

Designing Massive Open Online Courses

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Abstract. Connective massive open online courses (MOOC) for teachers from Ukraine and Russia were conducted in 2011-2013. They were: Strategy of Distance Learning in the Organization, Social Services in Distance Learning, Distance Learning from A to Z, Designing Online Courses. The accumulated experience allowed to develop recommendations for each ADDIE step of MOOC designing for the Russian-speaking audience.

Keywords. Connectivism, massive open online course, personal learning environment, ADDIE

Key terms. Competence, Didactics, TeachingMethodology, TeachingProcess, ICTEnvironment

1 Introduction

The term “massive open online course” (MOOC) was introduced by Dave Cormier in George Siemens’s distance course “Connectivism and Connective Knowledge” in 2008 and 2010 (<http://connect.downes.ca/>). This course was devoted to the problems of a new learning theory – connectivism, according to which learning is the process of creating a network (more than 2200 people studied). Units of such a network are external entities (people, organizations, libraries, websites, books, journals, databases, or any other sources of information). The act of learning implies the creation of the external network units. Over the last few years several dozens of open online courses have been conducted. Those courses are based on the new approach named “connectivism” and therefore abbreviated as cMOOC. cMOOC is characterized [1] by a structured network, the use of daily bulletin, a big amount of information material, the social approach to teaching. cMOOC enables people to cluster around the central core.

In cMOOC the teacher plays a lot of roles [2]: he is an amplifier, tutor, he directs and socially manages creation of meanings, he filters, models and is always present.

The student’s success in cMOOC is provided by his ability to navigate the network, the formed personal learning environment (PLE) and personal learning network

(PLN) as well as his personal goals. Personality development and personal learning play a central part in in cMOOC [1].

Experts believe that cMOOC [3] is suitable for effective independent learners, who have learned to select content. The reduced participation can be neither good nor bad. MOOC can be most effective as a form of continuous education and perfecting skills.

2 Analysis of cMOOC of National Technical University “Kharkiv Polytechnic Institute”

The courses are free of the traditional content. For each week is given an extended abstract and a set of links to various materials on the subject. A brief analysis of the topic is on the webinar, position of experts considered the on the guest webinar. Before the start of the course students are given instructions about the features of a connective course. Notes the desirability of selectively view recommended materials, preparation of remixes, posting material online and active participation in the discussion.

2.1 Distance Course "Strategy of e-learning Development in the Organization"

The open distance course "Strategy of e-learning development in the organization" lasted 6 weeks in February - April 2011 [4].

The main objective of this course was to show the possible uses of e-learning in the organization and to assist in the development of strategy of learning that takes into account the overall strategy of the organization; to learn the designing of the learning process in the open distance course, to assess readiness of the Russian-speaking audience to study in the new environment.

The target audience comprises teachers, post-graduate students, heads of educational departments from various organizations. The participants are expected to have skills of working in Internet, social networks and means of web communication (synchronous and asynchronous) for realizing communication, collaboration and exchange of information.

45 persons were registered for the course, pages of the course were visited by more than 100 people, 12 people passed the final survey. The questionnaire was completed by the same number of participants from the academic and corporate sectors with experience in educational work of more than 5 years (83%) and the experience of distance learning of more than 3 years (67%).

3 participants couldn't formulate their goal of taking this course, the rest of the participants (8 people) had the goal of getting acquainted with the features of open distance learning course and new social services.

The main activity of the participants could be traced by a mailing list (about 200 messages, half of them were sent during the first two weeks of classes, then the activity decreased); in Moodle only the forum of dating worked, all other invitations to discussions were not supported. Based on the materials of the course, two participants

created blogs. Generally, the group worked passively – its members read the proposed materials, did not disclose their sources, did not give their points of view on specific topics of the course.

There have been conducted six weekly, introductory and final webinars which were attended by about 10 participants each. All webinars were conducted in the environment of WIZIQ, one of them – in a virtual world “VAcademy”, where the participants got acquainted with virtual environment possibilities. Besides, 3 guest webinars also took place.

The experience of giving such course shows that the open course for CIS audience is a new and not always obvious concept, the great amount of instructional material and absence of clearly stated ideas cause great difficulties for participants. The limited set of social services, disrespect and misunderstanding of Twitter summons problems when tracing tutors’ and their colleagues’ work. Apart from it, the author thinks that the topic of the course was rather challenging for the learners. The fact that the personal instructional environment is not formed was the reason of problems arising during the learning process [4].

2.2 Distance Course “Social Service in Distance Teaching”

An open distance course “Social Services in Distance Course” [5] was held from May 23 to July 3, 2011 [6]. For this course Wiki, Mailing List, Twitter, DIIGO, learners’ blogs and aggregator netvibes.com were used.

This study examined the hypothesis that introductory webinars on forming personal learning environment (PLE) and the Workshop will increase the activity of students and material will be drafted for discussion by the full-time session. Besides, the introductory webinars were supposed to be held by a group of tutors.

Since the beginning of subscribing to the course active attendance of the course and surfing the pages started. By the moment classes began 43 people had been subscribed. At the beginning of the course we could observe the maximum of visits and browsing. Then the attendance was gradually decreasing. It should be noted that the number of visitors (Ukraine – 64%, Russia – 23%, the USA – 9%, Belorussia – 4%) was twice as big as the number of those registered.

30 people passed entrance questioning, 83% of them are university lecturers, the others are from the corporate sector; 74% of people have teaching experience of more than 5 years, 80% are experienced in making distance courses; 57% are experienced in tutor’s work; 37% use mobile phones to access the Internet.

It is essential that personal learning environment of the course’s participants is poorly formed, only 10-20% of participants use most services which is not helpful in communication.

Most of the participants stated the aim of the training as a necessity to master the new social services and outline the new approaches to distance training on their base.

On completing the course 10 participants took part in the questioning. On average the learners spent 6-8 hours a week.

2.3 Distance Course “Distance Course from A to Z”

The open distance course “Distance Course from A to Z” includes two parts. The first part which was held from December 5, 2011 to January 22, 2012 was devoted to the tendencies of creating the system of distance training at the current stage of Internet development. In the second part - the distance course design methods and the distance learning process.

The main objective of the course is to analyze the level of distance training development in Ukraine on the base of webinars held in May-October 2011 [7], consider the tendencies of distance training development abroad and outline the requirements to the modern system of distance training.

The course is based on the blogs and articles published 2-3 months before the course started. Such references show modern tendencies in the distance learning system mainly abroad. To shape the references Twitter was used.

Before the course started the following webinars were held: “Social Services in Teaching Process”, “Twitter”, “Personal Learning Environment”. Their task was to help the learners acquire the skills of using social services during the course.

The total number of those registered in the course is 31. According to Google Analytics the course was attended by 430 people from 29 countries of the world, 117 cities. Among them: from Ukraine – 76%, Russia – 13%, Belorussia – 5%. On average there were 30 people a day. Surfing the weekly pages ranges from 550 to 200. During the course 12 people wrote 68 blogs, 85 messages were left in the course. More than 80% of participants have teaching experience of more than 5 years, 68% of them – more than 10 years. The experience in distance course usage is from 1 to 10 years.

22 participants answered the question of the final questionnaire. They are experienced teachers with 10-year experience of pedagogical work and 5-year experience of distance training, half of them worked near 3 hours in the course (3 persons worked more than 8 hours). During the course most of the participants stated their aims, which can be generally outlined as follows: to obtain and systematize the ideas of modern distance training and other universities’ experience.

Answering the question about the novelty of the distance course all participants mentioned such services as Twitter, DIIGO, Creative Commons licences, personal learning environment, open learning resources and open distance courses, new approaches in distance education.

The participants of the course liked the system approach to the problem, the format of the course, unobtrusive and not strict management, great number of various information resources, possibility to work with information and new services in a suitable time, openness of communication, active information and experience sharing, the potential efficiency of the course, as under certain conditions the mechanism of self-reproduction of the course can be launched, that is, it will start working without visible participation of the organizers.

The learners noted the challenges of the open distance course, such as mastering new tools, personal aim of the study (dynamic and not always concrete), work with great volume of unstructured information in foreign languages.

The participants' work and their impressions of the training process of Mass Open Distance Course were considered at the Xth International Seminar "Modern Pedagogical Technologies in Education" which took place on January 31 – February 2, 2012 [8]. One of the suggestions was to organize the groups by interests.

It should be noted that the attendance of courses did not stop after they were officially closed in April 2012.

On the whole during the year the course was attended by 2492 users, most of them live in Ukraine (Kharkiv, Kyiv, Odessa) – 60%, Russia (Yaroslavl, Moscow, Yekaterinburg) – 20%, and Kazakhstan (3%).

2.4 Distance Course "E-learning Design"

In 2012-2013 academic year the Research Laboratory of Distance Learning made an attempt to hold a combined MOOC course "E-learning Design", which consists of a course for beginners (xMOOC constructivism approach) and that for heads of distance learning centers of an organization (cMOOC connectivism approach). The free program of the course includes three modules: "Basics of Distant Learning" (6- week long), "Technology of the Development of Distance Learning Course" (12-week long) and "Practicum for Tutors" (6- week long).

The objective of the course is to improve and standardize the level of teacher training in distant learning for colleges and universities in Ukraine.

Experienced professionals (managers) of distance learning take the course, built on the connectivism principle, in order to organize education for distance learning course developers in their organizations. The educational process of the course encourages the exchange of experiences among the students, improving the quality of the course. Students plan the training for distant-learning course developers either independently or making use of the proposed distance course for beginners. The overall goal of this course is to improve the efficiency of training for distance learning course developers. To participate in this course, you should be able to use social services (twitter, RSS, netvibes, paper.li, scoop.it and others) and log in the open course [9].

The second course, built on the principles of constructivism, is where beginners learn to create their own distance courses. The tutor provides general management of the educational process, the leaders of distance learning centers may act as local tutors for their teachers. If desired, these students can take part in the first distance learning courses as well.

As many as 90 individuals from the academic (91%) and corporate (9%) sectors, with distance learning (45%) and tutor (46%) experiences logged in the course. Most of the students (64%) have professional experience of over 5 years. Most students (43%) spent over 5 hours each week working on the course, 3-5 hours per week (31%), with the rest spending less than three hours weekly (25%).

The intention of the students involved were focused mainly on observation of course events (80%), participation in discussions (75%), establishing new contacts (72%), creating a distance course (68%).

After the first distance-learning course "Basics of Distance Learning" the open connective part of the Wiki course was closed because of student low activeness while the course participants were active in making their assignments.

The second part of the course "The Development of Distance Learning Course Technologies" envisaged the involvement of groups of distance courses developers from various universities together with their instructors. However, only the teaching staff of Kharkiv National Pharmaceutical University accepted the invitation. During the educational process, they were very active in various forums, helped each other and created distance learning courses.

Among 61% of the logged-in students involved in the training, 40% worked actively, yet only 11% (9 people) complied with the course program.

Apart from creating distance courses, the students filled out workbooks (5 tasks, performed by 29...12 participants), questionnaires (6 tasks, done by 34...12 participants), did two tests (32 and 27 participants), and discussed various issues in 10 forums. More than 5 hours per week were spent to work on the course by 43% of students, from 3 to 5 hours a week – by 31% and 25% - less than 3 hours a week.

3 cMOOC Design

The courses held allowed recommendations on the ways to design cMOOC for Russian-speaking audiences. It should be noted that currently the MOOC design is being focused on technical aspects, i.e. the choice of content media placement, communication, aggregators and other services. Stephen Downes [10] has given some recommendations for cMOOC design.

MOOC design is supposed to use the ADDIE (Analyzing, Designing, Developing, Implementing, Evaluating). This approach is an adaptation of the design methods of technical facilities for the pedagogy.

3.1 Analysis

cMOOC features uncertain audience and a variety of learners' purposes. Therefore themes of a distance course are determined by the author of the course, or, which is preferable, by the author and his/her team.

The themes must be relevant, contemporary, and a lot of unstructured information should be generated in the selected area. A theme is the best choice if it is the object of author's research. In this case, the author can formulate his/her research aims, this leading to the program of the course.

The main problem at this stage is a small audience and its inactiveness, poor PLE. Most often, students are targeted at getting acquainted with some information and establishing new contacts. A course participant must have essential implicit knowledge on the theme of the course, technical skills to work with social services and time management tools.

3.2 Design

After completing the course program, the duration of the course should be determined. The course duration is desirable not to exceed the time period of 6-8 weeks as students find it difficult to concentrate for longer periods. The next step is to draw up draft descriptions for sections of the course.

A most critical step is to select informative materials. To do that, the author of the course should possess the content curator skills. In this case, a vast number of links on Twitter to various information resources treated as blogs, e-magazines like scoop.it and much more are made available by the time the course is ready, which is among the content curator's function.

The most recent links to informative materials should be selected; and it is desirable to choose the number of links on the topic that are above Dunbar's number in order to organize selective information processing for students. Dunbar's number is a cognitive limit to the number of people with whom one can maintain steady social relationships (100 - 230, 150 selected) [11]. With a small number of links, students psychologically tend to seek reading all materials.

After selecting the informative materials it is advantageous to write a brief abstract for each link, e.g. to use the tools cruxlight.com, and sort them out according to areas so as to make students' work easier.

3.3 Development

Now comes the time for a summary for all practical hours, with problem-setting and specifying various tasks for students. A list of recommended student activities is desirable, e.g. to make about 10 retweets, write 2-3 blogs with a review of some sources etc. The course should contain a variety of recommendations and references for those who have little experience of using social services.

It is also necessary to develop entry and graduation questionnaires. Weekly questionnaires are recommended to include questions:

- Which materials were of interest? Why (not)?
- What was new and interesting in the webinar?
- Which can be considered an alternative blog?

Students can choose between filling out the questionnaires and writing a blog (re-mix, reflection).

The next step is to select guest lecturers for each week. They can be author's colleagues or involved students who are leading experts in some aspects of the course.

3.4 Implementation

MOOC should be conducted by a team of tutors. Their roles may be different. For example, they can share functions determined by the main author of the course. The tutors can be independent, each of them preparing their own materials for the course and giving his/her opinions during webinars without prior consultations. The most

important thing is that teams of tutors work very actively thus setting the work pace for the audience.

Before the MOOC starts, it is advisable to hold 1-2 webinars telling about the tools employed, especially twitter, evernote, mailing lists, blogs, and use of translators. This could be helpful for students to get prepared for the educational process.

The process of designing a distance course is an iterative process of creating a fundamentally new service. It requires studying other authors' experiences, new social services, continuous work with new information related to course themes.

4 Resume

The experience shows that it is very difficult to introduce cMOOCs in education and distance learning in the CIS. This could be due to the choice of themes for courses, low activeness of the pedagogical community, a small number of social services used. For example, Twitter is not very popular in the educational community. At the same time, four courses held led to formation of a community of as many as 30...40 members who actively participate in all cMOOCs organized not only in the CIS.

Low activeness of cMOOC participants does not allow implementing the principles of connectivism. Therefore, open courses are first needed on the use of social services in education, followed by training content curators. Furthermore, specific features of CIS audience must be considered when designing cMOOCs.

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