# Open Distance Learning for Teachers

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**Abstract.** The purpose of the work is to demonstrate the results of the study on the role of open education for the system of professional development (advanced training) of distance and blended learning teachers. Research Laboratory of Distance Learning (RLDL) NTU "KhPI" offers teachers of educational institutions distance courses "Introduction into distance learning", "Distance education for managers", "Technology of design distance course", "Tutor's Practicum ", "Blended learning", "Distance Course Expertise", "Content Curator". Teachers from universities, institutes of postgraduate pedagogical education and teachers of schools of Ukraine took part in the open distance courses since 2014, more than 2,400 students have been enrolled in courses.

There is presents research results concerning quality teaching and learning based on the educational technology portfolio at the KhNPU. More than 10 years of development formative assessment kit in the context of the integration of digital resources into teaching and later open educational resources into blended learning. It's no doubt, experience shows that at the initial stage of study a majority of students are interested preferably in the technical side of digital activity in the study. Experience showed they need time for the ready to consciously use the wide possibilities of a portfolio for the development of their independent evaluation, learning reflection, critical thinking, active research position and professional identity of the teacher. In this way, we have convinced the enhancement of the educational environment aimed at taking means of the digital portfolio should be recognized among the important conditions of the quality education improvement.

**Keywords:** OER. OEP, open online course, personal learning environment, ADDIE, tutor, digital portfolio.

## 1    Introduction

At the current stage, central planning and hierarchical decision making are too slow and ineffective, especially in difficult situations involving a large number of people. It's no doubt self-organizing teams are much more flexible than hierarchical ones [1],

but for first ones require active and engaging participants comparing to second ones, which drive opportunities for confidence and innovation.

The development of the network changes the professional activities of the individuals and the system of their training for work. The society moves into a networking era, where autonomy and the creation of a professional ecosystem become the main point. A professional ecosystem is a set of organizational and personal relationships as well as interacting elements (content, people, software, services, programs, etc.), which ensures the harmonious development of individuals.

We can see a majority of innovative organizations during this century were based on principles and frameworks that reflect the way of life of the human race in a networked society [2]. The first steps of a new network era are already determined through such values like subsidiary (that is solving problems at the level where they start) and network management, related supervision. We consider the new term "Wirearchy", it means a flow of power and authority, for example, a network of content curators which supports expert thinking at a high level, eliminates information overload, connects efforts and enables for experts to share wisdom and thoughtful.

The network era philosophy takes account of network education, which is still not fully clear, at the same time what kind of network education will exist is yet unknown, but open education is developing now. First of all, the open universities implement e-learning by MOOCs, Open Educational Resources (OER), and Open Educational Practice (OEP). The main dimensions of openness: transparency of communication and engagement.

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## 1.1 E-portfolio of teacher

It should be noted that the use of open resources in education requires special attention to the issue of the improvement of educators' digital competence as persons who is capable to active life in a digital society (it's so-called "digital citizenship"). At the same time, it is extremely important to choose a reliable model of teaching and learning according to the goals of sustainable development. Of course, the key task of teacher training is related to the formation of an inquiry-based position for investigation on improving the quality of the digital educational environment that included, in particular, the open educational resources. Thus, first of all, it is sensible to organize a wide discussion about the peculiarities of implementing the model of the "community of practice", which combine efforts for constructive analysis of the quality of various tools of digital pedagogy.

Thus, in the system of measurement of educational achievements, over the last decade, we gradually move on to qualitative changes, in particular, to the implementation of educational portfolio technology [3, 4]. It focuses on the realization of the

tasks of informal assessment of persons' achievements, their support in reflection and self-improvement, which allows us to collaborate in inquiry-based learning that best suits their interests and abilities. It should be noted that for the creation of digital or web portfolio, the teachers get specialized means (for example, in social networks or web-applications), which facilitate flexible problem-solving placement and design of the portfolio themselves.

Undoubtedly, the distributed system of development of distance and blended courses at the pedagogical university has its own peculiarities connected with the quality of pedagogical experience of a large majority of participants, their interactions and educational researches. It is also necessary to take into account students' pedagogical training, which, with teachers' facilitating, contributes to their greater initiative to develop educational trajectory themselves. Thus, in situations of student-centred education, the portfolio allows the student to take responsibility to recognize the personal ways of professional development as well as the portfolio supports students in activating self-identification, self-confidence, and critical thinking.

## 1.2    Massive Open Online Courses

MOOCs (Massive Open Online Courses) are an important part of open education which becomes known in 2008. There are 2 kinds of distance courses: cMOOC (connective courses) and xMOOC (simplified courses).

xMOOCs is focused on the general training of students and, as a rule, do not provide credits of HEI system, but after a boom in 2011-2013 these courses have found a certain niche. One of the major weaknesses of xMOOCs, on experts opinion, is low impact: on average only 7% of students successfully finish ones, which conclude requests of diversity. It should be noted that the students' purpose of xMOOCs is different and does not always correspond with the authors' purpose.

cMOOC is network course with a variable structure focused on the high educational level of the participants, which has produced a personal learning environment and a personal learning network. Such courses are aimed at processing large flows of unstructured information for solving global problems.

According to several west educators' study [5] students who do not finish xMOOCs are often satisfied with their achievements that mean they have the personal meaning of success. Therefore, there is a need for new ways of supporting students in scheduling, achieving, reflecting, and students' authentic learning achievements rather than the planned educational results. It means that teachers have to create a learning environment in which a reflective (student's) model works and promotes the active making study plans, knowledge artifacts, and evaluation on student's capability. That model focused on the quality of students' activity and supporting ways of their competence.

There are important characteristics of students' behavior in network communities.

1. Consumption of knowledge. Students identify knowledge they need in the course-ware through self-learning in an educational environment, including other students, teachers and even people with whom they interact outside the course (friends, family, relatives' colleagues, etc).

2. Creation of new students' knowledge by themselves, designing new resources and expanding the provided resources. These new resources are a dynamic and an individual-oriented view on their knowledge.

3. Connections with people (including peers), who share interests or goals, as well as links with knowledge. It can be free, reciprocal or one-sided.

4. Implementation of new knowledge resources as official reports, so and informally (like reflections, ideas, ratings, and other content). These new resources can be used by other students and teachers.

## 1.3    Open Pedagogy

Open education requires processes that are described by open pedagogy and open practice based on Open Educational Resources (OER). In the determination of open pedagogy by David Wiley in 2013 was given that an open pedagogy is a set of educational ways in the context of free access with permissions reuse, revision, remix, redistribution, and retaining) that are specific to the OER [6].

In accordance with the principles of open pedagogy, students will have an idea of the instructor's intentions in the offered course and see where the teacher's style does not fit their learning style. They will be able to develop a personal trajectory and perhaps adapt the previous students' open pedagogy (learning lines). It's no doubt the essence of pedagogy is the interaction of students and teachers, for this reason, pedagogy is not just educational ways, strategies, styles, but the relationship of authorities.

## 1.4    Open Educational Practice

From the other side, open distance courses connect with Open Educational Practice (OEP) for participants [7], which includes the creation, use and reuse of OER, open pedagogy and open exchange of learning practices. It is a component of open education that embraces resources, tools and practices that use an open exchange framework to improve the access and effectiveness of education throughout the world. The level of understanding and acceptance of OEP among teachers of higher education is gradually increasing.

Open Educational Practice (OEP) expose four aspects for participants:

- balance of the protection of their privacy and openness;
- development of their digital literacy,
- assessment of their social learning,
- the challenge for traditional expectations of their roles.

The analysis has shown that teachers try to find of balancing the confidentiality and openness in using social and collaborative technologies at four levels: macro (global level), meso (community or network level), micro (individual level) and nano (interaction level). The differentiation of these levels has been useful in understanding the decision-making process around open practices.

At the macro level, people determine whether to participate in open exchange and networking. Some refuse this level, and those who take part in open practice should take into account the presence of the three following levels.

On the meso level, people determine who they want to share information with (for example, friends, colleagues, students, community groups of interests, the general public), as well as those with whom they do not want to share. At the micro level, people make a decision with whom exactly they will be divided and how. And at the nano level, people decide if they need to interact or share something specific: for example, post, tweet or retweet; whether to use a certain tag or hashtag; whether to follow or be a friend.

Open practice is not a one-time solution; this is a sequence of personal complex and nuanced solutions. People will always be motivated by personal values; their openness depends mutually on the structure, on culture and on social norms inside the institution. Open practice is characterized by the spirit, the way of democratic practices.

The relationship between OER and OEP can be complex, where the use of OER leads to an OEP. The growing use of OER can encourage individual educators to develop personalized learning networks (PLNs), through which they become aware of wider issues, connected with openness, including OEP. The use of OEP by faculty is complex, personal, contextual, and constantly debated.

## 1.5    Learning environment

According to Dewey, the fundamental starting point for learning is the goals and objectives of individuals, as well as learning that come according to the context of personality. However, social relations also play a central role in the socio-cultural approach and according to Wenger, Brown, Collins, and Duguid learning always relate to social practice. The actions of the individual occur in socio-cultural practice, which correlates the actions of other people (Leontiev), as a result, a variety of interaction forms between people become a central point to learning.

The realization of learning assurance depends on the improvement of an educational environment, where a unique educational culture is created. There are the most important components of the model for this learning environment [8]:

- learner characteristics (background knowledge, goal, level of digital literacy, diversity, learning context);
- content (content purpose, multimedia resources, structure, quality and depth, activity);
- skills (mental and practical actions, dialogue, goal-setting);
- learner support (feedback, tutorial, encourage, autonomy, trust);
- resources (technology, facilitation, time management, assistance);
- assessment (essay, test, e-portfolio, project realization).

## 1.6 Obstacles

Information technology provides new opportunities: new learning experiences, new evaluation strategies, new development sequences, new places and graphics, as well as new partnerships. But when we integrate new information technologies to old methods, we can even reduce current results [9]. Now this is called the Baumol's effect [8].

The main reason why Baumol was right about education is that relations are of great importance here. Information technology can add some flexibility, but relationships require time and depend on the individuals involved in the learning process. This means that learning quality is unlikely to change in the near future.

Morag [11] analyzes the national digital training strategies in the Great Britain. They are based on that

- a free market is the most effective mechanism for organizing all aspects of human life;
- markets are self-regulated, state intervention is minimized and the market is at the optimal level;
- a person is a rational subject of the economy, therefore an open economy and a global free trade increase efficiency, quality and expand the choice of consumers.

Another key pillar is the assertion that market competition makes processes more efficient and, therefore, can reduce costs. However, there are a few significant evidences in support of these allegations. Digital technologies were mainly used to support, rather than transform, practice, often copying face-to-face learning strategies, automating administrative tasks, or promoting behavioral, content-oriented pedagogical models.

The analysis shows that digital technology is widely used in educational practice, but not all is as clear as it looks at first glance. Considering that in Ukraine, distance learning has not become massive one, attention should be paid to the methodology of distance learning and provision of staff.

RLDN NTU KhPI has conducted an analysis of the best international experience in modern teaching technologies and has created a series of open distance courses that should give the teacher an idea of the possible technologies of the future and prepare for their use. These courses are an example of ODC and OEP, based on world experience and adapted to the specifics of Ukraine.

## 2 Research Hypothesis

The new era needs new teachers training of which has to start at this time. The hypothesis of this study is that to provide a high level of training, the system of continuing education for distance learning teachers should be based on open education. Studying in open distance courses will facilitate teachers' understanding and feeling the benefits of open learning, molding open practice skills. Toward assurance a high scientific and advanced level of education, it is necessary to organize training content curators for masters, graduate students, faculty and researchers. The curriculum of

content curator is the basis for any researcher and teacher. In accordance with the goals of sustainable development society and the digital citizenship digital portfolio is one of the key components of a disruptive and qualitative model of conscious responsible learning.

## 3    Open Practice of RLDN NTU "KhPI"

The Research Laboratory of Distance Learning (RLDL) NTU "KhPI" offers distance education courses "Distance Learning for Managers" (DLM), "Technology of Design of Distance Course" (TDDC), "Tutor's Practicum " (TP), "Blended learning" (BL), "Expertise of Distance Course" (EDC), "Content Curator" (CC) for teachers of educational institutions and trainers of corporations (Fig. 1).

On the one hand, training courses should be realized in the following order: Content Curator, Introduction to distance learning (Distance learning for managers), Technology of design of distance learning, Blended learning, Tutor's Practicum, Expertise of Distance Course. On the other hand, teachers and educators can choose the course depending on their preferences.
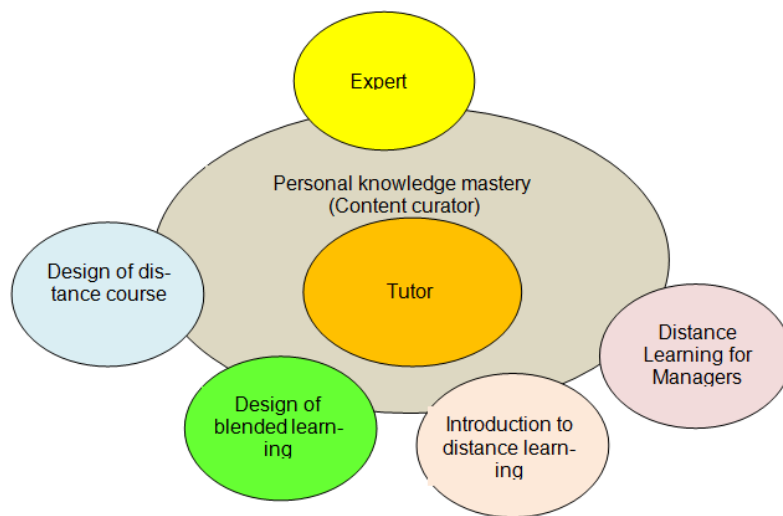


**Fig.1.** Open Distance Courses RLDL NTU KhPI

### 3.1    Distance course «Content curator»

The "Content Curator" course, based on the manual [12], is aimed at a wide range of listeners from students to high-level professionals. The purpose according to the Bloom taxonomy for different categories of students may be different: the level of remembering and awareness – the collection, classification and exchange of links, the

level of application – the use of materials, the level of analysis – preparation of abstracts, the level of evaluation and creation – preparation of abstracts, analytical notes.

### 3.2    Distance course «Introduction into distance learning»

The main purpose of this four-week course is to provide the teacher with the skills in distance education, to teach him to create an electronic course-resource (distance course for the delivery of informational materials, downloading individual tasks and passing tests), video tutorials on the basis of presentations and the simplest blended lesson. At the last week, the students study the search for professional information in scientific databases.

### 3.3    Distance course «Distance Learning for Managers»

In four-week course review are considered the role of distance education in modern education, distance learning courses in higher education in Ukraine, distance learning process, evaluating students and distance learning course. Course participants create materials for a distance course "Introduction to the specialty" using the search skills in science databases and supervisory skills in the Moodle learning management system.

### 3.4    Distance course «Technology of Design of Distance Course»

This is a constructivist teacher training course based on the manual [13], which goal is to help the teacher create a distance learning course using modern pedagogical and information technologies. Duration of training is 8 weeks with certificate of advanced professional development.

### 3.5    Distance course «Blended learning»

The aim of the course author in this case is to determine the conditions of a synergistic effect in blended learning and to show that learning is a future in the development of valuable pedagogical technologies. This allows you to get new ideas for blended learning realization. Therefore, it is clear that the course did not foresee practical tasks, because the main objective is the exchange of experience and the development of a personal training network.

An open distance course «Blended Learning" is used in the educational process of the system of professional development of teaching staff from the second half of 2017. The main materials of the course are presented in the monograph [14].

### 3.6    Distance course «Tutor's Practicum »

The curriculum consists of 7 topics that include communication, planning and rating activities of the student, the preparation of instructions and information materials, the

organization and conduct of discussions, the work of small groups [15]. Duration of training is 7 weeks.

### 3.7    Distance course «Expertise of Distance Course »

The program of the course "Distance Course Examination" is designed for six weeks. For the expert skills, the students trained the distance courses assessment and prepared reports.

## 4      Results of Training

There were teachers from universities, institutes of postgraduate pedagogical education and teachers of schools of Ukraine in the RLDL open distance courses. Learning outcomes are presented in Table 1.

**Table 1.** Statistics of the open distance courses of the PLDL

| Courses | Year | Registered | Studied | Graduated |
|---|---|---|---|---|
| TP | 2018 | 78 | 20 | 14 |
| IDL | 2018 | 94 | 30 | 14 |
| TDDC | 2018 | 150 | 44 | 23 |
| TDDC -2 | 2018 | 38 | 14 | 6 |
| BL-1 | 2017 | 94 | 35 | 20 |
| BL-2 | 2017 | 228 | 60 | 23 |
| IDL | 2017 | 58 | 33 | 16 |
| TDDC | 2017 | 151 | 40 | 31 |
| TP | 2016 | 46 | 20 | 9 |
| CC | 2016 | 50 | 16 | 10 |
| TDDC -1 | 2016 | 199 | 120 | 49 |
| TDDC -2 | 2016 | 235 | 80 | 37 |
| DLM | 2016 | 131 | 30 | 14 |
| TP | 2015 | 74 | 18 | 13 |
| TDDC | 2015 | 81 | 30 | 2 |
| CC | 2015 | 90 | 34 | 17 |
| TDDC | 2014 | 186 | 70 | 12 |
| TP | 2015 | 60 | 15 | 2 |
| CC | 2014 | 130 | 62 | 23 |
| CC -1 | 2013 | 50 | 18 | 15 |
| CC -2 | 2013 | 140 | 83 | 20 |
| **Total** | | **2363** | **872** | **370** |

All courses begin with the Forum "Introduction", where students are offered to talk about themselves and encourage them to exchange messages. All work reports are presented in forums, and the results of tasks are available to everyone. All questions to the tutor are placed in the forum of mutual help and students have the opportunity to help each other, which ensures the high activity of them in the course. In addition, weekly students complete a questionnaire for reflection, in which they can carry out self-assessment of their activities. This organization of the work of the students facilitates the creation of community practice in the course, which continues to exist after the course finishing.

The courses provide weekly webinars, which give an overview of the theoretical material of the course, analyse the performed work of the previous week and give recommendations for the practical questions of the current week. All webinars are recorded, which allows to view for the students at a suitable time. All creative problems of the course (presentation, infographics, and design projects) are evaluated by course students through the Moodle element "Seminar". The best works of the course are report on the final webinars (public awarding event).

The typical student looks up about 100-140 pages per month (25-35 pages per week), after finishing the course they continue to work with distance course materials during several months. Students like the variety of presentation of information in the course, a clear definition of the purpose of each week – the components of universal educational design. As a rule, after the completion of the educational process, the course is not closed, which allows the students to return to the processed material, to view the results of the group work. Registration for the course is also not closed and the course materials can be used by ordinary users of the network.

A questionnaire was conducted for graduates of open distance courses 2013-2018, 72 teachers have completed one, 33% teachers finished one course, 14% - 2 courses, 3% teachers - more than 5 courses. 34% of teachers did not receive a certificate of completion of the course, but they worked on theoretical material and performed separate tasks. These results show that the small percentage of those completing the course is not an indicator of the effectiveness of the course, because many of them continued distance teaching.

Besides questionnaire have shown that open distance courses change their teaching competence, in professional development sense, (45.7%), they create distance courses (60%), use in the educational process (67%), materials of the course are used to create a system of professional development in their organization (21.4%), study on the course change their career (18.6%).

## 5    Experience in Implementing the Digital Portfolio in KhNPU

An electronic portfolio plays an important role in the training of a modern teacher, and at this stage of Ukrainian education, it's not used enough.

A portfolio is a kind of "diary" of individual achievements and works, which is a means of measuring level and quality of the development of abilities, through the

presentation of documented achievements, reports and various forms of self-esteem. A portfolio is an effective tool for visual data, helps to think about the features of the content and structure, organizes collections of qualitative characteristics for a clear and expressive presentation of individual achievements.

There are two guiding principles for the use of the portfolio:

- External principle: to familiarize other people (teacher, parents, friends) with the achievements of the student or group of students (for group portfolio) for providing them an appropriate assessment and facilitation of their activities, determining the levels of their qualification, etc.
- Internal principle: to develop the personality in conditions of improving reflexive activities, increasing motivation, evaluating results of activity for the development of more accurate imaginations about their own successes, disadvantages and opportunities.

As our experience shows, at the initial step of the portfolio implementation, the majority of students are willing active work with technology, but have not an experience of conscious evaluating, reflecting and correcting their own activities. At the same time, the portfolio facilitates increasing the personal responsibility, the creation of a mutual understanding of the review and constant re-evaluation of qualitative characteristics of the student's autonomy. In this way, it is very important for the teacher and students to discuss the expected results, the purpose of the evaluation, the evaluation criterions, and the specific methods in advance.

The main issues to be thoroughly considered are, firstly, the reasons for the implementation of the portfolio (in which way the portfolio is determined the correspondence of the objectives of the course and the personal development or market needs). Secondly, it is important to emphasize the ways and principles of the selection of materials. In this way, it is advisable to distinguish three types of portfolio, depending on the level of mastery of the specified teaching activity: 1) work portfolio or data one, 2) report portfolio or presentation one, 3) self-assessment portfolio and/or mutual evaluation one. Of course, according to this, the third kind of portfolio corresponds to the highest level of independence and consciousness in their development, based on a deep understanding of its advantages compared with the traditional learning approach.

In the future, the portfolio becomes a tool for establishing reliable feedback that promotes the development of certain aspects of the control and evaluation activities of the individual, namely, analysis of the peculiarities of the performed work, the definition of criteria and justifications for assessment, the search of directions the qualitative improvement.

Thus, it is expedient to distinguish the following functions of the portfolio:

- an informational function (that indicates the level of development of abilities, personnel changes, achievements, skills acquisition, skills and methods of activity);
- a motivational function (that encourages a transformation of educational processes and personal self-realization according to the assessment criteria [16, 21]);
- a developing function (that contributes to a creative approach to the implementation of tasks, development of abilities);

- a research function (that allows processing information, i.e. collect, analyze and generalize, determine the direction of further search);
- an educational function (that indicates the level of acquiring self-consciousness and adequate self-confident);
- a diagnostic function (that determines the causes of learning outcomes).

Undoubtedly, this leads to a change in the style of teaching; the role of a teacher in such a process is aimed at implementing a liberal interested adjustment and stimulation of educational activities that transform students into active individuals of study. In this way, there is a gradual transition from external management education to conscious self-management, when students are able to independently determine goals, content, ways of working, evaluation of the experience.

Summarizing, it should be noted that in the current time the portfolio becomes one key from the factors of a comprehensive definition of the quality of the educational process [14, 22-24] of the 21st century. In particular, our inquiry has shown students' achievements in self-regulation, cognitive monitoring, creative self-realization of students, conditioned by ability to goal-setting (ability to set ones, plan its achievements in accordance with its initial levels, nature own abilities, optimal pace), purposefulness (sustainability in achieving the goal), persistence in relation to (ability to formulate rules of activity, system of corresponding laws, to predict results), meaningful vision (the ability to represent graphical images), initiative, reflection (ability to analyze stages of individual and collective activity, use means, to find contradictions), ability to ask questions, rule-making means, the meaningful idea of the objects/processes being studied).

## 6    Resume

Open distance courses through the rapidly developed digital technology are constantly changing and expanding possibility educational landscape. The modern tendencies demonstrate if you can now distinguish three levels of courses: initial, professional and expert, and then there is neediness to initiate advanced level, which should continue courses for the design of distance teaching, blended learning and practicum in tutoring.

Our experience showed a teacher who is work in open educational space is comfortable with the understanding that a student is the main point of the learning experience. Thereby open education and pedagogy are determined as disruptive innovation and our researches are evidence for decreasing inequality of student's success. However, additional researches on quality professional development programs and courses are needed for teacher communities that will facilitate appropriate capacity building to overcome difficulties and barriers to successful adoption and dissemination blended learning across HEI.

It's no doubt many international events like CELT 2018, OER19, ICDE 2019 and organizations demonstrate significant of open movement, open distance courses will activate modern changes in the national digital education strategy as social justice in many countries as well as in Ukraine.

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