

# THE IMPACT OF RESEARCH AND TEACHING STAFF PROFESSIONAL DEVELOPMENT ON THE INNOVATIVE LEARNING TECHNOLOGIES IMPLEMENTATION

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The research highlights the application of educational coaching as the foundation to stipulate higher educational establishment research and teaching staff professional and self-development. 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 innovative technology and techniques awareness of university research and teaching staff. The educational coaching procedures, discussed in the research, were based on the 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 its turn, ensured a definite positive search for innovative technology application by higher educational establishment 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 in the introduced qualimetric model. Certain student-friendly results of e-learning technology implementation in teaching English to non-linguistic major higher school students have been obtained.

**Key words:** educational coaching, e-learning techniques, ESP teaching, higher educational establishment research and teaching staff professional development, monitoring, qualimetric model.

## 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. Their decision 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 [1], B. Gershunskii [9], D. Dzvinchuk [6], K. Korsak [14], O. Navrotskii [16], V. Jadov [1] view any higher educational establishment as a society entity that has, in a changeable environment, to constantly develop to ensure its vital capacity as well as its functional stability. D. Dzvinchuk [6] noticed that from the philosophical point of view it to the depth and ever-changing character of the world tendencies and phenomena that stimulate the representatives of all spheres of knowledge to intensify their analytical and theoretical activity, as paradigms, canons, presentations and claims of the second third of the XX century, in most aspects, lose their heuristic value and practical applicability.

It is generally acknowledged, that professional development is a key requirement of the present time [4, 9, 15, 20]. The 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 attention of both pedagogical science experts and practitioners.

In view of it, as was pointed out by D. Dzvinchuk [6], K. Korsak [14] and O. Navrotskii [16] the requirements to educationalists are expected to become stricter, especially to higher educational establishment research and teaching staff 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 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 higher educational establishment 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 faculty potential as well as at ensuring research and teaching staff competitiveness, 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 faculty professional and self-development. The scope of teaching innovations included using e-learning models and tools in the learning process. The research findings reliability has been verified in the introduced 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 the adaptive management of the professional development of higher educational establishment research and teaching staff models and techniques for ESP teaching under modern conditions of the society development, to describe the results of e-learning techniques implementation in teaching English to non-linguistic major higher school students.

### **Research findings**

In focus is the period of the Ukrainian society transition to knowledge (or "informative") one as well as the search of the prospects of the educational system transformations planning, organization and its secure and successful functioning [6, p. 2]. D. Dzvinchuk underlined the necessity to give advantage to the indirect methods of management, delegation of responsibility and increase of higher educational establishments' autonomy.

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

Nevertheless, not only innovative processes lead to changes in the system structure, the system can develop in a historical process and needs a permanent management with adaptation itself to 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 [1].

Thus, the functioning and progress mechanisms are generated by the society itself and exist in it [1]. The above authors determine that any society as the totality of people's relations is the necessary form of the latter existence [1, p. 17]. Any phenomenon becomes public only, when it is brought over to the system of public relations. Any society is simultaneously the subject, and product of its own efforts [1, p. 18]. The socio-economic structures functioning and development, transition from one structure to the other, a more progressive one, constitute the essence of public life dialectics.

The systems 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 old and formation of new systems [1, p. 30]. Thus, education as a society frame possesses the same internal and external social relations as any other public system [3, 10]. 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 ability to being rationally organized the ability to distribute internal resources; it has to be goal-oriented too, it has to be able to determine the primary purposes and tasks, supporting the process of their achievement; 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; must have a certain capacity for integration, to be successfully incorporated in the new generations system. The more sequentially effective is the functional division of activity at the level of institutes and social roles, the more stable is the society itself [18].

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, the 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 upbuilt, as it takes into account both individual vital needs as well as social requirements. The 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, 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 account taken of the peculiarities of production (education), that makes modern organization management more flexible and mobile [20].

The newly emerged educational services quality increase reflects the changes in the system of higher education. Central to the process, of providing a two-way interactive communication between an educational environment and the subjects of education, is their

dialogue. To be effective and a success the educational process has to become dialogue-bound. The ability to carry on a dialogue and the dialogue-bound quality of the educational process are the two basic principles of adaptive management [20].

The 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 develop, in particular, to say nothing of administrative educational technologies. 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 the foreground. 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 one's proficiency increase while switching over from one stage of development to the other.

As was mentioned above, 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 the adaptive management directs the activity of any individual at self-realization. The adaptive management, according to her, has the following characteristics: its contents, an organizational structure and certain technologies [20]. She determines the algorithm of transformation of the adaptive management system stressing that it consists of seven consecutive processes. The first three of which represent the collective procedure of setting some 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 the self-control of the process as well as monitoring of the attained results, the seventh comprises the prognostication on the basis of the result analysis.

If coaching is determined from the view point of the above singled out algorithm of the adaptive management, some procedural similarities between the two concepts become evident. Coaching appears to have a similar stage unfolding to that in the adaptive management algorithm. Basic coaching processes include: clarifying needs, goals setting, action plan working out, with the account taken of a definite situation, as well as monitoring and control of the tasks carrying out and some prognosis of further steps to be taken, based on the result analysis. 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 human potential.

Coaching procedures determine that an individual inner state is a changeable category, in case the necessity arises. The three basic fundamentals of coaching are: beliefs, values and goals [21]. Coaching is both goal and result-oriented. It induces a person to become aware of one's own values and adhere to achieve the final goal. It stipulates one's proficiency growth due to realistic goal-setting and the set tasks accomplishing.

Thus, for the sake of providing conditions for individual development and further updating 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 are of the opinion, that coaching proves to be the very mechanism that analyses the changes and transformation the individual inner self and skills undergo, it also studies 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 [17]. Coaching is action-oriented, with special emphasis placed on result and estimation.

Coaching spreads quickly because of social trend that fuelled this growth such as: corporate uncertainty, the need for innovation, lack of time to fulfil the tasks (increasing time pressure), the need for professional development, the need for people to learn new skills fast etc.

Timothy Gellwey proposed to focus coaching on «developing a capacity to give objective feedback to themselves» [8]. Therefore, departmental teaching is actively based on coaching. Coaching is activity oriented. The learning cycle introduced by D. Kolb has 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 [13].

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 dialogic interaction of the participants of the educational process to achieve the mutually set goal, including not only one's proficiency updating, but also improving the learning standards, which, in its turn, fuels the educational and professional efficiency level and competitiveness of any higher educational establishments. Basic principles of educational coaching are as follows: a humanistic one, that of continuous education, partnership, that 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 the account taken of end-results, as well as that of openness. The interaction between the participants of educational process is central to educational coaching. This interaction is, beyond 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 the account taken of 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, it is functions being to inform, interact, exchange ideas.

Thus, we can conclude that the educational coaching centers round one's constant professional development and knowledge base upgrading through learning, self-education and training. The end goal of educational coaching - any person 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 distinguish the elements of the scientific and pedagogical workers' activity adaptive management model, but also single out one modern technology (coaching) used in adaptive management of the individual professional development.

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

educational establishment research and teaching staff professional development. The worked out model was adaptive in conformity with the principles of synergy.

The offered adaptive model has an open constantly developing systemic character, the goal of its creation being a successful, productive integration of both a leader and a scientific-educational worker activity for the sake of educational services provision effectiveness increase. 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 the higher educational establishment educational research and innovation search activity, providing a definite continuity of education as well as educational programs interdependence.

Consequently, our worked out model contains such components: a conceptually-methodological one, that 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; the next element is 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 the 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 stabilize the system it is necessary to take into account some factors that constantly effect it, they are: the necessities and requirements of the society, the emergence of the innovative educational environment as well as changers in the style of the 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 tend to appear as the result of separate parts coordination under a certain system of interconnection. In view of the above, it is worthwhile detailly discussing these constituents. The first one is a conceptual and methodological component. We proceeded from the assumption, that higher educational establishment scientific and pedagogical worker proficiency development becomes an 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 educational establishments. The sum of the put forward principles of adaptive management comprises the following ones: the principle, determining the priority of human development, with the emphasis laid on its natural character, principle of continuous development, that of management through self-managing, the ones of resonance, motivation, as well as that of constant growth of one's proficiency, that of a directed self-organization, the principle of dialogic cooperation, those of coaching, feedback and monitoring, as well as a qualimetric principle, applied in adaptive management of staff. Besides, it is worth noting that the semantic component of the model includes such elements as analysis and correction of personalized professional needs of scientific and pedagogical workers as well as goals and tasks setting to ensure their professional development.

The necessary information collection on the system functioning 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, dependable of 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 carried on study functioned coach-like. That is why, under leader-coach supervision, scientific and pedagogical project participants appeared to be far more proficient interesting 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 the co-working help to reveal the personnel professional needs and goals.

With the account taken of the above, we have distinguished the following constituents of the notion of higher educational establishment scientific-educational staff professional development. We adhere to the view that this competence-based professional activity was unfolding along the following lines: a) a specialization subject-research oriented; b) scientific-pedagogical oriented; c) a foreign country awareness oriented.

The foundation conditions of the individual directed professional self-organization are discussed. This appears to be a three dimensional process. The first place is taken up by economic conditions that substantiate the motivational sphere, providing the necessary system of material encouragement and rewards with a scientific and pedagogical worker individual rating. 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, while the third dimension specifies the development of scientific and pedagogical worker 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 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, they are successive and 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 [7, p. 786].

The model substantiates the definition of the ways of development of pedagogical mastery and scientific achievements of a scientific-pedagogical worker it is of a cyclic character, helping to educe urgent professional questions that appear before teachers. It is used with the aim of the rapid administrative reacting to the removal of 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. It being taken as the basis, it is possible to educe 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 its turn, makes the further process of development by far more ordered [4]. The evaluation of the level of one's professional competence development can done by both scientific-pedagogical workers and department managers. At some stages, it is worth brining over the opinion of students while

evaluating the work of this or that 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 [2]. Each elements appears to have its levels of development, such as reproductive, structural, creative, each one interacting with the others on both vertical and horizontal planes. Another American scientist B. Levin, analyzing the modals of teachers' professional development suggests that not only their dimensions of professional and personal development should be viewed as essential area but also those of students' proficiency level attainment and their interest in the specialization area subject [15]. The research results of our home scientist N. Guzii have also been taken into account. They relate to the teacher's individual professionalism in terms of pedagogic culture [12]. 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, all the tree components forming the foundation of the professional motivation to act. However, the question of making teacher any more active and efficient in one's 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 present-day role shift from an authoritarian type to a new generation leader. Doubtless, to effectively introduce and implement any innovation, the strive for continuous change, development and self-organization on the part of the manager himself/herself is of paramount importance.

Thus, we consider learning the principles, governing the development of interrelations between the participants of higher educational establishment educational process administering, at all stages, to be of fair essence. Partner relations as well as interactive cooperation of a scientific-pedagogical worker and his/her administration, in our opinion, is 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 [4]. Thus, a two-way leader↔scientific↔pedagogical worker mutual adaptability as well as their goals streamlining, 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 set realistic goal attainment is accomplished by combining the leader-subordinate joined efforts and certain self-organizing steps, aimed at the above goal reaching [20, p.137].

In our view, it is necessary to pay attention to the alignment of the systems fine-tuning that can greatly influence the efficiency of educational-educator process at a higher educational establishment. 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 a higher educational establishment environment [11]. 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, students specialization area subjects mastering level variations, motivational/ attitudinal changers 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 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, the work attitudinal changes 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 views and attitudes to his professional activity prior to the activity startup and a view program or set of innovations introduction. A scientific and pedagogical worker him/herself may become involved in such planning or an action planning review of one's own accord, thus highly enhancing work motivation, for there appears a definite degree of trust on the leader's side. The put forward interrelational submodel of the a scientific and pedagogical worker professional development ↔ 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 attainment level, d) shifts in teachers' view of and attitudes to work.

It is worth drawing attention to such an element of the model of the adaptive management of higher educational establishment 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 [5, 17, 19, 20]. 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 professional life.

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

We are of the opinion, that one's values that constitute a key interpersonal element of any leader-coach and scientific and pedagogical worker relationship. It is generally acknowledged [17, 19, 21] that during a coaching process the leader-coach is ethically obliged to be non-intrusive, not imposing his/her individual values on the participants. Of 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 higher educational establishment objectives, by asking questions or in any other way. The work effectiveness increase 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 educational establishments.

While forming certain fundamental scientific-pedagogical worker competences, with the account taken of coaching technologies, of the paramount importance is to do constant feedback, the aim of which is continuous supervision of scientific and pedagogical worker activity to form a new set of quality 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 the 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 specified results achieving. As reported [4, 20] monitoring technology is widespread in this process, forming the basis of decision-making, related to quality of learning and teaching, and is, undoubtedly, 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 activity unfolding. Monitoring is a productive technology to achieve these aims. Monitoring appears to be a reliable instrument of the holistic educational process analysis, too.

Monitoring is related to the evaluation of goals as well as plans realization. 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 one's inner 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 the existing standards.

The monitoring process consists of the following stages: a) aims determination (pinpointing what is necessary to achieve); b) measuring the program realization effectiveness (determining why everything takes place this or that way and what can take place in future); c) the program correction (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 products quality quantitative evaluation [4, c. 34]. A diagnostic goal setting determines the application of certain qualimetric tools. The factor-criterion models furnish the base of the educational monitoring realization.

Considering the above-mentioned, we have 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 goals determination on the basis of certain activity content, an activity study, according to the set goals, actions plan design in relation to teachers' professional development, research and pedagogical activity and the attained results effectiveness evaluation [4].

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 [4]. 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,  $f_6 = 0.15$ .

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.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 in unit parts	1,00							0,00

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

Table 2

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

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	$m_1 = 0.2$	0.75	0.15	$F_1 = 0.105$
		2. Planning	$m_2 = 0.2$	0.5	0.1	
		3. Organization	$m_3 = 0.2$	0.75	0.15	
		4. Control and Analysis	$m_4 = 0.2$	0.75	0.15	
		5. Correction & summarizing	$m_5 = 0.2$	0.75	0.15	

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 one's activity according to each 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 doesn't conform to a certain level; 0.25 – a teacher conforms to a certain level around 0% to 40% of the requirements; 0.50 – a teacher conforms to this level around 40%–60% of requirements; 0.75 – a teacher meets this level of requirements around 61%–75%; 1.00 – a teacher conforms to this level around 76%–100% of requirements.

After a teacher has completed the table by putting his 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 conformity of a teacher to the defined factors, these numbers are given the same letters  $F_i, i = 1, \dots, 6$ , as the factors are calculated using the formulas:

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

So, the factor value  $F_i, i = 1, \dots, 6$  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.

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

The sum of factors indexes  $F_i, i = 1, \dots, 6$  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

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 when all conformance indices 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 factors value and the teachers' rate some pieces of software in EXSEL and PASCAL programming languages were applied [4].

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. Current integration of multimedia technologies, beyond doubt, reinforces the change of education role. Multimedia that's effective in learning doesn't simply consist of using multiple media at a time, but 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 betrayed the following results ( department wise c.f. tables 3,4).

Table 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	2 nd 2012	4 th 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 high achieves increasing from 3.7% to 35.56 %, while the quality in students' progress in learning English has grown from 42.96% (2<sup>nd</sup> year) to 72.26% (4<sup>th</sup> year). The department of Audit and Accounting (AA) proved to be the second best, with the quality of students' progress betraying almost a 3 fold increase from 24.32 % (2<sup>nd</sup> year) to 71.7% (4<sup>th</sup> year). The results, attained by the students of departments of Economic and Law (EL), Finance (F) and Management and Marketing (M&M), have exceeded at 50% mark, too.

The discussed technologies introduction at Simon Kuznets Kharkiv National University of Economics also stipulated an average mark increase, namely a number of A's received by the students English exams growth 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, B's and C's, received by the students at English exams, has grown, on average, from 26.59% to 45.28%.

Table 4

The Business English Certificate Exam Results

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

Of interest and essence is individual (both KhNUE students' and teachers' English) 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 educational establishment 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 his/her actions with both internal and external factors. In turn, the modal 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 educational establishment scientific and educational staff professional development 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 where this or that teacher works, which will, in turn, directly influence the competitiveness level of the institution, where this or that teacher works.

Thus, using the 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 stimulate the emergence of new ones. To attain these goals, it is necessary to carefully consider every scientific and pedagogical worker right to independently determine one's goals plan one's activity, select the style of one's proficiency updating as well as tackle one's professional activity consequences. However, it is worth pinpointing that any model requires certain mechanisms of realization. According to the present research, these 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 the 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 returns 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 ones, 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 sides, 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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