Artículo de investigación

Personal Educational Medium of a Creative Teacher in the Continuing Education System

Моделирование Персональной Образовательной Среды Креативного Педагога в Системе Непрерывного Образования

Recibido: 5 de noviembre del 2019 Aceptado: 3 de enero del 2020

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Abstract
Along with the sociocultural, natural and technogenic life environments in the postindustrial society, the information environment, embodied by the media and the global Internet, is becoming the leading one. In the information environment, individual activity is transferred to the Internet. It includes professional activities mediated by distance technologies, social networking, Internet communities, personal sites, blogs, twitters, collections of scientific, educational, literary and artistic publications, news, movies, concerts, meetings, etc. In this context, the dual social role of the teacher as a provider and, at the same time, consumer of educational services is highlighted. The development of general and professional competencies (especially socio-communicative) affects the success of a teacher in the field of socialization, education and upbringing of young people in the society based on innovations and high technologies. The education system demands a teacher who is able to implement

Аннотация
Наряду с социокультурной, природной и техногенной средами жизнедеятельности в постиндустриальном обществе формируется и становится ведущей информационная среда, воплощаемая средствами масс-медиа и глобальной сетью Интернет. Трендом развития информационно-коммуникационной среды становится перенос индивидуальной активности в Интернет: профессиональная деятельность, опосредованная дистанционными технологиями; развитие социальных сетей-сообществ, персональных сайтов, блогов, твиттеров; публикаций научных, просветительских, художественных изданий; просмотр новостей, кинофильмов, концертов, собраний, и др. В этом контексте выделяется двойственная социальная роль профессионального педагога как поставщика и, одновременно, потребителя образовательных услуг. От сформированности общих и

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Innovative changes in the educational process require fundamentally new technological support for innovations and involves the development of the relevant norms of innovative behavior and description of the models, types and methods of disseminating innovative pedagogical experience. Such a teacher meets the requirements of the Russian national project “Our New School” and should be one of the most important resources for modernizing the education system as a whole and, in particular, in terms of continuing professional development. High-quality performance of professional labor functions (training, educating, upbringing) implies the possession of competencies in the analysis, exchange and dissemination of innovative pedagogical technologies. Professional development of a teacher is impossible without the need to transmit the positive experience to wide pedagogical communities.

**Key Words:** Personal educational medium, continuing professional development, information technology, continuing education, teacher’s electronic portfolio.

**Introduction**

The need to move towards lifelong and life-wide learning is recognized in the education system of Russia and other countries. For teachers it is implemented through continuing professional development. One of the priority tasks of Russian education is the development of modern system of continuing education, retraining and advanced training of teaching staff. As Professor T.Yu. Lomakina noted, postgraduate education is designed to ensure effective, freely chosen employment, to meet the needs for professional growth, enhance the competitiveness, professional mobility and social security (Blinova, Dugina, Zabolotskikh, 2018).

Continuing education can be implemented in the unity of professional activity and professional development of a teacher, using individual educational programs and personal means of communication. The question naturally arises of the mechanisms for the implementation of these functions in the information society.

In a number of works (Gordon Drydent, Peter Drucker, H. Kobayashi, I. Zaitsev), opinions are expressed about the significant reduction in the teacher’s role in the information-intensive educational environment and the possibility of replacing it with program agents and humanoid
robots. The opposite point of view, based on the fundamental understanding of the student’s nearest development zone, introduced into the pedagogy and psychology by a renowned Russian scholar L.S. Vygotsky, is substantiated (to achieve great results in collaboration, with the methodological and didactic help of a teacher). At the same time, the requirements for the teacher’s competencies are increasing, since pedagogical interaction is becoming more and more indirect and remote, supported by the personal educational environment of its participants.

**Literature review**

The fast pace of updating information contradicts the relatively large period between the scheduled advanced training of teachers. Therefore, continuing non-formal education and self-education is of great importance. In this regard, in recent years in a number of works by foreign and Russian scientists (G. Attwel, D. Vennot, G. Davis, G. S. Fidler, N.Yu. Goncharova, E.D. Patarakin and B. B. Yarmakhov) discuss the development of online learning environment (OLE), personal learning space (PLS), personal learning environment (PLE) implemented by Internet services. However, this problem is considered mainly from the point of view of a technical base for e-learning. In our opinion, the **personal educational medium (PEM)** that integrates formal, non-formal, informal education and self-education, mediated by modern information and communication technologies and implemented on the basis of competency-based approach, could become a more appropriate means and environment for continuing professional development of teachers (Utemov et al., 2018).

In view of the dual role of the teacher (to teach and to learn), the PEM is a socio-technical system that includes not only the software and technical services of the Internet, but also social interactions related to the activities of the teacher. In this context, studies are needed on the possible ways of the PEM development, the structure and content of variable areas, their cultural and social functions. In this connection, the need arises for analyzing social media services from the point of view of integrating information and pedagogical technologies, developing cooperative learning technologies, individual approach on this basis. The goal of education is a creative personality, capable of self-development and adaptation to changing technological and socio-economic living conditions (Sergeeva et al., 2019). In this regard, the problem arises of putting theoretical provisions of personality-developing education into practice in the field of advanced training of teachers. Despite the growing role of non-formal education and the need for institutionalization of a system for ensuring continuing education, the problem of creating the PEM as a personality-centered sociotechnical system did not find a proper theoretical and methodological reflection in pedagogical researches. Currently, there is no proven methodology for creating and using the PEM in the teacher’s professional activity, which prevents the continuous training of teachers and the successful use of Web services (Neverkovich et al., 2018).

**The personal educational medium (PEM)** is defined in our study as an integrative combination of open information space and limited, personalized work environment mediated by Internet services and tools. In contrast to the concepts of Personal Learning Space, Personal Learning Environment, the term “personal educational medium” emphasizes the relativity of the “radius” of individual field of activity and its growth in line with the development of teacher’s socio-communicative competence.

**Research methodology**

According to the forecasts of M. Castells, K. Kolin, A. Toffler, A. Ursul and other researchers, information civilization will reach its peak by the middle of the XXI century, when education will become ongoing process in the conditions of information exchange with the surrounding social environment (Volkova, Panchenko, 2018). The fundamental problem is the transition of the current education system to the concept of lifelong learning. The “Memorandum on Lifelong Learning” of the European Council distinguishes formal, non-formal and informal learning. Formal learning takes place in education and training institutions, leading to recognized diplomas and qualifications. Non-formal learning takes place alongside the mainstream systems of education and training and does not typically lead to formalized certificates. Non-formal learning may be provided in the workplace and through the activities of civil society organizations and groups (such as in youth organizations, trades unions and political parties). It can also be provided through organizations or services that have been set up to complement formal systems (such as arts, music and sports classes or private tutoring to prepare for examinations). Informal learning is a natural accompaniment to everyday
life. Unlike formal and non-formal learning, informal learning is not necessarily intentional learning, and so may well not be recognized even by individuals themselves as contributing to their knowledge and skills.

According to D. Cross, S. Wheeler, J.S. Brown and other researchers, only 15-20% of the acquired knowledge are obtained from formal sources, and the remaining 85-80% from informal sources. As noted by E.D. Patarakin and A.A. Andreev, in the modern educational information environment, the role of non-formal learning is growing, and therefore the review of the teacher’s competencies is required (Sergeeva et al., 2018c).

The teacher integrates the social roles of both the provider of knowledge, the organizer and facilitator of cognitive activity of students, the head of joint project activities, and the consumer of professionally significant and cultural information that guarantees personal development and active interaction with the professional community (Wang et al., 2018).

The intensive development of interpersonal communication tools (social media on the Internet) meets the human needs for self-development, self-expression, self-education, but it carries the risks of inadequate use of knowledge. In this context, the mission of the PEM is to be a mechanism for adapting the teacher to the challenges, at the same time, as a means of organizing cognitive activities of students in the information-intensive educational environment.

Currently, the following approaches have been developed for interpreting the information resource of a teacher (Sergeeva et al., 2018b):

1) information educational subject environment as a component of the open information environment of educational institution;
2) the teacher’s electronic portfolio as a way of assessing professional competencies, a tool for reflecting professional activities;
3) personal learning environment / personal educational environment / personal educational space as a means of satisfying educational needs, implemented on the Internet.

In our opinion, the components of the teacher’s information resource, presented in an open information-intensive environment, have areas of intersection. In this regard, it is necessary to consider the general principles of functioning and search for information and communication tools.

The continuing education, the teacher’s electronic portfolio and the design of the subjective educational environment requires the solution of professional tasks based on information technologies. The PEM structure of a teacher can be divided into four areas formed by two pairs of hemispheres. The first pair is the opposition of the consumer and the producer of educational services, the second one is represented by the hemispheres of professionally regulated and informal, educational and social activities. At the same time, the Internet and social media are the information and communication basis of all the identified areas (Sharonova, Trubnikova, Sokolova, 2018).

In different periods of life, the ratio of the selected areas varies, depending on external conditions and internal needs. For an experienced teacher, the leading area of personal development is the field of informal and non-formal self-education. For a high school student, the main area of development and cognitive activity is the consumer area of regulated educational services. The formal component of the teacher’s PEM fulfils the function of distance controlled learning. It is determined by educational standards, rights and charters of educational institutions and can be a personal page on the school’s website. Following the challenges of the times and development of distance educational technologies, it should contain not only textual and audiovisual didactic materials, but also tools for distance counseling and training, webinars, chat rooms, forums, network projects. Obviously, the teacher must have the appropriate competencies and skills that were not required in the traditional educational process. Opportunities in placing content, managing access to it and forms of communication change the social roles of users from a passive consumer of information to an interactive and personalized position of commentator, discourse participant, information producer. The professional and social activities are increasingly concentrated in the open information space. Taking into account the peculiarities of information society and trends in the development of Internet services, the following basic principles of the PEM functioning (Dolzhich, Dmitrichenkova, 2018) are identified:

Meta-formality – the use of all the possibilities of formal, non-formal and informal education, a
variety of informational, legal, professional, cultural and existential connections for the professional activity and self-education of a teacher.

**Globality** – the use of open and licensed educational resources and services of the Russian and global Internet in professional activities.

**Peering** - equal partnership in organizing and participating in multi-project educational and cognitive activities of various genres and directions.

**Polyformativity** – the use of variable means and methods of educational interaction in professional activities (e-mail, messengers, forum, chat, webinar, blog, personal site, community initiated).

**Evolutionism** – the free choice of optimal forms, means and methods of educational (pedagogical) and cognitive activity.

**Subjectivity** – the pedagogical interaction on a personality-oriented basis in the direction of informal joint activity.

Principles of openness, multimedia and tolerance are considered as additional.

On the basis of the principles considered, we select software and hardware used as tools in the PEM (Internet services, software and communication tools).

The center of the PEM is a personal page on the website of an educational institution or a teacher’s blog. It communicates with the learning management systems and export of educational services used centrally in the educational institution, and with depository sites of personally used resources, if there is no possibility for their placement on the educational institution’s website. In the process of mastering the information culture, the teacher starts informal networking in various communities, and if necessary, creates own network community ( Bírová et al., 2018).

Unique didactic properties allow Internet services to perform didactic functions aimed at the implementation of the educational process (the possibility of explanation, clarification, discussion, intermediate control, creative group work, etc.), communication with all participants in the educational process, creating favorable conditions for effective learning and cognitive activities.

Result analysis

Taking into consideration a wide spread in the classifications of competencies, we express our opinion on the possibility of both detailing competencies and introducing leading professional competencies, in the characterization of which it is possible to use the components of other competencies discussed in the pedagogical community. The term “leading type of competency” was introduced by the Russian researcher A.A. Kiseleva (2011) by analogy with previously proposed by A.N. Leontiev and developed by D. Elkonin concept of “leading activity” or “leading type of activity”. An argument in favor of this approach is the fact that all competencies are, to one degree or another, derived from the identity of their carrier, so they are interconnected and correlated. As a manifestation of “the principle of unity of consciousness and activity”, introduced into the psychology by Russian psychologist S. L. Rubinstein, A. A. Kiseleva (Kiseleva, Starodubtsev, Fedorov, 2010) introduces the principle of unity and interconnection of competencies. On its basis, socio-communicative competency is considered as the ability to solve everyday and professional problems using modern tools and Internet services, which should be the leading professional competency for teacher (E.A. Shumilova). Basing on the analysis of competencies interconnections, the following components were included in it (Gorev et al., 2018):

**Media:** The ability to critically analyze social media materials, the practical skills of using computer tools to create multimedia content. Knowledge of the psychological and physiological foundations of perception and the impact of audiovisual information.

**Communicative:** proficiency in written and oral business communication, cross-cultural communication in a global network, presentation and self-presentation skills, ability to work in a team, ability to use various technical means of communication.

**Information:** proficiency in the methods of search, critical assessment, structuring, extracting key fragments from large amounts of information, the ability to transform and store information; to organize and present information in a multimedia format.

**Gnostic:** willingness to participate in network projects, the ability to use digital data and modeling, graphic and statistical processing of
experimental results, make decisions based on them.

**Axiological:** understanding the mission of the education system in modern society, the role of global information network, adherence to ethical standards in communication.

**Auto-psychological:** the ability to control emotions, respond adequately to changing conditions and opportunities for interpersonal and group communications, mastery of targeted activities in information-intensive environment, resistance to stress, readiness for critical self-esteem and decision-making.

**Personal development:** the ability to organize personal continuing learning through network interactions, to create personal information space, to plan the career stages, willingness to defend own point of view in contact and distance interaction.

**Social interaction:** the ability of conflict-free and effective cooperation with partners, respect for alternative points of view, openness in communication, the choice of adequate forms of organizing leisure and entertainment in the information environment.

Effective forms of continuing teacher education using information technologies were identified in the result of the research (Table 1) (Sergeeva et al, 2018a).

**Table 1.** Forms of continuing teacher education using information technologies

<table>
<thead>
<tr>
<th>Forms</th>
<th>Content</th>
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<tbody>
<tr>
<td>Workshop, organizational and activity games</td>
<td>The master (the teacher, sharing experience) conducts classes with colleagues.</td>
</tr>
<tr>
<td>Teaching club (pedagogical studio)</td>
<td>A voluntary community of like-minded educators who share the ideas of the master, who is the organizer and presenter. Communication takes place in the form of discussions, disputes etc. It is used to demonstrate and share with the colleagues non-standard teaching methods and technologies. The goal is to convey conceptual ideas, increase motivation, stimulate creative pedagogical search. A long-term project in which the entire teaching staff participates. Teachers perform certain tasks, prepare materials for demonstration (fragments of lessons, extracurricular activities, etc.). Audio and video recordings are used. Experts (jury) evaluate ideas in accordance with the developed criteria. The association of teachers, which may include both practical teachers and methodologists, scientists, and managers. The goal is to solve urgent pedagogical problems by means of innovative pedagogical technologies.</td>
</tr>
<tr>
<td>Master classes</td>
<td>Collection, generalization and systematization of materials describing innovative pedagogical patterns (can be either in print or in electronic form).</td>
</tr>
<tr>
<td>“Auction of pedagogical ideas”</td>
<td>Methodical literature, books, albums, etc.</td>
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<tr>
<td>Creative groups</td>
<td>Sites, collections, online community, etc.</td>
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<tr>
<td>Bank of pedagogical experience (pedagogical ideas)</td>
<td>Active exchange of information, ideas at different levels (municipal, city, regional, international).</td>
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<tr>
<td>Printed products</td>
<td>The School program may include workshops, video lectures, trainings, tests, etc.</td>
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<tr>
<td>E-learning resources</td>
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<tr>
<td>Festivals of innovative pedagogical ideas</td>
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<tr>
<td>School of innovative teaching technologies (both for young teachers and experienced)</td>
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</table>

In the system of advanced teacher training, when using information technology, it is necessary to focus on andragogical principles of learning (Table 2) (Sergeeva et al., 2019a).
Table 2. Comparison of andragogical learning principles

<table>
<thead>
<tr>
<th>Andragogical learning principles</th>
<th>According to S.I. Zmeev</th>
<th>According to S.G. Vershlovsky</th>
<th>According to M.Sh. Knowles</th>
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</thead>
<tbody>
<tr>
<td>Learning Independence</td>
<td>Learning Independence</td>
<td></td>
<td></td>
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<tr>
<td>Reliance on learner’s experience</td>
<td>Reliance on professional, social and life experience</td>
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<tr>
<td>Updating learning outcomes</td>
<td>Actualization of educational results</td>
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<tr>
<td>Cooperative activity</td>
<td>Cooperative activity</td>
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<tr>
<td>Individualization of learning</td>
<td>Individualization of learning</td>
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<tr>
<td>Learning in Context</td>
<td>Learning in Context</td>
<td></td>
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<tr>
<td>Electivity</td>
<td>Electivity and Variability</td>
<td></td>
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<tr>
<td>Educational needs development</td>
<td>Educational needs</td>
<td></td>
<td></td>
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<tr>
<td>Learning awareness</td>
<td>Reflexivity</td>
<td></td>
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<tr>
<td>System learning</td>
<td>Innovativeness</td>
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</table>

Based on the analysis of Table 2, the general principles identified by all authors were identified: the independence of learning, relying on the experience of an adult learner, updating the learning outcomes.

The principles shared by S.I. Zmeev and S.G. Vershlovsky: joint activities, individualization, contextualization, electivity, development of the educational needs of students, awareness of learning (reflexivity).

Separately presented are the principles of system learning (S.I. Zmeev), innovativeness (S.G. Vershlovsky), conditionality of readiness for learning by external (realization of various social roles) and internal (cognitive motivation, desire for self-development) (M.Sh. Knowles) factors.

The analysis of the andragogical principles of teaching made it possible to single out the general principles of adult education contributing to the successful development of a personal educational medium:

- the principle of independence;
- the principle of relying on the experience and needs of students;
- the immediacy of application of the knowledge gained; professional and personal development in learning (Sergeeva et al., 2017).

Conclusions

The development of the PEM allows us to solve the following problems:
Methodological: to implement the functions of the producer and consumer of educational services in a single system, to integrate formal education with non-formal and informal, to combine interactive textual (written) and audiovisual interpersonal communication.

Pedagogical: to change the status of a teacher as the main source of educational information to the status of facilitator and manager of educational and cognitive activity of students, to direct pedagogical interaction in the mainstream of interpersonal relations, to develop the key and professional competencies of students in the guided practical activities, to expand opportunities for the manifestation of cognitive, creative, existential abilities of students and teachers, to ensure participation in a personality-oriented network of educational and social (civilian) activities, to establish and maintain interpersonal communications with recognized experts in their professional field of activity, to implement the self-concept in a wider (regional and / or global) context of the information society.

Didactic: to develop educational and methodological support of the taught discipline and make it available on the website, to differentiate and individualize educational interaction, to implement the integrated use of computer didactic tools to ensure the unity of theoretical and practical training, to coordinate individual and group cognitive and research activities, to organize immediate feedback and assessment, to increase the volume of independently acquired knowledge and its informal application, to create the basis for interdisciplinary communication in the general context of the educational environment.

The PEM is a means and medium of activity in which the formal, informal and informal postgraduate education of a teacher is materialized, satisfying personal needs and requirements, actualizing the natural desire to self-improvement, to spiritual inner growth. New pedagogical conditions are created in the PEM conditions:

- distance learning technologies based on network social media at all stages of coursework in the field of ICT and in the inter-course period;
- a variety of techniques and teaching methods;
- motivational-value, cognitive and operational-activity learning outcomes;
- a module (section) on the didactic capabilities of social media in continuing professional development;
- educational information environment based on social media.

The specific composition of the PEM is determined by the actual needs of a teacher and the level of socio-communicative competence, defined as the ability to solve everyday and professional problems using modern tools and Internet services.

Bibliographic references


