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## NON-FORMAL EDUCATION IN TEACHING ENGLISH AS A FOREIGN LANGUAGE AT TECHNICAL UNIVERSITY

*Education is always developing and changing following the needs and requirements of society. According to the forms, education is divided into formal, non-formal and informal, which in turn have both similarities and differences but imitate one main goal to obtain knowledge, skills and abilities for further development of a highly educated and competitive personality in the global space. Earlier education had only a formal direction of content and control of the acquired knowledge: laws, programs, tests, control of knowledge, exams, tests, etc. With the beginning of the digital era, it became possible to diversify education, make it more interesting and use various online platforms for additional activities to increase the level of knowledge, skills and abilities. The official educational system in Ukraine is formal education, which a person can receive both in public and private educational institutions to provide educational services. Non-formal education does not provide an opportunity to obtain qualifications according to the educational levels of the state standard but makes it possible to deepen one's knowledge, improve skills and abilities and receive the diploma, the certificate of completion of courses, seminars, distance courses, webinars, etc. Informal education is attending lectures, watching videos, reading scientific literature, communicating with colleagues and like-minded people, etc. According to the Law of Ukraine on Education, a teacher can choose the form and structure of teaching that he/she considers the most effective: advanced training courses, lectures, or online platforms, and it depends on the students how much they will combine formal and informal learning and work on self-improvement. University teachers conducted research to combine formal and non-formal learning to find out how effective the introduction of non-formal education into the educational process is and to evaluate all the advantages and disadvantages. The experiment was conducted among students of the Igor Sikorsky Kyiv Polytechnic Institute who study English as a foreign language. The pilot study involved four groups of respondents, the total of 76 third-year students of the Research Institute of Mechanical Engineering and the Faculty of Chemical Engineering of Igor Sikorsky Kyiv Polytechnic Institute. A research methodology was developed and two control and two experimental groups were formed. The teachers conducted a survey among students to find out the level of foreign language competence, offered such online platforms as Coursera and Prometheus for students of the experimental groups, tested all types of speech activity (listening, reading, speaking and writing) and conducted a comparative analysis of the results of control and experimental groups. After the experiment, the teachers of the university took into account the advantages and disadvantages of non-formal education for further improvement of the educational process. The methodology of formation of foreign language competence through non-formal education activities has been developed and diagnostic tools for assessing the levels of formation of foreign language competence have been substantiated. The criteria, indicators and levels of development are identified.*

**Key words:** formal education, non-formal and informal education, foreign language competence, technical university, English language, experimental data, criteria, foreign language for specific purposes.

**Problem statement.** Processes of globalization, integration of society and rapid development of technologies create new requirements for professional language training of future engineers capable of innovative activities, professional development and self-improvement. In today's world, lecturers need to combine traditional and online learning due to different restrictions. There are many opportunities for students to receive professional education online, as there are many professional-related resources. Responding to today's challenges and the needs of the educational system, government officials have developed regulations on formal, non-formal and informal education.

**Analysis of Publications.** Considerable attention has been paid to the definition of basic concepts related to formal and non-formal education. Basic documents that identify key concepts have been developed. An individual realizes the right to lifelong learning through formal, non-formal and informal education. The state recognizes those types of education, creates conditions for the development of educational activities that provide appropriate educational services, and encourages obtaining all types of education [1].

The first set of European guidelines for validating non-formal and informal learning was published jointly by the European Commission and Cedefop [2]. The recommendation provides a strong platform for European cooperation in the validation of non-formal and informal learning. To clarify the basic features of validation, the recommendation identifies four distinct phases: identification, documentation, assessment and certification. The defining characteristic of non-formal education is that it is an addition, alternative and/or a complement to formal education within the process of the lifelong learning of individuals. It is often provided to guarantee the right of access to education for all. It caters for people of all ages, but does not necessarily apply a continuous pathway structure; it may be short and/or low intensity, and it is typically provided in the form of short courses, workshops or seminars [3].

To ensure the recognition procedures for the results of non-formal and/or informal education, the educational institution develops its recognition procedure, independently supports the organizational aspects and determines the evaluation methods [4].

Formal education is education that is obtained according to educational programs following the levels of education, fields of knowledge, and specialities determined by the corresponding level of education and the acquisition of qualifications recognized by the state, determined by the education standards. Non-formal education is education that is obtained, as a rule, through educational programs and does not involve the awarding of state-recognized educational qualifications by education level, but may end with

the awarding of professional qualifications. Types of non-formal education: professional courses/training, civic education, online education, professional internships, etc. Informal education (self-education) is education that involves the self-organized acquisition of certain competencies by a person, in particular during everyday activities related to professional, social or other activities, family or leisure [5].

Therefore, at university students can receive the appropriate grade provided that they complete studies on Mass Open Online Courses (MOOC). There are a large number of such courses, including Coursera, Prometheus, Future Learn, Canvas Network, Udacity, EdX, Ted Talks, and others. For example, the Coursera platform offers more than 2,000 courses in more than 182 specializations. About 24 million listeners are registered. On this platform, students can get knowledge from 150 leading universities in the world that are partners of Coursera. After successful completion of the course, the user receives a certificate. According to the Regulations of Igor Sikorsky Kyiv Polytechnic Institute, not only MOOC online courses but also international language certificates are counted. The "Foreign language" discipline of the bachelor's degree can be counted towards the maximum score if the student has an international certificate in a foreign language (English, French, German) at level B2 or higher [5].

Current research is focused on non-formal language learning but many authors have conducted their research on informal language learning. Thus, the authors [6], [7] have proposed a theory of providing informal activities in teaching a foreign language. Researchers analyse the experiences and perceptions of the online digital tools that provide engagement with the English language outside the university classroom. Students' preferences are distinctly inclined towards the use of technologies that offer at least some entertaining components such as films, YouTube, and social media, and they have to be convinced of the value of language-specific technologies, such as online grammar, language learning websites, or courses [6]. The researchers concluded that online language learning is a first preference for students, but further research is needed to experiment on professional language learning using web-based experiences. Among the most popular options for language learning, students noted web-based learning (for example, using an app, watching movies, and taking an online course) [7].

Regarding the findings, the researchers concluded that there was a correlation between joining non-formal education and students' English achievement. Non-formal education can help students to increase their English achievement because non-formal education is flexible and practical which possibly makes the students understand foreign languages

more. The other aspect that might contribute to students' English achievement is motivation [8].

However, to the authors' best knowledge, very few publications can be found in the literature that addresses the issue of non-formal education for language learning at technical universities.

**The purpose of the article** is to describe a methodology for providing non-formal education activities for the development of foreign language competence of students at technical universities.

According to the purpose of the research, the main tasks are defined:

- to analyze modern educational documents, scientific and methodical literature and the state of research on the problem;

- to improve the diagnostic methodology, i.e., define criteria, indicators and levels;

- to investigate experimentally the effectiveness of the technique.

**Main part.** An experiment was conducted among third-year students of the Education and Research Institute of Mechanical Engineering and the Faculty of Chemical Engineering of Igor Sikorsky Kyiv Polytechnic Institute who study English as a foreign language. The research period is the first semester of 2022–2023.

Four groups of respondents with a total number of 76 students (two control groups and two experimental groups) participated in the experimental study. The research was conducted by observing the process of teaching and learning English at the university in the conditions of formal and non-formal education. In-depth interviews, testing, and surveys were conducted for a deeper understanding of the data.

In the first stage of the experiment, the research methodology was developed and the control and experimental groups were formed. Students were tested to check their level of foreign language proficiency. The questionnaires made it possible to identify non-formal professionally oriented courses that are interesting for students and that may contribute most to the academic progress of students within non-formal learning. At the ascertainment stage of the experiment, it was found that the majority of students have a sufficient level of foreign language competence. The results obtained at the ascertainment stage became the basis for determining the content of the formative stage of the experiment.

In the second stage, the students of the control groups were offered several courses to choose from on the topic "Foreign language for Specific Purposes". The online courses are performed on Coursera and Prometheus platforms. The control group studied without the use of online non-formal education courses in the curriculum. The experimental group combined traditional online lessons and training using online MOOC courses.

The criteria for assessing the levels of foreign language competence formation through non-formal education are defined as linguistic, professional and motivational (Table 1). Three levels of formation of foreign language competence are represented as advanced, sufficient and low.

Table 1

**Correlation of criteria and indicators  
of formation of foreign language competence  
through non-formal learning of students  
of technical specialties**

Criteria	Indicators
Linguistic	Developments of listening skills Development of professional writing skill Reading texts related to specialization Development of speaking skills
Professional	Training of professional skills Learning professional vocabulary Development of technological skills
Motivation	Increasing intrinsic motivation to learn a foreign language Interest in studying professional disciplines Pursuing personal growth

After the experimental group was trained according to the proposed methodology, the task at the formative stage of the experiment was to test students to check the level of formation of foreign language competence according to the criteria that were measured at the ascertainment stage. We conducted a comparative analysis of changes in indicators separately for each criterion. In the third stage, final testing was conducted and general conclusions of the study were formed.

The positive dynamics of the levels of formation of the foreign language competence of future engineers according to these criteria at the ascertaining and formative stages of the experiment are evidenced by the data presented in Table 2. The overall measurement results are summarized.

According to the results of the formative stage of the experiment, positive changes were found in the levels of formation of the criteria of foreign language competence of students of technical specialties in the experimental group compared to the control group. In particular, an increase in the number of respondents in the experimental group with high and sufficient levels of linguistic, professional and motivational criteria was established.

Quantitative analysis of the results of the formative experiment shows that at the beginning of the research, respondents demonstrated almost the same level of development of linguistic, professional and motivational criteria. The listening, reading and writing skills of students in the experimental group improved within the linguistic criterion, while no significant changes were recorded in the control group. It is worth noting that according to the indi-

Table 2

**Results of diagnosis of levels of formation of foreign language competence through providing non-formal learning activities**

Criteria	Levels					
	Advanced		Sufficient		Low	
	EG	CG	EG	CG	EG	EG
Linguistic	32,5	30,6	43,4	39,8	24,1	29,6
Professional	39,3	35,9	31,4	29,1	29,3	35
Motivational	43,7	38,1	40,2	38,4	16,1	23,5

cator regarding the development of speaking skills, there were practically no changes. The most likely explanation for the negative result is that students did not practice speaking while completing the tasks of the online course. Within the professional criterion, namely the development of professional skills, knowledge of professional vocabulary and development of IT skills, 39,3 % of the respondents of the experimental group demonstrated a high level, while no significant changes were recorded in the control group.

**Conclusions and suggestions.** From the research that has been carried out, it is possible to conclude that the problem of creating the most favourable conditions for the combination of formal and non-formal education for the formation of foreign language competence of students of technical specialities is complex and multifaceted. Non-formal education and language-integrated learning contribute to a professionally-oriented approach to student learning at the university.

The results of the comparative analysis of the study showed that the levels of formation of foreign language competence of the control group did not change significantly, while in the experimental group, there were noticeable changes, characterizing an increase in the number of students with high and sufficient levels. The findings are of direct practical relevance.

Based on the promising findings presented in this paper, work on the remaining issues is continuing and will be presented in future papers. Further research on the implementation of non-formal education for language learning is desirable to continue. The study does not pretend to be a complete consideration of all aspects of the introduction of non-formal education for teaching a foreign language at the university. It is advisable to direct further scientific research to the study of the use of new means for teaching technical subjects and the development of specialized software for students of technical specialities.

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**Ставицька І. В., Куценко Н. М., Ямшинська Н. В., Крюкова Є. С. Неформальна освіта у викладанні англійської мови як іноземної у технічному університеті**

*Освіта завжди розвивається і змінюється відповідно до запитів та вимог суспільства, згідно форм відбувається розподіл освіти на формальну, неформальну та інформальну, які у свою чергу мають як схожість так і відмінність, але наслідують одну головну мету – отримання знань, умінь та навичок для подальшого розвитку високоосвіченої та конкурентоздатної особистості у світовому просторі. Якщо раніше освіта мала лише строгий формальний напрямок як за змістом так і за контролем*

отриманих знань: закони, програми, тести, контрольний зріз знань, іспити, заліки тощо, то на початку цифрової ери з'явилась можливість урізноманітнити навчання, зробити його більш цікавим та використовувати різні онлайн платформи для проведення додаткових заходів підвищення рівня знань, умінь та навичок. Офіційною освітньою системою в Україні є формальна освіта, яку людина може отримати як в державних так і в приватних закладах освіти, які мають ліцензію на здійснення освітніх послуг. Неформальна освіта, яка в свою чергу не надає можливості отримати кваліфікацію за освітніми рівнями державного зразка, але надає можливість поглибити свої знання, вдосконалити вміння, навички та отримати диплом, сертифікат, свідоцтво про проходження курсів, семінарів, дистанційних курсів, вебінарів тощо. До інформальної освіти ми можемо віднести всю ту діяльність людини, що зорієнтована на саморозвиток та самоосвіту – це відвідування будь-яких лекцій, перегляд відеоматеріалів, читання наукової літератури, спілкування з колегами та однодумцями тощо. Згідно закону України про освіту викладач може сам обирати ту форму і структуру освітнього процесу для студентів, яку він вважає найбільш ефективнішою: курси підвищення кваліфікації, лекції, вебінари, семінари, онлайн платформи, а вже від студента залежить наскільки він буде поєднувати формальне і неформальне навчання та працювати над самовдосконаленням. Викладачами університету було проведено дослідження для поєднання формальної та неформальної освіти, щоб з'ясувати наскільки ефективно впровадження неформальної освіти в освітній процес та оцінити всі переваги та недоліки. Експеримент було проведено серед студентів Київського політехнічного інституту імені Ігоря Сікорського, які вивчають англійську мову як іноземну. В експериментальному дослідженні брали участь чотири групи респондентів, загальною кількістю 76 студентів бакалаврів третіх курсів Навчально-наукового механіко-машинобудівного інституту та Інженерно-хімічного факультету, була розроблена методика дослідження та сформовано дві контрольні та дві експериментальні групи. Викладачами було проведено опитування серед студентів, щоб з'ясувати рівень володіння іноземною мовою, для студентів експериментальних груп запропоновано такі онлайн платформи як Coursera та Prometheus, проведено тестування за всіма видами мовленнєвої діяльності (аудіювання, читання, говоріння та письмо) та проведено порівняльний аналіз результатів контрольних та експериментальних груп. Після проведення експерименту викладачами університету було враховано як переваги так і недоліки запровадження елементів неформальної освіти для навчання іноземної мови з метою подальшого вдосконалення та покращення освітнього процесу. Авторами дослідження було розроблено методику формування іншомовної компетентності майбутніх інженерів в умовах неформальної освіти, обґрунтовано діагностичний інструментарій для оцінювання рівнів сформованості та визначено критерії, показники та рівні сформованості.

**Ключові слова:** формальна освіта, неформальна освіта та інформальна освіта, іншомовна компетентність, технічний університет, англійська мова, експериментальні дані, критерії, іноземна мова професійного спрямування.