.

Table 2

Assessment of lectures and seminars by the CULS students (average)

Index	FEM	FAFRN	FE	FFWS	FES	ITA	IEC	CULS
A statement on the subject	4.24	4.29	4.22	4.33	4.26	4.36	5.09	4.5
Evaluation of the conditions of teaching	4.27	4.29	4.23	4.34	4.35	4.08	5.33	4.27
Opinion on the teachers' work	4.91	4.87	4.86	5.03	5.03	5.02	5.48	4.92

Source: SLAVÍK a kol., 2012b

Table 2 shows that:

- the best review of the monitored education items got views on the work of teachers (4.92), the highest average register Institute of Education and Communication (5.48), the lowest value has the Faculty of Engineering (4.86) a slightly better result was achieved by Faculty of Agrobiological Sciences (4.87);
- less favorably review occurs in item "A statement on the subject". The comments to the subject was the highest average value Institute of Education and Communication (5.09), the lowest Faculty of Engineering (4.22);
- when assessing the conditions of teaching, the highest averages were Institute of Education and Communication (5.33), the lowest value got the Institute of Tropical AgriSciences (4.08).

Table 3

Average results of the evaluation from the individual questionnaire items by CULS students

A statement on the subject	Lectures	Seminars	Average
1a) links with practice	4.00	3.66	3.83
1b) subject fulfils my expectations	4.44	4.29	4.37
1c) time appropriateness of including the subject in the curriculum	4.52	4.30	4.41
1d) expected level of difficulty of the subject	4.26	4.28	4.27
Evaluation of the conditions of teaching	Lectures	Seminars	Average
2a) informational assurance of the subject (technic.lit., textbooks)	4.11	4.23	4.17
2b) electronic study materials (e.g. Moodle) help me	3.98	3.63	3.81
2c) satisfaction with educational environment and equipment	4.72	4.51	4.62
2d) time appropriateness of including the subject in the daily schedule	4.60	4.37	4.49
Opinion on the teachers' work	Lectures	Seminars	Average
3a) gives the impression of an expert in his field	5.30	5.16	5.23
3b) has the ability to attract and motivate	4.59	4.38	4.49
3c) has the ability to create a positive and friendly atmosphere	5.08	4.83	4.94
3d) is willing to devote to students	5.16	5.15	5.16
3e) gives students the opportunity to express their opinion	5.21	5.07	5.14
3f) his interpretation is understandable	5.05	4.91	4.98

Note: 1 min. satisfaction - 6 maximum satisfaction * 1 min. difficult - difficult max. 6

Source: Own processing

Table 3 shows that:

- educators of Czech University of Life Sciences in Prague strike significantly as experts in their field, the value is the highest of all surveyed items (5.23); it can be stated that in this direction they have discipline and subject competencies; another characteristic of this competence "The ability to link the teacher's knowledge of the relevant disciplines and practice" belongs to one of the lowest measured values (3.83); it is particularly troubling in practice (3.66), where connection with the practice should be enhanced;
- the willingness of teachers to devote to students is also highly evaluated (5.16); teachers thus have an average of general education competence, where they support the individual quality of each student;
- "The clarity of interpretation" is relatively highly rated (4.98); it is given by appropriately applied methodological repertoire in teaching and thus by developed educational didactic

competence; on the contrary, the low average value of items related to the benefits of electronic study materials (3.81) indicates weaknesses in applying of this competency;

- the fact that most teachers “give students the opportunity to express their own opinion” (5.14) and their “ability to create a positive and friendly atmosphere demonstrates” (4.94) a well established social **and communicative competence**.

Table 4

Opinions of the Czech University of Life Sciences Prague students on what affects the clarity of teaching in lectures and seminars (in %)

Lectures, seminars	FEM	FAFRN	FE	FFWS	FES	ITA	IEC	CULS
	%	%	%	%	%	%	%	%
The lack of knowledge from the previous study	41.88	37.84	40.96	39.88	43.26	43.73	50.08	41.44
Lack of interest in the subject	18.34	16.59	17.25	15.03	11.51	9.38	3.70	15.21
The rapid pace of the teacher	13.81	12.55	9.87	13.47	6.73	6.25	10.95	12.14
Inadequate or inappropriate way of explanation	10.5	9.52	8.21	11.96	14.18	9.38	7.25	10.22
High demands for understanding of the subject content	13.37	17.63	19.37	15.02	18.94	15.63	25.60	17.25
Impersonal, cold approach of the teacher	1.55	5.87	4.34	4.64	5.38	9.38	2.42	3.29
The problem in the teaching in foreign language	0.55	0.00	0.00	0.00	0.00	6.25	-	0.45
OVERALL	100	100	100	100	100	100	100	100

Source: SLAVÍK a kol., 2012b

Table 4 shows that:

- as main cause of difficulties with understanding of teaching, students consider the lack of specific knowledge from previous studies;
- as the next two causes, they indicate not only high demands of subjects to be understood, but even the lack of interest in the subject; this last detail is alarming, it confirms the need for **more effective motivation of students by teacher**.

For the purposes of this paper and detecting of how the teachers developed their **professional and personality cultivating competencies**, which also emphasizes self-reflection on self-assessment and evaluation by various subjects "paired items" evaluation was used in the student and teachers questionnaires.

If the value of the difference of the student (S) and teacher (P) opinion is positive, students assess this phenomenon more favourably than teacher and vice versa. The rate of reflection was observed in four comparative items, which was:

- the clarity of instruction,
- the teacher's ability to lead an interesting and motivating teaching,
- the fact that the creation of space for students' opinions and debate is made,
- the fact that it is possible to create a positive atmosphere in the classroom.

Table 5

Comparison of selected items

Item	FEM	FAFNR	FE	FFWS	FES	ITA	IEC
T: My teaching is understandable	5.28	5.25	5.42	4.75	4.78	5.33	5.00
S: His teaching is understandable	4.95	4.93	4.97	4.76	4.87	5.18	5.42
Difference S - P	-0.33	-0.32	-0.45	0.01	0.09	-0.15	0.42
T: I consider my teaching as interesting and motivating	4.92	4.92	5.25	4.75	4.56	5.00	4.75
S: He has the ability to engage and motivate	4.52	4.49	4.45	4.55	4.58	4.80	5.27
Difference S - P	-0.40	-0.43	-0.80	-0.20	0.02	-0.20	0.52
T: I create sufficient space for discussion and expression of students	5.11	5.00	5.25	5.10	5.20	5.00	5.25
S: He gives students the opportunity to express their own opinion	5.18	5.00	5.06	5.28	5.23	5.34	5.56
Difference S - P	0.07	0	-0.19	0.18	0.03	0.34	0.31
T: I am creating a positive atmosphere of cooperation with students	5.41	5.00	5.10	4.98	5.20	5.33	5.50
S: He has the ability to create a positive atmosphere	5.20	4.74	4.81	4.95	4.88	4.94	5.27
Difference S - P	-0.21	-0.26	-0.29	-0.03	-0.32	-0.39	-0.23

Source: Own processing

Table reveals that:

- Intelligibility of their own teaching seems to teachers quite high, but rather varies widely. From students' point of view, the values of four faculties are significantly lower and two slightly higher. Except for the Institute of Education and Communication, where the value is significantly higher. It reflects a certain professional modesty of the educators at the Institute.
- For item that assessed interest and incentive effect of interpretation on students there is a high difference in comparison of the views of students, especially in Faculty of Engineering. Students do not share teachers feeling that their interpretation is interesting and motivating. The opposite situation is again at Institute of Education and Communication, where students evaluate these teacher skills better than teachers value themselves.
- The values of items in which teachers and students evaluated what is the chance to express opinion in lectures vary between individual parts of Czech University of Life Sciences the least.
- An item expressing the extent to which the teacher is doing well and is aware of psychosocial conditions in education (which affects significantly the course and outcomes of the educational process) is diverging significantly among teachers and students at the Institute of Tropical AgriSciences and Faculty of Environment.
- Students' assessment of the other CULS faculties shows that this element of the educational process has only a slight deviation.

Conclusions

- Competency has been defined as the ability to perform or carry out defined tasks in a particular context, at a high level of excellence. It is more than only knowledge and skills. It includes personal attitudes connected with social and moral appropriateness. An analysis has then been made of competencies in seven categories of the characteristics of good educators. Such an analysis gives a framework to both teachers and their trainers with which to assess personal goals and perceptions. A progress can be later monitored during the training and afterwards in professional experience as an educator.
- At first, they thought that pedagogical skills are obvious part of specialization of a teacher. Most of them thought "If I am an expert in my specialization, I am also able and I have the ability to teach and transfer my knowledge to my students". As lately as during the course, they have discovered

new reality, until that time unknown. They have admitted that to be an excellent university teacher, they have to have pedagogical knowledge and they have to be an expert and professional in this field, too.

- The survey points to a positive conclusion that the teachers themselves have concluded a necessity to gain and deepen their skills.
- Based on the survey information, the IEC intends to continue to offer courses focused on further development of educational skills which would be used by interested teachers. The aim is to eliminate shortcomings in pedagogical, didactic, psycho-didactical, social, psycho-social and communicative competencies.
- Students who participated in the survey should be announced that their views are important for the university and became an important basis for future improvements of the educational process.

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