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Transforming Higher Education in the 21st century;

"Innovating pathways to Learning and Continuous Professional Education"

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Digital Technologies for Professional Development at H. S. Skovoroda Kharkiv National Pedagogical University

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Abstract

The report presents the curriculum peculiarities of the teachers' training implementation of blended learning that was based on the platform Moodle. The main objectives of the courses due to the need to meet the requirements of modern education, providing competent personality's regard to life in the information society that characterizes the sense of digital literacy. A certain place in the program was given to the problems of ensuring the education quality, in particular, the formation of an ecosystem personal educational information environment that consists of open educational resources, MOOCs, social networks etc. We pay special attention to cloud computing virtualization of laboratory equipment for the development of practical skills in natural science laboratories.
Note that educational problem solving for the innovative, inclusive and reflective society connected with the designing of the educational environment of a new generation that is characterized by increased levels of intellectualization of resources, their appropriate and rational integration, ensuring flexibility and adaptability of digital systems for educational purposes according to the student's needs. In the structure of that environment is useful to distinguish tools of project-based learning, gamification and aggregation technologies of digital content. All e-learning resources are characterized by attractive design, interactive content, easy access (hyperlinks) to the information they need, integrated dynamic applications (photos, videos, animations, mind maps, infographics), e-portfolio for the formation of individual educational trajectories, means of self-assessment and evaluation.
Keywords: teacher's training, student-centered learning, competence approach, digital literacy, educational ecosystem

Introduction

World experience accumulated over centuries of human existence requires systematic rethinking models of its development, i.e. professionals' the intellectual flexibility and inventiveness become dominant, organic combination of educational process with scientific research much more weigh. Undoubtedly, the transition of society to a new stage of development (the "knowledge society") offers more opportunities for professional and social inclusion of young people that are constantly faced with the challenges of today and the problem of choice, the solution of which depends they can use existing opportunities for self-development and self-realization.

Modern educational challenges require attention to the problem of designing a new generation of environment, which characterized by increased levels of intellectualization of means, their appropriate and efficient integration, flexibility and adaptability of computer-based systems for educational purposes according to user's personal needs. This defines ecosystem of personalized education (EPE) for technological and psycho-pedagogical support of training / research, including modern means of which we pay special attention to open educational resources in combination with interactive equipments that can realize a wide range of innovative methods and technologies of education (Bykov, 2008; Kommers, 2011; Bykov, Kukharenko, etc., 2008; Bondarenko, Kukharenko, 2015; UNESCO, 2013; Zhaldak, 2013).

Thus, the main educational measures such as: to develop the assessment skills of EPE tools; to compose, to adapt and to coordinate existing EPE facilities; to develop teamwork skills; to seek organizational support to develop skills in working with EPE tools; to participate in relevant communities to share experiences; to attract students to the use of EPE in non-formal and informal education; to promote widespread of EPE means, publishing relevant materials; to provide feedback and information about existing EPE facilities; to expand knowledge in the field of intellectual property rights, copyright and privacy policy; to publish their own EPE means.

The immediate necessity to improve the educators according to challenges and changes of modern teacher status due regularity solve problems of teacher education, in particular, the need to acquire pedagogical competence as universal for every modern specialist. So, this problem led to the creation of KhNPU transparent and accessible educational system, first of all, lets concentrate on maintaining the autonomy of the student (conscious planning e-learning process, evaluation, reflection of their own study) as well as building communities of practitioners to study the urgent problems of modern teaching. Among the priority issues we outlined include digital literacy and digital humanities, causing the formation of a responsible citizen for innovative, inclusive and reflective of society.

First of all, we started implementing open resources of museums (Google Art Project, Europeana, Big History Project, History of Ukraine, Ukraine's Museum Space, history4you.ru), British National Corpus, Corpus of Contemporary American English (http://corpus.byu.edu/coca/), Leo Tolstoy's heritage, educational channels, Google services, repositories of digital libraries. Especially, projects

are known OER Commons (structured database links to search means), a network of library content and services WorldCat and DokShyr (for Ukrainian specialists of library science) etc.

However, there is a need to analyze the features of the implementation of distance learning technologies in pedagogical universities that provide self-improvement (i.e. approach on "equal access to quality education for all"). Particular attention was paid to the development of core curriculum on organizational and pedagogical aspects of prospective students (pre-service and in-service teachers) and university educators that aim to encourage them to consciously learning and thinking for competent functioning of the individual and social activities in the digital society (by means mixed or combined instruction technology with implementing open educational resources as well as social communities and nets).

Course design and activities

Exploring the problems of developing courses based on Moodle (Oliynyk, Prokopenko, Zub, etc., 2015), allowing teachers to deal with problems of transition to ecosystem personalized education, technological and psycho-pedagogical support of course, we pay great attention to acquiring key competencies of students, increasing their interest, improving the ability to quickly learn and cooperate flexibly in educational projects, involvement in active cooperation and research of actual problems of globalized society.

By this approach the subject of our special attention was the student's portfolio, which he/she works out during active participation in the development of individual educational trajectory and personalized learning environment. At the same time, much we paid special attention to elaboration of modern pedagogical approaches, pedagogical design technologies according to ways of aggregating of information, the potential of new multimedia tools and educational resources (search, assessment, adaptation and implementation), taking into account the means of inclusive education (we mean the wide variety of level features of educational someone training to take into account physiological, psychological and socio-psychological levels).

The course covers various aspect of blended learning such as models of combined training, including e-learning that occurs in synchronous mode (computer-based training (CBT), web-based training (WBT) and discussion chat) or asynchronous manner (virtual classes and labs, Internet hosting-services with services, audio / video conferences, forums, remote administration, etc.). In this way, we have proposed to design the course, primarily use existing digital content that has the appropriate design and can be placed in public repositories or open educational resources (e-museums, e-libraries, educational channels, MOOCs etc.).

Among the features of this approach should be noted that the primary focus we pay to teams of social and humanities (including historians, philosophers, economists, educators, psychologists, healthcare biologists, artists, pre-school teachers etc. (Bezruk, 2013; Ionova, 2013; Kuznetsov, 2005; Prokopenko, 2013; Radionova, 2013; Yermakova, 2015; Yuryeva, 2013)). Indeed university faculties

of natural sciences and mathematics have deep experience in ICT integration researches; they worked with dynamic geometry software, computer algebra systems, testing technologies, expert systems etc. Also taking into account the university specificity there were involved in the projects those students that interested in professional improvement, in particular, the formation of the capacity for flexible learning, the use of digital resources and social media for informal learning. In this way, it helps to identify the various services that are very attractive for use by students, and explore means to enhance their motivation to actively study courses, organization of an enabling environment for productive cooperation, conscious transition to teaching and research from passive content to interactive.

At the same time, it allows not only better understand the "digital generation" for finding means to elevate the innovative courses development at a qualitative level and increase their competitiveness (compared to popular services in the student audience), but also promotes cooperation in a more creative plane as well as demonstrate the importance of a critical approach for the need of a demanding selection of educational resources by means of evidence-based criteria.

It should be noted that particular attention we devote to research for innovation in modern educational space as open educational resources for universities, but last times there are new results require careful study for educator's self-realization (Brown, 2015; Brown, Costello, Donlon, 2015; Henderikx, 2015; Ossiannilsson, 2015). They carried out by inter-governmental organizations (e.g. UNESCO, Commonwealth of Learning), quality assurance networks (e.g. INQAAHE) and networks of higher education institutions (e.g. ICDE, EADTU etc.) which were investigated research groups in the framework of partnership initiatives such as EPALE, Europortfolio, HOME, OpenupEdu, IDEAL, SEQUENT.

It is clear that there are benefits for the national platform Prometheus (http://prometheus.org.ua), offering specific courses (Ukrainian law, foreign languages, history of Ukraine, etc.) which are shared in Ukraine. Besides we find some adapted courses (of famous MOOCs) that are inaccessible to a certain part of teachers due to the language barrier. Of course, greater practical importance and adaptability of this platform to the real needs of employers we can explain due to rate a collaboration project teams with leading companies (on the Ukrainian market) involved in the active participation in the development of courses and programs of specific modules (Kukharenko, 2012).

Note that the common system of development of distance learning courses, which consists of the following stages (Bykov, Kukharenko, etc., 2008), at pedagogical university has its own characteristics related to teaching competence and educational research of the vast majority of project participants (of curriculum design): organization of the project; analysis of the project; project advancement; drafting project scenario performance; pilot project implementation; full implementation of the project; testing the design and improvement of its modules. Besides it's needed to consider the teaching skills of the prospective students (which promotes active involvement in the development of individual educational trajectory and advancement of personalized learning environment for inclusive education including polycultural aspect (Yuryeva, etc., 2013)).

To determine the quality of a distance course, we use the following criteria: 1) subjective satisfaction of students training course; 2) competence and personal qualities that students have mastered; 3) the time required the students for performing the course tasks. In addition, in quantitative terms, the number of registered students and the number of participants who successfully complete the course; qualitative indicators: positive feedback (through questionnaires and various means of reflection remote participants or combined studies).

Evaluation didactic component of the course is based on the assessment of scientific and didactic content of educational work (emphasis on integrated educational projects and researches) and interaction of participants (discussions, debates, etc.), as well as teaching materials (guidelines, manuals, glossaries, etc.) about general and specific learning problems, including the formative evaluation of students' learning achievements and means of implementation of inclusive education.

The indicators, which traditionally valued quality of subsystems of scientific and didactic course content (i.e. the validity of the structure of educational content; level of adaptation of educational content to students' level; degree of design clarity educational content; validity of the use of multimedia tools; the ability to implement formative and final evaluation so as adequate testing; completeness the proposed training content, its compliance with training standards; the clarity and clearness of teaching; stimulating self-learning, discussions and collaborative learning project work; dynamic media content), we additionally pay special attention to the organization of the e-portfolio as reflexive tool of employment ability (Oleinik, 2014).

The quality evaluation of the tutor activity in traditional way consist of questioning students about the quality of the course the following rubrics: individual goals of participation in this course; level of achieving goals; additional goals; unexpected issues in learning; the most difficult issue; positive and negative moments in learning presentation; duration of download electronic content; the depth and complexity of content; a variety of problems; suggestions for the scientific and didactic content improvement. Besides, note that significance of work with social media is also unconditional for tutor (Kommers, 2011).

Taking into consideration that the main task of modern education is to facilitate student's self-fulfillment through the creation of conditions for adaptive learning, a priority issue is the personality's component of readiness for professional activity and key competences. This trend (comparing to the traditional priority of theoretical knowledge and practical skills) is reflected in new approaches and methods of forming a common understanding of the content of qualifications and degrees in university structures (Kalashnikova, etc., 2015; UNESCO, 2013). In organizational and communication module ECTS those competencies include social skills necessary for social interaction and cooperation, skills of self-organization, critical and creative thinking, intellectual openness (Oleinik, etc., 2002).

Note also that special attention is paid to virtualization laboratory equipment on mastering practical skills with equipment physical, chemical and biological laboratories distance education. To address these challenges the project was initiated Grid Enabled Remote Instrumentation with Distributed

Control and Computation (GRIDCC) on safe distance collaboration with the research team to ensure the data monitoring and management. Undoubtedly, that condition for introduction of virtual labs training practices will have a positive impact not only on the motivation to learn programming and natural subjects that makes a deep understanding of modeling processes (Zub, Sorokin, Soroka, 2006).

Conclusions

Note that solving the educational problems for innovative, inclusive and reflective of society, we are interested in the construction of new generation educational environment (ecosystem personalized education, technological, psychological and pedagogical support issues, training / research), characterized by higher levels of intellectualization means of reasonable and rational integration, flexibility and adaptability of digital educational purposes according to all student's needs (especially in digital humanities and digital literacy).

It's no doubt OER Particular MOOCs are very significant for realization of inclusive education in East European countries by improving range of innovative pedagogical repertoire for transformation of teaching and learning to exploration, investigation, research. Thus, our experience indicates that improve the quality of teachers that capable to activity as change makers requires attention to the study of international experience in the implementation of distance and open education and active participation in further partnership.

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