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ONLINE LEARNING CHALLENGES OF ENGINEERS TRAINING

У зв'язку з високими вимогами сучасного суспільства до розвитку науково-технічного потенціалу країни вищі навчальні заклади переглядають основні напрямки та цілі підготовки інженерів. Успіх є результатом впровадження нових форм і сучасних підходів до навчання, переходу до самостійної роботи і вміння студентів ефективно організувати свою роботу. З метою підвищення якості знань в навчальний процес впроваджується змішана форма навчання. У статті розглядається поєднання традиційного навчання з онлайн-навчанням для вивчення англійської мови професійного спрямування. Представлені завдання спрямовані на розвиток навичок корисних для майбутньої професійної діяльності. У статті перераховані основні фактори, що впливають на структуру і якість дистанційних курсів, а також аспекти, що сприяють навчанню і мотивації студентів.

Ключові слова: *онлайн-навчання, дистанційний курс, взаємодія, викладання англійської мови технічного спрямування.*

В связи с высокими требованиями современного общества к развитию научно-технического потенциала страны высшие учебные заведения пересматривают основные направления и цели подготовки инженеров. Успех зависит от внедрения новых форм и современных подходов в учебе, перехода к самостоятельной работе студентов и их умению эффективно организовать процесс обучения. В целях повышения качества знаний в учебный процесс внедряются смешанные формы обучения. В статье рассматривается сочетание традиционного обучения с онлайн-обучением для изучения английского языка профессиональной направленности. Представлены задания, которые помогают студентам развивать навыки полезные для будущей профессиональной деятельности. В статье

перечислены основные факторы, влияющие на структуру и качество дистанционных курсов, а также аспекты, способствующие обучению и мотивации студентов.

Ключевые слова: *онлайн-обучение, дистанционный курс, взаимодействие, преподавание английского языка профессиональной направленности.*

Due to the high demands of the contemporary society to develop the scientific and technical potential of the country the higher educational institutions reconsider the main directions and aims in the training of engineers. The success results from the introduction of new forms and modern approaches of study, the shift to the self-direct and self-organization work of students. In order to improve the quality of knowledge blended learning is provided into educational process. The combination of traditional study with the online learning for ESP teaching is considered in the article. The tasks and activities based on the development of lifelong skills useful for future professional work are introduced. The principal factors influencing the design and quality of distance courses and aspects enhancing student learning and motivation are listed in the article.

Key words: *online learning, distance course, interaction, ESP teaching.*

The growing number of educated people in the country indicates the level of cultural, economical and scientific development of the state. As the Ukrainian policy is aimed at the European integration, it is important to train the new generation of specialists who will be able to meet the requirements and demands of modern society. The educational institutions play an important role in this process and improve the teaching and studying activities. They pay attention to the quality of knowledge obtained by the students, the range of skills that help students to realize their abilities and provide them in the professional field.

The development of modern society is impossible without the development of science and technology. Therefore, the country needs highly qualified engineers. Foreign language proficiency is one of the main factors which influences the career and promotion of the future specialists in technical fields. Their thorough training of foreign language implies the development of the communicative competence, the improvement of reading, writing and listening skills, the expanding of the professional vocabulary, mastering of grammar structures. Moreover, the future engineer will have to work in the severe competitive environment, to be aware of all innovations, to cooperate with colleagues from foreign countries, to be a good

team worker and a brilliant speaker to represent the achievements and investigation results in the particular technical field. The engineer must know how to work with technical and scientific documentation, how to write official letters and invitations. Students need knowledge that helps them to apply for a job (CV, cover letter, etc).

The training of qualified engineers includes the processing of large amounts of information and requires students and teachers efforts. The lack of practical hours causes the distance learning introduction into the education process. This way of study enables teachers to organize the individual work of students and supplement the curricular with the important and interesting materials. The students need to be conscientious and be responsible for the quality of the study. Moreover, the resources and elements of the distance courses must promote the students motivation growth.

The aim of the article is to consider how distance learning can advance engineers knowledge, develop the lifelong skills and supplement the traditional form of study. Distance learning is a form of study which enables teachers to provide blended, interactive and problem-based learning, communicative approach, student-centered teaching, etc. Distance learning can contribute greatly to ESP studying. ESP is centered on student ability to work with authentic materials, to know how to use specific terms in professional environment, to communicate with colleagues during workshops and conferences while arguing, discussing, and presenting different ideas. Thus, the ESP syllabus requires the careful design and organization of educational materials based on specific learning context according to needs analysis [5]. ESP is taught by the senior students, who are more responsible and self-aware, so the teachers must motivate and inspire them by introducing new ways of studying.

Many authors discuss the facilities of distance learning and combination of traditional and modern methods of study. Draves is in favor of online learning due to the possibility to follow his or her own pace of study, to check the progress, to immerse in the professionally-oriented medium. According to the necessity to develop soft skills, the teachers should pay attention to the tasks aimed at team working, critical thinking, problem solving and introduce them in their distance courses [4]. Distance learning is the best way to organize the individual work of students and it can contribute to the development of self-directed skills. It is important that students plan their studying and be independent on the teacher, choose their own learning style and understand that they are responsible for their own success. For this purpose, distance learning provides the facility of self-evaluation. Assessment is an important aspect of the learning process. In some occasions it is comfortable and principal for students not to share their marks and results of study with the other members of the group. Distance courses provide

students with the possibility of peer evaluation. In this case the students should be given the strict criteria that have to be taken into account. It helps to promote interaction, to be fair and attentive, to facilitate participation in this activity. Students learn how to prove their arguments, express opinions, add more information, correct mistakes and evaluate each other [9]. Distance learning can be characterized by self-organization. The ability of students to organize the study and to follow the layout is an important skill for future professional activity. However, it is necessary to control the work of students to enhance their motivation. Nowadays, distance learning is the form of study that possesses all features and possibilities that can be adapted to ESP needs. The students are able to improve some lifelong skills. Moreover, distance learning can be used to implement the blended learning.

The question of benefits of blended learning in higher education is studied by many authors. Jefferies & Hyde investigations are aimed at the experience and practical activity of students [7]. Garrison, Graham & Robinson emphasize the advantages of blended learning which improve the quality of the obtained knowledge. The introduction of this form of education implies the curricula redesign and teaching strategies and learning outcomes reconsidering. Blended learning enables the teachers to use interaction forms of study and computer technologies promoting students engagement and their wish to be persistent [1]. In transition from traditional methods to blended learning several main benefits should be indicated: focusing on learner-centered approach, teacher-student or student-student interaction, educational process intensification and diversification. However, there are several challenges dealing with the blended learning implementation. The first one is to find out the appropriate way to combine two studying environments in order to use all their advantages and to avoid their weak points. The second one deals with the necessity to develop materials and tasks for both environments increasing time demand of teachers. They need to choose the authentic information relevant to student field of study to supplement the traditional way of training and the online training. These materials must complement each other to improve the quality of education. These two environments require tasks to control and evaluate student knowledge and to create an effective medium [6].

ESP teaching includes the combination of the appropriate form of learning, the determining of the course outcome, the tasks for self-evaluation and peer-evaluation, interaction of participants in the online environment, adapted authentic materials, the choice of the modern approaches, the strict learning instructions. ESP is focused on the improvement of the communicative competence of students and the development of lifelong skills such as self-organization, self-evaluation, team working, etc. Distance courses are successfully used as the online form of

learning environment in blended learning. Designing of the distance course requires the following factors: the aim of the course and its convenience for the students, the content and its structure and organization, interactivity, the ability to use the obtained knowledge and skills in future professional activity. Also, it is important to take into account learning styles, motivation, student proficiency, individual differences. According to Downes the materials should correspond to the learning styles of students. Some of them prefer to learn by exploring, so they need tasks to find more detailed information, to correct something. For those students who prefer to learn orally it is important to include video and audio materials in the distance course and graphs, figures, pictures should be available for students who like to learn visually [8].

According to different authors distance learning is extremely useful when it contains such element as interaction. Interaction includes the process of communication and exchange of information between students, students and teacher. The interaction in the traditional mode of study and online learning has several peculiarities. In class the students train face-to-face communication; in the online environment they do not have an immediate feedback. Thus, the distance courses tasks aimed at interaction should be paid great attention and be developed carefully. The students are proposed topics for discussions and forums for expressing opinions on the most controversial questions related to student field of knowledge. Also, students have the ability to create glossary to the proposed topic and comment or correct each other or to fill it in with the interesting or important facts. This way of interaction promote motivation and self-directed work skills. These tasks needed to be evaluated to facilitate learning and interaction of students. The role of teacher is to create the special rubric to assess this type of activity.

Introduction of the distance courses into the educational process gives the opportunity to use all modern and qualitative video and audio materials, Power Point presentations, graphs and schemes. It is possible to update these materials without spending a lot of time. However, the using of such materials requires their adaptation to the needs and demands of students. They must meet the aims of the curricula which are centered on formation of professionally oriented strategic and training competence, development of soft skills, and improvement all language skills. The tasks developed to the visual and listening materials need the effective instructions aimed at training real professional knowledge and skills [2]. The students are proposed to find their own solution to the problems facing different branches of science and technology and spheres of human activity. Also it is important to know student opinion, to give them the chance to prove their point of view, to investigate the different approaches and methods. To motivate all students to be the participants of such kind of activity they are given the list of useful vocab-

ulary and plain explanation, the patterns of relevant phrases, the controversial statements of famous people. The combination of video and audio materials with the challenging task and the effective instructions can enhance the learning. Visual and listening materials are used during practical classes but their thorough processing is limited by the studying hours and they are usually applied as warming-up or brainstorming. Including such materials in the distance courses enables the students and teachers use them for detailed study and discussion, as a means of individual or group projects, as a topic for essay or report. The students have the ability to study the video and audio materials as long as he or she needs, to adapt them to their own pace and style of learning, to process the lexical constituent of the material and to result in the student satisfaction.

The students are interested in studying when they realize the possibility of practical application of their knowledge. Thus, the success of distance learning for ESP teaching depends on several factors: the novelty and relevance of materials, personal control, creative assignments, feedback, flexible deadlines, communication by means of chats and forums. As ESP is studied by the senior students, their expectations are high and their attitude to the educational process is serious. The distance courses developed for these students should include tasks based on student experience, activities that reflect the real situations in the professional sphere and require the solving of the problem. The assignments need various instructional techniques and visual materials which can be used as the source of additional information, clues or prompts. It is important that the materials used in the course have to be difficult enough to support student interest and enthusiasm. As the work of engineers implies the reading and surveying of technical literature, the tasks proposed to the students suppose the search of information and careful study of different aspects and details. The motivating factor of studying and processing additional information is to share their knowledge with the other students. Some tasks developed for the distance course are based on the competitive factor. The students are asked to complete the description of systems or devices, to find the most interesting or unknown historical facts about scientific and technical invention and investigation, to search the latest information that can surprise people. The assignments aimed at comparing and contrasting are very useful since they imply the search of information, the ability to find out some specific factors and to point out the advantages and drawbacks, the efficiency and reliability etc. The students can spend more time in order to study information thoroughly developing the skills of self-directed work.

One of the main aims of ESP teaching is the ability of future engineers to use their foreign language knowledge for exchanging of information in the process of intercultural and professional communication. The development of communicative competence is the primary task of the teachers. They use all possible means, one of

which is distance learning, to obtain the successful result. The basis of an effective communication is lexis. Due to the possibility to create different types of glossaries the distance courses become the training platform that helps to enrich student vocabulary, accumulate terms and improve their memorizing. The glossary can be developed to every unit or to the entire course. They can be updated by the students or teachers. It is possible to choose different options for the glossary i.e. to present the terms and their definitions or the terms and their Ukrainian equivalents or complete the glossary with the encyclopedia facts and dates. The type of glossary depends on student needs and requirements, the purpose of the distance course and the difficulty of the vocabulary. Glossary creating can involve the cooperation between students and cooperation of students and teacher. It means that this type of activity is aimed at interaction that allows the students to be the active participants of the studying process and to demonstrate their skills and knowledge. Also, this type of activity includes a thorough insight into the meaning of the terms and their semantics that help students to learn and memorize them. The lexical material of the glossary must be related to the professional field of students and the terms must be used in the various tasks and exercises in order to train them in practice.

Digitalization of modern society and all aspects of everyday life result in the introducing different forms of technologies into the educational process. Students prefer technical and multimedia means of study. Moreover, they are interested in obtaining knowledge and training new skills. They are ready to test and practice new techniques and new forms of study. Students become the active participants of the learning process when the tasks and methods meet their requirements. Case studies are provided for ESP teaching. Case study is the approach that helps students to use their knowledge in the situations and models which reflect the real situations. This activity includes the team or individual work and promotes the investigation of the topics or problems in order to find the correct solution or to choose the best one. Students of the senior courses have sufficient basis of knowledge in their professional branch to cope with the task. This activity requires a lot of time for preparation, investigation and evaluation of the task. The main stages of the case study are: to choose a problem which is of current interest of our country, society or humanity, to collect and process all relevant information using different resources, to analyze and summarize all the data concerning the problem. The last phase is to propose the solution and present it to the group. The solution can be in the written form as a project proposal or report or it can be presentation. Therefore, some tasks of case study can be transferred to the distance course. The students need more detailed information for the investigation phase of the case study. They are proposed to find data dealing with different aspects of the problem (technical, political, economical, and manufactured, etc.) and share this information in the forums in the distance course. The students can

be divided into teams and each team has the task to investigate one question of the problem. This stage includes close interaction and collaboration of students. They share data, recourses, comments, questions and ideas. The teacher proposes the students the list of useful resources and main points of their investigation. The students need the accurate instructions for carrying out this task. After collecting data and investigating information the students (team of students) are proposed to document their original ideas. For this purpose the teacher use the element of the distance course “Assignment” which gives the students possibility to send the files with the task to the teacher. This work can be evaluated and commented by the instructor. The teacher can understand the level of student preparation to the case study, how thoroughly they study the material and maintain their motivation by making the remarks or advising some ideas. These intermediate phases of the case study can be successfully introduced in the distance course with such options as deadline, evaluation, group discussion.

As technology is growing with rapid pace, the higher educational institutions must pay great attention to meeting the requirements of modern digitalizing society. The availability and affordability of gadgets, wireless Internet, access to different online recourses caused the transition to blended learning. The combination of face-to-face study and distance learning helps teachers to organize the student work and to create the comfortable and friendly atmosphere of study. This form enables teachers to cope with such problems as lack of practical hours, the engagement of students into different activities, the interaction and collaboration of students and teachers, evaluation, diversification of the educational process, development and improvement of lifelong skills, expanding professional and foreign language knowledge. Moreover, the students can be the participants of learning materials creating but under teacher supervision. Such learning environment maintains student interest and motivation, reaches student potential, trains problem-solving, conflict resolution, team-working, project presenting, etc. Blended learning enables teachers and students to include various resources, authentic texts, visual and audio materials into the educational process. It helps to be satisfied with the ESP training and studying.

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