Повышение качества иноязычной подготовки специалистов по фармацевтике средствами цифровых технологий в условиях дополнительного профессионального образования

Проблема и цель. Основными проблемами трудоустройства для российских специалистов в международных фармацевтических компаниях и их представительствах на территории Российской Федерации являются недостаточный уровень иноязычной подготовки и цифровой грамотности. В тоже время, обязательным условием для допуска фармацевта к работе в рамках непрерывного медицинского образования является прохождение курсов повышения квалификации. Цель работы – исследование возможностей применения цифровых технологий для развития иноязычной коммуникативной компетенции специалистов по фармацевтике в условиях дополнительного профессионального образования.


Результаты. Ключевой особенностью программы является то, что её структура и содержание разработаны в тесном партнёрстве университета со специалистами в области фармацевтического производства и инжиниринга. Слушатели экспериментальной группы применяют цифровые технологии (имеющие официальную техническую поддержку) для активации иноязычной профессиональной коммуникации, сетевой коллаборации и проектной деятельности. Выявлены статистически достоверные различия в качественных изменениях, произошедших в педагогической системе (χ² = 8.508; p < 0,05).

В заключении описываются условия, способствующие повышению качества иноязычной подготовки: аккумуляция и анализ актуальности использования цифровых технологий, расширение знаний участников программы, овладение слушателями основными стратегиями проектной работы и приемами рефлексии.

Ключевые слова: цифровые технологии, трудовые функции, иноязычная коммуникация, фармацевтическая деятельность, сетевая коллаборация, профессиональное общение
The problem and the aim of the study. The main problems of employment for Russian specialists in international pharmaceutical companies and their representative offices in the Russian Federation are insufficient level of foreign language training and digital literacy. At the same time, a prerequisite for the admission of a pharmacist to work in the framework of continuing medical education is the completion of advanced training courses. The purpose of the article is to study possibilities of using digital technologies for the development of the foreign language communicative competence of pharmaceutical specialists in the context of advanced professional education.

Research methods. Experimental and search work is carried out within the framework of the strategic partnership between the Vyatka State University and the NANOLEK company (Russian Federation). The experiment involves 52 pharmaceutical specialists. The use of digital technologies to enhance foreign language communication is implemented within the framework of the program “English in the field of professional communication” (144 academic hours, 4 months of training and 2 hours of final certification). MS Teams, LearningApps, eTreniki, Quizlet, etc. are used during foreign language activities. To determine the quality of preparation, the teachers developed testing which consists of 5 blocks: “Digital technologies when solving professional tasks”, “Project activity”, “Communication”, “Management”, “Analytics”. $\chi^2$-Pearson criterion is used for statistical data processing.

Results. The key feature of the program is that its structure and content are developed in close partnership between the university and specialists in the field of pharmaceutical production and engineering. The students of the experimental group use digital technologies (with official technical support) to activate foreign language professional communication, network collaboration and project activities. Statistically significant differences in the qualitative changes were identified ($\chi^2 = 8.508; p < 0.05$).

In conclusion, the conditions which contribute to improving the quality of foreign language training: accumulation and analysis of the relevance of using digital technologies, expanding the knowledge of program participants, mastering the basic strategies of project work and reflection techniques are described.

Keywords: digital technologies, labor functions, foreign language communication, pharmaceutical activity, network collaboration, professional communication

According to the conclusions of UNESCO experts, in the modern world there is a growing understanding that languages play a vital role when preserving cultural diversity and ensuring intercultural dialogue, as well as in strengthening cooperation and achieving quality education. In addition, multilingualism can help mobilize political will to harness the benefits of science and technology for sustainable development [1]. In order to realize the identified potential, scientists at UNESCO developed a strategic initiative to transform the system of vocational training and retraining. The tasks which are associated with the development of the most popular skills are formulated. Thanks to their formation, citizens should have conditions for decent employment, as well as equal rights and opportunities. It includes:

- development of plans for advanced training and retraining of personnel in accordance with the trends of the digital society;
- creating flexible learning paths throughout life;
- attracting the private sector, stimulating the growth of the number of jobs and effective development of professional skills that are in demand;
- clarifying the range of competences that are needed for the transition to the digital and "green" economy;
- improving the quality of STEM education, entrepreneurial skills and skills of the 21st century;
- support for educational institutions and advanced training of teachers, strengthening the management system in this area and attracting investment in it.

In Russia, the implementation of these areas is supported by the staff of the UNESCO Chair in Global Education on the basis of the “Institute for Strategy of Education Development of the Russian Academy of Education” of the Ministry of Education of Russia [2]. Employees of the department in the framework of scientific activities:

- contribute to the promotion of the integrated system of research, training, information and documentation on global education,
- support networking and exchange of best practices and innovations to develop the potential of intercultural dialogue;
- implement advanced professional educational programs for advanced training to disseminate the best experience and new knowledge in the field of global education.

The Decree "On the National Development Goals of the Russian Federation for the period up to 2030" regulates that one of the main directions of the innovative development of Russia in modern conditions is modernization in general and of higher pharmaceutical education in particular [3]. In this regard, the problem of training and qualification of pharmaceutical personnel is of particular importance [4].

S. R. Turner et al. note that when planning continuing professional education programs for medical specialists, it is necessary to take into account the real possibilities of practicing doctors (in particular, surgeons) [5] and based on the survey they proved the need to support the technical skills of surgeons for decision making. L. Chen, D. Zhang, M. Hou came to the conclusion that continuing professional education creates conditions in which healthcare practitioners get acquainted with new approaches in their professional activities [6].
Z. Ziaei, K. Hassell, E. Schafheutle analyzed the level of communicative competence of pharmacists and determined that now employers put forward more stringent requirements when hiring pharmacists [7]. And English is a priority for doctors or pharmacists. When applying for a job, English is still a predominant aspect, and not the main factor, but the trend is gradually changing towards the latter. The task of modern pharmacies and clinics is to ensure that every pharmacist speaks English and can provide quality advice to all clients, regardless of their language of communication.

So, a foreign language is a difficult subject, and when it comes to mastering a specialized program for doctors or pharmacists, you should carefully consider the choice of classes. According to the conclusions of T. V. Drozdova, foreign language education has significant potential due to the relevance of mastering digital educational tools in the context of the formation of demanded language competences [8]. The author states that the modernization of pedagogical discourse is taking place, due to the release of modern teaching methods to a new level. Moreover, there is an inevitability of digitalization of the system of advanced professional education. There is a real practical need for new developments for the methodology of teaching foreign languages, provided through the integration of digital content and multimedia technologies into the educational process [9].

However, as L. K. Moshetova et al. convincingly prove, the Russian labor market in the healthcare sector has certain distinctive characteristics that determine a slightly different combination of motivating factors for obtaining advanced education than in other areas of work [10]. They single out the following system of incentives for advanced training: maintaining the current job, reducing the risk of dismissal, meeting the requirements of the employer, increasing the chances of raising wages and changing jobs; striving to improve skills, meeting the need for self-development and updating knowledge. At the same time, there are also negative factors: unwillingness to study again, difficult educational material, age or health status, insufficient level of basic knowledge or inconsistency of educational material with the necessary knowledge, remote location of the educational event or high financial costs [11].

Thus, there is an objective need for additional research on the use of digital technologies to improve the quality of foreign language education for healthcare professionals, and in particular pharmacists, in the context of advanced professional education.

The hypothesis of the study is that the inclusion of digital technologies in the system of additional professional education for healthcare professionals, and in particular pharmacists, will provide additional resources to improve the quality of their foreign language training.

The purpose of the work is to study the possibilities of using digital technologies to improve the quality of foreign language education for pharmaceutical specialists in the context of advanced professional education.

Research objectives:
• clarify the features of foreign language training of pharmaceutical specialists in the conditions of advanced professional education;
• describe options for using digital technologies to support various types of foreign language activities in the context of the implementation of the labor functions of pharmaceutical specialists;
• identify factors that affect the quality of using digital technologies to improve the quality of foreign language training of pharmaceutical workers;
• experimentally test the effectiveness of the proposed integration of digital services into foreign language activities.
MATERIALS AND METHODS

When identifying the features of the organization of foreign language training for pharmaceutical specialists in the conditions of advanced professional education, the theoretical analysis and generalization of the scientific and methodological literature of Russian and foreign researchers on the research problem was carried out.

A pharmacist in the present study is a healthcare professional who has a secondary or higher pharmaceutical education, manufactures drugs using a doctor's prescription, and sells them. Pharmacists' activities are regulated by professional standards.

The analytical method is used to choose digital technologies to support various types of foreign language activities in the context of implementing the labor functions of pharmaceutical specialists: MS Teams, LearningApps, eTreniki, Memrise, Quizlet, Nanolek websites (https://nanolek.ru/ru/), news sites and companies involved in the supply of medicines, equipment, etc.

The main criterion is the support of these technologies on the software of the company and Vyatka State University.

Experimental and search work was carried out within the framework of the strategic partnership between the university and Nanolek LLC. The latter is a modern biopharmaceutical company, one of the leaders in the production of pediatric vaccines in Russia, founded in 2011.

The use of digital technologies to enhance professional communication in a foreign language was implemented as part of an advanced professional program - the advanced training program "English in the field of professional communication". The program takes 144 academic hours, 4 months of training and 2 hours of final certification. The program was developed with the support of the Fund for Infrastructure and Educational Programs (Rosnano group), its main goal is to train specialists in the biopharmaceutical industry involved in the most critical and difficult to implement aseptic production of finished dosage forms. A feature of the program is that it was created by the university in close partnership with specialists in the field of a foreign language, pharmaceutical production and engineering.

52 pharmaceutical specialists are involved. The average age of listeners is 34 years (46% – women, 54% – men).

To determine the quality of foreign language teaching, the course teachers developed testing which consists of 5 blocks: “Digital technologies when solving professional problems”, “Project activity”, “Communication”, “Management”, “Analytics”. The reliability and validity of the test is ensured by the fact that its questions are compiled in accordance with the work program of the discipline and the peculiarities of the work activity of pharmaceutical specialists.

The sample size is justified by the specifics of the study, since employees who needed to take advanced training courses in accordance with the professional standard were involved in the foreign language training program. The $\chi^2$-Pearson criterion was used for statistical data processing.
The strategic initiative for the transformation of the system of professional training and retraining, developed by UNESCO, is aimed at the transition to the digital, green and inclusive economy [1]. Strategic plans are presented in the form of a roadmap until 2029. The strategy is based on the idea that the system of professional training and retraining should be proactive and adapt its content for the benefit of individuals, the economy and society. First of all, the authors of the strategy consider it necessary to teach people the skills to study, work and live, that is, to navigate in the modern world.

According to the conclusions of S. Thomas, one of the strategic directions of any country should be the formation of an effective education system focused on the needs of promising labor markets in a developing economy, strengthening the role of the human factor in all areas of the economy and society, accelerating technological change, transition to a new technological order [12].

G. N. Tuguskina et al. represent the author's approach, according to which advanced professional education (hereinafter referred to as APE) is considered as a system that includes the requirements of the external environment, personal learning motivation factors, learning outcomes and options for their application by individuals in order to maintain their professional status and expand opportunities for increasing competitiveness in the labor market [13].

M. Mcevoy et al. conclude that one of the main tasks of teaching is to develop forms of education that involve the active participation of all doctors in the educational process [14]. Such requirements are met by active teaching methods. The use of new pedagogical technologies in the training of physicians makes it possible to shift the focus not to mastering ready-made knowledge, but to its development.

Yu. V. Sokolova, K. S. Borgoyakova suggest using case technology as a method of practice-oriented learning [15]. This is relevant, according to their conclusions, because the effectiveness of the educational process is important during training in the APE program. It, in turn, depends on the cognitive activity of the listener, and on the methods used to present the material, which contribute to a better assimilation of new knowledge and skills.

P. K. Kotenko, V. I. Shevtsov note that the purposeful activity of organizing a system of continuous medical education using e-learning, distance learning technologies and the need for accreditation of healthcare professionals bring the development and implementation of electronic educational and methodological complexes to the forefront, as a fundamental component for the implementation of advanced professional training programs [16]. The authors substantiate that the direct learning activity of the student should include work with theoretical teaching materials; implementation of practical tasks; performance of test and other tasks for self-control and control of knowledge; participation in events using e-learning, distance learning technologies: webinars, colloquia, individual and group consultations offline and online; passing the entrance control of knowledge; final certification.

Z. Y. Wang et al. also point to the need for e-learning and distance learning technologies in the system of continuing medical education [17]. At the same time, according to the conclusions of the authors, its implementation implies a significant difference from the implementation of the educational process using traditional technology: the obligatory use of databases and information and telecommunication networks, the presentation of...
high requirements for the self-organization of the students themselves, and the technical support of the workplace.

C. Altolaguirre et al. note that at present there is a need for technological transformation of medical education. Changes in teaching methods lead to innovative medical curricula [18]. C. Mazzoleni et. al. present a study describing the results of a pilot e-learning project for continuing medical education [19]. The main evaluation criteria are the degree of using e-learning courses by medical personnel, the acquisition of knowledge and satisfaction with training.

I. V. Kharlamenko et al. describe the shortcomings of open online courses in teaching a foreign language [20]. For example, the difficulties caused by the pedagogical imperfection of the format for evaluating the work of students on the course. Other problems are due to the lack of necessary competences of teachers, the resource consumption in choosing a platform that corresponds to the level of language training of students. The authors propose ways to solve the problems that arise when implementing a mixed model of teaching a foreign language at universities, including the combination of traditional and online forms of monitoring learning outcomes. To support their findings, D. A. Mezentseva et al. indicate that educational institutions are faced with the need to develop special training programs for higher education mentors so that they can put technology into practice and bring the quality of education to a new level [21].

T. V. Semenova et al. use experimental data to prove that a complete replacement of full-time education with online education does not seem appropriate [22]. The most effective in terms of mastering the educational material turned out to be a combined lecture, which includes a video lecture and a "live" lecture-conversation and a lecture-consultation. The training material was the module of the section of private pharmacology "Means affecting efferent innervation".

F. N. Bidarov, B. S. Bidarov, O. M. Kostyuchenko also conclude that it is necessary to develop modern educational programs (modules) to bridge the gap in the level of knowledge and skills of specialists and graduates in relation to the requirements of good pharmaceutical practices [23]. E. V. Guteva, O. V. Erofeeva reasonably argue that English is necessary for Russian workers in the chemical and pharmaceutical industry and pharmacists engaged in research activities to read specialized literature, communicate with clients and partners, participate in international conferences and exhibitions [24].

Thus, the analysis of the above scientific papers allows to identify the problem associated with the need for additional research on the use of digital technologies to improve the quality of foreign language education for healthcare professionals, and in particular pharmacists, in the context of APE.

**RESEARCH PROGRAM**

The main goal of the experiment was to test the potential of digital technology tools to improve the quality of foreign language training for pharmaceutical specialists in the context of APE. At the first stage, the analysis of the literature, best practices in the use of digital technologies in the APE system for the formation of foreign language competence was carried out. Various approaches to determining the content of teaching a foreign language were studied. The provisions of the professional standard for pharmacists are analyzed and the labor functions are identified, the implementation of which can be facilitated by the APE course (their list is presented in the results of the study).
The structure of the program for foreign language training of pharmaceutical industry workers was developed: purpose, content, principles, methods, techniques, ways, means, and forms of organization of training. Before the experiment, the consent of the company's management and course participants was obtained.

MS Teams digital platform was chosen to integrate additional online services and enhance foreign language activities in the content of the APE course. Selection criteria were technical support for the operation of the platform by Nanolek IT specialists and course instructors, possibilities for online meetings, lectures and webinars; organization of network collaboration on common documents; availability of guidelines for novice users.

MS Teams has been used in the APE system for employees of a biopharmaceutical company from 2022 to the present day. This became possible due to the fact that system administration managers, in the face of sanctions and Microsoft's withdrawal from the Russian market, transferred the infrastructure of Microsoft Teams, OneDrive and Azure to a foreign tenant.

To assess the quality of initial knowledge of a foreign language, a test was offered to the company's employees. Its structure is determined in accordance with the thematic plan and the content of the program, the norms of the professional standard and other regulations in force in Nanolek.

Testing blocks: “Digital technologies when solving professional tasks”, “Project activity”, “Communication”, “Management”, “Analytics”. Next, the approximate tasks for each block are described. Each block consists of 10 tasks. The maximum possible number of points for each task is 2.

Block “Digital technologies when solving professional tasks”. Example of a proposed task – create a file containing information about 10 imported expired medicines (in a foreign language). Make it available to members of your department.

Block “Project activity”. For example, describe the sequence of stages that reflect the process of developing a new drug for the treatment of any of the existing diseases in a foreign language.

Block “Communication”. For example, choose the appropriate final courtesy formula for each of the 10 introductory addresses.

Block “Management”. From the presented phrases, words, it is necessary to make up a monologue in the genre of a persuasive speech (3-4 sentences) to resolve the conflict between employees.

Block “Analytics”. Replace the Russian words and expressions in brackets with their English equivalents.

Thus, according to the test results, the participants scored from 0 to 100 points. In accordance with the points, the level of foreign language proficiency was determined for solving the problems of professional pharmaceutical activity: basic (from 0 to 45 points), advanced (from 46 to 84) and creative (from 85 to 100 points). According to the results of the test, all employees of the pharmaceutical industry formed control (26 students) and experimental (26 students) groups. In the experimental group, the average age of pharmaceutical industry employees is 35 years (47% women, 53% men).

At the second stage of the study, the employees of the Nanolek company were trained in accordance with the curriculum, calendar training schedule, work program and materials for the final certification. Digital technologies united on the MS Teams platform were actively included in foreign language communication between the participants of the experimental group for information interaction throughout the course of the APE.
At the third stage of the study, conditions that contribute to the effective use of digital technologies to improve the quality of foreign language education during APE were identified.

RESULTS OF THE RESEARCH

When analyzing the literature, those labor functions of a pharmacist were identified, the quality of which can actually improve after completing the APE course. These, according to regulatory legal acts, include [25]:

- checking the availability of necessary documents at the workplace of a pharmacist;
- checking the availability and accessibility of information on registered marginal selling prices;
- using methods for searching and evaluating pharmaceutical information;
- using instrumentation and other equipment involved in pharmaceutical activities;
- using specialized programs and products of information systems, performance of necessary calculations;
- visual assessment of the state of drugs;
- adjustment of consumer claims;
- professional communication in compliance with business etiquette and pharmaceutical deontology.

Advanced professional education for an employee of the pharmaceutical industry is a professional development program. It is implemented at least once every five years during the entire working life.

The purpose of the program "English in the field of professional communication" is to create conditions for improving the professional competence, forming skills to apply professional communicative competence in production, practical, organizational and managerial pharmaceutical activities.

Tasks: ensuring intercultural communication in the professional sphere; conducting theoretical and empirical studies of problem situations and their approbation in pharmaceutical activities; organization of information retrieval forms of work to support pharmaceutical activities.

The program takes 144 academic hours, 4 months of training and 2 hours of final certification. The form of education is part-time with the use of distance technologies. Classes were held twice a week, in mini-groups and in free time. Another form for organizing foreign language training should be noted, it is an excursion, which was held for all participants. The tour was in English, the historical places of Kirov were visited. It was held by Native American Samantha Lomb, Associate Professor of the Department of Foreign Languages and Methods of Teaching Foreign Languages at Vyatka State University. The event was attended not only by Nanolek employees, but also by their friends and relatives.

The educational activity of students provides for the implementation of practical classes. The duration of the classroom lesson (of any kind) is 45 minutes. Thematic plan:
3. At the airport. At the restaurant. Work abroad. Conversational set phrases. Writing a personal letter.

For each topic vocabulary, grammar material was determined. For example, vocabulary – “travelling, shopping, food, eating out”; grammar – “infinitive, gerund, modal verbs”.

In general, the content block of the program "English in the field of professional communication" consists of five components:

1) informational (the ability to apply information and communication technologies to solve professional problems);
2) project (the ability to create, present and evaluate projects in a foreign language);
3) communication (the ability to carry out business and written communication in a foreign language);
4) managerial (the ability to organize joint work in a team, using a foreign language as a means of communication);
5) analytical (the ability to evaluate your progress, determine a set of measures for further improvement of linguistic skills).

As noted earlier, at the preparatory stage of the experiment, testing was carried out in accordance with the specified components.

Interpretation of test processing results was carried out as follows.

At the basic level, students quite successfully apply modern information technologies in everyday life, but make significant mistakes when using them in business (oral and written) communication. They do not fully realize the importance of their profession, functions and place of a pharmacist in society, the need for language training for professional activities. Pharmacists do not have the necessary amount of professional and foreign language knowledge and skills for intercultural communication in the field of healthcare, they do not have the skill to reason, prove, defend and express their own point of view. Employees of the company do not have sufficient skills in organizing independent work and show little interest in further self-education.

Students who have an advanced level of competence use modern information technologies with minor errors in business (oral and written) communication. They have shallow knowledge of the place and functions of a pharmacist in society, a small amount of communicative, linguistic and cultural knowledge. Possessing the motivation to learn a foreign language, taking into account the future profession, pharmacists have the skills of independent work, but they are not capable of creative activities. They can logically, correctly, reasonably and clearly build oral and written speech, but, as a rule, relying on a sample statement. They are aware of the need for further language growth, but their personal and professional qualities need to be developed.

Students who have a creative level of foreign language competence are proficient in information technology at a high level. They are fully aware of the place and role of the pharmacist in society. Such specialists are able to analyze, design and implement interpersonal, group and organizational communications with native speakers of the target language in accordance with their national and cultural characteristics. Pharmacists who have a creative level possess the ability to logically, correctly, reasonably and clearly build oral and written speech in a foreign language (business communication, public speaking, negotiations, business correspondence). This group of students fully possesses not only the skills of independent, but also creative work, they can organize work, use methods and means of knowledge. They use various forms of training and self-control for their intellectual
development and raising the cultural level. They have a pronounced motivation to learn a foreign language, the ability and readiness for personal and professional self-improvement, self-development, self-regulation, self-organization, self-control, to expand the boundaries of their professional and practical knowledge.

Further training on the course "English in the field of professional communication" was differentiated. In the information component for the students of the experimental group, the core is MS Teams. In the online space, video lectures and webinars were held with all the features necessary for advanced professional education: meeting recording and storage in the cloud, automatic subtitles, screen sharing. The "Raised Hand" function made it possible to organize discussions on the topics of professional communication. For example, how to protect yourself during a pandemic.

Further training on the course "English in the field of professional communication" was differentiated. In the information component for the students of the experimental group, the core is MS Teams. In the online space, video lectures and webinars were held with all the features necessary for advanced professional education: meeting recording and storage in the cloud, automatic subtitles, screen sharing. The "Raised Hand" function made it possible to organize discussions on the topics of professional communication. For example, how to protect yourself during a pandemic.

The schemes, tables, portraits, maps were prepared and presented in the MS Teams cloud storage. All documents were stored in a cloud drive organized by channels, teams and folders. Inside the platform, access to Office applications was used. That is, in the usual Word, Power Point, Excel, it was possible to work without leaving the application. During the course "English in the field of professional communication", this was implemented both during network collaboration in the classroom and for individual work.

For example, the teacher could create a single file with exercises sent to him/her and open access to it to all listeners. The students, in turn, could correct the mistakes of their two colleagues (whose names were indicated by the teacher). And, if possible, they explained their opinion, since the “correct” answer could be further corrected. Thus, the work of each student was checked twice.

Or another option. The students of the experimental group were divided into pairs and assigned roles. One of them acted as the initiator of the correspondence, and the other reacted to the received letter. For example, the first person in a pair writes a letter of request for a medicine, and the second writes a letter of response to the request.

In general, the teacher prepares a task in MS Teams specifying the roles of each student, attached a file with set phrases that the participants might need. In addition, the dates within which each student in a pair must complete their task and place the letter in the cloud storage were written. The teacher created the document, and all course participants got access to editing it via the link. Each participant could complete the task in the online space at any convenient time. It was possible to use the file at the same time for partners and see what colleagues are doing right now.

As part of individual extracurricular work, the students were asked to develop a survey on the introduction of artificial intelligence in the healthcare sector. As it was mentioned earlier, additional services were integrated into MS Teams that allowed activating informational foreign language communication through game and interactive elements [26].

For example, the teacher asked the students to learn new vocabulary from the text that they will work on in the next lesson using the Quizlet service. A similar task is possible before watching a video in a foreign language. Thus, some time was saved in the classroom due to the preliminary individual work.

And, the way round, in the classroom, the students, under the guidance of the teacher, work with a new text, do all pre-reading, reading, after-reading exercises. Then the teacher gives the task to one of the students/group of students: to create a set with new vocabulary in Quizlet for the whole group. The teacher sets the deadline for completing the task and checks it. When the teacher is convinced that everything is done correctly, all other students must learn new vocabulary using the created set. This task may be regular. All course participants can create new training modules.
Another option for working with memory cards is Memrise (https://www.memrise.com/). The service was used when it was required to learn everyday words and phrases in an interactive way. For example, to get to know a new city, order food, go sightseeing. The main functionality of the application and the site is that it is available free, but there is a paid version with additional options. Vocabulary cards were used in the course. They didn’t need to be created. A set of exercises used in Memrise: get acquainted with the text and audio form of the word and translation (there are also short videos recorded by native speakers in the official courses); choose a translation for a word or a word for a translation; write a word or sentence. In a simpler version, a small set of letters or words is provided. You can complicate the task and choose a regular keyboard.

Exercises alternate. There is also a separate option - a quick repetition for a while. A limited amount of time was given for each word, and you lose “life” for mistakes. Among the shortcomings, we note that there is practically no working out of grammar and content for advanced levels, limited listening and pronunciation practice.

Examples:
1. The listener is shown an image. It is necessary to give the word. This exercise is the easiest. For example, a doctor.
2. The flash card is flipped word down. Students see the picture and name the word (for example, gastroenterologist). If there are difficulties, it is possible to ask what letter the word begins with. Then it is asked about what other previously studied words that begin with this letter. Students name them. Further, their attitudes to this type of work are compared.

Other services that were used are LearningApps and eTreniki. For example, in the MS Teams space, the teacher posted a text on pharmaceuticals. Further, the specialists from the pharmaceutical industry who were trained with the help of LearningApps and eTreniki performed the following tasks:

For example: in each of the lists of drugs, select an odd one, explain your choice.
2. Tannin, decoction of oak bark, infusion of sage leaves, infusion of St. John’s wort leaves, infusion of blueberries, bismuth subcitrate (De-nol), xeroform, menthol, zinc sulfate, dermatol.

Examples of tasks supported by the indicated digital services:
• make up negatives choosing the correct form (“The first phase of a clinical trial of a new domestic HPV vaccine was carried out from July to November 2021 at the research center of the Kirov State Medical University”);
• choose the correct form of the predicate;
• divide the words into groups according to their suffixes;
• translate the words in brackets using modal verbs;
• fill in the gaps with prepositions and adverbs where necessary;
• make sentences by putting the words in the right order (ill, I, fall, often, flu, with).

For eTreniki, we highlight two exercises:
• group the words according to the part of speech: noun, adjective, adverb - ability, quantitative, namely, abundance, abundant, inspector, exactly, scientific, incomparably, infrequently, variety, various, wonderful, representative, feature, foundation, inexhaustible;
• correlate the words from the list with the objects on the map, marked with points during the development of the simulator (for example, correlate the points on the map with the hotbed of diseases.)
Thus, the following exercises were actively involved in LearningApps: “Fill in the gaps”, “Find a pair”, “Classify”, “Sort pictures”, “Chronological ruler”, “Simple order”, “Entering text”, “Quiz with the choice of the correct answer”, “Fill in the blanks”, “Audio/video content”, etc.

eTreniki used:
  a. Kartofan – to correlate words from the list with objects on the map, marked with dots during the development of the simulator;
  b. Cockle – to distribute according to the principle of the word given during the design of the simulator into two, three or four categories;
  c. Krypton – to unriddle words where letters are "mixed";
  d. Morfunks – to analyze the word by composition;
  e. UFO – to remove incorrect or unnecessary objects from the group.

Assignment to work with electronic resources of an informational nature. Find in the text (text from the website of the pharmacological company) the English equivalents. For example, the method of formulation of medicinal substances; method of packaging medicinal substances; the structure of matter; the composition of the substance; physical characteristics; powder; crushed into powder.

The LearningApps resource was also used to organize individual activities. The teacher instructed the listener to compile a glossary of terms from the article and learn new words. Next, it was necessary to prepare a mini-monologue for 3-5 minutes, to express own opinion on the problem raised. For example, tell what you think about modern healthcare in the world; Would you like to change the system, if so, how, if not, why?

An example of a business communication assignment. Prepare appropriate letters for the proposed situations.

1. You received an invitation from the organizing committee to participate in the conference, but you cannot accept it. Thank the Nanolek Organizing Committee for the invitation. Explain why you cannot accept the invitation. Inform that you attach your report to the letter, which you ask to be included in the conference materials.

2. Your partner from Paris invites your delegation to visit his/her company for business negotiations and asks for the date, time and flight number of your arrival. Prepare an invitation letter on behalf of the French partner and a response to it.

3. You are a member of the organizing committee for holding a national congress with international participation. For example, “Healthy children are the future of the country in 2023”. It will take place on June 1-2 October 2024. Write a letter of invitation to participants.

Each letter was written according to the following plan: the participant writes it, then reads it aloud, makes changes according to the recommendations, the letter is placed in the cloud storage for network collaboration; its creator makes additional edits. The final letter is sent to the curators of the programs from the company.

At the end of the program, a video conference was organized in MS Teams, where the students spoke in English. Sample topics: "Everything is online: the role of e-commerce in pharmaceuticals"; "How to assess the readiness of the buyers' market for online shopping"; "Creating your own ecosystem to simplify the sales process." “Pharmacological consulting as the main advantage of offline sales platforms”; "Internet pharmacies or non-specialized marketplaces: where is it more profitable and safer to place pharmaceutical product”.

The students of the control group were trained according to the program of the course “English in the field of professional communication” in accordance with the regulatory
and methodological framework. MS Teams was used as a means of organizing remote foreign language learning. The course participants chose the way of writing a letter (digital or traditional), services for memorizing words, websites. They were not involved in the purposeful use of digital technologies to enhance foreign language communication.

Examples of exercises done by participants of the control group, on the topics of the course:
1. listen to the text, write an abstract;
2. listen to the text, try to remember all the actual, including digital, material. Group it by importance, substantiate your decision;
3. compare the listened audio text with the written text on a similar topic. Compare the content by similarity/difference, give a reasoned assessment;
4. evaluate the listened text in terms of what was interesting/uninteresting, new/not new; pharmaceutical applicable/not applicable;
5. indicate the healthcare industry where the data contained in the listened text can be used;
6. listen to the text, discuss a number of problematic issues on the topic raised in the context of the work of "Nanolek";
7. listen to the text, write a review on it using the following plan: the topic of the message, characters, summary, main idea, assessment of what was heard, etc.

At the fixing stage of the experiment, repeated testing was carried out. Its structure, number of questions, and evaluation logic remained unchanged compared to the initial testing.

Table 1 presents the results of determining the quality of foreign language training of trainees-pharmacists in the course "English in the field of professional communication" (before and after the experiment).

Table 1

<table>
<thead>
<tr>
<th>Level</th>
<th>Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control group (26 trainees)</td>
</tr>
<tr>
<td></td>
<td>Before the experiment</td>
</tr>
<tr>
<td>Basic</td>
<td>8</td>
</tr>
<tr>
<td>Advanced</td>
<td>14</td>
</tr>
<tr>
<td>Creative</td>
<td>4</td>
</tr>
</tbody>
</table>

The hypotheses were accepted: $H_0$: the level of foreign language training of students in the experimental group is statistically equal to the level in the control group; $H_1$: The level in the experimental group is higher than the level of the control group. For $\alpha = 0.05$, $\chi^2_{\text{crit.}}$ is 5.991. It was determined that $\chi^2_{\text{obs.1}} < \chi^2_{\text{crit.}}$ (0.177 < 5.991), and $\chi^2_{\text{obs.2}} > \chi^2_{\text{crit.}}$ (8.508 > 5.991). Therefore, changes in the quality of foreign language training are not random.

So, the implementation of the developed program "English in the field of professional communication" for advanced professional education using digital educational resources in foreign language activities, taking into account the characteristic features of the activities of pharmacists, has significantly improved the quality of healthcare workers.
DISCUSSION OF THE RESULTS

Analyzing the qualitative changes that have taken place in the foreign language training of pharmaceutical specialists, we note:

1. The number of students whose level of foreign language training is defined as "creative" in the experimental group increased by 42.3% (from 11.5% to 53.8%). There is no dynamics in the control group at this level.

2. The number of students whose level of foreign language training is defined as "advanced" in the control group increased by 15.4% (from 53.8% to 69.2%). In the experimental group, the dynamics is negative (-19.2%). This indicates that the level of foreign language training of the majority of students has increased.

3. The number of students whose level of foreign language training is defined as "basic" in each group has changed qualitatively. In the control group, participants with a "basic" level decreased by 15.4%. In the experimental group – by 23.1%.

В ходе обсуждения специалистами по фармацевтике были предложены следующие направления для совершенствования программы:

During the discussion, pharmaceutical experts suggested the following to improve the program:

I. Make changes to the thematic plan of the program. For example, as follows:
   2. Travelling: traditions and holidays.
   5. Travelling: business trip.
   8. Functions of a pharmacist.
   11. Great ideas. Scientific and technical progress. Discoveries and ideas in the field of healthcare.

II. Provide students with an alternative to Memrise. For example, Duolingo.

As the listeners concluded during the discussion, both Memrise and Duolingo formats can and should be combined in foreign language training. Their purposes very similar. However, they differ in teaching methods and presentation of information. It is advisable to offer students a choice: which application best suits their learning requirements.

The presented version of foreign language training meets the principles of continuing education supported and distributed by UNESCO [1]. The findings of the study allow us to partially solve the problems identified in the work of Z. Ziaei, K. Hassell, E. Schafheutle on the need to search for options to improve the technical skills of pharmacists [7]. The materials of the article are a logical continuation of the conclusions of E. V. Gutseva, O. V. Erofeeva on the need to improve the level of foreign language training of Russian workers in the chemical and pharmaceutical industry [24].
CONCLUSION

The presented study substantiates that it is necessary to include digital technologies in the foreign language training of pharmaceutical specialists in the conditions of APE, which support the implementation of labor functions and activate foreign language professional communication. The distinguishing features of the course are:

- taking into account the specifics of the labor functions of a specialist in pharmaceuticals;
- using digital tools and programs that are technically supported in the country and in the activities of the Nanolek company.

The implementation of the developed program contributes to the formation of components of foreign language competence and, consequently, to an increase in the level of language training of pharmaceutical specialists in accordance with the following conditions:

1) accumulation and analysis of the relevance of the integrated and integrative use of digital technologies in order to increase the level of foreign language training of pharmaceutical specialists;
2) expanding the students' knowledge about new educational technologies and mastering the methods of using these technologies when solving communication problems in professional pharmaceutical activities;
3) students' mastering the main strategies for working on projects and methods for evaluating finished projects;
4) students' mastering reflective techniques of self-control and correction of their educational route.

However, the participants in the experiment also identified the problems of using digital technologies in the context of APE:

- termination of technical support for services and video hosting for foreign language communication;
- the need to study pharmaceutical terminology and the specifics of the work of pharmacists.

The study substantiates that digital technologies need to be integrated into the traditional process of learning a foreign language in the context of APE. The study gives some examples when informatization tools create additional conditions for the activation of foreign language communication; intensification, individualization and differentiation in learning; development of social activities, responsibility, planning. The teacher's task is to optimally integrate them with traditional teaching materials, to support communication between all course participants.

The results of the study can be used to improve foreign language teaching programs in the context of advanced professional education for healthcare professionals in general and pharmaceuticals in particular.

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