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## Teacher's Readiness to Create Own Online Courses

Lyudmila V. Popova (a), Marina M. Pikulenko\* (b)

(a), (b) *Lomonosov Moscow State University, 119991, Moscow (Russia), 1 Leninskiye Gory,  
pikulenkomarina@mail.ru*

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### Abstract

Rapid development of information educational technologies requires special teacher's training for possibility to create their own online courses. In particular, it is necessary to understand what do teachers need first of all? How may be solved the problem of formation of the key university teachers competencies?

The purpose of this study is to identify the key elements of teachers' readiness to create their online courses and to study the formation of special teachers competences to develop their own online courses.

Our study was conducted on the basis of an online course for professional development of university teachers "Pedagogical support of online education". The methods of the study were: online questionnaires, analysis of the creative works of teachers (developed tests and recorded videos) and oral attestation. We analyzed objectives of teacher's training, the formation of key competencies and relevance of the online course topics. We found out two main reasons to join in our course by the university teachers: recommendations of their leadership (37%) and their own initiative, interest to study subject (29%). 252 people have fully completed all the required tasks and completed their training with a certificate of professional development. 60% of the teachers participating were on such online training the first time. In general, university teachers have been able to demonstrate the necessary theoretical knowledge (64%) and have done the first steps of their application during the preparation for the attestation on our program. They were very good at the writing of the methodical materials, but had not yet mastered recording of the videos.

This research confirms the necessity of special training for university teachers for the high-quality creation online courses and allows the online courses authors to find new points of the changing their programs toward the more actual level.

*Keywords:* teacher's training, online course, e-learning.

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\* Corresponding author. E-mail: pikulenkomarina@mail.ru

## **Introduction**

Rapid development of e-technologies is one of the main forces stimulating an educational process modernization in school and in high education. Digital environment has become an integral part of our society life and required special training for most of active people in every country. The Priority project “Modern Digital Educational Environment in Russian Federation” (Presidential Council of the Russian Federation, 2016) is aimed at these purposes. This project devotes to creation of the high quality a continuous educational system. One of the first aspects of resolving the project’ problem objectives is a necessity of the increasing amount of online courses and participators in them. Second aspect of resolving the project’ objectives is an origin of a new regular activity of the teachers in e-teaching field. How is the best done this?

The first need for the mass creation of online training courses is to prepare teaching staff who could independently develop their own online courses. What is needed for that? Are enough to give the assignments and requirements for university teachers doing these? This paper shows that the training of teachers should begin with special courses to improve their e-teaching skills. Knowledge of e-learning structure and instruments has great importance for online course. But will that be enough? It was this question that was the question of our study.

## **Purpose and objectives of the study**

Purpose of this study is to identify the key elements of teachers' readiness to create their online courses and to study the formation of special competencies of teachers to develop their own online courses.

## **Literature review**

The rapid growth in the number of online courses is due to the activity of higher education institutions (Tovan-Lindsey et al., 2015). Many U.S.A institutions have chosen online learning as a long-term strategy, resulting in an increase in online learning from 48.8% in 2002 year to 70.8% in 2014 (Allen & Seaman, 2015). Studying online courses expands the audience of students (Macfadyen & Dawson, 2010). The number of online students has increased especially since the start of the Massive Open Online Course (MOOC) in April-May 2012, such as Coursera and EdX (Koller, 2012; Lewin, 2012). After that, the issue of assessing the quality of online courses became relevant.

A number of researchers propose that the quality of online courses shall evaluate by their effectiveness (Baker & Inventado, 2014; Ho et al., 2014). However, the notion of the effectiveness of online courses is

ambiguous. Some researchers (Ho et al., 2014) believe that % of students who received an online course certificate (from the total % of students enrolled on the course) is the main indicator of the online course. But many researchers believe that this is not enough to assess the quality and success of the course (Suzannah & Myrick, 2015; Zheng et al., 2015). The effectiveness of online courses should be assessed not only by quantitative, but also by qualitative indicators (Rizzuto, 2017). The most recognized currently is the e-assessment of online academic courses via students' activities and perceptions (Soffer et al., 2017) because of this assessment focused on four aspects: instructional, communication, course workload and overall learning experience. The issue of assessing the quality of online courses is directly related to the development of new online courses. But are teachers ready to develop e-learning process?

At first the willingness of the teachers to teach online was studied by a number of authors through their readiness to online learning themselves (Hung et al., 2010; Hung, 2015). Information was published on the results of an online survey of 208 online instructors about e-learning readiness before, during and after course delivery (Gay, 2016). This survey showed that before the start of online training, 90% of teachers believed that they were ready to study, but while studying the course, only 70% of teachers confirmed their intention to study further. Recently published studies on the readiness of teachers to teach online based on a study of their competencies, which were grouped into 4 areas: course design, course communication, time management and technical competence (Martin et al., 2019). It is shown that it is important for the teachers to prepare for all 4 areas of work. However, such questions as how to prepare for the development and management of online courses and what to pay attention in the first place, as well as how to evaluate the training of teachers, are not addressed. Therefore, research is required to assess the formation of key elements of readiness to teach online among teachers when immersed in an online educational environment.

## **Methodology**

### Research design

This research based on analysis of educational data mining, online questionnaire and an oral survey by final personal certification. The work was carried out from March 2018 to December 2019 on the author's online advanced training course for university teachers "Pedagogical support of online education". This course was the part of a grant of the Ministry of Education and Science of the Russian Federation and had been put on the website of Lomonosov Moscow State University "University without Borders" (<http://www.distant.msu.ru>) in the Moodle system.

The online training course "Pedagogical support of online education" is well structured and consists of seven lectures, test tasks for them and creative work. Table 1 presents a description of the online course

structure, including lecture title, content of lecture, number of test tasks and creative task.

Table 1. Description of online course “Pedagogical support of online education.”

№	Lecture title	Content of lecture	Number of test tasks
1.	<b>Introductory lecture</b>	Modern educational problems, Russian educational standards, online learning process, methods of communication in online learning.	11
2.	<b>Classification of online lectures</b>	Lecture types and functions, Coursera recommendations for creating online lectures, video requirements and slides, video lecture from the listener’s point of view	12
3.	<b>Seminars and practical works in online learning</b>	Types and tasks of the seminar, workshop opportunities, practical works of online course students, webinars and their organization, course forums.	11
4.	<b>Organizing students working</b>	Types and tasks of independent work of students, independent work of students with full-time learning and online training, conditions for the success of independent work, criteria for evaluating independent work.	11
5.	<b>Features of the control of knowledge and skills in online learning</b>	Forms and functions of pedagogical control, requirements for the development of the test tasks, open and closed form of the test tasks, content of the tests and level of difficulty of the tests	11

6. <b>Teacher's communication culture</b>	Indications of good speech, expressiveness and technique of speech, techniques of retaining the attention of the audience, oratory ethic.	11
7. <b>Education for sustainable development</b>	Lecture-dialogue, which means education to sustainable development, the continuity of personal education, how may everyone deal with the huge flow of information.	11
8. <b>Creative course work for the attestation</b>	Requirements and criteria for developing test tasks of different forms and recording video (creating introductory part to course)	4

#### Participants

5204 people began to study at online course "Pedagogical support of online education" from various universities of our country from Moscow to Vladikavkaz and Vladivostok. They were the university' professors from most regions of Russia. The course was started by 766 people enrolled, of whom 584 (76%) were female and 182 (24%) were male. We analyzed the results of their answers to the test questions had prepared by us for the online training course. 252 people had fully completed all the required tasks and completed their training with a certificate of professional development, of whom 194 (77%) were female and 56 (23%) were male. We evaluated the formation of online teaching readiness for these 252 people, using students educational data indicators, online questionnaire and an oral survey.

#### Research instrument

The chosen researching methods were – analysis of the online questionnaires, analysis of the task results performed by students (developed tests and created videos) and an oral survey (final personal certification).

We used online questionnaires to determine the purpose of teaching teachers, their place of work, and the subject matter they teaching students. These data are presented in the results section as a percentage ratio.

The analysis of the creative task was carried out according to a number of competencies and related criteria. Table 2 presents a description of competitions and assessment criteria.

Table 2. Competitions and assessment criteria

№ criterion	Name of competence	Name of criterion	Description of the criterion  5 points  (Score from 0 to 5 points)
<i>Creation test tasks</i>			
1.	<b>Skill to create methodical materials</b>	Test content	The wording of the task is clear, concise; there were no issues; all the answers were unambiguous in content and structure.
2.		Complexity level of the tests	The wording of the task was clear, concise; there were no double-meaning task; all the answers were unambiguous in content and structure
3.		Fulfillment the compliances with closed-type tests	Task was formulated in the form of a statement; no repeated and unnecessary words; used a simple stylistic design; more words were included in the task than in the answer.
4.		Fulfillment the compliances with open-type tests	Addition in the text only one word or one phrase; the author indicated all possible spellings of the response word; the text of the assignment had a simple stylistic design and there were no repetitions and negatives.
<i>Recording video</i>			
5.	<b>Skill to work on camera</b>	Video volume	2,5 – 3 minutes

6.		Working with a camera	The lecturer focuses his gaze on the camera, uses different forms of material and has good diction
7.	<b>Ability to keep an audience's attention without personal contact</b>	Audience's attention	The lecturer has oratorical skills of persuasion, speaks clearly and fascinatingly, asks problematic questions
8.	<b>Skills to structure the course material</b>	Formulation of the online course goals and objectives	Purpose and objectives of the course are clearly formulated, the structure of the presentation of the material is logical, the listeners understand the thematic sequence of the material.

Separately evaluated the development of the test tasks in accordance with the requirements and the creation of the video recording. The assessment for each criterion was carried out in a 5-point system. Cross-evaluation of each other's work was used, then the average rating for each criterion was determined. The standard deviation was calculated in order to analyze the obtained data.

A final oral interview with teachers was conducted after a completion of the online training. During the course' oral questions, we received data on the teachers' further intentions to develop their own courses after completion of the training and learned which sections of the course were the most useful to them.

## Results

### Learning student goals

In order to study on the online course "Pedagogical support of online learning" teachers had to sign up and answer a number of questions on the questionnaire. An analysis of the data from this questionnaire showed that teachers set themselves three different learning goals (Figure 1). Most of the teachers (37%) got information about this course from the leadership of the universities, but also received urgent recommendations to undergo training in order to begin a developing their own online courses in the near

future. The next group of the teachers (34% of the entire group) needed to take any continuing education course, and they chose this online course in order to simultaneously find out what it was - online training. However, almost a third of all course participants (29%) specifically searched for an online course that would help them to understand the features of the developing and conducting the online courses. All participants of the online course “Pedagogical support of online learning” had showed interest in new educational technologies.

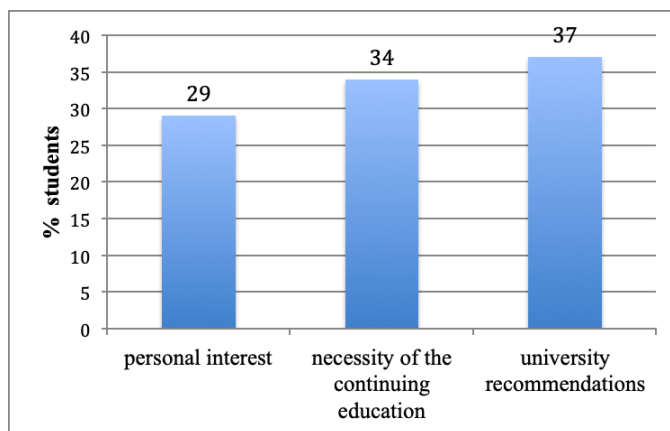


Figure 1. The student' goals on online course “Pedagogical support of online courses”

The geography of the work places of the university teachers was wide. The course had been started and completed by the university teachers from many regions of Russia: the north of the country - Arkhangelsk, the south - Volgograd, Stavropol, Rostov-on-Don, Vladikavkaz, etc., east - Blagoveshchensk, Vladivostok. But most of all students on the course had been the teachers from the capital of Russian Federation - Moscow.

We were interested in the question: was there a relationship between the taught subject and the desire of the teacher to master a new educational technology? Therefore, in the questionnaire there was a question about the subject taught by a teacher at a university. The analysis of these answers showed that the largest group of students were teachers of the humanities (Figure 2). Especially there were many teachers of economic disciplines (17%) and foreign languages (12%). Teachers of mathematics and computer science (9%) were about the same as teachers of sport education (7%). But this is explained by the great activity of only one university - Surgut State University, whose leadership strongly recommended to all university teachers, regardless of specialization, undergo training. Teachers from 4 departments of the sport education were



trained in the course “Pedagogical support of online education”. In general, it can be stated that our course involved teachers of various specializations. For example, forestry, veterinary medicine, animal husbandry, heat engineering, electronics, commodity science, land cadastre and various medical areas - surgery, pediatrics, dietetics, dentistry, allergology, pharmacology, etc.

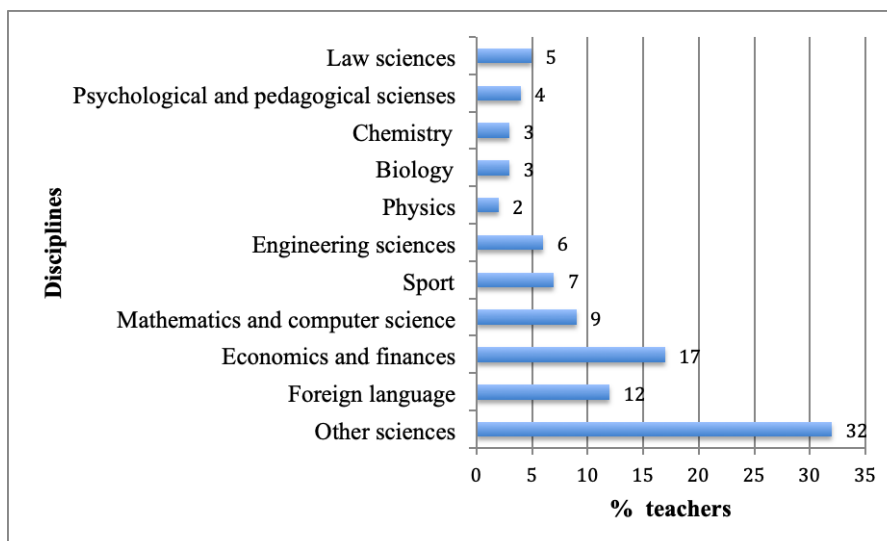


Figure 2. The university' discipline – the professional teaching specialization of the online course participants as a job

#### Evaluation of the formed teacher's competencies

The formation of the teaching competencies which had supported the possibility to create their own online courses, we evaluated by the completed final work of the teachers. The calculation was carried out as an average score ( $N = 252$ ) for each criterion ( $N = 8$ ) and the standard deviation (SD) was calculated. The results are presented in Table 3.

The results showed that the competence of "skill to create methodical materials" (test) after studying the online course was formed at a high level, as the average score on the criteria was almost always higher than 4.5 (max q 5.0) with a minimum average deviation, which characterizes the homogeneity of the data received. However, such competencies as "skill to work on camera", "ability to keep the audience's attention without personal contact" and "skills to structure the course material" were much worse. Average slates for these criteria were generally below 4.0 points, and the average deviation exceeded 1.0. Thus, the teachers still had the problems with the recording video lectures after the passing the online course "Pedagogical support of online education".

Table 3. Competitions and assessment

<b>№ criterion</b>	<b>Competence</b>	<b>Name of criterion</b>	<b>Average score  (Mean)</b>	<b>Middle square deviation  (SD)</b>
<i>Created tests</i>				
1.		Test content	4.59	0.48
2.	<b>Skill to create methodical materials</b>	Complexity level of the tests	4.68	0.45
3.		Fulfillment the compliances with closed-type tests	4.51	0.54
4.		Fulfillment the compliances with open-type tests	4.21	0.92
<i>Recorded video</i>				
5.	<b>Skill to work on camera</b>	Video volume	4.03	1.43
6.		Working with a camera	3.87	1.25
7.	<b>Ability to keep an audience's attention without personal contact</b>	Audience's attention	3.84	1.25

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8.	<b>Skills to structure the course material</b>	Formulation of the online course goals and objectives	3.96	1.22
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### Teachers' readiness to create their own online course

The self-assessment of teachers at the final interview showed that for 64% of them were ready to create their online courses, 16% - allow this possibility and only 20% believed that they would not do it (Figure 3). This is a good indicator when you have considered the initial data. Namely, for 60% of teachers it was the first experience of online training, and the remaining 40% - had little experience (only one or two courses before that).

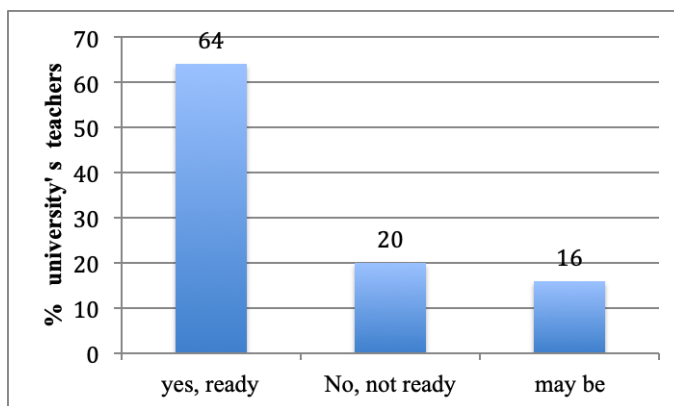


Figure 3. Teachers' readiness to create their own online course

An oral survey of the teachers also showed which thematic sections of the online course were more interesting and useful for them. The data is presented in Figure 4. The picture shows that for the students the most significant were the sections - features of the control of students' knowledge in online learning (test development rules, for 55% of teachers) and features of video lectures (for 33% of teachers). At the same time, it should be noted that the majority of the teachers (60%) considered very much the valuable in general the passage of the course for themselves and familiarity with the structure of the course, which had helped them to understand the system of online learning.

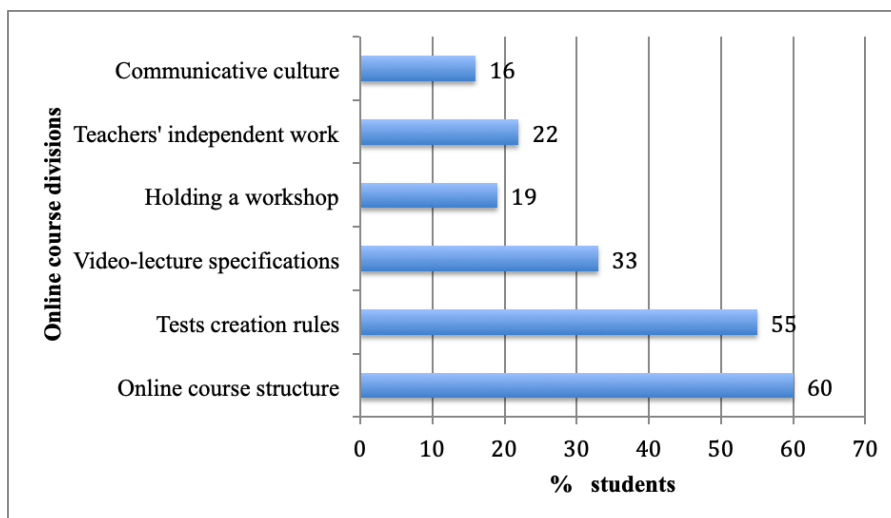


Figure 4. Opinions of the online course' students about sections of the course that they

## Discussions

The use of online learning had developed drastically in recent years; many higher education institutions integrated online courses as part of the academic curriculum (Soffer et al., 2017). In Russia, similar trends are observed. However, there are only few Russian online courses which training the university teachers to change offline programs to online course with the high-quality level. This study on the willingness of the teachers to develop their own online courses was carried out on the basis of one of the first in Russia special advanced training course for the university teachers "Pedagogical support of online education". This course has not so much a technical orientation as a general pedagogical one.

It is noteworthy that the course was attended mainly by the women (76%). But this fact does not reflect the relationship between men and women - university professors, but rather the desire to learn from the women who are most active in this matter. We came to this conclusion based on previously conducted studies to determine the profile of MOOC students (Popova et al., 2017). These studies were carried out in 2015-2016 years on the basis of the course "Modern environmental problems and sustainable development", had being taken place on the National platform for the Open Education (<http://www.openedu.ru>). Then we got a similar result - mainly women studied here – 75-76%. A similar result was obtained by our colleagues from the Netherlands (Henderikx et al., 2019). Consequently, the tendency remains that women mainly study not only at the MOOC at online courses for the increasing professional proficiency.

Many universities in Russia had been faced with the need to quickly introduce e-learning into the educational process. This can explain the urgent recommendations of the management to the universities teachers to take appropriate continuing education courses (Figure 1), which was reflected in order to teach our teachers from various universities. However, 1/3 of all teaching teachers independently showed interest in new digital technologies, which may indicate their primary readiness to develop their own online courses.

Can the learning objective correlate with the subject taught by the teacher? We did not establish such a pattern, but we would like to note that teachers of the English language, as well as economics, management and finance, showed great activity in mastering new digital teaching methods.

An oral survey after completing our online course revealed that 64% of trained teachers are confident in their readiness to create their own online course. These data show that these are not only teachers who came to the course of their interest (there were only 29% of them), but rather those who studied on the recommendation of the university. It can also be stated that the online learning course gave teachers an understanding of the online learning system (60%, see Figure 4), which influenced their determination.

But can teachers who have completed training on the online course “Pedagogical support of online training” immediately start creating their online courses? Do they have all the necessary competencies for this? Among the necessary competencies, based on our experience, we identified two groups of competencies – the development of teaching materials and the ability to record structured video lectures. The study showed that after taking an online advanced training course, teachers can develop adequate teaching materials, which is confirmed by the data in Table 3. However, there still remain problems with the poor quality of video recording of lectures, therefore, teachers still need practical experience. But the main achievement for many teachers is that they have overcome the moral barrier or fear of working with a video camera.

## **Conclusion**

The key elements of teachers' readiness to create their own online courses, we consider their ability to develop special teaching materials, build a structured plan of their course and record video lectures in high quality. These competencies can be formed after completing the advanced training course in the online format, since in this case the learning environment itself helps to understand the online learning system. The online course “Pedagogical support of online learning” was able to give teachers the necessary theoretical knowledge and primary experience in their application. However, to create their own high-quality video lectures, teachers still need to gain additional experience.

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