Modern Learning Models through Teacher and Student Dynamic Interaction in HEI towards COVID-19 Pandemic Condition

Lytvynenko Nina [a], **Halyna Yuzkiv [b]**, **Kateryna Yanchytska [c]**, **Nikolaieva Oksana [d]**, **Liudmila Batchenko [e]**

Corresponding Author [a]

Keywords

Abstract

The aims of the study is an empirical assessing the dynamic interaction of a teacher and a student at the HEI during a pandemic as an important component of the distance learning model, identifying methods and ways to ensure the integration of this component in the distance learning program for further use in the practice of HEIs. The methodology is based on the method of case analysis of the University of Oxford in the organization of educational activities during the pandemic following the Business Continuity Planning (BCP) framework. The results show that planning of crises should be used and, accordingly, scenarios for organizing educational activities should be developed for the effectiveness of the digital learning model and the provision of a dynamic online environment. It has been revealed that the University of Oxford's Business Continuity Planning (BCP) framework provides insight into the current crisis. The next factor in the effectiveness of training at HEIs during a pandemic is the planning of training courses based on templates developed by the leadership of universities. Templates of hybrid, virtual, personal courses provide unified teaching and learning processes, greatly facilitating the interaction of students and teachers.

Contents

[a] Bogomolets National Medical University, Kyiv, Ukraine
[b] Bogomolets National Medical University, Kyiv, Ukraine
[c] Bogomolets National Medical University, Kyiv, Ukraine
[d] Bogomolets National Medical University, Kyiv, Ukraine
[e] Kyiv National University of Culture and Arts, Kyiv, Ukraine

1 Introduction

For the higher education system, in particular, changing the paradigm of blended learning, transforming models of higher educational institutions (HEIs) through the need for an immediate digital response. In the first instance, students have realized the benefits of traditional models of learning with the possibility of direct contact with all participants in the educational process (Petronzi & Petronzi, 2020).

Despite the introduction of blended learning models in higher education in different countries, challenges emerged during the pandemic process. The major problems are as follows: the lack or insufficient level of infrastructure development; insufficient level of teachers' experience, which has affected the quality of education; lack of clear information about the learning environment during the pandemic, which has led to the complexity of the educational process for different participants, reducing the level of motivation during learning at home; the need for rapid development of educational digital content and it's adapting to the new learning environment (Ramírez-Hurtado et al., 2021; Cicha et al., 2021). The basic problems of the transition to virtual classes of HEIs were network problems, lack of training, and insufficient awareness of teachers (Arora & Srinivasan, 2020; Arianggara et al., 2021). As a result of the problems outlined, the level of interest in online education, innovations are decreasing; many doubts arise concerning the use of virtual classes; a problem is also observed.

Large and most developed universities have adapted most effectively to changes due to technological advantages and financial resources. Only available university resources can effectively transform classical education into online education through expansion, creating a virtual learning environment (Mishra et al., 2020). Although it has been noted in the scientific literature (Ramírez-Hurtado et al., 2021).

Lack of interactivity, the dynamic interaction between students, between teachers and students, is one of the problems of full transition to a digital learning environment, achievement of educational goals (Ferri et al., 2020; Verawardina, 2020; Ramírez-Hurtado et al., 2021). This problem reduces the level of motivation and satisfaction with online teaching; it actualizes the need to study the best practices for its subsequent solution.

The purpose of the academic paper lies in empirical assessing the dynamic interaction of a teacher and a student at the HEI during a pandemic as an important component of the distance learning model, identifying methods and ways to ensure the integration of this component into a distance learning program for further use in the practice of HEIs (Graham et al., 2013; Alkhalaf et al., 2012).

Literature review

In the scientific literature, the issue of learning models and mixed approaches has become especially popular during the period of the spread of the pandemic and quarantine restrictions. Yuzkiv et al. (2020; 2021), explore the practice of studying language disciplines, based on methods of meaningful and language-integrated learning, as well as methods of using digital technologies. Petronzi & Petronzi (2020), investigate mixed approaches to key pedagogical and learning theories to develop their own "Online and Campus (OaC) model" as a potential "plan" for student-oriented, asynchronous (flexible, autonomous) and synchronous learning mode (Slipchuk et al., 2021). Synchronous learning mode means a learning environment in which students are at the same time in one place (online or on-campus) with equal access to the same materials.

Cicha et al. (2021), Rizun & Strzelecki (2020), study the perception by Polish students of the GETAMEL learning model - an adapted general expanded model of technology adoption in the conditions of e-learning. Scientists argue that simplicity and convenience provide satisfaction with distance education, and as a result, self-efficacy of students in Poland. The results of the investigation of Ramírez-Hurtado et al. (2021),

concerning assessing the quality of online teaching during COVID-19 at the University of Southern Spain have identified five priority attributes of online teaching. These attributes are as follows: interaction of students, levels of concentration in online learning, online tests review system, usefulness, diversity of assessment test. Ramírez-Hurtado et al. (2021), recommend changing the online format of training at HEIs, integrating methodological and technological solutions into this format that promote cooperation between teachers, students, and administrative staff.

Mittal et al. (2021), have developed a theoretical model highlighting the determinants of the implementation of online teaching during the COVID-19 outbreak, in particular, the importance of the adoption and practical use of technology by teachers in the process of training. Along with this, the important determinants of the success of digital learning models are leadership promotion, regulatory support, the ability of the project team to implement the online learning model in practice (Iglesias-Pradas et al., 2021; Chang et al., 2020; Sá & Serpa, 2020).

Bao (2020), based on the case of the University of Beijing, has identified six elements of learning to improve the concentration and engagement of students towards achieving a smooth transition to online learning. The principal components of strategies are as follows: the formation of an emergency preparedness plan, the transfer of courses into online mode; division of educational material to increase the concentration of students based on modules; the importance of interaction (body language, gestures of teachers) as a tool to attract and motivate students; technical support for teachers, including training and support when working on online platforms; introduction of new methods of attracting students to study outside the online classes; an effective combination of online learning and offline self-education (Díaz-Campo & Segado-Boj, 2015; Claro et al., 2018).

In the scientific works of Tirziu & Vrabie (2015), Thai et al. (2017), Asarta & Schmidt (2020), Ożadowicz (2020), the main models of learning based on e-learning and distance learning methods have been considered, providing different ways of dynamic interaction between the teacher and the student. Thus, the issue of learning models with the use of digital solutions has become especially relevant at HEIs under the conditions of the pandemic; the challenge of ensuring the effectiveness of the dynamic interaction of a teacher and a student to achieve educational goals is of particular importance (Andrew & Pfurtscheller, 1996; Gerlich et al., 2006).

2 Materials and Methods

The qualitative content analysis has been used in the present research to assess the Oxford University learning model. For conducting the analysis, the case method has been used based on official information about learning models posted on the websites of HEIs. In particular, detailed information from the information resources of the Center for Teaching and Learning has been studied (Oxford University, 2021a), Flexible and Inclusive Teaching (Oxford University, 2021b). The latter contains information about the organized distance learning model with asynchronous and synchronous modes of training activities of teachers.

3 Results and Discussions

3.1 Results

A contingency plan has been developed and established in Oxford, providing the organization of training depending on the expectations of the pandemic and its consequences. The plan provides some scenarios for the organization of the educational process depending on the emergency; however, the university aims to ensure the highest standards of education regardless of the impact of the COVID-19 pandemic). For instance, on December 15, 2021, the university has moved to the 2nd level of business continuity planning.

In the 2021-2022 academic year, Oxford has supported a model of flexible and inclusive teaching, encouraging a flexible and inclusive approach to learning. The chosen approach reflects personalized high-quality education of the HEI, supporting teachers and students in times of crisis, including through instant

information support. Consequently, the dynamic interaction of the teacher and the student is formed (Lyster, 2002; Van de Pol & Elbers, 2013).

Practice shows that direct interaction through traditional teaching methods is the most effective; after all, the universities plan to return to personal training in 2022 (using textbooks, seminars, and classes, laboratory, effective and practical activities). Fieldwork and research abroad will also resume (subject to restrictions on international travel). Oxford also provides measures to meet the educational needs of students who must self-isolate or cannot return to the UK. In particular situations, this means teaching in a hybrid format. During the pandemic, within Oxford, the most successful online teaching innovations for the 2020-21 academic year have been created.

The information on support and provision of guidance for teachers in the 2021-22 academic year has been published on the website of the Center for Teaching and Learning (CTL). Recommendations include as follows: tips on flexible and inclusive learning, instructions on distance learning, planning and presentation of a hybrid training session, availability, training and webinars, specific pieces of advice on teaching under the conditions of the pandemic, according to University documents on teaching and assessment in case of emergencies.

Oxford's Flexible and Inclusive Training (FIT) has ensured technical and technological support to teachers to provide full involvement and participation of the stakeholders in the learning process, similar to traditional classes. Inclusive learning means primarily identification and minimizing barriers, obstacles to learning, as well as the participation of students. Flexible learning focuses on the students' needs, taking into account the place, time, and methods of training activities (Savinova et al., 2021; Estevez et al., 2019).

Technical and technological support has solved the problem of dynamic interaction between teachers and students in conditions of limited access and lack of awareness of digital learning technologies. Since a unified platform for interaction was created in Oxford, teachers were able to quickly share experiences and possible problems with the use of technology, contributing to the positive perception and development of learning platforms. All teachers continued to conduct classical classes: laboratory works, lectures, and works in small groups of two types, consultations for students. According to traditional lessons, the university leadership proposed scenarios for a training course for teachers.

Each of the classic classes reflects the possibility of combining asynchronous and synchronous learning modes to provide a greater level of flexibility in the interaction of students and teachers, the concentration of participants in the learning process in "real-time" in the place of the greatest value of teaching. The HEI has also provided the opportunity to use various digital tools during teaching, conducting practical classes depending on the learning scenario. The teacher was able to combine the most effective tools for his course to solve specific problems and achieve the desired outcomes (Lytvyn et al., 2021; Widana et al., 2021).

The process of organizing Oxford's laboratory work is based on a flexible and inclusive approach. Therefore, the HEI has predetermined the technologies that will be used by university teachers, depending on the stage of the course. At the stage of the presentation of the course, the teachers used the Panopto program with the possibility of asynchronous or synchronous reviewing by students. Along with this, the Teams program was used at the stage of actual laboratory work in hybrid, traditional or virtual conditions; the Canvas program was used at the stages of assessing results, discussions, and assignment of homework. The stage of the actual laboratory class should be synchronized.
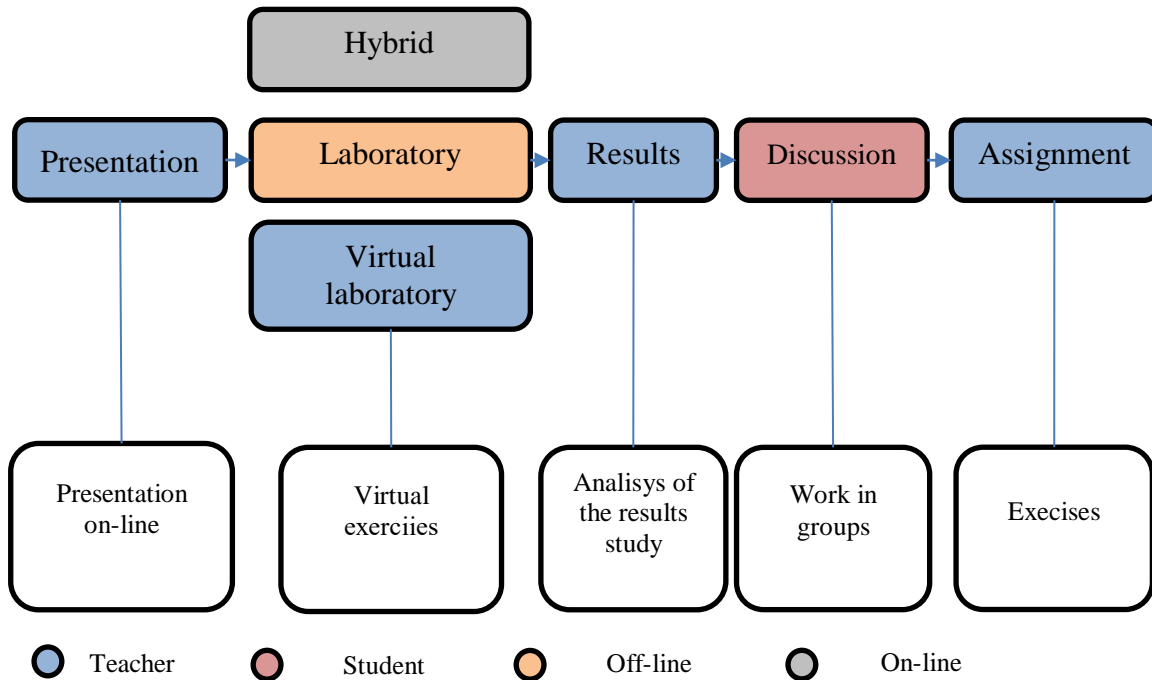
Figure 1. The process of organizing the laboratory class in Oxford during the pandemic

The process of organizing lectures was somewhat different from the process of laboratory classes, in particular, in terms of the possible digital tools offered to teachers. At the presentation stage, teachers used the Panopto tool, at the discussion stage - the Canvas program was applied; at the stages of interaction, communication - the Teams program; at the Polling stage - the Vevox program was used. The stages of interaction and Polling were to be synchronized, while the presentation and discussion could be asynchronous.
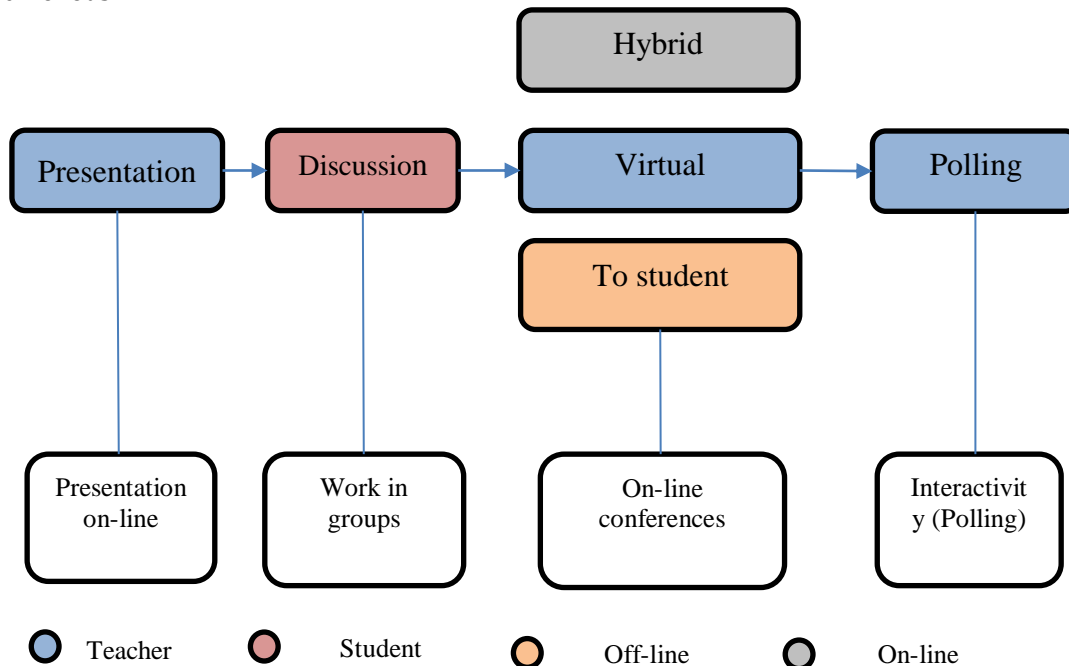

Figure 2. The process of organizing a lecture in Oxford during the pandemic
Source: Oxford University (2021b)

Thus, the learning model provided dynamic interaction at each stage with potentially maximum involvement of students in the process. Support for tutors included registration with FIT Canvas, provision of Canvas templates pre-designed for the online learning environment, provision of assistance to teachers on the part of support consultants (Moore et al., 2011; Dağ & Geçer, 2009). Therefore, Oxford has ensured the unification of teaching through a flexible, inclusive approach. The uniform training standards and technologies used in teaching are complemented by the ability of teachers and students to choose the time, place of interaction, as well as training methods. Such an approach has helped the course teams conceptualize the processes of adapting existing teaching practices to new training methods; it has provided flexibility to quickly move to more distant or more personalized learning, depending on the circumstances (Diachenko et al., 2021).

FIT technologies have been used by educators as models for the transition from personal to distance learning model according to students' needs. The technologies have also helped divide the classes into significantly shorter segments to avoid the problem of decreasing students' engagement rates, which is especially noticeable during offline lectures. Teachers have also been able to save time for developing courses and digital content with the application of Canvas templates.

3.2 Discussions

In the course of the research, it has been revealed that technical, technological support for a digital learning model based on a flexible, inclusive approach ensures the unification of teaching and learning of students concerning: 1) proposed digital templates for various types of traditional classes (lectures, laboratory classes, work in small groups, individual consultations); 2) proposed digital tools for conducting educational activities; 3) the proposed unified procedure for providing support and assistance to teachers and students; 4) approval of synchronous and asynchronous stages of learning in the framework of the course. Along with this, the flexibility of distance learning was provided by: 1) the ability of the teacher to identify, combine the proposed digital learning tools (Panopto, Canvas, Teams, Vevox); 2) the ability of teachers and students to asynchronously conduct certain stages of educational activities (for instance, browsing presentation materials). Determination of the model of teaching and conducting courses at the level of HEIs solves some problems of distance education, forasmuch as the procedures for conducting classes, support, consultations are pre-defined, and a certain list of infrastructure facilities minimizes obstacles and increases the level of dynamic interaction between a teacher and a student during a crisis.

Rinekso & Muslim (2020), in the process of studying the use of synchronous online discussion in teaching English at the university, have revealed that this teaching method satisfies students due to the ease of discussion, expression of opinions, task planning, and the ability to get real-time answers to the questions posed. It is synchronicity that provides social support to students during the pandemic and the transition to fully digital learning. In the present research, it was established that the requirement of synchronicity related specifically to discussions (virtual, hybrid, personal) through understanding its positive effects on students' engagement. Dynamic interaction can be ensured by the synchronicity of educational activities as an important requirement of digital higher education, which must be approved by the leadership of the HEI.

The investigation of Carius (2020), has analyzed the transition to emergency distance learning the authors have also included variables related to learning (number of students in groups, synchronous/asynchronous learning mode) and the use of digital technologies. By the way, the idea of promoting organizational factors in the successful implementation of emergency distance learning has been also confirmed in the scientific work. According to the present research, successful planning of the learning process, conducting courses in a crisis and under the conditions of absence of other options for organizing training at HEIs, contribute to the effectiveness of digital models.

4 Conclusion

In the course of the research, it has been revealed that technical, technological support for a digital learning model based on a flexible, inclusive approach ensures the unification of teaching and learning of students concerning: 1) proposed digital templates for various types of traditional classes (lectures, laboratory classes, work in small groups, individual consultations); 2) proposed digital tools for conducting educational activities;

3) the proposed unified procedure for providing support and assistance to teachers and students. To provide the effectiveness of the digital learning model and ensure the dynamic interaction of the teacher and the student in the online environment, planning of crises should be used and scenarios for organizing educational activities should be developed. It is the Business Continuity Planning (BCP) framework of the University of Oxford that provides an understanding of the current crisis. The next factor in the effectiveness of training at HEIs during a pandemic is the planning of training courses based on templates developed by the leadership of HEIs. Templates of hybrid, virtual, personal courses provide unified teaching and learning processes, greatly facilitating the interaction of students and teachers. The specific digital learning tools (Panopto, Canvas, Teams, Vevox) facilitate synchronous interaction, while the ability to choose and combine different tools by teachers involves asynchronous.

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Biography of Authors

Lytvynenko Nina
Doctor of Philology, Professor, Head of the Department of Language Training
Bogomolets National Medical University
ORCID Identifier: 0000-0002-6572-2392
Email: np.lytvynenko1@gmail.com

Halyna Yuzkiv
Candidate of Philological Sciences, Associate Professor, Department of Language Training, Bogomolets National Medical University
ORCID identifier: 0000-0002-6711-3830
Email: yuz.kiv@gmail.com

Kateryna Yanchytska
Ph.D. (Philology), Lecturer, Department of Language Training, Bogomolets National Medical University
ORCID Identifier: 0000-0003-3758-9114
Email: katya.tym.tsyas@gmail.com

Nikolaieva Oksana
Lecturer, Department of Language Training, Bogomolets National Medical University
ORCID Identifier: 0000-0002-7196-4611
Email: sok.hatska@gmail.com

Liudmila Batchenko
Doctor of Economics, Professor, "Faculty of Hotel And Restaurant And Tourist Business, Department of Hotel and Restaurant and Tourist Business", Kyiv National University of Culture and Arts
https://orcid.org/0000-0001-6975-5813
Email: luda.vic@meta.ua