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Monitoring of Higher Educational Establishment Researching and Teaching Staff Professional Activity

Introduction.

A new dimension of the education modernization stems from humanistic paradigm in educational process organization, opening up new option possibilities of self-determination and the subject-subject mutual relations for each participant. Undoubtedly, this form of education can be provided only by a highly qualified, creative, socially active, oriented humanistic values teacher. Hence, the issues of research and teaching staff effective professional skills formation, their updating and evaluation remain of interest. Considering the above mentioned facts, it is reasonable to study general characteristics of professional academic staff activity to specify some key factors of their development, assessment and self-evaluation.

Literature review.

The essence of educational work has been studied by such scholars as

V. Blum, N. Bordovska, A. Rean, O. Galus, N. Guziy, T. Guskey, I. Zimnya, N. Kuzmina, A. Kuzminskiy, Z. Kurlyand, A. Markova, V. Semichenko, V. Slastonin and others. Monitoring has been studied in the works of many researchers. For example, a Russian scientist A. Orlov considers monitoring to be an innovative process in education [7]. A Ukrainian professor H. Yelnykova, studied educational monitoring, determining it as that accompanying evaluation of any process in education, to substantiate further decision making and thus ensuring a certain goal achievement [1]. Researchers V. Repkin and G. Repkina believe that the concept of 'monitoring' is close to such widespread scientific and pedagogical concepts as feed-back, reflection, control and current evaluation [8]. D. Whilliams, professor of Canadian British Columbia State University, describes different types of monitoring and the 'entry-exit' model [11]. The educational monitoring on the factor-criterion model basis was developed by the leading Ukrainian scientists such as: H. Yelnykova, V. Luniachek, Z. Riabova and others.

The research papers analysis has revealed that the issues related to research and teaching staff professional activity evaluation on the permanent monitoring and objective assessment basis, were taken no notice of attention by researchers.

The aim, tasks and methods of the work.

The objective of the article is higher educational establishment research and teaching staff professional activity analysis. To achieve this aim, the following tasks are pursued: to determinate the higher educational establishment research and teaching staff professional activity elements; study the ways of monitoring technology implementation; specify the tools of higher educational establishment research and teaching staff professional activity evaluation. The basis of this research was furnished by theoretical analysis next to some educational experiments which have been conducted. The work has been fulfilled according to the S&R plan of Simon Kuznets Kharkiv National University of Economics.

The methods, applied in the work, included a problem-solving, logical and systematic, as well as structural and functional analysis of resources; a modeling method; empiric methods of the research, comprise diagnostic ones; experimental ones based on the use of qualimetric as well as mathematical and statistical processing of the obtained data.

Research findings.

It is generally acknowledged that social conditions determine the surroundings that stipulate professional conduct of research and

teaching staff, regulate their purposeful actions. Any society has to realize its educational and educative functions. Research and teaching staff contribute to meeting the society's demands, actively participating in creating certain fundamental social relations and hence enabling their further development. Research and teaching work is a process that unites members of the society. Society needs stimulating the creativity of teachers and thus becoming the driving force of their development. It is important to emphasize that research and teaching faculty play a privileged role as they are knowledge carriers. A higher educational establishment is the environment which accumulates, translates the existing knowledge, thus creating new knowledge (or bringing about new ideas). The quality of knowledge provided by an educational establishment depends on the proficiency level of its staff.

It is known that any activity is a specific human form of active attitude to the world around. V. Semychenko underlines that in psychology the activity is defined as 'the process of human work aimed at achieving certain consciously set goals. The goals themselves are defined as one's immediate interests and needs, or the requirements of the society, the state or a particular organization' [10, p. 3].

Scientists consider various aspects of activity. Thus, S. Rubinshtein, describing the activity structure, emphasizes that it comprises the following elements: motive – aim – means – a social situation – results estimation [9]. O. Leontyev believes that major activity determinants are as follows: motive – aim – condition; these components, in their turn, form corresponding levels: the activity, actions and operations [6]. In the context of educational activity analysis researchers use the following component set: need – motive – task – mode of operation. Taking into consideration that different components have different functions at various activity levels, as well as actions and operations, to analyze a mental activity type G. Shchedrovitski applies a multi-component structure: aim – task – source/material – means – method – procedure – product [5]. With the account taken of the above-mentioned, it is possible to determine the structure of an educationalist activity as follows: needs – aim – task – mode of operation – procedure – result. This structure has both a systemic and cyclical character. Thus, the activity is the end result of personality activity in any professional field, especially at higher educational establishments.

Research of organizational and professional activity comprises the scope of academic staff educational work. Let us consider the specifics

of these activities. Encyclopedia of Education defines 'an educational activity' as 'a complex organized interrelated system of activity, including: teachers' practical activities related to teaching and education of an individual; the methodical activity of specialists teaching pedagogics to the academic staff of various institutions; management activity of principals, as well as scientific, educational and research work' [3, p. 640]. It is clear that, the latest interpretation of educational activity is wider as it includes not only teaching and educational activities, but also a research one, which fully discloses the essence of teachers' activity at higher educational establishments. Therefore, we believe that it is the research component that reveals the scientific nature of any educational activity, bringing to the fore its dual scientific and educational character.

To act effectively it is necessary to constantly analyze and improve the activity performance. Monitoring is a productive technology to achieve these aims. Monitoring is a reliable instrument of the holistic educational process analysis too. Monitoring is related to the evaluation of aims as well as plans realization. Its basic task is to reduce to the difference between the standard and the current level of individuals' activity development. Monitoring reveals certain deviations from the set standard thus forming the basis for reflection. Reflection is the personality characteristic that affects one's professionalism and assists with successful implementation of any activity, directing a mental process, organizing and managing it. The system of research and teaching staff professional activity evaluation monitoring contains such elements as: standard establishment as well as standard operationalization determination; working out the criteria, according to which we can make a judgment on the standard achieved; proper data acquisition as well as results and actions assessment, related to the compliance of the appropriate measures, the implemented results evaluation in accordance with standards.

A monitoring process consists of such stages: aims determination (what it is necessary to achieve); measuring of the program realization effectiveness (why everything takes place this or that way and what can take place in future); the program correction (what can be changed). While applying the monitoring procedure, the tools using qualimetric measuring is essential. Qualimetry is a science that unites the methods of products quality quantitative evaluation [4, c. 34]. A diagnostic goal setting determines the application of qualimetric tools. The factor-criterion models furnish the base of the educational monitoring realization.

Considering the above-mentioned, we implemented the system

of research and teaching staff professional activity evaluation. The qualimetric model of higher educational establishment research and teaching staff professional activity evaluation includes such components as: research and teaching staff needs analysis according to their functions, their professional development aims determination on the basis of activity content, study activity according to the set goals, actions plan design in relation to teachers professional development, research and pedagogical activity and the attained results effectiveness [2].

Let's consider a fragment of the table describing the qualimetric model of higher educational establishment research and teaching staff professional activity evaluation (table 1).

Let's view the process of working with the qualimetric model of higher educational establishment research and teaching staff professional activity evaluation [2]. According to the qualimetric model, its components were specified as the factors of this model, that were indicated as $F_i, i = 1, \dots, 6$, and value of these factors were indicated as $f_i, i = 1, \dots, 6$: F_1 – research and teaching staff needs analysis according to their functions, $f_1 = 0.15$; F_2 – their professional development goals determination on the basis of one's activity content, $f_2 = 0.2$; F_3 – one's study according to the setting goals (in

Table 1.
The Qualimetric Model of Higher Educational Establishment
Research and Teaching Staff Professional Activity Evaluation
(fragment)

Factor – F	value – m	Criteria content	value – v	conformance index – K	conformance index value	Partial criteria assessment	Partial factors assessment
...							
5. Research and pedagogical activity	0,20	21. Teaching activity	0,30	K21		0,00	0,00
		22. Methodology activity	0,20	K22		0,00	
		23. Research activity	0,30	K23		0,00	
		24. Organizational activity	0,20	K24		0,00	
....							
Total assessment in a unit parts	1,00						0,00

F_2), $f_3 = 0.15$; F_4 – actions plan design in relation to teachers professional development, $f_4 = 0.15$; F_5 – research and pedagogical activity, $f_5 = 0.2$; F_6 – result effectiveness, $f_6 = 0.15$.

The above mentioned factors and their values are given in the two first columns (table 2). As an example let's take factor F_1 . Five criteria of this factor are presented in the second line and the third column (table 2).

The criteria value are defined by the experts and determined as m_i , $m_i = 0.2$, $i = 1, \dots, 5$. The second factor – F_2 comprises five criteria, the third one F_3 – includes seven, the fourth one F_4 – comprises three, the fifth factor F_5 – includes four criteria and the sixth one F_6 – three criteria. Altogether there are 27 criteria. The criterion with index i from the third column corresponds to value m_i with the same i from the fourth column.

The teacher who evaluates him/her activity with the help of this qualimetric model has to assess one's activity according to each 27 criteria. Conformance index value is k_i for criterion i .

The experts suggest to give k_i the following value: 0.00 – a teacher doesn't correspond to a certain level; 0.25 – a teacher corresponds to a certain level around 0% to 40% of requirements; 0.50 – a teacher conforms to this level around 40%–60% of requirements; 0.75 – a teacher corresponds to this level around 61%–75% of requirements; 1.00 – a teacher conforms to this level around 76%–100% of requirements.

Table 2.

The Qualimetric Model of Higher Educational Establishment Research and Teaching Staff Professional Activity Evaluation

Factor F_i	Factors' value f_i	Criteria content	Conformance index m_i	Conformance index value k_i	Criteria assessment	Factors assessment
F_1 – research and teaching staff needs analysis according to their functions	$f_1 = 0.15$	1. Goal setting 2. Planning 3. Organization 4. Control and Analyses 5. Correction and summarizing	$m_1 = 0.2$ $m_2 = 0.2$ $m_3 = 0.2$ $m_4 = 0.2$ $m_5 = 0.2$	0.75 0.5 0.75 0.75 0.75	0.15 0.1 0.15 0.15 0.15	$F_1 = 0.105$

After a teacher has completed the table by putting his mark in the fifth column i conformance index value k , $i=1,...,27$. The factors assessment is calculated. The factors assessment corresponds to the numbers that characterize the conformity of a teacher to the defined factors, these numbers are given the same letters F_i , $i=1,...,6$, as the factors are calculated using the formulas:

$$F_1 = f_1 \sum_{i=1}^5 k_i m_i, F_2 = f_2 \sum_{i=6}^{10} k_i m_i, F_3 = f_3 \sum_{i=11}^{17} k_i m_i, F_4 = f_4 \sum_{i=18}^{20} k_i m_i, F_5 = f_5 \sum_{i=21}^{24} k_i m_i, F_6 = f_6 \sum_{i=25}^{27} k_i m_i$$

So, the factor value F_i , $i=1,...,6$ is the sum of this factor value f_i , $i=1,...,6$ on the paired sum of the total value sum of its criteria as well as on their conformance index value.

If the sum of every criteria conformance index value is 1, so the factor index is less or equal to the factor value.

$$F_1 \leq f_1, F_2 \leq f_2, F_3 \leq f_3, F_4 \leq f_4, F_5 \leq f_5, F_6 \leq f_6.$$

The sum of factors indexes F_i , $i=1,...,6$ is considered to be equal to the level of research and teaching staff professional development and is marked as: $r = \sum_{i=1}^6 F_i$. If we sum every component of the last inequality it will be: $r = \sum_{i=1}^6 F_i \leq \sum_{i=1}^6 f_i = 1$, $r \leq 1$, so the level of research and teaching staff

professional development is always less or equal to 1, and is 1 exactly only in case when all conformance indices values are $k_i = 1$, $i=1,...,27$. The questionnaire results have been calculated including such indexes as: age, work experience, position, self-assessment of one's professional development level, as well as expert assessment of teacher's professional development level. The calculation was carried out by the method implemented by G.Boroday. To calculate the factors value and the teachers' rate some pieces of software in EXSEL and PASCAL programming languages were applied [2].

The professional level of English teachers at the department of foreign languages of S.Kuznets KhNU of Economics has undergone a 15% increase due to the above-discussed singled out criteria. We believe that the presented English teachers' professional activity description provides a definite generalized view of the content of research and teaching staff professional development, since it is multidisciplinary in nature, with the account taken of the diversity of everyday activity in the taught areas of

specialization. The provided structure allows us not only to expand but also specify any area of research and teaching staff professional activity.

Conclusions.

Thus, while considering the professional activity of academic workers and teachers we have come to the conclusion that it is based on subject-subjective relations. A skilled, proficient, creative, socially active, humanistic value-driven teacher is considered a true professional. The level of higher school teachers' proficiency depends on their competence, on the level of their professional-pedagogical thinking development as well as on their educational and research work standards. Thus, the singled out functions and composition of academic staff and teachers' research and education work reveal the nature of their professional activity, emphasizing its peculiarities. Their activity monitoring meets the requirements of the permanent program evaluation. While applying the monitoring procedure, using qualimetric measuring tools, in particular, is essential. The factor-criterion models serve as an effective tools of the educational monitoring realization. The qualimetric model of higher educational establishment research and teaching staff professional activity evaluation gives the indices of teachers' proficiency and pinpoints the vectors of further development.

Opportunities for further findings in the research area.

In recent years, a competence approach has gained prominence. Competence has become the chief indicator of any activity effectiveness.

Therefore, providing further detailed estimate of research and teaching staff competence level formation is of paramount importance, especially in terms of their professional development.

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Abstracts

ТЕТЯНА БОРОВА. Моніторинг професійної діяльності науково-педагогічних працівників ВНЗ. У статті подано результати аналізу сутності професійної діяльності науково-педагогічних працівників ВНЗ. Визначено детермінанти, функції та компоненти науково-педагогічної діяльності, які розкривають змістову сутність і складають особливість праці викладачів ВНЗ. Показано методіку використання моніторингових технологій. Описано кваліметричну модель оцінювання професійної діяльності науково-педагогічних працівників ВНЗ.

Ключові слова: діяльність, науково-педагогічна діяльність, рефлексія, моніторинг, кваліметрична модель, науково-педагогічний працівник.

TETIANA BOROWA. Monitorowanie działalności zawodowej pracowników naukowo-dydaktycznych uczelni wyższych.

Artykuł przedstawia wyniki analizy aktywności zawodowej pracowników naukowo-dydaktycznych szkół wyższych. Przedstawiono determinanty, funkcje i komponenty działalności naukowej i dydaktycznej, które stanowią istotę i specyfikę pracy nauczycieli szkół wyższych. Przedstawiono metodę monitoringu. Opisano kwalimetryczny model oceniania działalności zawodowej pracowników naukowo-dydaktycznych.

Słowa kluczowe: działalność, działalność naukowo-dydaktyczna, refleksja, monitoring, model kwalimetryczny, pracownicy naukowo-dydaktyczne.

ТАТЬЯНА БОРОВАЯ. Мониторинг профессиональной деятельности научно-педагогических работников вуза.

В статье поданы результаты анализа профессиональной деятельности научно-педагогических работников вуза. Определены детерминанты, функции и компоненты научно-педагогической деятельности, которые раскрывают смысловую сущность и составляют особенность труда преподавателей вуза. Показана методика использования мониторинговых технологий. Описана квалиметрическая модель оценивания профессиональной деятельности научно-педагогических работников.

Ключевые слова: деятельность, научно-педагогическая деятельность, рефлексия, мониторинг, квалиметрическая модель, научно-педагогические работники.

TETYANA BOROVA. Monitoring of higher educational establishment research and teaching staff professional activity.

The article discusses the results of the higher educational establishment research and teaching staff professional activity analysis. Teachers' professional activity determinants, functions and components that reveal the essence and form the research and teaching staff professional characteristics are distinguished. Methodology of the monitoring technologies implementation in the higher educational establishment research and teaching staff professional development process is shown. The qualimetric model of higher educational establishment research and teaching staff professional development is carried out.

Key words: activity, research and pedagogical activity, reflection, monitoring, qualimetric model, higher educational establishment research and teaching staff.