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## **The impact of professional development of research and teaching staff on the implementation of innovative learning technologies**

### **Introduction**

Modern higher education meets the challenge of the undergoing integration processes in the world solving the spectrum of extraordinary tasks that might involve a wide range of educational activities. Choosing them is impossible without changes in higher education management. Any changes are introduced in search of optimal decisions to support the educational systems and educational institutes management under the conditions of an unstable developing society.

Ukrainian and foreign scientists such as: V. Afanasiev (Afanasiev et al., 1988), B. Gershunskii (Gershunskii, 1998), D. Dzvinchuk (Dzvinchuk, 2007), K. Korsak (Korsak, 2006), O. Navrotskii (Navrotsky, 2006), V. Jadov (Afanasiev et al., 1988) view any higher educational establishment as a society entity that, in a changeable environment, has to constantly develop in order to ensure its vital capacity, as well as its functional stability. D. Dzvinchuk (Dzvinchuk, 2007) noticed that from the philosophical point of view the depth and ever-changing character of the world tendencies and phenomena that stimulate the representatives of all spheres of knowledge intensify their analytical and theoretical activity, as paradigms, canons, presentations and claims of the 20th century, in most aspects, lose their heuristic value and practical applicability.

It is generally acknowledged that professional development is a key requirement of the contemporary times (Borova, 2011; Gershunskii, 1998; Levin, 2003; Yelnykova et al., 2009). Professional activity in an information society is substantiated by its scientific and technical development and the evolving telecommunication facilities. In the last decade the question of wide information and communication technologies implementation in education has drawn the attention of both pedagogical science experts and practitioners.

In view of it, as was pointed out by D. Dzvinchuk (Dzvinchuk, 2007), K. Korsak (Korsak, 2006) and O. Navrotskii (Navrotsky, 2006) the requirements for educationalists are expected to become stricter, especially for research and teaching staff in higher education institution who prepare future professionals in all fields of

economy. Thus, modernization of education is impossible without constant analysis of the activities of the participants' involved in the educational process which, to a great extent, reflects the level of their professional development. Hence, the issues of research and teaching staff effective professional skills formation and updating remain of interest. Considering the above-mentioned facts, it is reasonable to study general characteristics of professional academic staff activity, English language teachers in particular, to specify some key factors of their development.

One of the aims of learning foreign languages is to help students develop general and professional communicative language competences in order for them to effectively communicate in both academic and professional sphere. It is obvious that to become an effective communicator it is necessary to create certain real life situations and a student-friendly environment. In order to achieve these aims it is necessary to involve students in discussions and various problem solving tasks. The best way to do it is to use the most powerful student learning tool – the computer, since e-learning is not only a modern technology, but also an integral part of students' life.

Despite a wide range of research works, this problem remains scantily studied, in terms of using certain professional development models for higher school staff, proficiency of foreign languages teachers in particular, specifically under modern conditions of e-society development.

The article is dedicated to the analysis of both theoretical and practical aspects of the issue of present-day adaptive management and evaluation of the professional development of research and teaching staff. Theoretical grounds of coaching in the system of adaptive management were determined. The presented model is theoretically grounded and experimentally verified. The model is aimed at maximum revealing and implementing intellectual, cultural and creative potential of faculty members, as well as at ensuring competitiveness between research and teaching staff, by using adaptive management techniques under information society development conditions. It has been proved that adaptive management of higher school research and teaching staff is realized by way of applying a directed self-organization mechanism, which is initiated by educational coaching, based on the directed self-organization principles, their objective being to support the professional development of research and teaching staff. Educational coaching procedures were carried out on the basis of educational monitoring that stipulated a permanent feedback, thus speeding up the process of professional and self-development. The scope of teaching innovations included e-learning models and tools used in the learning process. The reliability of research findings has been verified through a qualimetric model. Certain student-friendly results of e-learning technology implementation in teaching English to non-linguistic major higher school students have been obtained.

The tasks of the work are to define and distinguish adaptive management of professional development of research and teaching staff in higher education

institutions, models and techniques for ESP teaching under modern conditions of society's development, to describe the results of e-learning techniques implementation in teaching English to higher school students not majoring in linguistics.

## Research findings

The authors focused on the period of the Ukrainian society's shift to knowledge (or "informative") one as well as the search of the prospects planning, organizing and secure and successful functioning of the education system transformations (Dzvinchuk, 2007). D. Dzvinchuk underlined the necessity to give advantage to the indirect methods of management, to delegation of responsibility and to the increase of autonomy of higher education institutions autonomy.

Such an approach will give an opportunity to present the work of any higher education institution on the new level of management that will open up the possibility to implement modern tasks set by the society.

Nevertheless, not only do innovative processes lead to changes in the system structure, but also the system itself can develop in a permanent one therefore it needs a permanent management with consideration of current requirements, both external and internal. V. Afanasiev, D. Guschin, V. Kelle, V. Yadov, and others, researching the dialectics approach to explaining community development processes, tend to analyze society as an integral, open system that is capable of self-regulation, self-organization and self-development (Afanasiev et al., 1988).

Thus, the function and progress mechanisms are generated by the society itself and exist in it (Afanasiev et al., 1988). The above mentioned authors determine that any society as a gathering of people's relations is the necessary form of existence of the latter (Afanasiev et al., 1988). Any phenomenon becomes public only when it is brought into the system of public relations. Any society is simultaneously the subject and product of its own efforts (Afanasiev et al., 1988). The functioning and development of socio-economic structures transitioning from one structure to another, more progressive one, constitute the essence of public life dialectics.

The system approach gives an opportunity to consider this process from the view point of the society dialectics, when it is regarded as a separate organism, accompanied by the death of the old and formation of new systems (Afanasiev et al., 1988). Thus, education as a society frame possesses the same internal and external social relations as any other public system (Blauberg & Yudin, 1972; Gigch, 1981). Similar laws govern its functioning and development as was determined. The educational system is a constituent of any social system for it plays an essential part in the society development, possessing its own internal features.

T. Parsons distinguished the basic functional requirements to any society frame, without which it cannot exist, such as the capacity for adaptation, the possibility of being rationally organized, the ability to distribute internal resources. Apart from that it has to be goal-oriented, able to determine the primary purposes and tasks

facilitating the process of their achievement; it must keep certain sustainability, based on the same generally accepted norms and values adopted by its members, as well as those that take off tension in the system; it must have a certain capacity for integration in order to be successfully incorporated in the new generations' system. The more sequentially effective the functional division of activity at the level of institutes and social roles is, the more stable is the society itself (Parsons, 2000).

We believe that it is necessary to pay special attention to the system-forming and system-preserving constituents stipulating the entire system development, as it takes place most unevenly. Thus, adaptive management becomes central to the situational management of these systems in certain unstable situations.

Therefore, we presume that an administrative factor is of special essence in the personality formation, as it takes into account both individual vital needs, as well as social requirements. Adaptive management is a key factor in developing common interests of the individual and the society as it brings about a certain balance and ensures the interpenetration of both personal and social needs.

In a transitional period, with its peculiar changes and transformations in all spheres of social life, any individual is supposed to quickly react or adapt to them. Hence, a relevant administrative system is required. H. Yelnykova stresses that it is the application of adaptive organizational patterns, adaptive management, as well as the creation of producer (student) friendly adaptive environment, with the peculiarities of production (education), that makes modern organization management more flexible and mobile in mind (Yelnykova et al., 2009).

The increase in the quality of newly emerged education services reflects the changes in the system of higher education. Central to the process of providing a two-way interactive communication between education environment and the subjects of education is their dialogue. To be effective and successful the education process has to become dialogue-bound. The ability to carry on a dialogue and the dialogue-bound quality of the education process are the two basic principles of adaptive management (Yelnykova et al., 2009).

Modern approaches to the individual professional and self-development as well as self-realization are by far more descriptive than technological. In literature little attention is paid to technologies helping an individual to develop, in particular, administrative education technologies are not mentioned. This question has not been discussed in terms of determining coaching as a mechanism of goal-oriented self-realization. That is why the concept of educational coaching comes to focus. In view of the above, the analysis of this concept is fairly topical as coaching has turned out to be an effective goal-oriented self-realizing technology that influences an increase in one's proficiency while switching over from one stage of development to another.

As above-mentioned, the concept of adaptive management is related to dialogic adaptation and conformity of activities of managers to those of performers. Besides, H. Yelnykova pinpoints that adaptive management directs

the activity of any individual at self-realization. According to her, the adaptive management has the following characteristics: contents, organizational structure, and certain technologies (Yelnykova et al., 2009). She determines the algorithm of transformation of adaptive management system, stressing that it consists of seven consecutive processes. The first three of them represent the collective procedure of setting a realistic goal. (Turning up of some stimulating irritants-activators and the system response of them; collection and analysis of the received information to estimate the situation, the realization of the necessity to coordinate the action, mutual working out of a certain realistic goal, it being further transformed into an inner-motivated one, creation of variant models of activity, when the leading organs provide general system parameters and criteria to estimate the activity, while the performers are responsible for adapting the activity to local conditions and procedural peculiarities). The fourth process represents the activity design, the fifth discusses co-operation and self-orientation, the sixth represents self-control of the process, as well as monitoring the results, the seventh comprises the prognostication on the basis of the result analysis.

If coaching is determined from the view point of the above presented algorithm of adaptive management, some procedural similarities between the two concepts become evident. Coaching appears to have a similar stage unfolding to that in adaptive management algorithm. Basic coaching processes include: clarifying needs, setting goals, working out an action plan, with definite situation, in mind as well as monitoring and controlling the tasks carried out, and prognosis of further steps to be taken, based on the analysis of the result. If we proceed from the assumption that coaching contains the same elements as those included in the algorithm of the adaptive management, they are bound to have a common functional basis aimed at revealing a personalized potential of a person.

Coaching procedures determine that the inner state of an individual is a changeable category. The three basic fundamentals of coaching are: beliefs, values, and goals (Zeus & Skiffington, 2007). Coaching is both goal and result-oriented. It prompts a person to become aware of their own values and to strive at achieving the final goal. It stipulates one's proficiency growth due to realistic goal-setting and the accomplishment of set tasks.

Thus, for the sake of providing conditions for individual development and further increasing one's proficiency level, it is of paramount importance to work out a certain mechanism to ensure dynamic successful progress of an individual, which can, at the same time, sustain one's progress. We believe that coaching proves to be the very mechanism that analyses the changes and transformations of the individual and their skills. It also studies the limits of one's proficiency growth limits achieving; generation of certain behavioral changes of those for whom it is difficult to adapt to a new environment and accept new ideas (O' Connor & Lages, 2004). Coaching is action-oriented, with special emphasis placed on result and estimation.

Coaching spreads quickly because of social trends that fuelled this growth. Those include: corporate uncertainty, the need for innovation, lack of time to fulfill the tasks (increasing time pressure), the need for professional development, the need to learn new skills fast, etc.

Timothy Gellwey proposed to focus coaching on «developing a capacity to give objective feedback to themselves» (Gallwey, 1986). Therefore, departmental teaching is actively based on coaching. Coaching is activity oriented. The learning cycle introduced by D. Kolb appeared to be one effective coaching model, its aim being to inspire one's professional development. It was the basis of teaching adults through experience. This model was introduced in 1984 (Kolb, 1984).

Upon analyzing basic models and definitions of coaching we determined our view of it. We believe that coaching is a concept, comprising a system of measures to be taken to ensure a dialogue of the participants of the educational process to achieve the mutually set goal, including not only one's proficiency growth, but also improving the learning standards, which, in turn, fuels the educational and professional efficiency level and competitiveness of any higher education institutions. Basic principles of educational coaching are as follows: humanistic principle of continuous education, partnership, principle of maintaining positive attitude to an individual, stressing the uniqueness of any person, that of adaptivity, a constant search of proficiency growth, that of monitoring, partnership, the one of dialogic interaction, mutual forecasting of further development, with end-results in mind, as well as that of openness. The interaction between the participants of educational process is central to educational coaching. This interaction is, without any doubt, of dialogic nature, that is why we proceed from the information psychological view on educational coaching. Its foundation is the theory of information storing and processing, with emphasis on individual cognitive style of activity, as well as mental actions recording. The following steps are to be analyzed by any scientific and educational workers: comparison, analysis, synthesis, generalization, classification, as well as the use of instruments of deduction and interconceptual links fixing. It is assumed that the starting point of any cognitive strategy of development is goal-oriented and action-based. Due to this, communication is viewed as a specific relational type, with its functions of informing, interacting, exchanging ideas.

Thus, we can conclude that educational coaching centers around one's constant professional development and knowledge base upgrading through learning, self-education and training. The end goal of educational coaching – any professional self-development – is leading to self-sufficiency and self-realization. Application of the mechanism of directed self-development, which is the foundation of educational coaching, will, without doubt, ensure one's natural development, providing an opportunity to upgrade one's intellectual resources. The concept of educational coaching was discussed in terms of scientific and pedagogical workers' activity adaptive management model. The implementation of educational coaching in this context allows not only to distinguish the elements of the scientific and pedagogical

workers' activity adaptive management model, but also to single out one modern technology (coaching) used in adaptive management of individual professional development.

The following principles have become fundamental to the discussed model (adaptive management in professional development of research and teaching staff in higher education institutions), namely by: activity principle, that of proficiency development, synergical, communicative, informative-psychological. Research findings of the theory of adaptive management, as well as the concept of directed self-development and that of educational coaching have also furnished the base of the model of adaptive management of professional development of research and teaching staff in higher education institutions. The conceived model was in agreement with the principles of synergy.

The offered adaptive model has an open and a constantly developing systemic character, the goal of its creation being a successful, productive integration of both a leader and a scientific-educational worker's activity for the sake of an increase in effectiveness of educational services provision. The introduced model ensures the discerning of a set of higher education burning tasks, such as: to provide lasting cooperation of the institution subsystems to enhance the quality of educational services granted; to work out the institution system of control based on principles of evolution synergic paradigm; to ensure adaptation of the institutional departments and subsystems in the ever changing socio-cultural environment; to bring about the integration and uniformity of research activity of higher education institutions; to provide a definite continuity of education, as well as education programs interdependence.

Consequently, our model contains the following components: a conceptually-methodological one, which includes the aim, process peculiarities, principles of professional development of scientific and pedagogical workers based on the adaptive management, activity direction-oriented selection of professional development of scientific and pedagogical workers competence foundation; an organizational one, to provide conditions to ensure goal-oriented self-organization of the teaching staff; the technologically-procedural one, which embraces various technologies, as well as technologies of adaptive management coaching and monitoring, that are interrelated in the process of coaching procedures, while monitoring provides their current control to determine further coaching based decisions. Monitoring is also the basis of evaluation-effective constituent of the process that performs a summative function, evaluating the system activity at this stage. The expected results of research are a certain increase of the level of professional development of scientific and pedagogical worker and some positive dynamics, resulting from a directed self-organization of leaders and scientific and pedagogical workers. We believe that to in order to stabilize the system it is necessary to take into account those factors that constantly affect it. Those are as follows: the necessities and



requirements of the society, the emergence of innovative educational environment, as well as changes in the style of work leaders.

The present model is of integral nature. Its uniformity is one of its peculiarities. The entire model has some new characteristics and properties not inherent to its separate constituents but which tend to appear as the result of coordination of separate parts under a certain system of interconnection. In view of the above, it is worthwhile to discuss these constituents in detail. The first one is a conceptual and methodological component. We proceeded from the assumption that higher education scientific and pedagogical worker's proficiency development becomes the end result of adaptive management of their activity. That is why this point became the objective of our research. The study highlighted some peculiarities of this methodology, singled out by H. Yelnykova, that was further adapted to the system of higher education institutions. The sum of the principles of adaptive management comprises the following ones: the principle determining the priority of human development, with emphasis on its natural character; the principle of continuous development, the principle of management through self-managing; principles of resonance, motivation, as well as that of constant growth of one's proficiency; the principle of a directed self-organization, the principle of dialogic cooperation; principles of coaching, feedback and monitoring; as well as a qualimetric principle applied in adaptive management of staff. Moreover, it is worth noting that the semantic component of the model includes elements such as analysis and correction of personalized professional needs of scientific and pedagogical workers, as well as setting goals and tasks in order to ensure their professional development.

The necessary collection of information on the functioning of the system and the direction of its activity is investigated with the help of the discussed constituents.

We would like to stress that the effectiveness of tasks performance and completion is, to a great extent, dependent on the quality of cooperation of any leader and worker. If these two communicate in terms of dialogue, they will definitely maintain some collaboration on adaptive principles.

The leaders of the study functioned in a coach-like manner. That is why, under leader-coach supervision participants of a scientific and pedagogical project appeared to be far more interested in teaching and the end results of the experiment, with the efficiency quality being ensured. Questioning, feedback questionnaires, as well as personal reflection, evaluation of co-working help to reveal the professional needs and goals of the personnel.

With the above-mentioned aspects in mind, we have distinguished the following constituents of the notion of professional development of scientific-educational staff in a higher education institution. We follow the view that this competence-based professional activity was unfolding along the following lines: a) a subject-research oriented specialization, b) scientific-pedagogical oriented specialization, c) a foreign country awareness oriented specialization.



The foundation conditions of the individual directed professional self-organization are discussed. This appears to be a three dimensional process. Economic conditions substantiating the motivational sphere, providing the necessary system of material encouragement and rewards with a scientific and pedagogical worker individual rating are the first dimension. The second dimension is a socio-professional one, the objective of which is to create an innovative educational environment, stipulating both one's vertical and horizontal career growth. The third dimension specifies the development of scientific and pedagogical worker's individual cultural awareness.

A technological-procedural judicial component includes technologies of adaptive management: those of coaching and monitoring, that are inter dependant in the process of application of coaching procedures with monitoring carrying out their current control, thus which form the basis of further discussion making. Monitoring itself is the basis of evaluative constituent that performs a summarizing function at this stage.

Practical implementation of innovations brings about changes in the process of education and self-organization of scientific and educational staff's and students' activities. The latter stipulate development. It has been highlighted in the model that development is always associated with the changes in the living human system itself, and these changes are, by no means, chance events. Rather than that, they are successive and they constitute the necessary consequence of the previous events in one's life, they are related to certain periods of one's life; these changes are, beyond doubt, progressive as they describe the dynamic movement of one's life from lower to higher levels of life maintenance, determining one's life structural transformation and perfection (Encyclopedia of Education, 2008).

The model substantiates the definition of development of pedagogical mastery and scientific achievements of a scientific-pedagogical worker. Its character is cyclic, helping to form urgent professional questions. It is used with the aim of rapid administrative reacting and eliminating emerging problems with the implementation of coaching and monitoring procedures. This model has a bilateral character, for it can be applied by both scientific-pedagogical workers and leaders, for example, by a department manager. This being taken as the basis, it is possible to form at every stage the programs of the professional development of the constituents, according to which the process is organized, controlled, evaluated and adjusted which, in turn, makes the further process of development by far more ordered (Borova, 2011). The level of one's professional competence development can be evaluated by both scientific-pedagogical workers and department managers. At some stages, it is worth to consider the opinion of students while evaluating the work of a given scientific-pedagogical worker.

It is necessary to stress that the process of a scientific-pedagogical worker development is of sequential nature. An American researcher B. Bell, for example, studied one's professional development in unity with individual self-development in

the context of social one (Bell, Gilbert, 2004). Each element appears to have its levels of development, such as reproductive, structural, and creative; each one is interacting with the others on both vertical and horizontal planes. Another American scientist B. Levin, analyzing the models of teachers' professional development suggests that not only dimensions of their professional and personal development should be viewed as essential areas, but also those of students' proficiency level attainment and their interest in the specialization area (Levin, 2003). The research results of our follow scientist N. Guzii have also been taken into account. They relate to the teacher's individual professionalism in terms of pedagogic culture (Guzii, 2004). We share the opinion of the above mentioned scientists, that one's professional development, as well as personal and social ones can not be discussed separately, as all three components form the foundation of professional motivation to act. However, here arises the question of making teacher any more active and efficient in their work, arises as well as the necessity to make them more change-tolerant. Of interest is the part played by their leader in this context, taking into consideration the role of a present-day shift from an authoritarian type to a new generation leader. Without any doubt, in order to effectively introduce and implement any innovation, the strive for continuous change, development and self-organization on the part of the managers themselves is of prime importance.

Thus, we consider learning the principles governing the development of interrelations between the participants of higher education institutions and educational process administering at all stages, to be of essence. Partner relations, as well as interactive cooperation of a scientific-pedagogical worker and his/her administration is in our opinion central to the analyzed process and thus has been determined in our work. Besides, we believe that the above-mentioned partner relations between the described process participants ensure a certain multidimensional flexibility of the higher educational institution administration process (Borova, 2011). Thus, a two-way leader↔scientific↔pedagogical worker mutual adaptability, as well as streamlining of their goals, based on flexible models of activity are the manifestations of an adaptive management model characterizing the process of interaccommodation of the leader and his/her subordinate on a dia/polylogic foundation. The attainment of set goals is accomplished by combining the leader-subordinate joined efforts and certain self-organizing steps, aimed at the above goal reaching (Yelnykova et al., 2009).

In our view, it is necessary to pay attention to the fine-tuning of the systems which can greatly influence the efficiency of educational process at a higher education institution. It is the leader (scientific-pedagogical worker) student interaction that stipulates the quality of educational process. In the context of adaptive management of the professional development of scientific and educational staff, if it is worthwhile analyzing the submodel, which emphasizes a certain connection between a scientific-pedagogical worker development and the level of students' mastering their specialization area subjects and the required skills growth. It specified the

connection between the former and the latter. This model has been worked out by T. Guskey, ours being its adaptation to the environment of a higher education institution (Guskey, 1986). The discussed submodel contains three levels of evaluation of the scientific and pedagogical workers attitudes to work in the process of their professional development: in-class lesson delivery, variations of the level of students' mastering of their subjects, motivational/attitudinal changes to the work essence, as well as in their beliefs.

This model is of cyclic nature, its basis being formed by the educational objective, which is embedded in its content, environment characteristics, as well as the educational process variation. A scientific-pedagogical worker's awareness in the positive impact of content, technologies and teaching methods on the enhancement of students learning quality serves as the foundation of any scientific and educational worker proficiency dynamics and one's professional competence growth. The discussed submodel proceeds from the assumption that the initial stage of any professional development urgency, at first, stems from one's awareness that the educational status quo is irrelevant and needs to be changed, as well as one's readiness for these changes. Changes in work attitudes prove to be the end outcome of one's awareness. The planning of the actions to be taken is priority-oriented. They reflect a scientific and pedagogical worker's views and attitudes to his professional activity, prior to its commencement and a view program or a set of innovations introduced. A scientific and pedagogical worker themselves may become involved in such planning or an action planning review of one's own accord, thus highly enhancing work motivation, for there appears to be a definite degree of trust on the leader's side. Presented interrelational submodel of a scientific and pedagogical worker's professional development  $\leftrightarrow$  the quality of students' learning, comprises several stages, acquiring the following form: a) changes in practical classes/lectures delivery, b) research work innovations, c) changes in one's estimates of teachers' and students' professional achievements, d) shifts in teachers' view of and attitudes to work.

It is worth to notice such an element of the model of adaptive management of higher education institution scientific and educational staff professional development as any leader's work style, since it has an immediate effect on the efficiency of scientific and pedagogical workers' professional development. In this research, we adhere to a leader-coach professional style. According to a number of research workers, a coach is a partner in accomplishing one's professional and personal goals (Champathes, 2006; O'Connor, Lages, 2004; Whitmore, 1996; Yelnykova et al., 2009). The leader-coach is a like-minded person in the process of innovative changes introduction and aspirations for the better. He/she is a communication skills trainer, a sure helper in decision-making, a true motivator in case certain decisive actions are due, a tutor in one's professional development, a partner in any project creation, as well as a true supporter in realizing everything that is of essence in a scientific and pedagogical worker's professional life.

Any leader-coach has to study their true individual ability to start up coaching activity. Some of the professional characteristics of a coach are as follows: a coach acts in a variety of situations and contexts; the coach-teacher relations are central in their work; coaches provide an external impact on the scientific and pedagogical worker's activity, they inspire teachers, develop their inner motivation, thus making them work more efficiently.

We believe that one's values constitute a key interpersonal element of any leader-coach and scientific and pedagogical worker relationship. It is generally acknowledged (O'Connor, Lages, 2004; Whitmore, 1996; Zeus, Skiffington, 2007) that during a coaching process the leader-coach is ethically obliged to be non-intrusive, not imposing their individual values on the participants. Of prime importance is an open pre-discussion of the role of values in coaching relations.

A proficient leader-coach tends to coordinate and balance the goals of the teacher with the objectives of a given higher education institution, by asking questions or in any other way. The increase of the effectiveness of work is the main objective in coaching.

The monitoring procedures seem to be no less effective when applied for adaptive management of scientific and educational staff development at higher education institutions.

While forming certain fundamental scientific-pedagogical worker's competences, with the account taken of coaching technologies, of great importance is to do constant feedback, the aim of which is continuous supervision of said worker's activity to form a new set of quality in professional characteristics. In this context, monitoring research turns up to be a reliable instrument that allows to effectively study, watch over changes introduction and their consequences, as well as various aspects of the educational process.

Therefore, monitoring can be regarded as one of the technologies of adaptive management that watches over the dynamics of changes in the activity of the educational system subjects to inspire this system guided development and the achievement of specified results. As reported (Borova, 2011; Yelnykova et al., 2009), monitoring technology is widespread in this process forming the basis of decision-making related to quality of learning and teaching. It is very effective in inspiring people to achieve a certain positive result, which, in its turn, provides a feasible stimulus to quality changes and, therefore, self-development.

To act effectively it is necessary to constantly analyze and improve the unfolding of the activity. Monitoring is a productive technology to achieve these aims. It appears to be a reliable instrument of the holistic educational process analysis too.

Monitoring is related to the evaluation of goals, as well as to realization of plans. Its basic task is to reduce the gap between the standard and the current level of individuals' activity development. Monitoring proves to reveal certain deviations from the set standard, thus forming the basis for reflection. Reflection is the personality characteristic that affects one's proficiency and assists with

successful implementation of any activity, directing, organizing and managing one's inner mental process. 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 the existing standards.

The monitoring process consists of the following stages: a) determining the aims (pinpointing what is necessary to achieve), b) measuring the program realization effectiveness (determining why everything takes place in a given way and what can happen in the future), c) correcting the program (highlighting what can be changed). While applying the monitoring procedure, the tools implementing qualimetric measuring, are essential. Qualimetry is a science that combines various methods of quality quantitative evaluation of products (Borova, 2011). Diagnostic goal setting determines the application of certain qualimetric tools. The factor-criterion models furnish the base of the realization of educational monitoring.

Considering the above-mentioned, we have implemented the system of research and teaching staff professional activity evaluation. The qualimetric model of evaluation of professional activity of research and teaching staff in higher education institutions includes components such as: analysis of needs of research and teaching staff according to their functions; determination of their professional development goals on the basis of certain activity content; an activity study, according to set goals, designing an action plan in relation to teachers' professional development, research and pedagogical activity; and the evaluation of effectiveness of attained results (Borova, 2011).

Let us consider a fragment of the table describing the qualimetric model of evaluation of professional activity of research and teaching staff in a higher education institution (table 1).

Let us analyze the process of working with the qualimetric model of evaluation of professional activity of research and teaching staff in a higher education institution (Borova, 2011). According to the qualimetric model, its components were specified as the factors of this model, that were indicated as  $F_i$ ,  $i = 1, \dots, 6$ , while the 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 set goals (in  $F_2$ ),  $f_3 = 0.15$ ;  $F_4$  – 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,  $f_6 = 0.15$ .

**Tab. 1.** The Qualimetric Model of Evaluation of Professional Activity of Research and Teaching Staff in a Higher Education Institution (fragment)

Factor – F	value – m	Criteria content	value – v	conformance index–K	conformance index value	Partial criteria assessment	Partial factors assessment
...							
5. Pedagogical and research 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	1,00						0,00
in unit parts							

The above mentioned factors and their values are given in the first two columns (table 2). As an example, let us consider factor  $F_1$ . Five criteria pertaining to this factor are presented in the second line and the third column (table 2).

**Tab. 2.** The Qualimetric Model of Evaluation of Professional Activity of Research and Teaching Staff in a Higher Education Institution

Factor $F_i$	Factor' 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 Analysis 5. Correction & 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	$F_1=0.105$

The criteria values 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 his/her activity with the help of this qualimetric model, has to assess their activity according to all 27 criteria. A conformance index value is  $k_i$  for criterion  $i$ .

The experts suggest to give  $k_i$  the following value: 0.00 – a teacher does not conform to a certain level; 0.25 – a teacher conforms to a certain level in about 0% to 40% of the requirements; 0.50 – a teacher conforms to this level in about 40% – 60% of requirements; 0.75 – a teacher meets this level of requirements in about 61% – 75%; 1.00 – a teacher conforms to this level in about 76%–100% of requirements.

After a teacher has completed the table by putting their mark in the fifth column  $i$ , with the conformance index value  $k_i$ ,  $i = 1, \dots, 27$  the factors assessment is to be calculated. The factors assessment corresponds to the numbers that characterize the level to which a teacher has met defined factors, these numbers are given the same letters  $F_i$ ,  $i = 1, \dots, 6$ , as the factors are calculated using the formulas:

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

Therefore, the factor value  $F_i$ ,  $i = 1, \dots, 6$ , is the sum of this factor value  $f_i$ ,  $i = 1, \dots, 6$ , 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, the factor index is less or equal to the factor value.

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

The sum of factors indexes  $F_i$ ,  $i = 1, \dots, 6$ , is considered to be equal to the level of research and teaching staff professional development and is marked as:  $r = \sum F_i$ .

If we sum up 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 1 is exactly one only in case if all conformance in dices values are  $k_i = 1$ ,  $i = 1, \dots, 27$ . The questionnaire results have been calculated, including the following indexes: 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 introduced by G. Boroday. To calculate the value of factors and the teachers' rate some pieces of software in EXSEL and PASCAL programming languages were applied (Borova, 2011).



The professional level of English teachers at the department of foreign languages of Simon Kuznets Kharkiv National University of Economics has noted a 15% increase due to the above-discussed 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 areas of specialization. The provided structure allows us not only to expand but also to specify any area of research and teaching staff professional activity. Current integration of multimedia technologies, without any doubt, reinforces the change of education role. Multimedia that is effective in learning does not consist of simply using multiple media at a time, but rather combines media rationally, capitalizing on the characteristics of each separate medium, extending and augmenting the learning experience. Multimedia technologies implementation in the process of teaching and learning English at our university has shown the following results (department wise c.f. tables 3, 4).

**Tab. 3.** The Effect of ESP Teaching Innovations Introduction on the Dynamics of the Students' Progress in Learning English

Departments	IT	IT	AA	AA	EL	EL	M&M	M&M	F	F
Year	2nd 2012	4th 2014	2nd 2012	4th 2014	2nd 2012	4th 2014	2nd 2012	4th 2014	2nd 2012	4th 2014
A grade	3.7	35.56	2.7	16.04	0.74	7.94	0.4	13.51	2.3	15.66
B+C grades	39.26	43.7	21.62	55.66	22.96	48.41	21.86	42.99	27.27	36.75
Total students' progress quality rate (A+B+C)	42.56	79.26	24.32	71.7	23.70	56.35	22.26	56.50	29.57	52.41

The research has revealed the following results: the best dynamics in students' progress was achieved at the department of Information Technologies (IT), with a number of highest grades increasing from 3.7% to 35.56 %, while the quality in students' progress in learning English has grown from 42.96% (2nd year) to 72.26% (4th year). The department of Audit and Accounting (AA) proved to be the second best, with the quality of students' progress showing almost a 3 fold increase from 24.32% (2nd year) to 71.7% (4th year). The results attained by the students of departments of Economic and Law (EL), Finance (F) and Management and Marketing (M&M), have exceeded 50% mark as well.

The discussed technologies introduction at Simon Kuznets Kharkiv National University of Economics also stipulated an average mark increase, namely an increase in the number of A's received by students at an English exam (from 2.07% to 17.74%), mostly due to the progress quality growth at the department of Information Technology from 3.7 to 35.56%. Meanwhile, the number of B's and C's

received by the students at English exams, has grown, on average, from 26.59% to 45.28%.

**Tab. 4.** The Business English Certificate Exam Results

Year Grade	2011	2012	2013	2014	2015
KhNUE Students					
Preliminary	17	32	57	48	15
Vantage	6	32	17	17	12
KhNUE Teachers of Economy					
Preliminary/Vantage	52	43	16	10	21
Total	75	107	90	75	48

Of interest and essence is individual (both KhNUE students' and teachers') awareness of and interest in growth, brought about by the innovative technologies introduction. Table 2 data have revealed a definite increase of BEC exam passing.

One of them is the introduction of the International Certification. Since 2011 more than 395 students and teachers of our university (Simon Kuznets Kharkiv National University of Economics) have passed a Business English Certificate exam (administered by Cambridge English Language Assessment).

## Conclusions

To organize one's activity effective self-government, the model of its development has to comprise the very parameters that make it possible to follow the progress of the scientific and educational staff professional development. The submodel of professional development of higher education institution scientific and educational staff, offered by us, reflects the continuity of actions to be taken to improve the professional needs of any scientific and pedagogical worker.

Coaching technologies open up possibilities for every scientific and pedagogical worker to independently select ways and means of updating one's professional activity (pace and direction) on every level, as any scientific and pedagogical worker can coordinate their actions with both internal and external factors. In turn, the model of adaptive management of higher educational establishment scientific and educational staff professional development helps set the goal and streamline it to a successful end-point.

Thus, the application of adaptive management model of professional development of staff at higher education institutions will definitely enhance the professional level of not only scientific and pedagogical workers and leaders, but also increase the scope of any higher educational institution human capital in which a given teacher works. This in turn will directly influence the competitiveness level of that particular institution.

Thus, using adaptive management model of educational establishment scientific and educational staff professional development, it is possible to sustain the already available teacher competences, as well as to stimulate the emergence of new ones. To attain these goals, it is necessary to carefully consider every scientific and pedagogical worker's right to independently determine their goals, plan their activity, select the style of their proficiency updating, as well as face the consequences of their professional activity. However, it is worth pinpointing that any model requires certain mechanisms of realization. According to the present research, those mechanisms are monitoring and coaching. The coaching and monitoring technologies are discussed in the research at length to determine the methods of practical implementation of the suggested model. In view of the above, coaching and monitoring technologies, as well as their interaction and the role in adaptive management of professional development of scientific and pedagogical workers have been discussed.

On the one hand, the term exam results have revealed a 15% increase in students' ESP skills development level (years 1-4) due to constant implementation of e-learning tools. On the other hand, the results of the questionnaire distributed among the teachers of the department (45 members) at the end of the term, have shown that the majority of the staff (92%) are actively employing e-learning tools in the classroom, while some 8% staff members are all for gaining the necessary experience of e-learning tools usage in classroom teaching by increasing their e-learning skills through the Moodle proficiency skills upgrading program, as well as other programmes functioning at our university.

### **Opportunities for further findings in the research area**

Thus, using e-learning techniques in ESP classes has both positive and negative aspects, but one thing is evident: this mode is an integral part of modern education, as it meets the requirements of education system upgrading.

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## **The impact of professional development of research and teaching staff on the implementation of innovative learning technologies**

### **Abstract**

The research highlights the application of educational coaching as the foundation to stimulate professional and self-development of research and teaching staff in higher education institutions. The authors stressed that the self-organization mechanism, central to educational coaching, has appeared to be essential for supporting faculty professional and self-development, as well as the awareness of university research and teaching staff of innovative technology and techniques. Education coaching procedures discussed in the research were based on educational monitoring, providing a constant feedback and thus speeding up the process of faculty professional and self-development. Proficiency enhancement, as well as faculty self-realization level growth have brought about a creative potential growth which, in turn, ensured a definite positive search for innovative technology application by higher education research and teaching staff. The scope of innovations included using e-learning

models and tools in the learning process. The research findings reliability has been verified through a qualimetric model. Certain student-friendly results of e-learning technology implementation in teaching English to higher school students not majoring in linguistics have been obtained.

**Key words:** educational coaching, e-learning techniques, ESP teaching, professional development of research and teaching staff in higher education institutions, monitoring, qualimetric model

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