TRADITIONAL PEDAGOGICAL APPROACHES IN THE CONTEXT OF HIGHER EDUCATION DIGITALIZATION

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Abstract: Digitalization has become a necessary component of the educational process in higher education under pandemic and quarantine constraints. This study aims to establish the effectiveness of the digitalization of the educational process while preserving traditional pedagogical approaches and determining the assessment that participants in the educational process give to the introduction of high technology in the conventional approaches to learning. The primary method of the study was the pedagogical experiment. The research results show that teachers are pretty positively perceived digitalization. The disadvantages and positions of digitalization should be comprehensively accepted and worked out. Digitalization, together with traditional approaches, improves the skills relevant to the new society.

Keywords: Professional Pedagogical Activity, Digitalization of Education, Value Orientations, Educational Process Transformation.

1 Introduction

The progress of university education digitalization in European countries was greatly accelerated by the beginning of the COVID-19 pandemic in early 2020. Such an intensive and massive transition to distance forms of education needed an active digitalization of the educational process, which was in parallel with traditional pedagogical techniques and is comprehensive. Conducted surveys show positive results (Kuzmina, 2020), where digitalization of education improves relevant skills for the modern labor market and open new horizons of knowledge and skills in the new society. The scientific problem of social and cultural pedagogical impacts on educational processes of high technology remains relevant and open in the research space.

In addition, several studies have looked at the impact of high technology on reducing the costs associated with education. It is a debatable topic, where researchers have noted the need for high financial costs and hiring additional professionals (Alfarwan, 2019), but many studies have promulgated results regarding consistent, stretchy cost reductions related to education. It is also a relevant research problem where the focus is on balancing the positives and negatives of implementing digitalization in the educational process.

New means of shaping education in modern conditions, where digital technology is a necessary requirement of the time, constitute the success of distance education and determine the possibilities of communication in all spheres of society. The educational process at the university is no exception. This learning tool supports well the traditional pedagogical approaches. It is interactive and requires electronic tools and specific qualifications (Faryadi, 2017). The pandemic situation for today's "digital generation" youth requires facilitating changes in learning, the way learning tasks are accepted, processed, and accomplished.

The implementation of the digitalization process involves the involvement of different levels of education, the provision of facilities, and educational and methodological developments. We are talking about a comprehensive approach necessary for university education. Moreover, the introduction of high technology is associated with the learning capabilities of social networks, cloud services, and network sites (SNSs) (Kostikova et al., 2019). In such a context, the question of how significantly high technology is woven into the social life of young people and traditional university education is acute.

Today, digital technologies have great potential to function in the educational space, defined by concrete and convenient ways of taking, storing, and using educational materials and research results. The involvement of digitalization in the educational process can be of great value in distance education from a pedagogical point of view, as it increases the interest of education applicants in the learning process itself and will increase the motivation of learning through the interaction between all participants in the educational process. Digitalization is a factor of intensification of learning, this interaction in learning in the well-known youth. We should also consider creating conditions aimed at the continuous improvement of technical equipment and the improvement of the traditional education system.

2 Literature Review

The autonomy of applicants is one of the outstanding characteristics of education. Learning that minimizes the intervention of external control, or occurs without the assistance of a teacher at all, manifests the ability to take responsibility for learning and the potential ability to approach the learning situation creatively and at a high technological level (Synorub, Medynska, 2019; Mykytiuk et al., 2020).

Using social media, blogs, and websites in the educational process will help students be active, which is also the goal of traditional approaches (Rababah, 2020).

For the most part, traditional teaching was a closed system where the outcome was measured through tests, quizzes, and research results (Vial, 2019). The emergence of Web 2.0 in the early 2000s brings up a new model that has also been actively researched in pedagogy (Farkas, 2012). Primarily defined by attitudes towards categories such as "authority" and "experience," the digitalization of education leads to a redefinition of such categories. The teacher is no longer the only source of knowledge or authority. There is a whole corpus of learning experiences instead of one. Farkas (2012) calls digital technologies participatory technologies and argues that learning opens new horizons for applicants of education, and they are not limited to the content of lectures and textbooks.

Several studies investigate the use of digital technology by students in the classroom and extracurricular activities (Nenthien, Loima, 2016), project, and creative activities (Howlett, Waemusa, 2019). In addition, researchers investigate the changes in pedagogical formation, where instead of the authoritarian teaching forms appear democracy and a dialogue between all participants in the process (Dzvinchuk et al., 2020).

The pedagogical changes brought about by digital innovation require a shift from unidimensional planes in learning to multi-layered cooperative learning. Several studios have presented better student outcomes when co-learners are exposed to hybrid and digital learning environments (Henderson et al., 2017). Profound and informative education in today's environment involves the creation of hybrid learning environments consisting of models of socio-digital participation on mobile, virtual, online, and mobile space updates (Lonka, 2015). In the last few years, new offerings and players have been entering the education market, but at the same time, traditional universities can take advantage of digitalization to develop new learning and didactic materials (OECD, 2019).

There is also a viewpoint arguing that the main aim of digitalization of university education is to teach young people autonomous lifelong learning regardless of career changes and priorities (Howlett, Waemusa, 2019). Researchers have identified commonalities and differences in democratic and traditional educational approaches and cultural diversity in educational institutions in different countries, resulting in different digitalization outcomes in different cultural contexts (Kuzmina et al., 2020).

Separately, pedagogy presents research on the practical feasibility of digitalization in education, the expansion of the communication circle in the acquisition of knowledge (Köktürk, 2012), from such positions considered the processes of professional development through the use of new educational technologies (Damian et al., 2017), the features of combining tradition and others in the teaching of technical and natural sciences students (Nenthien, Loima, 2016), the development of integrated models of teaching in university education (Dizon, 2018).

This study aims to establish the effectiveness of an educational process digitalization while preserving traditional pedagogical approaches and determine the assessment that participants in the educational process give to the introduction of high technology in the traditional approaches to teaching. The following tasks need to be accomplished in order to solve the research aspirations:

- to establish respondents' evaluation of different forms of university education;
- to determine the frequency of respondents' use of digital educational platforms (Google Meet system, Google Classroom, thematic Facebook groups) in the educational process;
- mobile devices are used in the educational process to establish a set of computer equipment.

3 Materials and Methods

The research project used a comprehensive approach to analyze the theoretical material. Also, we used methods of research analysis and synthesis.

We used observation and questioning methods during the experiment, and the experiment's method became the main one in work. It allows us to test in practice the theoretically developed hypothesis, makes it possible to use high-tech means of communication in the conditions of university education, and an extensive range of communications; reveals the peculiarities of the use of digital technology. Furthermore, the integrated approach in the research methodology allows for collecting the necessary materials, conducting control activities, and measuring the experiment results (pre-experimental and post-experimental evaluation).

The experiment was conducted during the 2020-2021 academic year at the Kharkiv National Pedagogical University, named after H. Skovoroda (Ukraine). First-year undergraduate students of the Faculty of Physics and Mathematics were involved in the experiment. They were united into 3 groups with a total number of 63 people.

The whole experiment was conducted in three stages. The first stage involved the introduction of an experimental questionnaire, preparation of teaching materials, and technical and advisory base for the implementation of the experiment.

The second stage used experimental integrated teaching in the context of digitalization of physics and mathematics disciplines. During the experiment, respondents were added to distance courses in Google Meet and Google Classroom, tests and assignments were conducted on these platforms, and students were added to thematic Facebook groups. As a result, all the mentioned resources have been preloaded with necessary and specially designed teaching and reference materials, tasks, and control tests.

The third stage included post-experimental questioning, working with the results, and summing up. We measured changes in the frequency of use of various forms of learning and the mastery of new digital learning tools, the ability to use tools in Google Meet, Google Classroom, themed Facebook groups, and mobile applications of an educational nature. In conclusion, we analyzed the respondents' answers in the pre-experimental and post-experimental stages. There were three-answer questions, and the results are expressed as a percentage.

The proposed questionnaires and tests were voluntarily filled out and administered by the respondents. Everyone agreed with their participation in the pedagogical experiment. The research team adhered to ethical principles during the entire study, maintaining participant confidentiality and cooperative and virtuous principles. The study was observational and contained no noninvasive interventions. No interventions affected the honesty and truthfulness of the participants' responses and actions, and the experiment was based on the principles of respecting the respondents' interests.

An experimental framework of the study was designed on a set of specially developed by the research team training materials, which were uploaded to educational platforms and social networks, mobile applications, etc.

4 Results

In order to test the hypothesis presented in the study, a pedagogical experiment was conducted in the conditions of traditional university education. In addition, the study of the educational process with the inclusion of interactive forms of learning with new digital technologies was carried out.

Stage 1: Organizational and Institutional. First of all, a base of teaching-methodical materials was formed, consulting and training of all participants in the educational process was carried out, and a group of technical consultants was selected. At this practical training stage, a preliminary survey of the participating students was carried out. We asked them three questions (see Table 1):

1. What form of education do you think would suit you in today's environment? Full-time. Distance. Mixed.
2. Which form of education causes you the most difficulty? Full-time. Distance. Mixed.
3. Which form of education requires active use of digitalization? Full-time. Distance. Mixed.

Table 1: Survey on respondents' evaluation of different education forms (author's elaboration)

Education form	Question 1	Question 2	Question 3
Full-time	43	22	0
Distance	10	30	51
Mixed	10	11	12

At the initial stage of the experiment, the most accessible form of education was determined by 43 respondents - moreover, the distance and mixed form of education suited 20 people. On the other hand, the distance form of education was considered the most difficult (30 people have difficulties with this form). Active implementation of digitalization is necessary for distance education, according to the majority of respondents - 50 people. However, unanimously in the experimental groups at the beginning of the experiment was recognized the need for active use of high-tech communication tools in modern education.

Stage 2: At the stage of the educational process itself, the respondents were asked to evaluate the set of technological

tools and means used in their learning process by them (see Table 2).

Respondents determined that a comprehensive approach to the digitalization of education involves the mandatory use of Google Meet, Google Classroom, and other learning systems in the learning activities. Therefore, all participants of the experiment (63 people) used the Google Meet system and tests in the Google Classroom system - 62 respondents. In addition, 59 respondents used Facebook groups, 30 students resorted to the capabilities of mobile applications, and 12 diversified the learning process with other digital tools.

Table 2: Set of high-tech and educational tools used by the respondents (before the experiment)

Number of respondents	Digital technologies tools
63	Google Meet system
62	Google Classroom tests
59	Facebook educational groups
30	Mobile add-ons
12	Other platforms

Stage 3: At the final stage, after determining the learning outcomes, skills, and knowledge levels, the experimental groups were asked to evaluate the intensity of their involvement in using high-tech tools in traditional university education. The question was: Which device do you use most often in your studies? (see Table 3).

Table 3: Use of computer and mobile devices in learning (before the experiment)

DEVICE	Number of students
Laptop computer / Notebook / Netbook	36
Desktop computer	18
Mobile phone with internet access / Smart	58
Phone / Android	38
Tablet / iPad	10

As we can see from the survey, respondents actively use high-tech tools as additional accessories to learning. Therefore, the total number of users of high-tech communication is the majority. 58 people from the group always use cell phones. The least popular was the iPad. It is used only by 10 respondents. It should be taken into account that with the instability of the Internet in certain areas, the use of recorded learning materials is necessary, so laptops and computers remain relevant and convenient (36 and 18 people).

In the final stage, after the control and qualification work, the respondents received a questionnaire in which they could evaluate the form of education and its convenience in an active digitalization (see Table 4).

Table 4: Respondents' assessment of different education forms (author's elaboration)

Education form	Question 1	Question 2	Question 3
Full-time	30	22	5
Distance	20	24	46
Mixed	13	17	12

According to the survey results, most respondents recognized the need for active use of digitalization in modern university education. Regarding distance and blended learning, the need for digitalization was considered by 7% more respondents overall. Also, the importance of improving their competencies was recognized by 12% more respondents overall. 5 identified that face-to-face education also requires the active application of digitalization.

Students in the group showed an awareness of the importance of digitalization in modern education. It expands the possibilities of university education in conjunction with traditional pedagogical methods.

5 Discussion

Accordingly, the design of curricula, educational and methodological complexes, taking into account the digitalization of education, involves specific difficulties in implementation and implementation. The study (Minedusk, 2014) determined that as a result of the surveys conducted among students and teachers, the largest were the lack of knowledge and skills in the information environment (53%), about 69% named the presence of problems in the development and work with control and assessment materials, 78% were not ready to design educational and methodological support of the educational process, taking into account the need for student-centered approach. The experiment results showed that 7% more respondents recognized the need for digitalization from the beginning of the experiment. Also, the need to improve their digital competencies is recognized by 12% more respondents in the final study.

Some similar experiments have demonstrated a correlation between the availability of technical skills in integrated learning at HEI and the extent to which participants in the educational process become more creative and establish collaborative relationships with teachers and other group members (Boghian, 2019). The level of student confidence in the digitalization of education in traditional education has increased. We believe that this is due to the general availability of digital technology, the activation of forms of distance education, the emergence of digitized learning materials, and game-based learning applications. The research team agrees with such research results, as students recognized the effectiveness of using high technology in the world. Digitalization increases interest and motivation in learning through techniques adapted to the peculiarities of distance education. Students and teachers may be interested in increasing the share of high technology in the learning process.

In several studies, it has been found that students and teachers have varied experiences with digital technologies, but digitalization has a significant impact on their perception of learning. They better perceive learning platforms and electronic media for educational purposes. The higher the level of digital literacy of teachers and students, the more diverse the information field that can be used in learning (Farkas, 2012; Boyd, 2014), and more excellent opportunities in the context of increased digitalization of education have people with inclusions, vulnerable populations (AmCham, 2021). According to our results, students were more optimistic about digitalization processes, especially in the context of distance and mixed forms of education.

A study was conducted on the characteristics of teaching and learning in the context of intensive digitalization of education, where the capabilities and tools of Web 2.0 are an integral part of education and is used along with traditional pedagogical techniques. Changes were found in students' access to technology and the level of skills in digital literacy - it has significantly improved in a distance education environment. Furthermore, these technologies in the study are available to education applicants of different gender, ages, social background, etc. (Čuhlová, 2019; Cavus, Ibrahim, 2017). The results of our study show that the vast majority of students understand the need for digitalization in their current university education. All respondents perform tests and use digital tools for learning. However, the problematic issue remains the lack of digital education and the insufficient quality of the Internet.

In the future, we should expand the boundaries of the experiment and involve a wider group of students, not only first-year students, especially considering that teachers can work with different courses and in different majors. Some in-depth studies, interviews, and focus group work were conducted to understand the content of students' learning

experiences through qualitative sociological research methods. A set of wishes and recommendations should be formed, and research of this nature can form methodological recommendations in the best combination of traditional pedagogical methods and innovations of the digital world.

6 Conclusion

The research results showed that the applicants approve of digitalization and modern technology tools in university education for education. Applicants are ready to get acquainted and use high technology in learning constantly. The experience of students' comprehensive education has shown the positive results of using the capabilities of Moodle platform, Google Meet system, and the capabilities of Google Classroom, social networks' educational thematic groups, mobile apps, etc.

Digitalization within traditional university education can be a driving force of educational innovation. There is an educational space where the benefits of digitization and social media, learning platforms, and software can extend beyond contact learning. Several conditions, technological features, and assistive technologies can make these forms of learning accessible to a wide range of people. It has the potential to make modern European education accessible and democratic, as it will allow the learning material to be adapted to a wide range of educational aspirants.

As shown above, the respondents agreed with all aspects concerning the need to involve high-tech communicative tools in the HEI distance learning process. It increases the communicative capabilities of the participants in the distance education process. Furthermore, the experimental group agreed that electronic means of communication, social networks, online learning platforms, and applications help quality and practical learning in a quarantined and distance learning environment.

The knowledge gained allows education applicants to continually engage in self-education, expanding the range of learning tools used daily throughout life. In addition, a complex combination of traditional approaches and high technology capabilities helps young specialists build their professional development trajectory and work with learning material, online methods, and developing creative and logical thinking.

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