

Synchronous learning in online course: a necessity or choice?

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Abstract. E-learning and lifelong learning are considered to be important factors in the knowledge-based society. Synchronous online learning is both a conscious choice of modern universities and a necessity brought about by globalization. The materials of this article are devoted to the issues of justifying the use of synchronous online learning at Wrocław University of Environmental and Life Sciences (WUELS), as well as the selection and expert evaluation of the effectiveness of using ICT to support it. Two main processes have been identified to improve and develop: process of Educating / teaching employees, people interested in raising their qualifications, candidates for studies and Communication of the current and future clients of the university. The stages of the choice of the tools to support the implementation of selected processes are highlighted. To select tools we based on the following criteria: availability, some initial familiarization with the tool, the functions offered, friendly and aesthetic interface, technical support, the possibility of cooperation with the Moodle platform. As a result, to support synchronous online learning in WUELS was selected was a live stream was on YouTube, Skype, an E-science platform and Click Meeting. The effectiveness of the use of the Polish commercial service ClickMeeting has been proven.

Keywords: E-learning, synchronous learning, ICT, university

1. Introduction

In the face of the rapidly occurring technological, social and cultural changes, it is possible to put forward a thesis that online synchronous learning is both a conscious choice as well as a necessity that is brought by globalization. Innovation, enhancing competitiveness in relation to the environment, not only in the area of economy but also education, opens for young people the doors to the world, which offers many new opportunities in the field of education, acquisition of the necessary skills sought on the labor market, obtaining interesting employment both on the local market and in various regions of the world. E-learning and lifelong learning are considered to be important factors in the emerging knowledge-based society [5].

The ubiquitous technology brings many benefits, however, if used improperly, it may favor the occurrence of superficiality in learning or influence the appearance of unethical attitudes in the teaching process [12]. Higher education institutions more and more often provide their

DEEU 2018: V International Conference on Digital Education at Environmental Universities, October 17–18, 2018, Kyiv, Ukraine

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ACNS Conference Series: Social Sciences and Humanities

students with online education, focusing on technologies that eliminate unethical behavior and methods that are aimed at deepening knowledge [3]. Deep learning includes critical thinking, integration of knowledge with the newly acquired and the creation of a new one [1, 2, 13]. Currently, teaching has become a mix of different methods, techniques that use different technologies in any teaching environment, requiring dialogue, cooperation and online activity [17, 18]. Popular and common learning management systems (LMS) are insufficient to store content, manage learning processes in educational institutions [11]. The so-called personal learning environments (PPSs) that create online tools such as blogs, wikis, streaming media, networks and social media, and open access sites are gaining more and more popularity. More often, educational institutions and providers of educational services offer the possibility of synchronous teaching online. However, as emphasized by Hrastinski, Keller and Carlsson [6] synchronous e-learning received much less research attention than in the case of asynchronous teaching, and those who are considering the use and design of synchronous e-learning are in urgent need for guidance on this issue.

In the case of asynchronous and synchronous teaching, the key is a functional approach to communication, which can be defined from the point of view of information theory [19] as information transfer (one function) or broadly based on its many functions such as emotive, cognitive, poetic, phatic, meta-linguistic, and conative [8]. It can be assumed that asynchronous teaching relies heavily on the transmission of information. Synchronous teaching benefits from the possibility of expressing the emotional state, establishing and maintaining contact with the interlocutor, arousing the feelings of the recipient, naming reality. In the context of explaining the need for synchronous and asynchronous teaching, two theories may be helpful: media naturalness hypothesis (MNH) [9] and cognitive model of media choice (MMC) [16], which is used by Hrastinski [5] explaining the diversity of the obtained effects and thus the desirability of using two forms of teaching. Synchronous communication originating from face to face interaction, as more natural, increases the user's motivation, but hinders information processing. Asynchronous communication leaves more time to understand the information and therefore to process it. However, people learning asynchronously require motivation and the ability to process text messages. Hrastinski [5] believes that synchronous communication, as a complement to asynchronous communication, can positively influence the participation of online course participants in online discussions. Similarly Woerner, Orlikowski and Yates [21] indicate that synchronous communication can help in a deeper sense of participation in a conversation. [14] emphasizes the great power of motivating synchronous teaching, which mobilizes the participants of e-courses to keep up with e-learning partners. Hrastinski, Keller and Carlsson [6] suggest including the use of synchronous communication in four important problem situations, which are difficult to solve with asynchronous methods:

1. Supporting strong relations in the group
2. Supporting weak relations in the group
3. Servicing, planning and explaining tasks
4. Creating and supporting social relations

There is no doubt that IT and communication technology improves knowledge sharing, increases the speed of information flow, intensifies learning thanks to the systems supporting

communication and discourse [15]. According to Huang et al. [7] information and communication technology has a significant impact on consumers, industry and government elites. The importance of IT infrastructure and its impact on flexibility, competitive advantage and organizational results are also emphasized by Gheysari et al. [4], Turner and Lankford [20].

2. Case study: Prospects for the development of e-learning in the aspect of university improvement and promotion

Based on the analysis carried out with the use of the strategic score card methodology, it was found that there is a large unused potential for the development of education supported by modern technology based on innovative education methods at Wrocław University of Environmental and Life Sciences (WUELS). Two key processes were selected, both of which the Distance Learning Center participates in. The first process is education both for students and academic teachers – it is an existing process that requires improvement and the process of educating / teaching employees, candidates for studies, people interested in raising their qualifications, candidates for studies, stakeholders – new, in relation to the target group and requiring development. Communication is the second key process – it is a new identified process that in the long-term will play an important role in meeting the needs of the current and future clients of the university. The possibility to improve and develop both processes at WUELS is shown in figure 1.

The challenge is to implement synchronous learning online, it includes several activities such as: the choice of tools, creating interest of academic staff in new opportunities in online teaching, preparation of staff and developing a strategy to support the staff determined to use the new tool as well as obtaining funds.

In the article, the authors present the choice of the tool.

3. Methods

The choice of the tool was made in several stages. **The first one** was to select several tools based on the following two criteria: availability and some initial familiarization with the tool. Both open source and commercial solutions were considered.

What was selected was a live stream was on YouTube, Skype, an E-science platform and Click Meeting. Until now, YouTube has been used to provide open educational resources in the form of videos. Skype is currently being used by us, next to Moodle, to conduct language exams and interviews. Earlier, we used Skype to conduct small, international academic seminars and student workshops. The E-science platform is a proprietary solution created as part of the project “Active Information Platform e-scienceplus.pl” in a consortium of Wrocław’s universities. It has a function that allows online synchronous contact for a group of people. The designers intend to enable the creation of research groups, conducting scientific works and managing research groups. ClickMeeting is a Polish commercial service with extensive technical support that has been operating on the world and Polish market for over a dozen years.

The second stage was the evaluation of tools based on internal tests conducted by the employees of the unit. The live broadcast on YouTube, the E-science platform and ClickMeeting

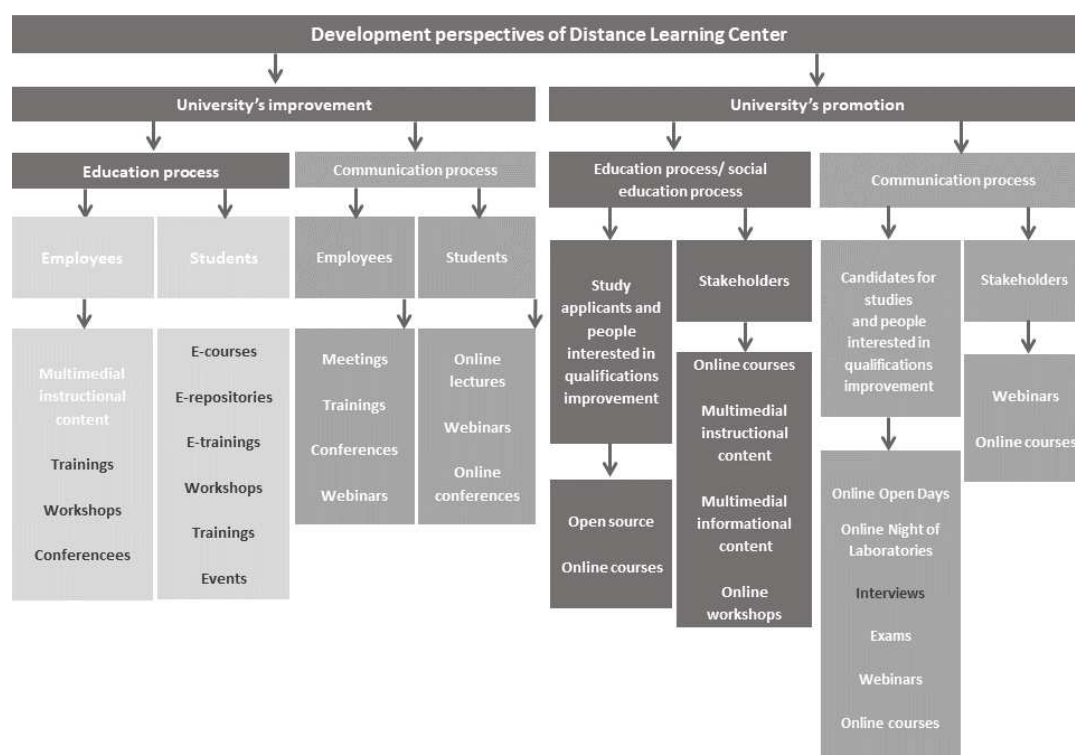


Figure 1: Development perspectives of Distance Learning Center.

were qualified for this stage. The evaluation criteria were: intuitiveness of service, the functions offered, friendly and aesthetic interface, technical support, the possibility of cooperation with the Moodle platform.

When it comes to the intuitive use and aesthetics YouTube does not have a very complicated interface – there are only a few functions on it, but one can regard them as rather little intuitive. The site also has quite an economical color scheme, which we can assessed as neutral. The E-Science platform has many different functions, but its interface is not intuitive, and the website itself looks unfriendly in color. On the other hand, ClickMeeting has a very intuitive interface that most users could use without any instructions. In addition, the site is characterized by an aesthetic color palette.

In terms of the number of features, as already mentioned, YouTube does not have too many of them. Perhaps the functionality is sufficient for commercial purposes, while in the case of didactics of this type, the transmission would not be too practical – although it is possible to interact with listeners, you cannot send files to display, write on a virtual whiteboard, conduct surveys or give voice to listeners. In this form, only an academic lecture would be possible, where, on the other hand, it would be difficult to check the presence of all listeners. Most of the facilities are to be found on the E-Science platform, where you can give voice to the listeners, transfer files and use the virtual whiteboard. The main drawback here, however, is, as already mentioned, the lack of aesthetics, which is a big disadvantage in didactics, because it

will not encourage the students to use it. The teachers themselves may also have a problem with such a low intuitive interface. When it comes to ClickMeeting, in turn, it has a number of different functions – automatic surveys, giving voice to students, writing on a virtual whiteboard, displaying uploaded files – and at the same time all the available functions are very easy to use.

What is the most important in the context of e-learning is its compatibility with the Moodle platform. YouTube and E-Science do not offer such a possibility, but it is possible in the case of ClickMeeting, which makes this platform qualify for the third stage.

The third stage included external tests for academic groups during the actual classes. Each test ended with a survey in which participants assessed the quality of the classes conducted synchronously online. The questionnaire was completed both by the teachers and students.

4. Results and conclusion

The tests of conducting synchronous classes online on the ClickMeeting platform showed that for students this form of teaching is attractive not only because the classes can take place in a site that is most suitable for them, but also because of the use of new technologies, without which it is difficult to function in the 21st century. We should remember that especially for students, the use of technology is very intuitive, because they use it on a daily basis – and therefore transferring teaching in a favorable environment contributes to the enhancement of their attention, and thus – according to neurodidactics – to the improvement of the learning outcomes. For students, synchronous teaching is a new form of learning which stimulates their cognitive curiosity. The ClickMeeting webinar room has many functions that are well used and improve the attractiveness of the classes. A well-designed online lesson with the use of good tools allows one to transfer knowledge in a new way, providing students with new incentives, thanks to which they are more open to the acquired knowledge.

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