

E-COACHING, E-MENTORING FOR LIFELONG PROFESSIONAL DEVELOPMENT OF TEACHERS WITHIN THE SYSTEM OF POST-GRADUATE PEDAGOGICAL EDUCATION

Vasyl KOVALCHUCK

**Department of Teaching Methods and Managing of Educational Establishments
National University of Life and Environmental Sciences of Ukraine
Kyiv, Ukraine**

Iryna VOROTNYKOVA

**Department of Natural Sciences and Mathematics Education, University, Service Training
Institute of Borys Grinchenko Kyiv University
Kyiv, Ukraine**

ABSTRACT

The research considers the readiness of teachers and postgraduate pedagogical educational establishments to use e-coaching and e-mentoring which can provide continuous professional development of teachers. The use of theoretical methods of systematization and comparison of scientific statements, experience in implementing e-coaching, e-mentoring has identified the possibility of using e-coaching and e-mentoring in postgraduate pedagogical education in continuous professional development of teachers. Monitoring and questioning have proved the idea that teachers require the new content of postgraduate education for their own professional development. They are interested in mastering new technologies, delivering master-classes and demonstration lessons. The results of the discussion in focus groups including representatives of the administration of educational establishments, teachers and lecturers of postgraduate pedagogical educational establishments are shown in the SWOT-analysis. The experts confirmed the need and possibility of the e-coaching and e-mentoring implementation in postgraduate pedagogical education. The major risks of e-coaching and e-mentoring implementation in postgraduate pedagogical education are e-coaches' and e-mentors' training and ICT competence. The Internet services, e-coaching and e-mentoring applications and programs are able to provide continuous professional development of teachers. The educational and professional e-coaching and e-mentoring programs require further studying in postgraduate pedagogical education.

Keywords: e-Coaching, e-mentoring, postgraduate pedagogical education, professional development of teachers, ICT.

INTRODUCTION

Postgraduate pedagogical education should provide the professional development of teachers needed to deal with the challenges of the development in the current information society and the knowledge society on the principles of andragogic, individualization and lifelong education.

Knowles, Holton & Swanson (2014), Guskey & Huberman (1995) summarized the experience of the world researchers who dealt with the theory and practice of the professional development of teachers. They showed that the professional development is one of the most essential components that provide increasing of the educational level. The models of the professional development of teachers were studied by Harland &

Kinder (2014), Davies (2010). The importance of ICT competence for professional development was observed by McGarr & O'Brien (2007).

The professional development of teachers should be defined as a process of formation of a teacher as a specialist in terms of lifelong professional education, self-education and professional activities. The teacher who is developing professionally manages to acquire professionally important qualities: communicational, motivational, reflexive, educational, intellectual and so on.

Among the tasks of postgraduate education which are to be solved, the main ones are the following: the development and improvement of learning content based on the target learning and job duties of experts, professional experience, personal interests and needs of teachers; the use of modern educational technologies that imply differentiation, individualization, implementation of distance, part-time and external learning.

The strategic functions of postgraduate education are to unite the personal development and the increase of a person's professional capacity and to provide the proactive nature of the professional training according to the requirements of the society. The tactical functions of postgraduate education provide implementation of the strategic objectives, motivating teachers to continuous professional development, creating effective technologies of adult learning, researching acmeological and andragogical problems.

PROBLEM OF RESEARCH

Cranton (1996) in his research determines how to stimulate and sustain a teacher's and educator's personal development. Darling-Hammond & Sykes (1999) emphasize the importance of the educational policies implementation concerning the professional development of teachers.

The development of information and communication technologies promotes the change of forms and methods for the professional development of teachers. Higher and postgraduate education do not manage to reform according to the requirements of the society and technology development. The increasing number of open online resources for training and professional development gives teachers opportunities to provide non-formal learning and continuous professional development. But not all teachers possess the following skills: "life-long learning", "time management," "formation of individual professional development path." This intensifies the need of the educational consulting, mentoring, implementation of new methods and technologies for teachers and students. Regulations regarding demonopolization of postgraduate teacher education are being adopted, training centers that are competitors to the formal system of postgraduate education are being opened in Ukraine.

Evidently, there is a number of contradictions between: social needs to improve the quality of education and teachers' reluctance to implement it; socially based needs resulting from personal and professional development, individual professional growth of teachers and conservatism of postgraduate education; a significant increase in the objective requirements for the professional level of teachers, the rapid development of ICT, informatization of education, the increasing number of electronic resources and the reluctance of teachers to introduce new forms and methods of work.

According to this there is a key issue of detection, study and adaptation of educational potential of international training technologies and its use in domestic practice for the professional development of teachers in the framework of postgraduate pedagogical education.

Research Objective

The objective of the research is to determine the readiness of teachers and the system of postgraduate education to use e-coaching and e-mentoring for providing continuous professional development. The questions of the research are the following: to analyze the readiness of teachers for new content and forms of postgraduate pedagogical education, to identify adaptive educational potential of e-coaching and e-mentoring for the teacher professional development in the framework of postgraduate pedagogical education; to identify ICT tools for the use of e-coaching and e-mentoring.

Research Focus

Analysis of the professional development models allows to distinguish external and internal conditions of teaching professionalism, stages of this process, hierarchical variability of its expression. In this context personal teachers' awareness of self-development as a special kind of activity is becoming essential that is highlighted in the studies on the issue of professional development of a specialist, including teachers. The peculiarities of teacher training for creative, research and innovative activity, his/her involvement in the scientific and theoretical knowledge in postgraduate education define ways of improving the educational process in institutions of training, which enable to conclude about different possibilities of the impact of training on the development of a teacher as a person and professional his/her encouragement, promotional intensifications.

The peculiarities of adults' activity were studied by Knowles, Merriam, Rogers; didactic and methodological principles of teaching adults were studied by Jones & Davis (1965), Jung (2014), Puhovska, Shennikov; the development of curricula and educational materials for adult teaching were in the sphere of interest of Jarvis, Holford, & Griffin, (2003); peculiarities of teachers' work in the process of teaching adults were described by Jones (1984).

Postgraduate pedagogical education in Ukraine follows the world tendencies of the development of andragogics and postgraduate education. It requires constant changes of the content in order to create personal readiness to master the profession, professional awareness, competence, skills, and culture of a teacher.

The theoretical basis for studying the issue of the professional development of teachers is the works of such famous educators and psychologists as Ananiev, Burberger, Goodson, Hargreaves, Puhovska, Tromen, Vygotsky, Derkach, Kuzmina and others. The researchers who studied various aspects of personal and professional development of teachers are Abulkhanova-Slavskaya, Atkinson, Maslach, Knowles, Markova, Mitinay and others. The creation of conditions for professional development in postgraduate education of adults was under the consideration in the works of Pirs, Danylenko, Sorochan, Oliinyk. The stages of professional development were studied by Kudryavtsev, Povarenkov, Zeyer. The works of the American, European and Ukrainian researches concerning lifelong learning (Dave, Delors, Edwards, Legrand, Verchlovskii, Kremen, Nychkalo, Sysoeva) and the development of postgraduate education (Krygko, Lugovyi, Protasova and others) are of great interest.

In order to improve postgraduate education content in Ukraine we suggest turning to the most common technologies used in the international practice and trying to adjust them in accordance with Ukrainian reality: coaching (coaching aims to achieve the full use of human resources), e-coaching (coaching online), mentoring (mentoring, targeted transfer of experience), e-mentoring (mentoring online), supervising (control, monitor of the educational and professional work of teachers and evaluation of the level of his/her competence formation), secondment (internship, rotation), shadowing (observation of the process of work), tutoring (support of the learning process, discussion of experience, transfer of the acquired knowledge into real practice), buddying (involvement of a learner in the sphere of another person's activities), storytelling (telling stories) and so on.

According to the research issue it is necessary to focus on the notions of coaching and mentoring and e-coaching and e-mentoring. The essence of coaching was mainly studied by the researches in the sphere of business, particularly: Douglas (2000), Zeus & Skiffington (2000) O'Connor, Du Bois and Bowes (2015), Houck (2011), and others. As for coaching researches, it is reasonable to single out works of such Ukrainian researchers as Borova, Nagara, Petrovska, Chernova, Kudryk, Surmyak and others

Whitmor (2002) interprets coaching as a new style of human resources management, its technologies contribute to the mobilization of internal abilities and potential of employees, continuous improvement of their professionalism and skills, the increase of their competitiveness level. Coaching is the establishment of interaction between a client who has managerial authority and responsibility in the organization and a consultant who uses a wide range of psychological (behavioral) methods and techniques to help clients achieve goals (O'Connor, 2008). Coaching results in the improvement of knowledge and assistance in self-development of an employee. The main advantages of using coaching for the professional development of teachers are the following: delivering of natural potential based on the relationship with the coach (trust, individual approach to a learner), self-esteem raising; creative thinking formation, creative approach to solving problems and situations; internal abilities and potential mobilization; personal and professional development for achieving personal goals in life and job.

Mentoring is known to differ from e-coaching. Mentoring is learning from personal experience, practical transfer of professional or other skills and knowledge from older and more experienced to younger employees. A mentor guides an employee's activities in a particular sphere of production, implementing "follow-my-example" principle. Mentoring is an essential function for career success. The very combination of such technologies contributes to the professional development of teachers. Interest in these technologies is also sprawned by the fact that teachers have different experience duration, they are at certain levels of professional development and they need mentoring (e.g. those teachers who have less than 5 years of work-related experience need mentoring) and coaching (e.g. continuous cooperation of teachers who have some achievements in their profession).

The development of information and communication technologies, the formation of people's ICT competence promotes the use of the Internet resources and applications for the organization of coaching and mentoring and the development of e-mentoring and e-coaching.

Elen, Heun and Blanchard (2003) describe the possibility of the Internet training and consulting for various types of cooperation in the sphere of e-mentoring and disadvantages of their use. Walther (1996) determined if the persons who communicate are members of one and the same group, for instance, they have common occupation, sometimes they can better perceive and understand each other. The researchers Shrestha, May, Edirisingha, Burke & Linsey (2009) in the report on e-mentoring, which was held at the University during a year, defining the benefits of electronic or virtual mentoring, point out that the majority of the students involved in the experiment noted an increasing number of opportunities of access available for students in comparison with the past and social activity of participants.

Clutterbuck and Hussain (2010) have summarized numerous individual case studies on the use of e-mentoring and e-coaching and their opportunities. They claim that virtual tools complement the possibilities of coaching of professional development making mentoring available for new audiences and new applications. The researchers also distinguish the difference between mentoring, coaching, e-mentoring and e-coaching.

While online mentoring has burgeoned rapidly in the last several years, to date there have been very few scholarly articles published relating to this phenomenon other than program descriptions (Knouse, 2001; Single & Muller, 2001).

Knouse (2001) points that e-mentoring was developed on the basis of the unique possibilities of ICT and e-mentoring can encourage a positive attitude to learning opportunities throughout life. The common feature of electronic mentoring programs is the possibility to engage new participants regardless of geography and time constraints (Knouse, 2001). The concept of mentoring and its benefits for the implementation of STEM education is also studied in the article. The abovementioned tools have been efficient and productive for fifteen years (www.MentorNet.net). The emerging of convenient email programs and web browsers created opportunities for the use of e-learning programs. The researchers Single P. & Single R. (2005) examined the history of electronic mentoring programs and determined their structure to ensure social justice and educational development. E-mentoring and e-coaching cannot be considered as something universal, but only as a cheap alternative to mentoring and coaching. These technologies have the following advantages: informational, social, psychological and instrumental. Some groups of people have difficulties in finding a mentor. One of the solutions is virtual mentoring - selection and online interaction with tutors (Houck, 2011). The researcher observes the benefits of virtual mentoring in comparison with other forms of mentoring, describes examples of online mentoring for various special groups and purposes, considers online mentoring programs in the framework of differences between generations, technological advantages and communication styles.

The development of the Internet technologies, including cloud, Web 2.0 and Web 3.0 technologies (Morris, 2011), video broadcasting, organization of webinars, teleconferences allow to provide e-coaching and e-mentoring in different educational systems, including postgraduate pedagogical education.

The studies analysis determined the researchers' interest in the implementation of e-coaching and e-mentoring and opportunities of their implementation not only in the sphere of business and sport but in education as well. Although, the researchers did not consider the possibility of using e-coaching and e-mentoring within the framework of postgraduate pedagogical education in order to ensure the continuous professional development of teachers.

METHODOLOGY

It is reasonable to identify research methods of our study. The following theoretical methods were used: systematization and comparison of scientific statements and experience in implementing e-coaching, e-mentoring to determine their possible use in postgraduate pedagogical education for continuous professional development of teachers. Empirical ones are observation, survey, testing, SWOT analysis of the work of the expert group to summarize the advantages and disadvantages of e-coaching and e-mentoring; content analysis for determining the list of ICT which are appropriate for the use in e-coaching, e-mentoring.

Participants

During 2015-2016 academic year, the authors of the article conducted a survey of 1,440 teachers in Kyiv who were taking extension courses at the Institute of Postgraduate Education of Borys Grinchenko Kyiv University. The aim of the questionnaire was to determine the teachers' level of satisfaction by the content of postgraduate education. Among the respondents of the survey there were teachers of 50 specializations from different types of Kyiv educational establishments (secondary schools, high schools, educational complexes, lyceums).

Data Collection and Analysis

After having studied the needs of teachers on the possibilities of postgraduate education, there was the discussion on the implementation of e-coaching, e-mentoring for continuous professional development of teachers. The results are presented in SWOT analysis of the implementation of e-coaching, e-mentoring for continuous professional development of teachers in postgraduate pedagogical education. 20 experts from four

focus groups took part in the discussion: school administration and methodists (1 head of school, 2 deputy heads of schools, 1 methodist of district methodical center), teachers of different subjects – 9, teachers of Information Science– 4, teachers of postgraduate education -3. The discussion took place in June 2016 at the Institute of Postgraduate Education of Borys Grinchenko Kyiv University.

The Scale

The number of survey participants was determined using Cherepanov's calculation method (2006) according to the formula (1):

$$N_T = \frac{N \cdot t_\alpha \cdot d^2}{t_\alpha \cdot d^2 + 36 \cdot N \cdot \alpha^2},$$

in which N_T – the required number of survey participants in the studied groups that form the sample;

N – the total number of students who are taking extension courses and form the general totality;

α – the level of significance;

t_α – Student's criterion value that depends on α ;

d – the grading scale scope.

Therefore, at the level of significance $\alpha = 0,05$, with the grading scale scope value of $d = 3$, $t_\alpha = 3,18245$; $N \approx 2000$ it is enough 275 participants for the sample.

The method of expert review was used to gain the objective. The number of experts was determined by using Reichman & Azgaldov's (1974) methods, according to the formula:

$$N = \frac{t_\alpha^2 \cdot S^2}{\varepsilon^2}$$

in which N – the number of experts, S – standard deviation of experts' assessment, t_α – tabular argument; ε – absolute error of assessment. If the group of experts is being formed and the value of S is unknown, the formula (2) is used:

$$N = \frac{t_\alpha^2}{\varepsilon_1^2},$$

in which ε_1^2 – the maximum permissible relative error (specified at the beginning of the expert assessment). Taking into consideration the abovementioned it was determined that there should be less than 15 experts to hold the expert review.

The experts' objectivity was determined by their ability to assess the computer-oriented learning environment of the institution of postgraduate education adequately; their ability to solve problems at the extension courses. The experts' interest was determined by their positive attitude towards the implementation of innovative technologies and willingness to participate in the experiment.

FINDINGS

Analyzing the needs of teachers and offering new technologies during postgraduate education we must take into consideration the fact that 59.8% of the respondents are of age from 30 to 50, 29.6% of the teachers are older than 50, 10.6% - younger than 30. The choice of technologies that will contribute to professional development of teachers in Kiev according to their abilities and needs (e-coaching or e-mentoring) must coincide with their needs and potential.

Table 1. Teaching experience of the respondents

| Experience | Score Value (%) |
|--------------------|-----------------|
| less than 5 years | 11,0 |
| from 5 to 10 years | 15.3 |
| from 10 to 15 | 15.1 |
| from 15 to 20 | 13.8 |
| more than 20 years | 44.8 |

The teachers were proposed to define "What forms of organizing classes are the most effective for you within the framework of extension courses". Responses of teachers have reflected their needs: master-classes – 71.8%, practical classes – 63.7%, training – 52.2%, lectures – 37.8%, coach-session – 5.8%. Most teachers need mentoring (71.8%) and only 5.8% of teachers are ready for coaching while it doesn't decrease the importance of traditional forms of extension (lectures, practical classes and workshops). Answers to the questions "What professional experience could you share within the framework of extension courses? What form of representing your experience is the most acceptable?" show that more than 50% of respondents chose demonstration lessons, reports with the presentation, master-classes, demonstrating videos with commenting. Therefore, we can make a conclusion that 50% of teachers are willing to become a mentor to other teachers and share their professional experience.

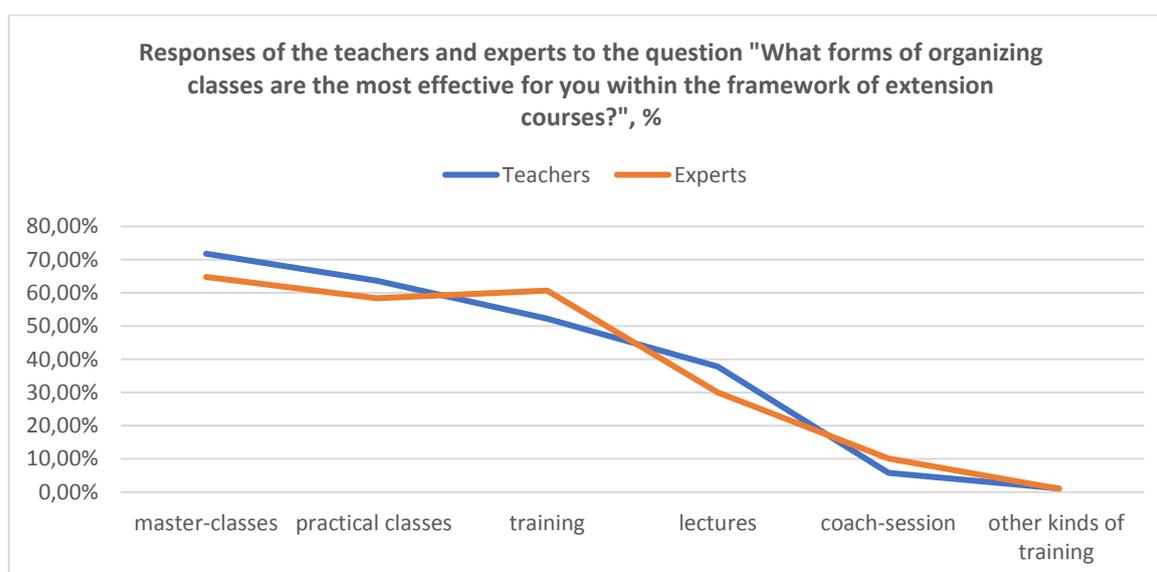


Figure 1. Responses of the teachers and experts about the forms of organization of training

More than 50% of the teachers accentuate to add topics about the development of modern researches in their branch to the content of courses. 64.6% of the teachers would choose to study modern pedagogical technologies during extension courses, 62.6% - to study innovative projects. The fact that innovations and new technologies arise teachers' interest can contribute to the implementation of innovations to the system of postgraduate pedagogical education.

In our opinion, the necessity of extra knowledge for professional development and understanding peculiar problems and necessity of solving them in the future provoke the teachers' choice of topics "Psychology of communication" (65.4%), "Prevention and diagnosing of professional burning out" (48.1%). The teachers proposed some ideas to the organization and content of the extension courses: more ICT classes, more practical classes, trainings; more contacts with professional lecturers of other universities and authors of educational programs, excursions.

During the extension courses for teachers (every 5 years) it's impossible to provide teachers with continuing professional development. Therefore, we made an attempt to identify the specialty of professional activity which is interesting for teachers to obtain as extra training during the period between extension courses. The researches show that teachers chose ICT (more than 45%), psychology and pedagogy (more than 35%), time-management, management of educational activity. The teachers are ready for personal and professional development which is offered in the training centers but not by the system of postgraduate education.

While 80.0% of the respondents use self-training to develop their ICT competence, 44.0% - possess basic skills and rarely use ICT, 90.7% of the teachers estimate their skills of using the Internet highly (4 and 5 points according to a five-point evaluation scale). More than 70.0% of the respondents use social networks for professional development and experience exchange.

Table 2. The use of ICT by teachers in the professional environment

| Skills and the use of ICT | Score Value (%) |
|--|-----------------|
| Those who do not have enough skills and use ICT rarely | 44.0 |
| Those who use ICT frequently | 47.3 |
| Those who did not learn ICT and do not use | 8.7 |

SWOT analysis of the implementation of e-coaching and e-mentoring technologies in the postgraduate pedagogical education is formed on the basis of analysis of the scientific and pedagogical researches of using e-coaching, e-mentoring in business, education and supervision, and discussion of 20 experts in the sphere of postgraduate and secondary education.

Table 3. Using e-coaching, e-mentoring in the postgraduate pedagogical education

| | | |
|----------------------|---|---|
| Internal environment | Strengths <ul style="list-style-type: none"> individualization of the professional development of teachers in the postgraduate education; continuity of teachers' professional development; forming the information and educational environment for teachers' professional development; motivating the teachers with pedagogical experience less than 10 years to develop professional skills, involving teachers with pedagogical experience more than 10 years in mentoring | Weaknesses <ul style="list-style-type: none"> ICT competence of teachers and coaches; availability of computers, the high-speed Internet among the participants; training of coaches and e-coaches in the system of postgraduate pedagogical education; loading e-coaches and e-mentors; motivating e-coaches and e-mentors; motivating the teachers with pedagogical experience more than 10 years to develop professional skills |
| | Opportunities <ul style="list-style-type: none"> interest of the administration of educational establishments to develop teachers' professional skills; development of ICT (free Internet services, applications, courses which simplifies communication and mutual activity); demands of the labor-market to the teacher's qualification; possibility for a teacher to become an e-coach | Threats <ul style="list-style-type: none"> increase in the quantity of training centers, coaches and mentors who render teachers services no standard legal framework of providing continuing professional development of teachers; insignificant experience of using domestic experience of e-coaching in the education |

Advantages of the internal environment (for instance, forming information and educational environment of the postgraduate pedagogical education) correlate with the possibilities of external environment (free Internet services, applications, courses which simplify communication and mutual activity) and reflect the perspectives, possibilities and needs of e-coaching, e-mentoring in the postgraduate pedagogical education.

Threats of the external environment (for instance, the increase of training centers, coaches and mentors who render teachers services) can be used for identifying new strategies of cooperation between postgraduate pedagogical education and other institutions (for example, involving coaches and trainers in the process of postgraduate pedagogical education and teaching lecturers who work with teachers using new technologies). Threats of the internal environment (for instance, motivating teachers with pedagogical experience of more than 10 years to develop professional skills) can be used for identifying new strategies of the development of postgraduate pedagogical education (involving teachers with pedagogical experience of more than 10 years in mentoring).

Investigation of the process of the ICT standards implementation in education (Ng, Miao, & Lee, 2009), including the creation of conditions for training teachers to use ICT (Morze, 2013), (Guo, Dobson, & Petrina, 2008) allows to use international practice for the implementation of information and communication technology in postgraduate education (Jones, 2003), (Ololube, 2006) based on International standards of ICT competence of teachers of UNESCO.

Summarizing the experience of the ICT use for teacher training in postgraduate pedagogical education, the results of content analysis of ICT we have concluded that providing that participants of postgraduate education have necessary computer devices, high-speed Internet and knowledge and skills required to use Internet tools there is a large number of applications and programs which can be used for e-coaching, e-mentoring: messaging (email, ICQ, Miranda IM, IRC, MSN Messenger, Viber, Windows Live Messenger, WhatsApp); meetings, consultations, discussions (Skype, Google Hangouts), video creation, interactive video collage (weavly.com/education, zaption.com, educanon.com, Screencast-o-matic, Camtasia, VideoNot.es, Zentrack.com, www.sparkolpro.ru, coub.com/ create), brainstorming (<https://ru.padlet.com/>, <https://www.periscope.tv>), creating presentations (Prezi, <https://mix.office.com/en-us/Home>, <https://animoto.com>), testing and monitoring achievements (Google Forms, Survey Monkey, <https://getkahoot.com>), intellectual cards (<https://bubbl.us>, freemind.sourceforge.net, mindmeister.com, mindomo.com), webinars, conferences, workshops (Hangouts On Air, Skype for Business), online boards (<https://www.pinterest.com>, <https://www.twiddla.com>, <https://vyew.com>), a platform for distance learning (Moodle, EDX), cloud services (www.slideshare.net, resources for hosting projects, portfolios (<https://create.lensoo.com>, <https://www.blendspace.com>), creating online courses (<https://www.lessonwriter.com>, <https://www.smartbuilder.com>); environment for professional development, online communities, channels (social media community, Google plus, <http://blog.izzui.com/>); forums, calendars.

DISCUSSION AND CONCLUSION

Having analyzed the teachers' needs in the new technologies and forms of continuing professional development and taking into consideration adaptive educational potential of e-coaching and e-mentoring for the use in practice of the professional development of teachers in postgraduate pedagogical education, we have made a conclusion that teachers are ready to use e-coaching and e-mentoring for continuous professional development in postgraduate pedagogical education. Postgraduate pedagogical education should take into account the teachers' needs and contribute e-coaching and e-mentoring to the traditional methods of teaching involving teachers and lecturers.

Little (1993) identifies the need for reforming in education with the implementation of new models of professional development of teachers. He states that the dominant educational and coaching model which focuses on introducing of individualization of education is not sufficient for the implementation of the educational reform. The impact of teacher education has provided the perception of the role of mentor teachers in professional development schools (Klieger & Oster-Levinz, 2015). The basis of coaching is

the potential of a trained person. (Whitmore, 2014). Supporting the professional development of information technologies pre-service teachers with e-mentoring approach is needed (O'Connor, DuBois & Bowes, 2015).

The use of the methods of participants' reflective activity in e-coaching and e-mentoring is of great importance because information and communication technologies cannot substitute face-to-face communication and have disadvantages of impersonal perception of the participants. Teachers have different needs for professional development so there is a necessity to work out programs of e-coaching and e-mentoring in postgraduate pedagogical education.

E-coaching must be used in training teachers with pedagogical experience of less than five years including mastering new technologies along with occupational disciplines and methods of teaching the subject. For teachers with pedagogical experience of more than 10 years it is preferable to implement subjects about professional burning out, time-management, and psychology. It is reasonable to involve experienced teachers with great achievements in e-mentoring. Such trainings are organized in the methodological association of teachers and contribute to continuing professional development of teachers of different ages. One of the components of e-mentoring is the creation of video resources with pedagogical experience and uploading them on the site.

The results of the research have shown that the teachers require the reconsideration of the content of postgraduate education for their own professional development and they are interested in learning new technologies (more than 70%), participating in the experience exchange, conducting workshops, demonstration lessons (more than 50%), that is they are ready to be engaged in the process of mentoring together with their colleagues. The teachers' needs for professional development are not limited by major subjects, they also include topics of "Time management", "New educational technologies", "Innovative projects" and "Information and Communication Technologies", "Psychology of Communication", "Prevention of professional burning out," all these factors justify our assumptions about the possibility and the necessity of the reconsideration of the forms and content of postgraduate education.

The teachers are ready to perceive the experience of colleagues and they offer to increase the number of visits of demonstration lessons, excursions to enterprises, educational institutions; study foreign experience of professionals. The teachers are ready to master ICT (45%) and to implement them to professional activities (more than 57%) and professional development (70%). The teachers specify that they have the best skills in using the Internet services that can encourage the implementation of e-coaching and e-mentoring. The results of the discussion with 20 experts show that the teachers are willing to use ICT to save their own time and for continuous professional development and they have already started using some elements of e-coaching and e-mentoring. Taking into consideration the discussion the SWOT analysis of the implementation of technology of e-coaching, e-mentoring in postgraduate education has been developed.

The content analysis of ICT has shown that modern applications, programs and services can provide different functions of e-coaching and e-mentoring (education, communication, collaboration, presentation of the professional development results).

This research indicates the beginning of the implementation of e-coaching and e-mentoring in the system of postgraduate education in order to ensure the continuous professional development of teachers and requirements of their further implementation. The conducted research doesn't cover all aspects of proposed scientific issues. It is necessary to improve the system of cooperation in e-coaching and e-mentoring for teachers of different ages and to develop diagnosis and programs of e-coaching and e-mentoring, to work out methods of diagnosing which contribute to the teachers' needs to identify their personal qualities, to evaluate the level of ability for self-government, self-esteem, the system of values, professional and educational motivation.

BIODATA and CONTACT ADDRESSES of AUTHORS



Vasyl KOVALCHUK, Doctor of Education, Professor of the Department of Teaching Methods and Managing of Educational Establishments, National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine. Work experience in postgraduate pedagogical education is 13 years. Previous positions: deputy director at trade school, vice chancellor of the Institute, Associate Professor at the Department of Professional Education, head of the research laboratory of experimental pedagogy and pedagogical innovations, Deputy Director of scientific and methodological work at the Institute of Postgraduate Pedagogical Education. Current position: coach of educational programs on adult teaching; head of research and experimental programs in the system of education, author of works in the sphere of development of professional competence of teachers and the development of the educational system.

Vasyl KOVALCHUK

Department of Teaching Methods and Managing of Educational Institutions
National University of Life and Environmental Sciences of Ukraine, 03041, Kyiv, St. Heroiv
Oborony, 16, educational building № 15-a, Ukraine
Phone: +38 044 527 80 83, +38 097 816 62 02
E-mail: shuparka@list.ru, v.kovalchuk@kubg.edu.ua



Iryna VOROTNYKOVA, PhD in Pedagogic Sciences, Associate Professor of the Department of Natural Sciences and Mathematics Education and Technologies at the In-Service Training Institute of Borys Grinchenko Kyiv University. Work experience in the sphere of secondary education is 6 years, in postgraduate pedagogical education – 13 years. Previous positions: a teacher of Information Science, methodologist, lecturer, Deputy Director of the Center of Distance Education, Deputy Director of the Department of Information Technology. Current position: a coordinator of projects, an author of works on the implementation of ICT in education, distance education.

Iryna VOROTNYKOVA

Department of Natural Sciences and Mathematics Education and Technologies
Borys Grinchenko Kyiv University, 02152, Kyiv, Ave. P. Tychyny 17, 02152 Ukraine
Phone: +38 044 294 21 39, +38 050 285 17 89
E-mail : irvorotnikova@gmail.com, i.vorotnykova@kubg.edu.ua

REFERENCES

Boyce, L. A., Jeffrey Jackson, R., & Neal, L. J. (2010). Building successful leadership coaching relationships: examining impact of matching criteria in a leadership coaching program. *Journal of Management Development*, 29(10), 914-931.

Cherepanov, VS (2006). Fundamentals of pedagogical expertise. *Izhevsk: Izd IzhSTU*

Clutterbuck, D., & Hussain, Z. (2010). Virtual coach, virtual mentor. IAP.

Cranton, P. (1996). *Professional Development as Transformative Learning. New Perspectives for Teachers of Adults. The Jossey-Bass Higher and Adult Education Series*. Jossey-Bass Publishers, Inc., 350 Sansome Street, San Francisco, CA 94104.

- Darling-Hammond, L., & Sykes, G. (1999). *Teaching as the Learning Profession: Handbook of Policy and Practice*. Jossey-Bass Education Series. Jossey-Bass Inc., Publishers, 350 Sansome St., San Francisco, CA 94104.
- Davies, D. (2010). What's changed? Issues of impact and evaluation in primary science professional development. *Professional Development in Education*, 36(3), 511-523.
- E-mentoring for social equity: review of research to inform program development. *Mentoring & Tutoring: Partnership in Learning*, 13(2), 301-320.
- Ensher, EA, Grant-Vallone, E., & Marelich, W. (2002). Effects of perceived attitudinal and demographic similarity on proteges support and satisfaction gained from their mentoring relationships. *Journal of Applied Social Psychology*, 32, 1–26.
- Guo, R. X., Dobson, T., & Petrina, S. (2008). Digital natives, digital immigrants: An analysis of age and ICT competency in teacher education. *Journal of educational computing research*, 38(3), 235-254.
- Guskey, T. R., & Huberman, M. (1995). *Professional development in education: New paradigms and practices*. Teachers College Press, 1234 Amsterdam Avenue, New York, NY 10027 (paperback: ISBN-0-8077-3425-X; clothbound: ISBN-0-8077-3426-8).
- Harland, J., & Kinder, K. (2014). Teachers' continuing professional development: framing a model of outcomes. *Professional development in education*, 40(4), 669-682.
- Houck, C. (2011), Multigenerational and virtual: How do we build a mentoring program for today's workforce? *Perf. Improv.*, 50: 25–30. doi: 10.1002/pfi.20197
- Jones, A. (2003). ICT and future teachers: are we preparing for e-learning? In *Information and Communication Technology and the Teacher of the Future* (pp. 65-70). Springer US.
- Jones, E. E., & Davis, K. E. (1965). From acts to dispositions the attribution process in person perception. *Advances in experimental social psychology*, 2, 219-266.
- Jung, C. G. (2014). *The archetypes and the collective unconscious*. Routledge.
- Klieger, A., & Oster-Levinz, A. (2015). The influence of teacher education on mentor teachers' role perception in professional development schools. *Journal of Education for Teaching*, 41(2), 115–127.
- Knapczyk, D. R., Hew, K. F., Frey, T. J., & Wall-Marencik, W. (2005). Evaluation of online mentoring of practicum for limited licensed teachers. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 28(3-4), 207-220.
- Knouse, S. B. (2001). Virtual mentors: Mentoring on the Internet. *Journal of Employment Counseling*, 38(4), 162-169.
- Knowles, M. S., Holton III, E. F., & Swanson, R. A. (2014). *The adult learner: The definitive classic in adult education and human resource development*. Routledge.
- Kuzu, A., Kahraman, M., & Odabasi, H. F. (2012). E-Mentoring: A New Approach in Mentoring. *Anadolu Universitesi, Sosyal Bilimler Dergisi*, 12(4), 173-183.

- Little, J.W. (1993). Teachers' professional development in a climate of educational reform. *Educational evaluation and policy analysis*, 15(2), 129-151.
- McGarr, O., & O'Brien, J. (2007). Teacher professional development and ICT: an investigation of teachers studying a postgraduate award in ICT in education. *Irish Educational Studies*, 26(2), 145-162.
- Merriam, S. B., & Clark, M. C. (2006). Learning and development: The connection in adulthood. *Handbook of adult development and learning*, 27-51.
- Morris, R. D. (2011). Web 3.0: Implications for online learning. *TechTrends*, 55(1), 42-46.
- Morze, N. (2013). Creation of the university's information and education space as a catalyst for the formation of teachers' ICT competence in: E-learning & Lifelong Learning. E. Smyrnova-Trybulska, *University of Silesia, Cieszyn*, 39-54.
- Murphy, W. M. (2011). From E-Mentoring to Blended Mentoring: Increasing Students' Developmental Initiation and Mentors' Satisfaction. *Academy of Management Learning & Education*, 10(4), 606-622.
- Ng, W. K., Miao, F., & Lee, M. (2009). Capacity-building for ICT integration in education. *Digital Review of Asia Pacific*, 2010, 67-76.
- O'Connor, R., DuBois, D., & Bowes, L., (2015). E- Mentoring for Improving the Career Planning of Youth (15-24): A Systematic Review. Retrieved from <http://campbellcollaboration.org/lib/project/351>
- Ololube, N. P. (2006). Appraising the relationship between ICT usage and integration and the standard of teacher education programs in a developing economy. *International Journal of Education and Development using ICT*, 2(3).
- Postryhach, N. (2014). Foreign Approaches to Determining the Categories of Teachers' Professionalization and Professionalism in the System of Continuing Advanced Training. *Comparative Professional Pedagogy*, 4(4), 46-52.
- Reichman, EP, & Azgaldov, GG (1974). Expert methods to assess the quality of the goods. *M. : Economics*, 94.
- Shpigelman, C.-N., & Gill, C. J. (2013). The Characteristics of Unsuccessful E-Mentoring Relationships for Youth with Disabilities. *Qualitative Health Research*, 23(4), 463-475.
- Shrestha, C. H., May, S., Edirisingha, P., Burke, L., & Linsey, T. (2009). From Face-to-Face to e-Mentoring: Does the. *International Journal of Teaching and Learning in Higher Education*, 20(2), 116-124.
- Shulman, J. H., & Sato, M. (2006). *Mentoring teachers toward excellence: Supporting and developing highly qualified teachers*. San Fransisco: Jossey-Bass Publications.
- Simmonds, D., & Zammit Lupi, A. M. (2010). The matching process in e-mentoring: a case study in luxury hotels. *Journal of European Industrial Training*, 34(4), 300-316.
- Single, P. B., & Muller, C. B. (2001). When email and mentoring unite: The implementation of a nationwide electronic mentoring program. In L. Stromei (Ed.), *Implementing successful coaching and mentoring programs* (pp. 107-122). Cambridge, MA: American Society for Training & Development (ASTD) In Action Series.

Single, P. B., & Single, R. M. (2005). E-mentoring for social equity: review of research to inform program development. *Mentoring & Tutoring: Partnership in Learning*, 13(2), 301-320.

Sysoeva, E., Tarasov, V., & Zelenskaya, O. (2002). Comparison of the methods for determination of scintillation light yield. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 486(1), 67-73.

Watson, S. (2006). Virtual mentoring in higher education: teacher education and cyber-connections. *International Journal of Teaching and Learning in Higher Education*, 18(3), 168-179.

Whitmore, J. (2014). Coaching for performance: *Potenziale erkennen und Ziele erreichen*. Junfermann Verlag GmbH.

Zeus, P., & Skiffington, S. (2000). *The complete guide to coaching at work*. Sydney: McGraw-Hill.