

## Peculiarities of English-teaching practice for students of electrical engineering

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**Annotation. Problem.** As engineering is a vast area of study in the world and English is a recognized language of international communication, knowledge of English is compulsory. Besides, we live in the digital age and English is the only language in latest version applications, installation guides and software instructions. Learning for students of engineering from not English-speaking countries is very important not only for their scholastic life, but also for their prospective career, mobility and successful communication. **Goal.** The goal of the work is to determine the features of teaching English to the students of electrical engineering, specify the role of English language for engineering students, outline the technique and methods of organizing the teaching process, look into innovative technologies of teaching. **Methodology.** The methodology is based on the analysis of the existing methods of teaching which are many, comparison of classical and innovative methods and analysis of the strategies of different methods. The paper emphasizes creative approach in teaching as a key to success. **Results.** The work provides a brief theoretical grounding and a working definition for creativity and motivation in teaching English for Specific Purposes and English as a Foreign language. It also explores the role and function of creativity in the context of the changing paradigm regarding the overall scope of the educational system in general and of the language learning in particular. **Originality.** The work offers combining creative methods and active strategies in fostering better language acquisition during English classes. When we see that the students are involved and motivated, it means that the strategy works. The teacher-oriented method is not currently welcomed in language teaching, and the ways to make it student-oriented are offered in the work. **Practical value.** The paper contains some practical advice on how a teacher can create more situations in which students can contribute, initiate, control and create. Keeping in mind the dependence of the learning success on creativity of teachers and motivation of students, new innovative methods of teaching in proper combination with theory of language can be used.

**Key words:** creativity, engineering students, communicative, competence, learning success.

### Introduction

Engineering is a vast area of study worldwide. As English is a recognized language of international communication, it is quite understandable that in order that the results of the studies are known to everyone who is concerned, they should be and most often are published in English. Besides, decent knowledge of English for students of engineering from not English-speaking countries is very important not only for their scholastic life, but also for their prospective career, mobility and successful communication as everybody today faces the necessity to communicate in English somewhere some day. It is a primary language of global communica-

tion as we live in the digital age and English is the only language in latest version applications, installation guides, software instructions which are available before they are or are not translated into other languages. If you want to study abroad or achieve a higher rank and degree in science, English language of some specific level is compulsory. If you want to understand and be understood when going across the borders – the decent knowledge of English is your way to success. As engineering is the biggest field of study in the world and English is one of the most necessary social knowledge, we can see how these two areas overlap. So, English communication competence is an important part of

academic and social life of engineering students and their career [1].

### **Analysis of publications**

Teaching English language to engineers (both English for Specific Purposes and English as a foreign language) has been undergoing considerable changes and challenges because there are many factors influencing the process. Many scientists have looked into the problem since it appeared as a separate area of language learning.

It was T. Dudley-Evans who admitted that teaching ESP requires a specific approach, different from the general language teaching. In his definition of ESP, he included three differentiating factors: ESP must be connected to a specific discipline or field of study, teachers should use different methodology than the one usually used in teaching languages and the level of the students should start from intermediate adult learners [2]. B. Jeffrey and A. Craft focused on the creativity of teaching process, characterized by imaginative, dynamic, and innovative approaches [3]. G. Molnár and Z. Szűts, understanding that students communicate more self-confidently via Facebook, using mobile communicational technology rather than they do in the actual classrooms, researched how mobile devices can enhance engagement and interaction with learning activities [4]. H. Gu, H. Bo and L. Ren studied students' attitude to different forms of educational materials and found out that about 85% of the students prefer using e-textbook, and 53.33% of the students vote for interactive teaching method [5]. H. Ning, G. Hornby examined the impact of cooperative learning on tertiary EFL learners' motivation [6]. The authors of [7] maintained that students should speak in English during the group activities, and they should be congratulated whenever they succeed in their attempt. They insist that in order to reduce the anxiety levels of the students, the teacher should build a supportive and cooperative atmosphere rather than a competitive or stressful one [7]. A. Keane says that oral skills allow you to interact at different technical levels, both formal and informal. Filming or recording a presentation of this type of activity, group discussion of the strengths and weaknesses of its implementation and evaluation of results have a very effective feedback between the teacher and students, as well as between the students themselves [8]. N. Bilan underlines that communica-

tive method is a means of learning foreign languages, it is aimed at the development and improvement of personality, the disclosure of its reserve capabilities and creative potential, it creates the conditions for effective improvement of the educational process in higher education [9]. T. Honcharenko says that the teacher must focus on the prospects for effective use of acquired knowledge, skills and abilities in future activities of the engineer, on the formation of their ability and inner need for constant self-study, self-education and self-improvement during all active labor activity [10].

### **Purpose and Tasks**

The goal of the work is to determine the features of teaching English to the students of engineering, specify the role of English language for them, outline the technique and methods of organizing the teaching process, look into innovative technologies of teaching including teaching through online resources as well as in the real classrooms.

In accordance with this goal the following issues are considered: the dependence of the learning success on creativity of teachers and motivation of students, innovative methods of teaching, the right choice of the strategy, materials and activities for successful acquisition of foreign language skills and competences and achieving overall language success.

### **Factors facilitating success of engineering students at English classes**

The social nature of language as a means of communication dictates the need to learn a foreign language as a specially organized communication, taking into account the principles of its optimization. As foreign language communication becomes an essential component of the future professional activity of the specialist, a significant emphasis should be placed on the selection of content, methods, techniques, organizational forms of rational combination of teaching material and independent student learning, preparation of differentiated, professionally oriented sets of exercises. An important point in teaching foreign languages is the creation of pedagogical conditions for the intensification of educational and cognitive activities of students and the productive implementation of technologies in the process of acquiring knowledge.

The purpose of teaching foreign languages in non-language universities is to achieve a suffi-

cient level for their practical use in future professional activities. Training specialists means formation and development of such communication skills that would allow to make professional contacts in a foreign language in various fields of activity and unforeseen situations. Thus, professional competence largely depends on the communicative competence of the specialist.

For engineering students, knowledge of a foreign language, including English, is important for both education and career advancement. The analysis of questioning about English for the future career is in the diagram, Fig. 1.

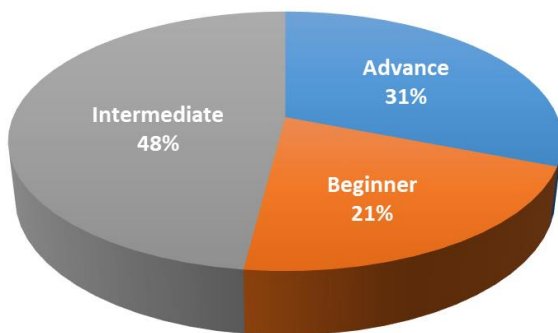


Fig. 1. The English proficiency level for student's career

It shows that the advanced level is not necessary while the beginner's level is still not enough.

Engineering is one of the largest industries knowledge, so many research and academic papers are presented in English. Without sufficient knowledge of English, it is difficult to understand the basic ideas and concepts of foreign authors. Besides, one of the main motivation to master a foreign language is student social life, which provides prospects for the development of close partnerships with peers and receiving grants to study outside their home country. Acquired communication skills are the key to success in the world of growing globalization, where the English language plays a dominant role. In addition, quality training offered by foreign partners provides a significant competitive factor in the labor market, as the need for highly qualified specialists in engineering is constantly growing. The globalization of the English language in modern society provides opportunities for the implementation of international projects, intercultural communication and cooperation at a high professional level. The survey shows the following picture of English language usage, Fig. 2.

Knowing at a decent level English grammar and having a large vocabulary on stand-by, students are still often unable to overcome the language barrier and express their thoughts freely.

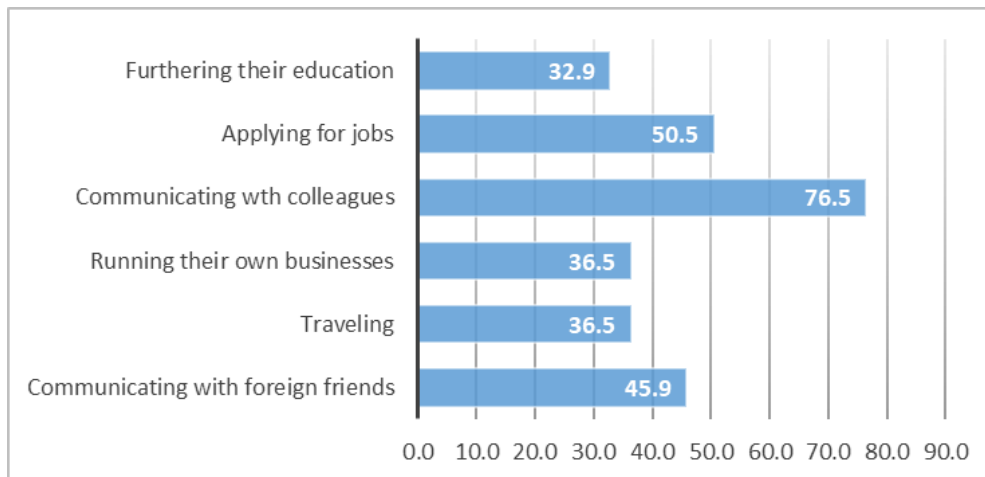


Fig. 2. Percentage of students using English for various purposes

Knowing at a decent level English grammar and having a large vocabulary on stand-by, students are still often unable to overcome the language barrier and express their thoughts freely.

Learning the language of the specialty requires mastering a large number of terms and special concepts needed by the future specialist. A non-language student must be a specialist who

has a sufficient level of communicative competence in a particular field of activity, but the number of classroom hours does not always allow the teacher to achieve the desired result. According to the working curricula, students are given many hours to work independently, which, given the specifics of the subject, is not quite effective as is not usually done properly

and honestly. So teamwork is needed - in a group, in a team, in pairs. It is clear that you can learn to express your thoughts competently in the process of live communication, when you see that you are understood, when you can react instantly and explain everything you are asked. The three reasons which reduce the emotional and value motives for learning a foreign language are low communication skills of the student, poorly developed foreign language course in the specialty, incorrectly selected method. According to Littlewood [11], the active involvement of learners in the learning process depends on such components as the favorable conditions for learning and communication and the subject of discussion which should meet the interests and needs of students, be relevant to here and now. Close cooperation between teachers and students, teamwork training is the key to success in learning the language of the specialty and significantly increases the internal motives, which is manifested in improving oral and written skills [8]. Types of lexical and grammatical exercises, taking into account specific terminology, significantly expand the active lexical minimum and passive professional jargon. As professional communication is currently one of the main requirements of the employer to a young specialist in engineering, and emotional intelligence plays an important role in strengthening communication skills, self-awareness and self-regulation should already be formed in students during training [12].

Language teachers teaching ESP are confronted with a series of professional challenges surpassing the regular requirements of a general language teacher. It is rather difficult to find a standardized ESP textbook which should fit perfectly the linguistic needs of a specific group of students and the complexities of designing proper activities to practice all language skills.

All components of education including teachers face a new reality when the focus shifts from the traditional informative purposes which are becoming more and more outdated due to the fast digital connectivity of the modern world and the availability of information, towards a more skill-based and attitude-based approach in order to fit this new reality.

This context has made English teachers reconsider their position and the specifics of their activity in the classroom. By resorting to creative methodologies, they may create and successfully implement activities which compensate for the lack of standard resources while

providing a motivating learning environment. At the same time, a creative approach to teaching ESP brings about the conditions which allow students to develop their personal and professional skills and manifest them openly. ESP teachers' creativity may be the best solution to overcome the complexity of teaching a specialized form of linguistic discourse and that of creating the conditions fostering student communication skills and attitude formation. Creativity as a motivating factor can be implemented in the curriculum, the materials, the choice of activities and teaching methods, the assessment techniques.

The significant changes in the way all education is given require that rather than focusing on informative purposes, which are very easily achieved by a millennial who is very well aware of many ways to find the information online, ESP teachers should switch to a more holistic approach. To do this, they should find and apply creative, innovative ideas in their teaching routine, with a double benefit. On the one hand, creative teaching strategies foster motivation, which is a catalyst of learning. The use of innovative teaching strategies has been a hot topic since the last decade. Many studies consider creativity as a personal trait and intellectual ability of different individuals, associating creativity with genius and intelligence or with knowledge. Tomorrow's professionals are required to be flexible, critical and creative thinkers rather than patterned ones. In this perspective, the concept of teaching is integrated with creativity and innovation.

When considering creativity in ESP, but also in the entire educational field, the distinction between creative learning and innovative teaching is worth mentioning. The former can be defined as any learning which involves understanding and new awareness and focuses on thinking skills. Innovative teaching is the process leading to creative learning, the implementation of new methods, tools and contents which could benefit learners and their creative potential.

If we wanted to sum up the main ingredients of creative ESP teaching, perhaps M. Michalko would give a possible answer. According to him, creative teachers look at "what possibilities there are" and "what can be done with the present resources" instead of "what is not possible". "Instead of excluding possibilities, creators include all possibilities, both real and imagined" [13]. Also, a creative teaching process is charac-



terized by imaginative, dynamic, and innovative approaches [3].

According to Dana Rus, applied to the specific case of ESP, the features above would include the following methodological possibilities: syllabus construction following needs analysis and benchmark analysis; cohesive, consistent, integrated-skill lessons centered around language functions; a predominance of communicative activities; the consistent use of technologies in all phases of the teaching process; technical vocabulary, which should only be taught in a communicative context; grammar, which should only serve as a means to a communicative end; use of varied patterns of interaction with a focus on collaborative tasks (group work, pair work); interesting, alternative, project-based types of assessment; intensive use of authentic materials from the students' field of study; the extrapolation of specialized texts/topics to general communication subjects; constant attention paid to personal development skills (e.g. oral presentation skills); contact with representatives from relevant industry to make students familiar with real job-related topics (invited speakers, roundtables, workshops, visits, video conferences etc.); the use of direct test items to make assessment as similar as possible with real-life situations in professional backgrounds (e.g. interviews, presentations, writing technical reports, following oral directions to complete a task, labeling diagrams/charts, writing technical documentation, writing blog entries, filming videos etc.) [13].

### **Enhancing creativity and motivation of engineering students at English classes**

The concept of creativity is quite complex and diverse, and its aspects are usually studied and analyzed from different points of view. This is one of the reasons why there is no generally accepted definition of creativity, and therefore we should always consider from what point of view we define this concept.

A creative approach to teaching a foreign language is to present creativity as one of the many natural skills and talents that everyone has. This approach is based on the idea that everyone can use their hidden potential to be creative under certain conditions, and that students have different forms and levels of creativity. The teacher's task is to stimulate their creative potential in the learning process. Foreign language teachers have the opportunity to take ad-

vantage of the following methodological advantages in order to stimulate students' creativity.

First, language is creative in nature. We can express or convey an idea in different ways. In addition, any expressed idea can cause many different reactions and emotions. Any sentence, phrase or word that we say or write is formed in a unique moment of communication, they can be created, formulated or paraphrased depending on the goals of the author.

Secondly, during foreign language classes, the teacher, in addition to the subject, can touch on the topics of philosophy, management, jurisprudence, focusing on language priorities. Under such circumstances, a creative atmosphere is created when students and teachers have the opportunity to share their individual experiences, their own knowledge and skills.

Third, students can also be easily involved in creative situations in which they have to find one or more answers to a number of interrelated problems. They do not know how to solve the problem, they may not be sure how many solutions the problem has - one, several or it can not be solved at all. Students are not offered simple situations with clear decisions won-lost or right-wrong. Most likely, they will encounter difficult situations with unclear or plausible solutions. Because language use is a form of communication that can be used in almost any situation, situations which are close to reality can be created much more easily than when teaching other subjects.

As a result, it should be noted that the use of creative methods in teaching a foreign language promotes the acquisition of foreign language material. It demonstrates to students all the versatility and complexity of the structure of language, improves the skills of its application in real life situations in a favorable and dynamic environment.

For all kinds of communication language learning is stimulating and provoking debates and discussion. Classes can be organized as a regular discussion of events or topics, as well as a game of debate. This will help students to deeply understand the topic and prepare for the speech so that they can quickly and easily express their opinion, which will help them to speak freely in real life. Besides, when they further use social network in communication on the topics, it will prove effective in ESP teaching and can improve students' ESP proficiency and enhance their motivation for studying [14].

Using “real grammar” is crucial. Grammar is too often associated with rules and exercises where students work in uncreative situations and their answers are either correct or not. In other words, they succeed or fail. Some creative exercises can provide a motivation for students to learn grammar creatively.

For example, a certain grammatical topic is considered during the class. It is a good practice to give real examples from movies or songs and a homework to look for the examples and make a list of them would be a good motivation. This activity stimulates creativity and critical thinking, as students need to choose films or videos that could theoretically contain these grammatical constructions. There are also no right or wrong solutions in this exercise, because even those who do not find examples but show a list of materials they have worked with will be successful. The reason for everyone's success is the fact that it forces students to spend time thinking and focusing on the specific grammatical structure in the films they watch, in the music they listen to, and ultimately in real life.

Introducing students to an interesting topic that will make them think is a good idea. All project-based lessons are based on solving a major issue or problem. Ideally, these questions / problems are asked by students. In order for students to think, we need to provide them with some ambiguous and interesting information. This can happen organically or intentionally. The teaching-learning process has to adapt to changing learning contexts. Technology provides a learner independent in language learning. Thus, technology enables the learner's efforts easier and faster [15]. A book, a tour (even a virtual one) or an article according to the interests of the students are all great ways to make students think. When developing a topic and question, we should remember that Google does not need to know the answers! If Google can respond instantly, that's certainly not enough to conduct meaningful research. The problem should be such that only in the process of studying and collecting information it could be solved and the individual point of view is critical for the result of the research. We can help the students by identifying some critical questions once the topic is chosen. We should not forget that the students of engineering specialties are mostly not used to “many-words” discussions, and here our task is not only the answer but the real debate, the reason and consequences of the decisions on the topic are important. For example –

Your district is very dirty and not green at all. Which must come first – planting trees or sorting garbage? The topic must be studied, not only the question answered. This is the main point of the project.

Conducting your own research on the topic and supervising students in their search is another way. Students will need additional support during the research phase. We can help a little by doing some research for them and narrowing the search to a few articles of the appropriate level. During the research phase, we will be a guide for students, as well as pay close attention to how well students are oriented for educational purposes.

For some projects, this may only include a presentation. Nevertheless, all students should be able to present their results to the audience. This gives students a real practice of speaking and answering questions, as well as forcing them to critically evaluate the work they have done.

Considering and including the professional topics in discussions and debates is one more way to integrate ESP and EFL during the English classes. The topics can be many as the range of engineering and foreign language overlapping is endless.

We depend on the student's success during the classes. We feel great if it was lively and interesting. We usually feel that everything went well because we saw that the students were involved and motivated. A teacher-oriented couple ceases to be an interaction and becomes a lecture, which is not usually expected in language learning. Therefore, the teacher needs to create more situations in which students can contribute, initiate, control and create. With this in mind, we can also become partners in the learning process, and realize that we can also learn a lot from students and can be impressed with what they managed to do.

### **Conclusion**

This paper provides a brief theoretical substantiation and a working definition for creativity and motivation in teaching English for Specific Purposes and English as a Foreign language. It also explores the role and function of creativity in the context of the changing paradigm regarding the overall scope of the educational system in general and of the language learning in particular. Finally, it analyses the role and potential of creative methods and active strategies in fostering

better language acquisition during English classes. Creative methods mark a next level in modernizing the teaching strategies so that the full potential of a student's abilities can be activated and the desire for independence and originality, for competition, for searching novelty and working better in the language classes are encouraged to the students' and teachers' best satisfaction.

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### Conflict of interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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### Особливості практики викладання англійської мови студентам електротехнічної спеціальності

**Анотація. Проблема.** Зважаючи на те, що електротехніка та електромеханіка є величезною областю знань у світі, а англійська мова є визнаною мовою міжнародного спілкування, знання англійської мови є обов'язковим. Крім того, ми живемо у цифровому віці, а англійська мова є єдиною мовою в останніх версіях додатків, інструкцій та програмного забезпечення. Навчання для студентів-інженерів не англійськомовних країн дуже важливо не тільки для їх навчального життя, а й для перспективної кар'єри, мобільності та успішного спілкування. **Мета.** Метою роботи є визначення

особливостей викладання англійської мови для студентів інженерних спеціальностей, окреслення техніки та методики організації навчального процесу, аналіз інноваційних технологій навчання. **Методологія.** Методологія ґрунтується на аналізі існуючих методів навчання, яких багато, порівнянні класичних та інноваційних методів, аналізі стратегії різних методів. У статті підкреслюється важливість креативного підходу до навчання як ключа до успіху. **Результати.** У роботі надається коротке теоретичне обґрунтування та робоче визначення творчості та мотивації у викладанні англійської мови для конкретних цілей та англійської мови як іноземної мови. У роботі також досліджується роль творчості в контексті змінної парадигми щодо загальної сфери освітньої системи в цілому та вивчення мови зокрема. **Оригінальність.** У статті пропонується поєднання творчих методів та активних стратегій у створенні кращих умов оволодіння мовою під час занять з англійської мови. Коли ми бачимо, що студенти залучені та мотивовані, це означає, що стратегія працює. Метод, орієнтований на викладача, наразі не

вітається у вивченні мови, актуальним є спроба зробити навчання орієнтованим на студента. **Практичне значення.** Стаття містить деякі практичні поради щодо того, як викладач може створити більше ситуацій, в яких студенти можуть сприяти, ініціювати, контролювати та створювати. Успіх навчання залежить від творчості викладачів та мотивації студентів, це дозволяє знайти нові інноваційні методи викладання в належному поєднанні з теорією мови.

**Ключові слова:** творчість, студенти інженерних спеціальностей, комунікативний, компетенція, успіх навчання.

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