

## FROM THE TRADITION TO INNOVATION IN DISTANCE LEARNING OF MEDICAL SPECIALISTS IN THE CONDITIONS OF THE COVID-19 PANDEMIC

P.S. KASNAKOVA, B.R. HADZHIEVA

Medical College, Medical University, Plovdiv, Bulgaria

Kasnakova P.S. – [orcid.org/0000-0003-0415-2004](https://orcid.org/0000-0003-0415-2004)

Hadzhieva B.R. – [orcid.org/0000-0002-8675-5695](https://orcid.org/0000-0002-8675-5695)

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### From the tradition to innovation in distance learning of medical specialists in the conditions of the COVID-19 pandemic

P.S. Kasnakova, B.R. Hadzhieva

Medical College, Medical University, Plovdiv, Bulgaria

Distance learning is a promising type of training corresponding to the dynamics of the state of emergency caused by the spread of COVID-19 and the introduced physical distancing. The process of training medical professionals passes into a remote electronic environment and displaces the traditional present interaction.

**Purpose:** to determine the attitude of students to current trends and the innovation of distance learning in the COVID-19 pandemic.

**Methods.** An anonymous online survey was conducted among students majoring in “Assistant Pharmacist” and “Rehabilitator” from colleges in Plovdiv, Sofia, Varna and Pleven in June 2020. 293 students took part - 225 (77.5%) assistant pharmacists and 65 (22.5%) rehabilitators; from the first (42.3%), from the second (37.5%) and third (20.2%) course.

**Results.** Students use their own personal computer in 95.5% of cases and 61% of them define Internet access as good. Respondents easily handle the various applications for synchronous communication - Teams, Zoom, Skype and others. In 84% of the cases they answered that they like the idea of being part of the learning community from different parts of the country and the world. They prefer to learn by doing the assignments in class in a real environment in 37.50%, which confirms the importance of practical training in the training of health care professionals.

**Conclusion.** Distance learning of medical professionals as a type of open learning largely satisfies the needs of professional knowledge and skills of students, develops important cognitive abilities, attitudes and motivation. It largely depends on the capabilities of the technological electronic environment, on the pedagogical skills of the trainers and the synchronization of the traditional with the innovative approaches for formation of key competencies for acquiring professional knowledge and skills during the COVID-19 pandemic.

**Keywords:** distance learning, medical professionals, COVID-19 pandemic.

### COVID-19 пандемиясы жағдайында медицина мамандарын қашықтықтан оқытудағы дәстүрлі әдістерден инновацияға өту

П.С. Каснакова, Б.Р. Хаджиева

Медициналық колледж, Медицина университеті, Пловдив, Болгария

Қашықтықтан оқыту-бұл COVID-19 таралуынан туындаған және физикалық қашықтықтан енгізілген төтенше жағдай динамикасына сәйкес келетін оқытудың перспективті түрі. Медицина қызметкерлерін оқыту процесі қашықтағы электронды ортаға ауысады және дәстүрлі нақты өзара әрекеттесуді ауыстырады.

**Мақсаты.** Студенттердің COVID-19 пандемиясындағы қашықтықтан оқытудың қазіргі тенденциялары мен инновацияларына қатынасын анықтау.

**Әдістер.** Жасырын онлайн-сауалнама Пловдив, София, Варна және Плевен колледждерінің «Фармацевт көмекшісі» және «Реабилитатор» мамандықтарының студенттері арасында 2020 жылдың маусым айында өткізілді. Оған 293 студент қатысты - 225 (77,5%) фармацевт көмекшісі және 65 (22,5%) реабилитолог; бірінші (42,3%), екінші (37,5%) және үшінші (20,2%) курс.

**Нәтижелер.** Студенттер өздерінің жеке компьютерлерін 95,5% жағдайда



Kasnakova P.S  
e-mail: [petya.kasnakov@mu-plovdiv.bg](mailto:petya.kasnakov@mu-plovdiv.bg)

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пайдаланады және олардың 61% интернетке қол жетімділікті жақсы деп бағалайды. Респонденттер әртүрлі синхронды байланыс қосымшаларын - Teams, Zoom, Skype және басқаларын оңай басқарады. 84% жағдайда олар елдің және әлемнің түкпір-түкпірінен келген білім алушы қоғамдастықтың бөлігі болу идеясын ұнатады деп жауап берді. Олар 37,50% нақты ортада сыныптағы тапсырмаларды орындау арқылы оқуды жөн көреді, бұл денсаулық сақтау мамандарын оқытудағы практикалық сабақтардың маңыздылығын растайды.

**Қорытынды.** Медициналық қызметкерлерді ашық оқыту түрі ретінде қашықтықтан оқыту студенттердің кәсіби білім мен дағдыларға деген қажеттіліктерін қанағаттандырады, маңызды танымдық қабілеттерін, қарым-қатынасы мен мотивациясын дамытады. Бұл көбінесе технологиялық электрондық ортаның мүмкіндіктеріне, жаттықтырушылардың педагогикалық шеберлігіне және COVID-19 пандемиясы кезінде кәсіби білім мен дағдыларды игеру үшін негізгі құзыреттерді қалыптастырудың дәстүрлі және инновациялық тәсілдерін үндестіруге байланысты.

**Негізгі сөздер:** қашықтықтан оқыту, медицина қызметкерлері, COVID-19 пандемиясы.

#### **От традиции к инновациям в дистанционном обучении медицинских специалистов в условиях пандемии COVID-19**

П.С. Каснакова, Б.Р. Хаджиева

Медицинский Колледж, Медицинский Университет, Пловдив, Болгария

Дистанционное обучение - перспективный вид обучения, соответствующий динамике ЧП, вызванного распространением COVID-19 и введенным физическим дистанцированием. Процесс обучения медицинских работников переходит в удаленную электронную среду и вытесняет традиционное настоящее взаимодействие.

**Цель** исследования - определить отношение студентов к текущим тенденциям и инновациям дистанционного обучения в условиях пандемии COVID-19.

**Методы.** Анонимный онлайн-опрос был проведен среди студентов специальностей «Помощник фармацевта» и «Реабилитатор» из колледжей Пловдива, Софии, Варны и Плевена в июне 2020 года. В нем приняли участие 293 студента - 225 (77,5%) помощников фармацевтов и 65 (22,5%) реабилитологи; с первого (42,3%), со второго (37,5%) и третьего (20,2%) курса.

**Результаты.** Студенты используют свой персональный компьютер в 95,5% случаев, и 61% из них оценивают доступ в Интернет как хороший. Респонденты легко справляются с различными приложениями для синхронного общения - Teams, Zoom, Skype и другими. В 84% случаев они ответили, что им нравится идея быть частью обучающегося сообщества из разных частей страны и мира. Они предпочитают учиться, выполняя задания в классе в реальной среде в 37,50%, что подтверждает важность практических занятий в обучении специалистов здравоохранения.

**Выводы.** Дистанционное обучение медицинских работников как вид открытого обучения в значительной степени удовлетворяет потребности студентов в профессиональных знаниях и навыках, развивает важные познавательные способности, отношения и мотивацию. Во многом это зависит от возможностей технологической электронной среды, педагогического мастерства тренеров и синхронизации традиционных и инновационных подходов к формированию ключевых компетенций для приобретения профессиональных знаний и навыков в период пандемии COVID-19.

**Ключевые слова:** дистанционное обучение, медицинские работники, пандемия COVID-19.

#### **Introduction**

In January 2020, the World Health Organization (WHO) declared the spread of the new coronavirus an emergency of international importance to public health. In March 2020, the WHO announced its assessment that COVID-19 could be classified as a pandemic. The World Health Organization has identified the ongoing COVID-19 pandemic as a public health emergency at the international level [1]. The COVID-19 pandemic affects

all Member States of the European Union (EU), and the protection of public health and the health and well-being of citizens is a top priority for the EU [2]. A state of emergency was declared in Bulgaria on March 13 in order to limit and slow down the spread of COVID-19. Authorities have introduced a number of measures and are urging people to work from home and stay at home whenever possible. The process of training of medical specialists passes into a remote electronic environment and displaces the traditional present interaction and the

specifics of the methods and means of training related to the acquisition of knowledge, skills, habits and abilities of students. The classical organizational form of lectures, teaching-practical classes, seminars, clinical exercises, teaching, clinical practice and internships are adapted to the model of digital technologies in an electronic environment. Distance learning is imposed as a promising type of training corresponding to the dynamics of the state of emergency caused by the spread of COVID-19 and the introduced physical distance. The access to technologies and their rational use gives the opportunity to create digital creative products in the learning process, to develop creative processes of learning and communication in a safe environment for the trained health professionals.

In the global network, universities and colleges offer thousands of high-quality distance learning courses. The term virtual environment is starting to get used. The courses are constantly updated and improved in the field of professional education. Electronic communication allows personal consultations with distance learning course teachers and distance learning students [3].

Teaching a Web-based course is a new experience for many faculty and requires a reconceptualization of the faculty role. Faculty issues to consider when implementing Web-based instruction include instructional design concerns, faculty-student interactions, time and technology management skills, and student outcome evaluation. Students, especially those who have a preference for faculty-directed classroom learning, will also find student role challenges in Web-based learning. Time and technology management skills, student-faculty interactions, and becoming more self-directed in their learning are student role development needs [4].

Distance learning is a purposeful process for organizing and stimulating the active-cognitive activity of students in mastering scientific knowledge, habits, skills for the development of thinking, creativity and personal qualities. The characteristic features of distance learning include the new role of the teacher, specialized control of knowledge, the use of non-standard technologies and teaching aids [5].

A number of authors (M. Ilieva, S. Terzieva, 2003; B. Borisova, 2019) outline the main characteristics of distance learning:

- total flexibility - covers all aspects of the process goals, learning content, technology, organization, admission, duration and place of learning;
- unfolds as a didactic act in a spherical sphere;
- changes the traditional roles and functions of trainers and trainees;
- can be implemented and developed as a didactic system only on the basis of flexible and effective management;
- develops specific ways of learning;
- creative learning style and interactive approach, realized with learning forms such as: problem-based learning, problem lecture, brainstorming, essays, case studies, interviews, surveys, individual talks [6,7].

The mass innovation of information technology is

becoming an integral part of young people's lives. Modern students provide access to information mainly through the Internet. Increasingly, the use of 3D technologies, mobile applications and video simulators is entering students' education. These technologies are accepted by students as something normal and necessary for better acquisition of new knowledge and skills. Telemedicine has been practiced for decades in countries with well-developed and well-funded health systems. In the training of students in medical specialties, these technologies allow easy and safe to learn to perform manipulations, interventions and visualization of the real process [7]. The characteristics of distance learning define it as a specific type of learning, which along with the principles of traditional learning should be guided by an adequate didactic system [8]. Distance learning lays the foundations for a new vision for the construction of the educational system and the definition of educational content.

According to Melnikova IYu, Romantsov MG, 2013, advantages of distance learning for students are:

- can study without leaving their direct job and even without leaving home and family;
- work on the study material at a time when other personal commitments allow;
- each student can study at his own pace, without taking into account those learning slower than the general course;
- distance learning is also more cost-effective for the learner;

Regarding the educational institution, university, college, etc.

- many people can be trained remotely at the same time;
  - there is a high return on funds for teaching materials, for teacher training, for spreading of educational information;
  - funds are not spent for classrooms and equipment on the scale necessary for a present form of training;
- The result is a much greater satisfaction of distance learners with their work and the training received [9].

Disadvantages of distance learning can be:

- poor organization in the distribution of training courses and materials;
- the technical difficulties that students encounter in using electronic devices;
- low quality of development of teaching materials, which hinders the understanding and easy acquisition of the provided knowledge and skills;
- providing insufficiently qualified assistance from mentors and consultants during the performance of assignments and preparation for exams;
- Insufficiently developed skills in students for learning and for independent planning of preparation time;
- lack of feedback between educational institutions and users of services and products of the distance learning system [10].

## Results

As a result of the study, we found that students use their own personal computer in 95.5% of cases and 61%

of them describe Internet access as good. Respondents easily handle the various applications for synchronous communication - Teams, Zoom, Skype and others. Respondents in 51% answered “true” and 33% indicated “somewhat true” about the possibility to choose which platform to study. A high percentage of students (84%) say they like the idea of being part of the learning community from different parts of the country and the world. The students’ answers are an adequate reaction to the constant changes in high technology that are part of our daily lives in the 21st century. In today’s globalizing world, education, incl. higher, requires constant modernization to meet the high expectations of providers and users of educational services.

Teachers of the specialties “Rehabilitator” and “Assistant Pharmacist” of Medical University – Plovdiv in Medical College strive for quality academic teaching regardless of the form and environment of training. In support of this are the answers of the students, who 38% answered “true” and 45% “somewhat true” that they had the opportunity to exchange ideas with a teacher and get a quick comment on their work (Figure 1).

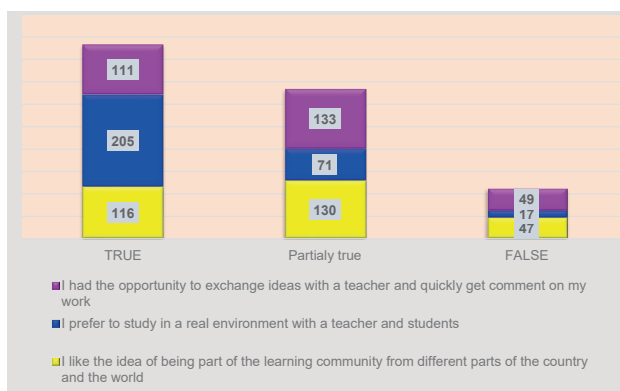


Figure 1. Motivation and opportunities in students during distance learning

In 90% of the cases, the respondents share that the teacher’s instructions support them in the learning process. Students are not only a passive recipient of information, but also participate in the learning process through questions, comments and inquiries. Respondents indicated that they preferred to learn by doing the assignments in class, with 38.50% answering “completely about me” and 36.50% answering “applies to me”.

The training of students in both specialties is aimed at acquiring basic professional knowledge and skills. In the process of training they acquire theoretical and practical knowledge in special disciplines, which subsequently form the future specialists rehabilitator and assistant pharmacist. Conducting practical exercises, clinical / teaching practice are an essential element, providing the connection with the theory and contribute to the development of skills and abilities in students to apply in practice the acquired knowledge from the lecture course. In their answers, the respondents indicate that they prefer to acquire knowledge, skills and abilities by exercising in a real environment in the presence of a patient / client and

like to learn the material by conducting training sessions, as 46.40% indicated the answer “completely applies to me” and 36.20% “applies to me”. The independent work of students in the educational process is a prerequisite for increasing the professional practical training, for successful entry and exercise of the profession. Respondents are aware of self-preparation as a significant part of the training in 66% and learn better when they have to prepare a project or assignment in the studied discipline (Figure 2).

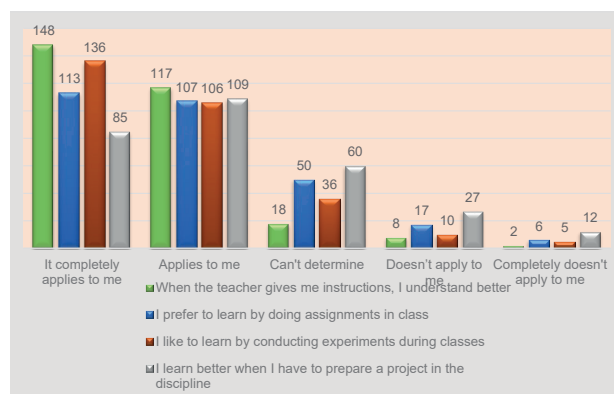


Figure 2. Learning styles and student preferences

### Discussion

The preparation of students from the Medical College at the Medical University - Plovdiv is adequate to the new trends in the development of education, provides a close link between theory and practice, based on modern research. The formation of an active, engaged attitude of students to the learning process becomes a major priority of high quality education.

In a study of A. Mihaylova, P. Uchikov, R. Staynova the obtained results confirmed E-learning meets the new educational needs arising from the transition from industrial to information society and is associated with changes in all aspects of the educational process. The implementation of e-learning cannot be reduced only to the use of information and communication technologies in the current educational system and by no means only to bringing the existing educational content to electronic format. On-line course in the platform makes it easier assimilation of knowledge and the links pointing to the separate units increase the possibilities for complete enrichment [11]. Also acquired new knowledge and skills related to the specialty training as well as development of skills and abilities necessary for the realization of a specific work environment [12]. Students evaluate highly e-learning and we must use these advanced methods of teaching, but we must not forget the traditional methods. E-learning is not and can not be a substitute for traditional training in healthcare and pharmacy specialties but it is helpful and has its proper place. Applying methods for the development and deployment of electronic forms of training, in line with established curricula, can help to create modern, effective and quality training [13]. According to Kilova K. at all the feedback process with students will lead to a faster analysis of the results, making

adequate management decisions in order to achieve the ultimate goal-improving the quality of higher education. Quality education is the responsibility of all participants - lecturers, students, institution management, as the ultimate goal is to improve the quality of healthcare [14].

The new role of the teacher in distance learning is to control the learning process, to consult the learners and to perform corrective functions in the acquisition of the subject. The teacher has the following functions: performing the tasks; motivates the trainees; implementation of teaching and interpretation of certain content of the educational process; conducting methodological processing of educational material through individualization, control of educational activities and providing assistance to students in educational activities [15]. Learning via the Internet is a dynamically developing modern system. It is open, flexible and adaptable. It is characterized by up-to-date information, scientificity and unlimited access. Quick feedback, communication skills and work in conditions close to the real ones increase the opportunities for socialization and teamwork of the trainees. The application of problem-based learning, discovery learning and learning to critical thinking activate the intellect of learning [16].

The use of innovative approaches, interactive methods, forms of tools requires from the teacher a rational organization of time in the learning process. A good teacher must be able to combine traditional with interactive methods and forms of teaching. V. Gyurova emphasizes that “art is in synchronizing traditional with innovative approaches” [17].

### Conclusion

Distance learning of medical professionals as a type of open learning largely satisfies the needs of professional knowledge and skills of students, develops important cognitive abilities, attitudes and motivation. It largely depends on the capabilities of the technological electronic environment, on the pedagogical skills of the trainers and the synchronization of the traditional with the innovative approaches for formation of key competencies for acquiring professional knowledge and skills during the COVID-19 pandemic. The problem of whether distance learning by medical professionals is more effective than conducting it in a real environment remains debatable, especially for practical training.

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