

Communicative Model of Educational Transformations in the Realities of (Post) Modernity

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Summary

In the context of the pandemic, educational institutions had to ensure an instant transition to remote technological models of communication within the new conditions of the educational environment. The purpose of the academic paper lies in determining the role of the communicative model of educational transformations in the realities of (post) modernity. The research methodology is based on a survey of 120 students from 10 higher educational institutions (HEIs) of Ukraine through an online form regarding the importance of live communication during a pandemic. Results. The communicative model changed significantly during the pandemic - the interaction was mainly due to technologies. The research has identified four communication models of educational transformations under the conditions of the pandemic, depending on learning models. The first traditional model of distance learning involves distance learning; the second model involves contact remote training using remote educational technologies; the third model is blended learning, which combines remote and traditional learning formats, synchronous and asynchronous modes of interaction; the fourth model is traditional contact training. The empirical study of the effectiveness of communication models proves that live communication remains extremely important for learning and understanding of educational materials by students, and technology has provided support for such communication. Along with this, seminars and video lectures with presentations combining live communication and communication technologies are as important as digital learning tools. The most effective teaching method for mastering and memorizing educational material was a live dialogue with a teacher at seminars in ZOOM, followed by individual written assignments on the studied topic.

Key words:

communicative model, educational transformations, education under the conditions of the pandemic, training models, communication.

1. Introduction

In 2020, UNESCO has identified major educational transformations that will be relevant in the future. The spread of COVID-19 has exacerbated these problems, including as follows: 1) inequality in education due to the commercialization of educational services, especially in low-income countries; 2) the need to ensure the right to education of different social-economic groups; 3) devaluation of the profession of a teacher, a lecturer, an educator; 4) promotion of participation in the transformations of

youth, assertion the rights of students; 5) providing support for digital educational resources and tools, providing participants with full access to digital platforms in the educational space; 6) transformation of training programs in connection with the dynamic requirements towards the specialists' skills; 7) protection of domestic and international financing of education (United Nations Educational, Scientific and Cultural Organization, 2020).

Thus, the issue of free open access to technology for teachers, educators and students is significant and relevant. Private companies regulate the provision of access to digital technologies; consequently, education depends on platforms controlled by business. Within the conditions of the spread of COVID-19, the problems of availability of effective technologies for communication and ensuring continuity of learning, inequality in education due to lack of funding have increased (Byrnes et al., 2021).

The government should provide support for open educational resources and digital tools of open access. The education should be developed within the pedagogical space, in which technologies in the conditions of distance learning are a way of interaction, communication, transfer of content and professional substance and materials. Rapid technological changes cause transformations in various spheres of life. However, innovations do not address in a proper manner the necessity of ensuring equality in education, social inclusion and democratic participation.

The purpose of the academic paper lies in determining the role of the communicative model of educational transformations in the realities of (post) modernity.

2. Literature Review

In the scientific literature, the issue of the effectiveness of training at HEIs under the conditions of the pandemic is partially considered in the context of the personal prevailing qualities of the students' features. A number of scientific investigations consider the digital component of learning effectiveness with the selection of specific information and communication technologies as a tool for communication between students and teachers (Wargadinata et al., 2020), proving productivity, positive effects of implementing hybrid models of distance learning by using platforms (Masalimova et al., 2021; Muthuprasad et al., 2021), efficiency of full transition to the online environment (Radha et al., 2020). The main advantages of online teaching platforms are flexibility, and among the disadvantages, are family distractions (26.76%) and poor Internet connection (21,53%) (Dost et al., 2020; Fatonia et al., 2020).

Chatterjee & Chakraborty (2021) examine the role and types of information and communication technology (ICT) tools in ensuring the co Please checktnintuinity of medical education during a pandemic, collaboration and education of medical students. Byrnes et al. (2021) also examines the effects of using technologies (highly interactive video conferencing technologies, collaboration tools, networking platforms and social networks) to support effective communication and professional anatomists during and after COVID-19.

Table 1: Summary of commonly-used technologies, software and online platforms supporting communication and collaboration between anatomists

Technology type	Source	Description
Communication, video conferencing tools		
Zoom	Zoom Communications, Inc. San Jose, CA	Cloud platform for video and audio conferencing, collaboration, chat, and webinars across mobile devices, desktops and telephones.
Hangouts/meet	Google, Inc. Mountain View, California	Online video conferencing apps that enable up to 30 users at once and dial in phone numbers.
Skype	Microsoft, Inc. Redmond, Washington	Telecommunications application and messaging platform that specializes in providing video chat and voice calls between computers, tablets and mobile devices.
Chime	Amazon, Seattle, Washington	Communications service that facilitates online meetings across your devices, as well as video conferencing, calls, and content sharing.
Webex	Cisco, Placer County, California	Cloud-based web and video conferencing service that enables global and virtual teams to collaborate on mobile devices and standards-based video systems in real time.
BigBlueButton	BigBlueButton, Ridgefield, Connecticut	Open-source web conferencing system providing solutions for remote teaching of students

Spaces	Avaya, Markham, Canada	Cloud-based video conferencing and meeting app that facilitates team collaboration online.
Collaboration platforms		
Microsoft teams	Microsoft, Inc. Redmond, Washington	Communication and collaboration platform that combines video conferencing, content sharing, and application integration.
Gdrive/docs	Google, Inc. Mountain View, California	Cloud storage platform that enables collaborative editing of documents.
Slack	slack technologies, san Francisco, California	Collaboration hub facilitating messaging between team members, video conferencing, scheduling and content sharing.

Source: Byrnes et al. (2021)

Lyons, Christopoulos & Brock (2020) study the experience of pharmaceutical teachers in the Asia-Pacific region in providing conditions for emergency distance learning, targeted internships, support for displaced or isolated students, and their communication with teachers, staff and students.

Table 2: Rapid Solutions to Delivering Emergency Remote Pharmacy Teaching in the Asia-Pacific Region

Curricular Element	Agreed Approach
Weekly topic learning outcomes	Adjustments may be required at the discretion of the instructor
LMS announcements	Students receive weekly announcements from course (unit) directors that will summarize the past topic and introduce the next topic
Pre-class online learning activities	Content reduced to match the new learning outcomes Activities include assigned articles, animations, and videos
Interactive lectures	Although asynchronous delivery is recommended, the educator may include elements of synchronous delivery Asynchronous delivery: Build interactive lecture into LMS quiz feature to allow repeated review by students Make the quiz as pass or no-pass Add clips of video segments, followed by questions and activities

	<p>Educator view the students' combined output and then offer class-wide feedback to the students</p> <p>Synchronous delivery: Live-stream lectures through a video conferencing technology (eg, Zoom)</p> <p>Real-time LMS online discussion board chats between students and instructors</p>
Workshops	<p>Although asynchronous delivery is recommended, the instructor may choose between asynchronous and synchronous delivery:</p> <p>Asynchronous delivery: Convert workshops to LMS online discussion board posts with patient cases, scenarios, and submission points Utilize LMS quizzes For small group work, students may utilize LMS capabilities or other technology (e.g., Google Docs)</p> <p>Synchronous delivery: Live-stream workshops through a video-conferencing technology (i.e., Zoom) Set up breakout rooms for small group discussions and activities Utilize Google Docs, Google Sheets, and audience response technology</p>
Close-the-loop sessions	<p>Online delivery options: Embed audience response questions (e.g., PollEverywhere) into the LMS at the end of the lesson for students to ask questions about the topic Respond to student outputs (e.g., quizzes) and questions either asynchronously or synchronously: Asynchronous: Recordings built into the LMS that records their attendance (e.g., Moodle quizzes) Synchronous: Lived streamed via video conferencing technology (e.g., Zoom)</p>
End of week reflection and feedback for instructors	<p>Possible reflection or feedback activities to occur before or after the Close-the-Loop sessions: Students have reflected on their engagement for the week Collaborated student responses from embedded questions in the LMS (e.g., "What questions do you have concerning Topic 1?") Ask students for feedback on the online delivery</p>

Source: Lyons, Christopoulos & Brock (2020)

Abbreviations: LMS – learning management system (for instance, Moodle)

During the pandemic, due to the spread of COVID-19, the burden on educational institutions is significantly increasing in the

context of clarity and timeliness of communication with stakeholders, especially students, pupils and staff. Educational institutions require instant response and the creation of communication models in the face of growing uncertainty and the need for constant updating and monitoring of information. McCarthy, O'Donovan & Trace (2021) have revealed a lack of an established communication pattern during the pandemic. For this reason, the administration of HEIs should ensure the development of communication models in the conditions of the crisis in order to reduce the perceived distance between management and colleagues. The advantage of adapting to COVID-19 is the success of frequent scalable online meetings through Teams or Zoom. These measures have made it possible to introduce question and answer formats providing information to stakeholders on the most frequently asked questions, giving answers concerning measures how to adapt to the crisis. Communicating with students during the pandemic has been more difficult due to their individual learning programs (curricula) and the need to provide personalized on-going support (Brammer & Clark, 2020). In some cases, personal communications were carried out in educational institutions in order to provide emotional support to all participants of the educational process (Quezada, Talbot & Quezada-Parker, 2020).

The pandemic has exacerbated the issue of digital inequality; disparities in digital communication have increased due to social-demographic differences affecting the skills and experience of using the Internet. Digital inequality during the pandemic has caused a number of problems in communication between students and their families, which also affected learning and motivation (Nguyen, Hargittai & Marler, 2021).

Hidayat & Wibawa (2020) have found weaknesses in online learning, that is, technical and communication ones, which are closely related. Technical weakness is influenced by geographical factors, the availability of the Internet and the cost of the Internet. This means the presence of digital inequality, which has intensified during the pandemic. Weaknesses of communication included slow adaptation, insufficient optimality of teaching aids, lack of an interactive atmosphere, empathy. These weaknesses have led to an insufficient level of interactivity, motivation, insufficient effectiveness of learning management.

Thus, the scientific investigations are aimed at assessing the effectiveness of distance learning methods, educational technologies however, communication models are studied in part. Along with this, few studies focus on live communication between students and teachers, which is characteristic of the classical model of training at HEIs. Accordingly, the question arises regarding the importance of direct communication for students during distance learning. In the conditions when, since the early 2000s, the tendency to introduction of model of blended learning is more and more discussed in scientific circles (Graham, 2009; Porter et al., 2014), it is important to evaluate the effectiveness of live direct communication in the process of training. On the other hand, the pandemic has led to an absolute shift to online communication, which could negatively affect students' performance due to insufficient feedback.

3. Methodology

The present research describes four main learning models in the framework of which pandemic communication models are built. Further, the authors conduct a survey of students on the level of discipline, organization in the process of studying materials, their understanding, memorization, assimilation in a short time (Table 3).

In order to conduct the research, a random sample was formed: a link to an electronic questionnaire generated using Google Forms was sent to teachers of 10 HEIs of Ukraine with a request to distribute it among students for filling. Consequently, the questionnaire was sent to 25 teachers of different higher educational institutions. Answers were received from 120 students of various specialties.

Table 3: Questionnaire to conduct the survey of students on the effectiveness of teaching methods under the conditions of the pandemic

Questionnaire. The 2nd wave of the pandemic. 2020-2021	Options for answers
1. The following tool helped to increase my level of discipline and organization in the process of studying a subject unknown to me:	01) the terms of performance of control works / tasks established by the teacher; 02) timely monitoring and assessment by the teacher of the work / task; 03) provision of manuals, methodical materials; 04) Your own method _____ (write in words). 05) nothing helped.
2. The following tool helped me to understand the unknown materials in a short time	06) structural and logical schemes, tables (structural information); 07) video lectures with presentations in the form of a synopsis of the material, (visualization of the material); 08) use of colour, highlighting, emphasizing the material; 09) seminars in ZOOM with the subsequent performance of written assignments on the studied topic; 10) _____ Your option (write in words); 11) teacher's explanation and live conversation with him on the material under study; 12) nothing helped.
3. The following tool helped me to memorize the study material in a short time:	13) individual written answers of the teacher to the control written assignment and the opportunity to compare with one's own answers; 14) structural and logical schemes, tables (structural information); 15) use of colour, highlighting, emphasizing the material; 16) live dialogue with the teacher at seminars in ZOOM with the subsequent performance of individual written tasks on the studied topic;

	17) _____ Your option (write in words); 18) systematization of material and constant repetition in the classroom; 19) nothing helped.
4. The following tool helped me to learn the material in a short time:	20) use of Proficonf, ZOOM, etc.; 21) structured educational material; 22) systematization of material and constant repetition in the classroom); 23) live dialogue with the teacher at seminars in ZOOM with the subsequent performance of individual written tasks on the studied topic; 24) Your own option _____ (write in words). 25) independent work; 26) constant, systematic control by the teacher of my success and attendance at classes; 27) there is nothing that helped me learn the material.

Source: developed by the authors

4. Results

The communicative model changed significantly during the pandemic - the interaction was mainly due to technology. Changes in the model of education have caused many questions on the part of students concerning communication with teachers and administration of HEIs. On an international scale, the problem was global, forasmuch as due to students' mobility the question arose of returning to their native country and continuing education. In some HEIs, communication processes have been centralized, which is a traditional practice of crisis management in order to avoid misinformation concerns. For some period of time, universities have been weakening centralized management by introducing decentralized communication practices. Announcements about the conditions of study were sent by e-mail, posted on the official websites of HEIs. An additional form of communication was the recording of open webinars between students and teachers. Local educational committees for student relations, including representatives of key student organizations, continued to hold virtual (online) meetings. Along with this, weekly Zoom registration sessions for first-year students and a Zoom SnackChat session were also periodically held at HEIs in order to mimic the usual practice of meeting for informal student life discussions.

To deliver information on new technologies, students and teachers have been provided with resources and teaching materials in order to adapt technologies to virtual sessions and learning (for instance, Zoom). The training instructions have included a list of functionalities, etiquette of conducting video conferencing, recorded examples. In order to organize new learning formats, pilot tests of new technologies were also conducted during the period of distance education, in which instructors cooperated on establishing an effective learning process.

Within the framework of HEI, a special section was created for adjusting restrictions due to COVID-19, which, thanks to the learning management system, provided the educational community with new information (i.e. Moodle). Faculty and staff

regularly received updates on the current situation from the leadership of HEI and the faculty by e-mail. Social networks were also actively used in HEIs as a tool to involve the educational community in dialogue.

In total, four main communication models have been used worldwide, depending on the duration of restrictions and quarantine measures in the country. These communication models have been integrated within the framework of the training models.

The first traditional model of distance learning involves distance learning based on digital information and educational environment. Learning takes place in asynchronous mode: educational activities of students and pedagogical activities of teachers are different in time. In actual fact, this model characterizes the classic distance learning using a modern information and educational environment and remote educational technologies. The asynchronous version of distance learning assumes a delay in the interaction of teacher and students. In the framework of this this model, the teacher prepares the structure of the curriculum and materials in advance, and the students get access to the materials and familiarize themselves at any time for them according to their own schedule. Asynchronous distance learning is carried out through means of communication such as e-mail, forums that allow maintaining a working relationship between students and teachers, even if they do not have the opportunity to be on the Internet at the same time. This training model provides students with the opportunity to use the electronic environment at any time in order to download materials and send messages to teachers, spend more time for more thoughtful tasks.

The second model, spread through the pandemic, is contact remote training using the electronic information and educational environment of the university and remote educational technologies. The main feature of this model is the organization of distance learning in synchronous mode, which provides remote contact between teachers and students via the Internet in real time. The interaction of teachers and students is carried out according to the schedule of classes as part of the traditional schedule and forms of education (lectures, seminars, homework and assignments, etc.). This model has all the attributes of traditional learning, which, however, are implemented in a virtual environment. The communication model can be built on different platforms.

The third model is blended learning, which combines remote and traditional training formats. Blended learning can be organized in different modes, including asynchronous and synchronous ones. For instance, at the curriculum level, the model assumes that some disciplines are studied online (remotely). In other words, learning takes place completely independently with the use of online educational materials recommended by the teacher (lectures, assignments for different types of classes, tests, etc.) and other disciplines in the traditional format. Blended learning can be organized at the level of a separate discipline. As one of the options, this model involves conducting lectures in an online format (video track), while other types of classes are held traditionally, but using all types of digital technologies. At the same time, the format of distance learning can be organized in both synchronous and asynchronous form.

The fourth model is traditional contact training; it includes the use of digital resources known at a certain stage of development and remote educational technologies, which are used both during lectures and for the organization of active independent work of students. With the help of this model, digital technologies are considered as a means of supplementing and improving the

effectiveness of learning, enhancing and developing traditional learning.

The most effective tools for mastering unknown material in a short time were as follows: structural and logical schemes, tables (structured information) for 30,40% of respondents; seminars in ZOOM with the subsequent performance of written assignments on the studied topic for 20,70% of students; video lectures with presentations in the form of a synopsis of the material (visualization of the material) for 19,60% of students; explanation of the teacher and live conversation with him on the material for 18,50% of students; use of colour, highlighting, emphasizing the material for 7,60% of students. All the methods specified were effective for 9,80% of students (Figure 1). This indicates that live communication remains an extremely important method of training and understanding learning materials for students, and relevant technologies have provided support for such communication. Along with this, seminars and video lectures with presentations combine live communication and communication technologies are as important as digital learning tools.

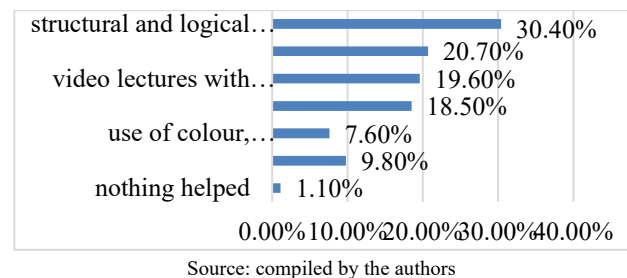


Fig. 1 Distribution of respondents' answers to the question: "The following tool helped me to understand the unknown materials in a short time"

In order to memorize educational material in a short time by students, the most effective training methods were applied (Figure 2), namely: individual written answers of the teacher to the written tests and the opportunity to compare with one's own answers (33,70%); live dialogue with the teacher at seminars in ZOOM with the subsequent performance of individual written tasks on the studied topic (31,50%); structural and logical schemes, tables (structural information) (16,30%); systematization of material and constant repetition in the classroom (9,80%); use of colour, highlighting, emphasizing the material (7,60%). These results also indicate the effectiveness of classical traditional training methods in the conditions of the pandemic and distance learning.

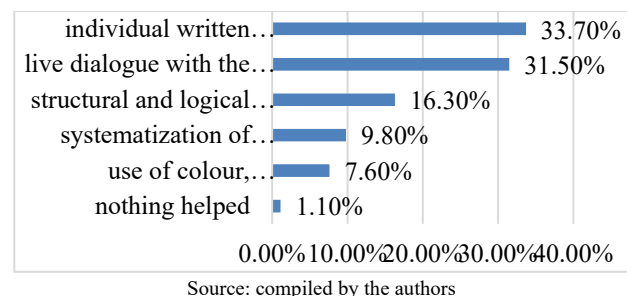


Fig. 2 Distribution of respondents' answers to the question: "The following tool helped me to memorize the study material in a short time"

The most effective training methods for acquisition the material were as follows (Figure 3): live dialogue with the teacher at seminars in ZOOM with the subsequent performance of individual written tasks on the studied topic (43,50%); systematization of material and constant repetition in classes (18,50%); constant, systematic control by the teacher of my success and attendance the classes (12%); structured educational material (9,80%); use of Proficonf, ZOOM, etc. (7,60%); there is nothing that helped me learn the material (7,50%).

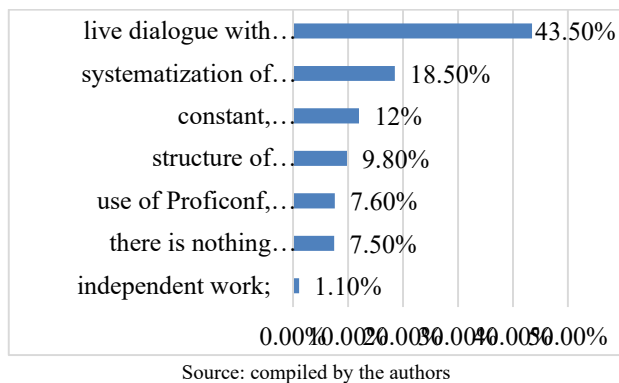


Fig. 3 Distribution of respondents' answers to the question: "The following tool helped me to learn the material in a short time"

These survey results confirm that the most effective methods for understanding unknown material, memorizing and mastering the material under the conditions of the pandemic are the classic communication of the teacher with students using technology, structured information and teacher control. Information and communication tools are an auxiliary tool in distance learning.

4. Discussion

Live communication and feedback play an extremely important role in the study, understanding, assimilation of educational materials, partially replacing the traditional practice of students. In the educational environment, scientific discussions are used as a way to study and assimilate the material through the process of its reproduction. Such practices are significantly limited during the pandemic period, which affects the motivation and effectiveness of training.

According to the viewpoint of Franchi (2020), the lack of practical training due to COVID-19 is likely to have many long-term consequences for students. The learning environment in 2020-2021 academic year is less optimal; the loss of face-to-face contact and direct interactions with both students and teachers can potentially hinder the development of students, especially of medical specialties (Franchi, 2020).

The effectiveness of training depends on a number of factors. According to an online survey of 544 respondents who took business management courses (B.B.A or M.B.A) or hotel management courses at Indian universities, four independent factors contributed to the positive effects of distance education in the conditions of the pandemic. These factors are as follows: the quality of training, course design, prompt feedback and expectations of students, which together have a positive effect on

students' satisfaction, which in turn has a positive effect on their success (Gopal, Singh & Aggarwal, 2021). In the course of the present research it has been also revealed that face-to-face communication, teacher supervision of students, verification and assessment of learning activities are complementary ways to ensure students' performance level. In contrast, a study conducted by Fatonia et al. (2020) on the advantages and disadvantages of distance learning among Indonesian students has found that the environment, students' independent leisure planning, network instability, teachers' communication and training materials were not synchronous ((in fact, they little complemented each other). As a result, the level of student attendance has decreased and the concentration on materials has been reduced, which has ensured insufficient effectiveness of online learning in the conditions of the pandemic (Fatonia et al., 2020).

The importance of the synchronism of different training methods is explored in the scientific work of Simamora (2020) through a survey of 15 online-trained students in Indonesia. In particular, the importance of providing a variety of synchronous instructions under the guidance of the lecturer (communication when course participants interact in the same time space, video conferencing, Google meeting and WebEx) or asynchronous instructions (time-separated communication, for instance, email, Google Forms, video streaming, posting lecture notes, use of social media platform) should be emphasized (Simamora, 2020). In this context, it is synchronous live communication that is the most effective way of communication, feedback. The importance of live communication and the need for a combination of different teaching methods is highlighted by a cross-sectional study by Yekefallah et al. (2021), conducted through a survey of students studying in different areas of the Qazvin University of Medical Sciences in Russia.

3. Conclusion

In the course of the research, four communication models of educational transformations in the conditions of the pandemic, depending on learning models, have been identified. The empirical study of the effectiveness of communication models proves that live communication remains extremely important for the mastering and understanding educational materials by students, and technology has provided support for such communication. Along with this, seminars and video lectures with presentations combining live communication and communication technologies are also significant as digital learning tools. The most effective training methods for assimilation and memorization of educational material was a live dialogue with the teacher at seminars in ZOOM, followed by the implementation of individual written assignments on the studied topic.

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