Tooling for Assessment and University Teachers' Self-assessment on the Basis of Competency Model

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The study analyzes the problem of implementing a competency profile as an alternative way of an assessment and university teachers' self-assessment system development. There the profile design procedure and the problems occurring within the process of its development and implementation are embodied in the study. The examples of a self-assessment procedure and a competency profile design are also given here.

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The university level mainly depends on its staff competence (competence of the university teachers (UT), or knowledge workers (KW)): the major factor of the university record is the UTs' operational efficiency. According to management guru P. Drucker, we know about the operational efficiency of knowledge workers as much as people knew about the operational efficiency of industrial classes in 1900 [1]. For the last century the operational efficiency has developed by 50 times. Our society faces the challenge of developing the operational efficiency of knowledge workers respectively. P. Drucker managed to formulate 6 determinative factors which specify any operational efficiency:

1. The question "What tasks have to be set?" is to stimulate the operational efficiency. The task clarification allows to focus on them only and to exclude influence of confounding factors as far as possible.
2. Knowledge workers have to be responsible for their operational efficiency, have to manage themselves and have to be independent when it is necessary.
3. Ceaseless innovations are to be an essential part of the workers' performance, goal setting and areas of responsibility.
4. Doing mental work an employee has to learn much, whereas an employer has to invest in workers' training willingly.
5. It is quality but not quantity which is important for the operational efficiency of knowledge workers; in addition, the quality should maintain not to minimum standards but to optimum or even maximum ones.
6. There is only one way to get a successful knowledge worker – if he is esteemed as an "asset" but not as an "expense". In such a case he is supposed to be loyal to the organization he works for, in spite of other job offers and opportunities.

To be successful workers has to know about their own weaknesses and fortes and to make it possible they should communicate. Self-assessment and a worker's assessment are significant for both employer and employee. Being self-assessed and assessed by the manager and colleagues allows an individual to feel recognition, self-esteem and right consciousness of self in the team. Self-assessment and assessment result in an employee's finding out his weaknesses and fortes which lead to efficient fortes implementation and working out a strategy of personal development. An employer should consider recurrent

personnel assessment to be his official duty and basis for encouraging his employees develop, for their moral and economic reward, for the possibility to task them with doing something significant, etc.

All abovementioned is applied fully to university teachers. A range of a teacher's responsibilities is extremely wide which makes the procedure of self-assessment and adequate assessment by a head of a department an intractable problem. There is a very good point [2] that "there is no other profession which could have such a multidimensional, detailed job description as teaching. Learning of this trade demands not alone certain inborn aptitudes and ideally talent but lots of intellectual, physical, time and emotional-volitional efforts".

It's quite obvious and legitimate that any decision-maker attempts to assess adequately the performance of each UT, each department staff, each division staff and the whole university personnel. On the one hand, the university governing bodies have to form a clear view of certain teams and separate individuals' capabilities; on the other hand, there grounded decisions of the career system development are required. Moreover, it is essential to give the staff accurate information about what they are supposed to do. Finally, although the majority of teachers work with total efficiency, it is necessary to remind them (not only inexperienced teachers) about their roles and responsibilities. There is an idea [3] that "there are some professors who decipher mistakenly their title from the word "profit" instead of the Latin word "profiteri" which means "to tell the truth". Unfortunately, it is said, for recent 50 years there has been a significant reduction of honest professors' percentage. On the one hand, it is connected with pervasive changes in society with its longing for profit and unbridled corruption; on the other hand, it is connected with inflation of the title.

In spite of the fact that there are a great number of researches dedicated to the problem of operational efficiency assessment, their results hold out little hope in solving one. H. Shmidt's profound research [4] analyzes different approaches to scientific activity efficiency assessment of both large research teams (for example, in the sphere of research of fundamental particles) and individual scientists (the basis is bibliometrics, value of patents,

macro- and micro-economical data). He believes that search for methods of R & D efficiency assessment is not pathetic but we do not have an opportunity to assess it sufficiently yet. In particular, assessment of result financial value faces some troubles and in the field of fundamental research is absolutely impossible. As for UT teaching activities, we can say that they are so multifarious that it is unlikely for them to be ever assessed sufficiently. It is possible to assess only certain (the simplest and numerically measurable) aspects of these activities. What is more, there is no scorecard which can characterize a teacher's diligence, citizenship and the interaction between a teacher and students. At the same time these factors no doubt influence graduates' gaining skills set. It is also hard to assess operational efficiency of some departments and the whole university because we can see and assess it only in several years after a student's graduation from the university.

Since numerous scorecards can show us just rough assessment of universities operational efficiency, their divisions and individual teachers, this brings up the question – is it worth paying so much time and attention to these scorecards? Of course, it is worth if we won't forget (when we make far-reaching decisions taking them into account) about the fact that the indicators being used are just proxy indicators: they can assess certain spheres of operational efficiency quite correctly and can be used by managers at all levels in order to identify specific problems and to make decisions, but only when proxy indicators represent real factors. For instance, when a teacher publishes a paper in not a peer-reviewed journal it does not mean that the paper is of bad quality. The causes would be the following: long publishing period, high publishing cost, inadequate command of language or the fact that a potential paper reader is a Russian.

One of the alternatives in assessment and UT self-assessment construction is a competency model implementation (a competency model represents ideally a full ranged set of competencies which describe core qualities, behavior, knowledge, skills and other characteristics necessary to maintain quality standards and professional effectiveness). Foreign L&D professionals (learning & development) have vast experience of using competency building approach which results in companies'

24

competitive growth in the real economy. Over the last years interest in using competency models in Russian and foreign higher education systems has increased [5–8]. Their usage makes the "ideal teacher" model possible and thus it can be an ideal example for assessment and self-assessment processes.

Via decomposition of several core competencies the model can be detailed much. For example, the competency model for a school teacher created in Canada includes more than a thousand competencies. The decomposition of key competencies no doubt demands thorough familiarity with teaching activity aspects.

It is necessary to strike a balance of a detailed elaboration of all teaching activity aspects and a thorough detailed elaboration risk. The decomposition of a UT competency model into a thousand separate competencies would lead to "pulverizing" of professional competencies - that is why we need some filter in order to highlight the most relevant competencies (less that 100) which can be applicable. Such a pre-selection has been made based on standardized documents of different levels, jury of opinion and background paper [2, 9, 10, etc.].

Selected competencies were proposed to the panel of experts to be assessed. The panel consisted of 22 experts (17 professors and 5 associate professors) including the Heads of the Departments (17), managers of Master Studies, Post-graduate Studies and Post doctorate Studies divisions, the Information Expertise Center manager, the Elite Education Department manager, the Institute of Distance Learning lead manager. The panel of experts was approved by the University Rector.

The experts had to assess significance of each competency. For that reason a table of competency significance assessment was developed (you can see its fragment in Table 1). It was accompanied by competencies assessed nature of content.

The experts discussed the set of competencies given in terms of its completeness, redundancy or insufficiency.

As the result, the set of competencies has been completed, we turned back on an excessive detailed elaboration and came up with the optimal set of competencies including 8 divisions (groups) of UT competencies and 9 – of the Heads of the Departments (Figure 1). Each division consists of the indicators set which represents competencies nature. Significance and

rank of each competency were defined by means of the paired-comparison method at the stage of selection and development of the competencies set.

One of the methodological problems is a choice of the rating scale. Having chosen initially a classical rating scale (5-score scale), we found out that in case of a UT's assessment/ self-assessment it would "depend" much on the school assessment of knowledge: 5 – excellent, 4 – good, etc.

It makes difficult the process of a competency skill level, as there is no spare room for the gradation: "high skill level", "intermediate skill level" and "low skill level". For instance, the intermediate skill level can correspond to the lower bound of the high skill level of a competency which seems to be impossible to represent in the 5-score scale – here we also need a balance. In our opinion, the ideal and the most practical is a 7-score scale: on the one hand, it is flexible and helps to assess a competency skill level reasonably; on the other hand, a competency skill level is not smeared within the level. In this case the low skill level corresponds to the interval 1-2, the intermediate skill level – 3-5, high skill level – 6-7. There are specifications for each skill level which provide a framework for carrying out self-assessment. There are specifications for the divisions either. You can see a specification fragment in Table 2.

Hence we output a ranged skill set which allows us to develop a personal competency profile in the process of assessment/ self-assessment (here "personal competency profile" means a complete set of competencies necessary for an individual employee to perform efficiently in his or her official capacity).

But there is a problem of the standard determining due to the fact that a mark is a result of comparison of the desirable and the real. In other words, first of all it is necessary to develop an "ideal employee's" competency profile. The manager is supposed to do it: he develops the ideal competency profile on the basis of aims and current tasks and chooses the most actual competencies from his viewpoint.

The one disadvantage of this approach is its high subjectivity. We might smear this problem if we developed a competency profile for departments which seems to be a more labor-intensive process. It would be necessary to gather the panel of experts – whether there would be all

members of the department staff or not. There competency selections, definition of their significance and rank, their skill level would have to be carried out. After that the competency profile for the department would be developed and compared to the competency profile of each member of the department staff.

The assessment process includes several stages.

An employee analyzes his own competency profile. Having defined the skill level he has to explain the interference foundation, i.e. his self-assessment is to be well founded. The arguments can include certificates collected from refresher courses, mission reports, awards for research works or community involvement, students' achievements, etc. The next stage for the employee is to compare his profile with the ideal one. If there is a divarication, specifications and clarifications are significant. The interview with the employer is an abiding procedure because it appears to be both feed-back and an opportunity to discuss and to "round out rough corners" if such emerge.

Ideally the self-assessment procedure should be an annual process and its results should be recorded in the employees' personal files. It could give them an opportunity to trace the path of their professional and personal development upon the expiry of time.

There should be a strict list of people having access to the personal files. In our opinion, the employee and his or her employer are the people who can do it.

One of the criticisms the competency profile developers face is connected with the problem of inexactness of competency indicator formulations. For instance, what does the phrase "deep knowledge of the teaching" mean and how can we assess it? Let us remind you: this refers to self-assessment. Humans can equally underestimate and overestimate themselves. An "unbiased" assessment (by the employer or colleagues) and the interview can help to correct biased self-perception. But as a rule people know about their own weaknesses and fortes and can be fairly unbiased if they are sure in the fact that their self-assessment won't cause sanctions.

We can see it from the results given by the members of the courses dedicated to the competency model development and implementation within the TPU skill pool group (TPU – Tomsk Polytechnic University). They were instructed to develop a core competency individual profile based on the list accepted by the experts. After that with the consent of the members the heads of the divisions they work for were offered to assess their employees on the basis of their core competency grasp. But the heads did not get the employees' individual profiles. Then two profiles given were combined.

Table 1

1. Professional educational competencies		1	2	3	4
1.1	Deep knowledge of the teaching				
1.2	Knowledge of latest world advances in the teaching				
1.3	Command of project management				
1.4	Command of education science foundations				
1.5	Knowledge of psychology foundations				
1.6	Knowledge of instructional devices				
1.7	Command of instructional devices				
1.8	Ability to make full use of educational modes, methods, aids and devices in order to reach educational target				
1.9	Ability to find and implement new instructional devices				
1.10	Ability to encourage educational and cognitive activity of students				
1.11	Command of educational modes, methods and devices of personal educational abilities, specific features of the teaching and the contingent				

Scale: 1 - insignificant, 2 - nonessential, 3 - significant, 4 - essential

Picture 1. The scheme of the faculty assessment and self-assessment tooling build-up based on the competency model.

Division of professional and personal competencies   Division of professional activity competencies
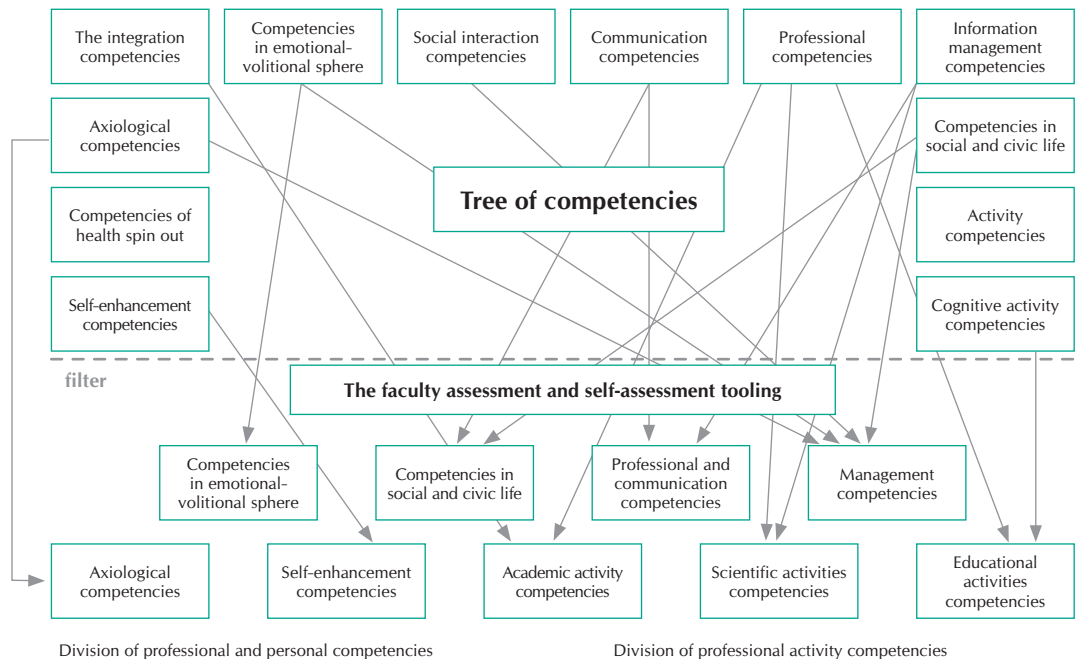
In some cases the difference between the assessment and self-assessment was insignificant (Table 3). Only once they had to fall back on the interview with the division head.

The self-assessment procedure is not an accreditation – it is of predictive nature – and its aim is to help a UT to:

- find directions for his career development;
- make refresher courses relevant to the employee's, the department and the university actual requirements;
- improve the dialogue "employer-employee".

The procedure might be an addition to the performance appraisal since it gives extra information about employees; it is significant because, since the performance appraisal procedure is regulated by a great number of legislative and statutory acts, its results can directly influence the employee's position and salary. The assessment and self-assessment procedures are carried out in view of prospects and help to distinguish the employee's potential, whereas the performance appraisal is just a "snapshot" capturing professional knowledge and skills level as of the time of its carrying.

The set of competencies is to be up-to-date which gives rise to the necessity for specifying the frequency of its updating. As for TPU, we upgrade the University Development Integrated Program each 5 years; therefore we can also upgrade the set of competencies. The university divisions correct the set of competencies on the basis of current tasks. The university mission might be the basis for the reference model of core competencies development.

Table 2. Professional competencies.

3-5. A person has a general idea of the activity goals and objectives and finds methods of professional objective solution but needs guidance; as for serious matters, a person can be responsible for the results of work performed; is able to take the initiative if necessary; has a knowledge of professional activity in rich (invariable to other specialties) area to an adequate standard; has professional skills adequate to work effectively in the certain area and constantly develops them; is able to manage some information in the professional knowledge area; has elementary skills in business correspondence area and has a general idea of record management.

Table 3. Levels of core competencies – skill levels.

Core competencies	Significance	Rank	Skill levels – from optimal to ideal						
			1	2	3	4	5	6	7
Professional competencies	0,117	1							
Cognitive activity competencies	0,111	2							
Self-enhancement, figural and self-consciousness competencies	0,104	3							
Activity competencies	0,104	3							
Компетенции интеграции	0,103	4							
Information management competencies	0,084	5							
Axiological competencies	0,074	6							
Social interaction competencies	0,065	7							
Competencies of health spin out	0,062	8							
Competencies in emotional-volitional sphere	0,060	9							
Competencies in social and civic life	0,059	10							
Communication competencies	0,057	11							

The Department of Power Plants

Last, first and middle names **********

Date of filling out

Self-assessment profile ————

Assessment by the Head of the Department ————

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