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ESP DISTANCE LEARNING METHODS AT TECHNICAL UNIVERSITIES

The paper focuses on the urgent problems of linguadidactics caused by Covid-19 pandemic and the need to implement online learning at all Ukrainian institutions of higher learning. English for Specific Purposes online learning involves modern methods that are constantly being improved. They are aimed at effective interaction of all participants in the learning process. The Department of Foreign Languages in Lviv polytechnic national university analyzed the feedback from the teaching staff and students concerning methods applied in online classes which were held during the quarantine period in 2020–2021. Observations of teaching experience, as well as the positive feedback from students proved that online learning English for specific purposes can be as effective as the offline one. The study considers a number of important principles that should be followed in order to succeed in distance learning. English for Specific Purposes online tools involved both synchronous and asynchronous methods. The former methods included videoconferences held with the help of various applications, e.g. Zoom, Microsoft Teams, Google Meet etc. Asynchronous means consisted of using instant messengers, email, educational platforms, i.e. virtual learning environment of the university based on the Moodle platform. We conducted a survey among students of five groups of different technical specialties. The survey aimed at finding out their opinion concerning effectiveness of ESP online lessons. It helped to discover what kind of difficulties the students had faced. The survey also allowed us to understand which types of activities were better perceived during video conferences in comparison with lessons in the classroom (i.e. listening and watching video). The analysis of the results obtained brought us to a conclusion about the most efficient way of conducting online classes. Thus, a combination of asynchronous and synchronous methods appeared to be the most effective tool for online mastering of ESP. On the one hand, the asynchronous method can be effective to consolidate lexical and grammar material, as well as develop reading skills. On the other hand, synchronous method provides direct communication in the «student-teacher» format and is the most effective means of transmission and acquiring new knowledge in the discipline of English for Specific Purposes. It also develops speaking skills while involving students in work with breakout rooms. The paper also discusses the issue of students' knowledge and skills assessment. The process of control has become automated and, thus, more convenient. Diagnostic and control works were performed in the form of current and final tests, hosted on the Moodle platform (virtual learning environment of Lviv Polytechnic National University). This greatly facilitates teacher's work; as such tests contain a convenient option of automatic checking the correctness of students' answers to the tests.

Key words: ESP, online learning, distance learning, educational platform, didactic methods.

У статті описано основні методи онлайн-навчання дисципліни «Англійська мова за професійним спрямуванням» у технічному закладі вищої освіти. Ці методи постійно вдосконалюються, оскільки спрямовані на ефективну взаємодію всіх учасників навчального процесу. Спостереження та аналіз досвіду викладання, а також позитивні відгуки студентів доводять, що онлайн-вивчення англійської мови за професійним спрямуванням може бути ефективним, як і офлайн-вивчення в аудиторії. З метою отримання інформації щодо ефективності онлайн-вивчення іноземної мови, було проведено опитування. У ньому брали участь студенти п'яти груп різних технічних спеціальностей (загальною кількістю 125 осіб). Аналіз результатів опитування довів, що для досягнення успіху в дистанційному навчанні, слід дотримуватися деяких важливих принципів. Таким чином, поєднання асинх-

ронного (через месенджери, електронну пошту, віртуальне навчальне середовище) та синхронного (через відеоконференції, використовуючи популярні застосунки) методів виявилось ефективним інструментом для онлайн-опанування іноземної мови в університеті. З одного боку, синхронний метод ефективний для закріплення матеріалу та розвитку пізнавальних навичок. З іншого боку, синхронний метод забезпечує пряме спілкування у форматі «учень – викладач». Він сприяє розвитку мовленнєвих навичок, надає можливість парної та групової роботи, що є важливим у навчальному процесі. Синхронний метод є найефективнішим засобом передавання та набуття нових знань з дисципліни «Англійська мова за професійним спрямуванням у технічних університетах». У роботі також розглядають питання оцінки знань та умінь студентів. Процес контролю став автоматизованим, а отже, зручнішим для викладача і прозорішим для студента. Діагностичні та контрольні роботи виконували у формі поточних та підсумкових тестів, розміщених на платформі Moodle (віртуальне навчальне середовище Національного університету «Львівська політехніка»). Це значно полегшило роботу викладача, оскільки такі тести містять зручний варіант автоматичної перевірки правильності відповідей студентів у тестах.

Ключові слова: англійська мова за професійним спрямуванням, онлайн-навчання, дистанційне навчання, освітня платформа, дидактичні методи.

Formulation of the problem. Recent pandemic challenges have made the system of education adapt to the current demands in the educational process. Ukraine, like other countries, faced the so called “Educational revolution”. Today we increasingly use the term “distance education”. This form of education has reached a scale not only in our country but also around the world, invading our lives, despite the general unpreparedness and confusion. It introduced a new model of teaching foreign languages at universities that included online learning. Its modernization and effective utilizing are quite essential in terms of forming modern information society which needs free access to quality education. Evidently, new didactic concepts, formed during the distance learning process of the quarantine period, will develop rapidly in the future.

Nowadays, distance learning is a matter of time and for educators it has become a test of the ability to respond quickly to today’s challenges and computer literacy. After all, a teacher needs to have a number of personal and professional competencies that will not only organize students but also keep their interest and attention throughout the learning process.

In addition, the teacher faces another challenge: to be a competitive and successful specialist in the era of technical development and reform of educational systems. And this can be possible only with their continuous self-improvement leading to professional growth.

Analysis of recent research and publications. A growing number of scientific publications discuss the issues of online learning. In Ukrainian didactics features of distance education were studied by A. Miniailova and O. Shlyakhtina who considered the problem of assessment and analyzed various strategies in English for specific purposes (ESP) distance learning. H. Kolesnyk paid attention to psychological peculiarities of online learning [2]. A. Tverdokhlib researched smart education that had become a new tendency in modern teaching system [5]. I. Vorotnykova and N. Chaikovska discussed challenges, results and prospects of online learning [1]. H. Rzhovskyi studied the influence of the Internet environment on the educational activities of students in modern conditions [4]. Other scholars and practitioners focused on the development of distance learning in Ukraine and based their research on sociological investigation (N. Petroschuk, O. Matviichuk, & L. Karchyna) [3].

Due to the rapid spread of new education models, distance learning is undergoing powerful transformations. In particular, didactic tools face essential modifications in content and form. Therefore, didactic problem, which is the focus of the paper, requires in-depth scientific analysis and further intensive methodological research of ESP teaching in the establishments of higher education.

The purpose of the article is to describe the specifics and mechanisms of ESP distance learning in a technical university. The topicality of the study lies in the rapid global changes in the education system that stipulate the need to study didactic peculiarities of innovation methods of teaching foreign languages for specific purposes.

Presentation of the main research material. In the pre-pandemic times the question of the appropriateness of the online education introduction caused heated discussions concerning the

effectiveness of this education form. In terms of implementation of distance learning, teachers have an opportunity to choose didactic forms and methods, web resources and educational platforms for learning a foreign language distantly. Teachers learned how to develop effective system of online interaction with students.

The research included analysis of teaching experience conducted by the Department of Foreign Languages at Lviv Polytechnic National University. In spring, 2020, the staff had to quickly adapt to the new conditions and master new tools and online resources. In short time, they managed to develop and implement distance format of teaching ESP. This allowed us to summarize some didactic strategies introduced into the educational process.

Teaching ESP during distance learning period was implemented in two ways of communication, i.e. synchronous and asynchronous one. As for synchronous method, it presupposes learning in which contact between the teacher and the student is carried out immediately. New tasks are given only upon completion of the previous ones. The interaction takes place in real time in the so called "virtual classroom". The teacher presents learning materials and conveys information. Using synchronous methods, it is possible to control and evaluate students' reaction to the information received, answer their questions, and choose appropriate pace for learning. Synchronous learning is carried out with the help of videoconferences via various applications, such as Zoom, Microsoft Teams, Skype, GoogleMeet.

Asynchronous methods involve independent work of students with online educational materials under the guidance of teachers. There are no time restrictions. The contact between the teacher and student is implemented with a delay in time. As a result, students are given the opportunity to study individually. They can look for material and select necessary literature themselves. Teachers become mediators, not sources of information. They give advice and guide students. Therefore, asynchronous methods can be characterized as individually oriented. Tools that can support these methods include e-mail, podcasts, videos from YouTube, and materials from the Moodle educational platform for universities. Also, these tools can be placed into a learning management system such as whiteboards.

At first, when distance learning format was introduced at the University, the teachers mostly used asynchronous learning tools. They sent tasks either by e-mail or in instant messengers, such as Viber, Telegram, etc.), used different tests and tasks in virtual environment of the University based on Moodle platform. But few weeks later, the share of the synchronous component of learning grew significantly. It was provided by video conferences. They gave an opportunity to teachers to respond quickly to the probable interference of students at different language levels. It became possible to correct pronunciation, enhance grammatical competence and create additional positive motivational factors for learning ESP. Our observations prove that the effectiveness and degree of the information perception provided in the video format is significant. It exceeds the perception of the same information through instant messengers, telephone or e-mail. Moreover, direct communication in the «student-teacher» format still remains the most effective means of transmission and acquiring new knowledge.

A successful didactic solution was a combination of video conferences with grammar and lexical material in the form of diagrams, tables, presentations that were available to students both on the Moodle platform of the University and variety of other media, as well as subsequent pinning new material and exercises to instant messengers or educational platforms. Obviously, virtual environment (based on the Moodle platform) is an effective tool for learning a foreign language at university. The students who study the discipline have free access to it. It had been earlier designed by teachers according to the program of the discipline. Its contents included relevant texts, various tasks (i.e. grammar exercises, lexical tasks, audio and video material) and tests. Teachers were able to leave comments in different types of files sent by students. In fact, the work of teachers was optimized with the use of automatic evaluation of tests results, saved in the form of an electronic journal of assessments.

All materials proposed by the teacher and completed tasks of students can be uploaded to the cloud. This saves time, technically organizes and structures work. Moreover, it gives the opportunity to attract a wide range of learning materials that contribute to the consolidation of acquired knowledge. In addition, virtual environment allows implementing a wide range of topics of different content. In traditional full-time education mode, access to such information is often

limited due to technical difficulties that include absence of the internet connection and proper equipment in the classroom, as well as the need to supply students with printed material.

Zoom app has become one of the most popular means of synchronous work. Its popularity can be explained by the possibility to keep efficient communication between teachers and students. It allows teachers to submit and explain new material, to present audio and video accompaniment, work with applications, interactive whiteboards and spreadsheets. This application also provides an opportunity to develop speaking skills through “breakout rooms” option. The students are able to work in groups and pairs, make dialogues and discuss the topic. Video conference can be later available in MP4 format; its audio is in M4A. It can be stored on a personal computer and in the cloud storage, which is a very convenient option both for teachers and students. Zoom app easily integrates into various calendar systems scheduling, making it easier for users to coordinate time of meeting with all participants of the educational process.

Similar features are available when using the Microsoft Teams application. It covers all the necessary elements of online classes: virtual classrooms, forums, video conferencing, chat correspondence, screen demonstration function, sharing files, use of a virtual board by all the conference participants, the option to «raise your hand», which gives the opportunity to attract the teacher’s attention, without interfering with the work of other students, recording the time and duration of the conference participants, work in online notebooks, the results of which are automatically stored in the group’s online journal. Nevertheless, participants noted some disadvantages of working with this application, i.e. the low quality of the connection and the need to have registered mail in the Office 365 system.

As far as asynchronous methods are concerned, they are effective to consolidate the material and develop cognitive skills. Students have an opportunity to practice new material by doing special grammar and lexical exercises. In this context, virtual environment, based on Moodle platform, seems to be convenient, as it offers its users a wide functionality.

Fig. 1 shows the screenshot of one of the pages in the discipline of ESP in virtual environment on the Moodle platform. Clicking on each task, students can study texts, pass tests, watch videos and listen to the audio on the topic they study.

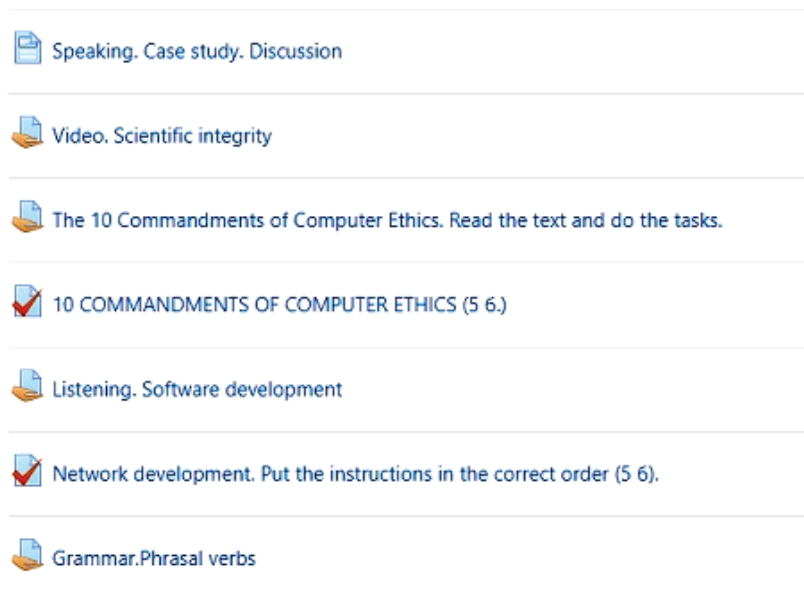


Fig. 1. Example of tasks in virtual environment based on the Moodle platform

The Department of Foreign Languages monitored the effectiveness of ESP online classes and checked if they had managed to meet the learner’s needs. To reach the goal, the teachers conducted a survey. It involved 125 students of 5 groups who major in Cybersecurity, Chemis-

try, Civil Engineering, Geodesy and Automobile Industry. The survey included the following questions: 1. Do you find ESP online learning effective? 2. Which methods of online learning are more effective for you, synchronous (video conferences), asynchronous (through Messenger, Telegram, Viber or email) or their combination? 3. What are the advantages of ESP online learning for you? 4. Which difficulties did you face during ESP online learning at university? 5. What type of activity is more convenient to do during online lessons (speaking, reading, listening, watching video, or doing grammar and lexical exercises)?

The results of the survey showed that online ESP classes were as effective as the offline ones (for 72% of respondents). At the same time, 28% of students gave a negative answer, as they preferred lessons in the classroom. The majority of students (78%) noted that ESP online learning should include both synchronous (video conferences) and asynchronous methods (preferably through instant messengers rather than email) as their combination seemed to have been most convenient and effective for students.

The students were also asked about the benefits and limitations of the ESP online learning. Thus, the advantages included 24/7 access to the materials even if they had missed the online class. Among other advantages students mentioned quick access to the Moodle education platform (virtual learning environment of the university) and various web resources. In addition, they wrote about psychological comfort and time saving as they did not have to commute to the university, at least did not need to do it often. Especially this is true for students who live far from Lviv. Apart from those advantages, students appreciated the opportunity to receive education without leaving their work. As a matter of fact, many senior students in Ukraine tend to skip classes, so online learning can be the best solution for gaining real knowledge. Another significant benefit included unimpeded and more effective cooperation at the level of «teacher-student» through instant messengers.

Most of the students surveyed mentioned a number of problems that arose during the ESP distant learning. Those were technical problems, including instability of the Internet connection, hardware problems, e.g. no working camera or microphone (4.5% of respondents). Many students (36%) felt fatigue from computer work (eyes strain, backache and headache), and 12% lacked self-discipline and motivation to attend online classes. A lot of students (74%) had a psychological need to study in the classroom. They emphasized the importance to build team relationships (with teachers, classmates, school administration), as well as to speak in front of the audience. The problem of shutdown cameras during online conferences is also worth mentioning as it causes some psychological discomfort for the teacher. This can reduce the effectiveness of teaching the material because of the impossibility to establish close eye contact with the audience.

The vast majority of students noted that listening and watching video is the kind of learning activity that is better perceived during online classes. There is little interference, students are able to regulate sound and besides, they overcome psychological discomfort. After all, modern online platforms provide ample opportunities for hosting audio and video files and active feedback from students while performing tasks of this type.

Having analyzed the results of the survey, synchronous and asynchronous methods of online learning have their purpose and effectiveness. On the one hand, the asynchronous method is effective to consolidate the material and develop cognitive skills. On the other hand, the synchronous method provides direct communication in the «student-teacher» format and is the most effective means of transmission and acquiring new knowledge in the discipline of English for specific purposes. It brings us to the conclusion that their combination is an efficient tool for mastering ESP online. A combination of the synchronous and asynchronous methods allows students to get more complete and deeper knowledge, to form their own visual and auditory images. This contributes to a better learning a foreign language that occurs faster and more efficiently.

As a matter of fact, the introduction of distance learning made the process of students' knowledge control easier. It has become automated and, thus, more convenient. In particular, performing diagnostic and control work in the form of current and final tests, hosted on the Moodle platform facilitated teacher's work greatly. Such tests contain a convenient option of automatic checking the correctness of students' answers to the tests. The platform allows teach-

ers to set deadlines and the number of possible tries either for the whole group or for an individual user. It also conducts reporting, automatically calculates student's scores both for the tasks on each topic and the overall grade for the course. Thus, all these features make virtual environment based on the Moodle platform one of the most modern and convenient tools for timely and quality control of students' knowledge at the university.

Conclusions. ESP online learning involves modern didactic methods that are constantly being improved as they are aimed at effective interaction of all participants in the learning process. Observations and analysis of teaching experience, as well as the positive feedback from students (based on the survey) prove that online ESP learning can be as effective as the offline one. Some important principles, however, should be followed to succeed in distance learning. Thus, a combination of asynchronous (through instant messengers) and synchronous (through video conferences) methods appeared to be an effective tool for online mastering of ESP. On the one hand, the asynchronous method is effective to consolidate the material and develop cognitive skills. On the other hand, the synchronous method provides direct communication in the «student-teacher» format. It develops speaking skills, provides the possibility of pair and group work. The synchronous method is the most effective means of transmission and acquisition of new knowledge in the discipline of English for Specific Purposes at technical universities. The process of control during distance learning became automated and, thus, more convenient which greatly facilitated teacher's work.

Prospects for further research include developing methods of increasing students' motivation during ESP online learning.

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