

IMPROVING STUDENTS' PROFESSIONAL SPEECH COMPETENCE BASED ON STEAM TECHNOLOGIES IN TEACHING ENGLISH AT TECHNICAL UNIVERSITIES



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Abstract: This article provides the importance of improving students' professional speech competence based on STEAM technologies in teaching English at technical universities. The basis of modern approaches, the suggestions and recommendations for enhancing the information-methodological support for the development of communicative, linguistic, sociolinguistic, pragmatic, speech and lexical competences with the help of STEAM technologies in teaching English for engineers are explained in the article.

Key words: STEAM technologies, competence, challenge, innovation, creativity, communication, contribute, practice, requirement, effectiveness, personal, career-oriented approaches.

TEXNIKA UNIVERSITETLARIDA INGLIZ TILINI O'QITISHDA STEAM 'TEKNOLOGIYALARI ASOSIDA TALABALARNING KASBIY NUTQ KOMPETENSIYASINI TAKOMILLASHTIRISH

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Katta o'qituvchi,

"O'zbek tili va adabiyoti" kafedrası,

Toshkent davlat texnika universitetining Olmaliq filiali

Annotasiya: Ushbu maqola texnik universitetlarda ingliz tilini o'qitishda STEAM texnologiyalari asosida talabalarning kasbiy nutq kompetentsiyasini takomillashtirishning muhimligini ko'rsatadi. Maqolada zamonaviy yondashuvlarning asoslari, ingliz tilini o'qitishda STEAM texnologiyalari yordamida kommunikativ, lingvistik, sotsiolingvistik, pragmatik, nutqiy va leksik kompetentsiyalarni rivojlantirish bo'yicha axborot-uslubiy ta'minotni kuchaytirish bo'yicha taklif va tavsiyalar bayon etilgan.

Kalit so'zlar: STEAM texnologiyalari, kompetensiya, muammo, innovatsiya, ijodkorlik, aloqa, hissa qo'shish, amaliyot, talab, samaradorlik, shaxsiy, martaba yo'naltirilgan yondashuvlar.

ПОВЫШЕНИЕ ПРОФЕССИОНАЛЬНОЙ РЕЧЕВОЙ КОМПЕТЕНТНОСТИ НА ОСНОВЕ STEAM ТЕХНОЛОГИЙ ПРЕПОДАВАНИЯ АНГЛИЙСКОГО ЯЗЫКА В ТЕХНИЧЕСКИХ УНИВЕРСИТЕТАХ

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Аннотация: В статье рассматривается важность повышения профессиональной речевой компетенции студентов на основе технологий STEAM при преподавании английского языка в технических университетах. В статье раскрываются основы современных подходов, предложения и рекомендации по усилению информационно-методического обеспечения развития коммуникативных, лингвистических, социолингвистических, прагматических, речевых и лексических компетенций с помощью технологий STEAM в обучении английскому языку для инженеров.

Ключевые слова: технологии STEAM, компетенция, вызов, инновации, творчество, общение, вклад, практика, требование, эффективность, личностный, карьерно-ориентированный подходы.

Introduction

Nowadays teachers face a major challenge. The world where we live is evolving rapidly, but the way we teach students has hardly changed over the past 100 years. So the question is, are we doing everything we can to prepare students for the life they will face when they leave school?

We believe we can do more and it is our responsibility to prepare graduates in 2030 and subsequent graduates for the world they will find themselves in, even though we don't even know exactly how that world will be to look like. Undoubtedly, reliable and proven forms of traditional education continue to exist. As educators, we need to reflect on the fact that, in addition to factual information, students need to be taught universal skills.

Main part

Our role as educators is to inspire students to invention and perseverance in achieving goals. For us, thinking is not a noun - it is a verb, an action, an activity, and this is what we hope to achieve with our students. We want to challenge students to try something new, or to tell them that it's good to fail over and over again until they succeed. We want to tell students to learn from their mistakes and find solutions, and that the biggest lesson they learn is a problem they cannot solve.

As the world's leading elite school organization, we want to create a curriculum that is future-oriented and not based on traditional thinking from the past, predicting the skills needed for the 21st century. The pace of world change is so fast that the professions of the future are even impossible to imagine. Over the past 20 years, technology has completely changed everything possible. Given this pace of

change, educators can only guess what new professions will exist 20 years from now. Therefore, education should be not only information acquisition, but also skills development so that students can adapt to a changing world.

Traditional teaching and learning systems do not provide young people with the skills they need to achieve their goals in the modern world. The majority of traditional classical forms of instruction in a variety of subjects are poorly adapted to provide the skills needed to develop creative solutions to complex problems. Traditional schooling addresses the problems of the past, but not the problems of the future.

So the question is, how can we adapt and prepare students for the life in the world they will face? So how do we adapt and prepare our students for the challenges they will face in the future?

We believe that we must support the development of the universal skills that require students to adapt and respond to a rapidly changing world. In this way, we will make them more resilient, flexible and ultimately successful as they enter the real world and begin to contribute to society.

Our new approach to STEAM teaching - Science, Technology, Engineering, Arts, and Math - is an interdisciplinary method aimed at helping students develop vital, versatile skills and knowledge across subjects through experimentation, trial and error, and creativity.

The cross-functional approach to STEAM illustrates how we can prepare students for real life. It works on the premise that the world is complex and messy; that there is no such thing as a problem that can only be solved by knowing chemistry or physics. The challenges are multifaceted, and the

thinking required to find a solution must be as dynamic as the world around us.

Whether it cures cancer or tackles climate change, real-world issues require input from all disciplines, so why would students think the world is falling apart neatly? Studying different subjects helps build a more holistic understanding of how the world really works. Students should be encouraged to learn this as early as possible in their education.

What is STREAM?

STEAM is based on the understanding that innovation is often born where different things intersect. By studying these subjects at the same time, students look at a wider range of perspectives when solving a specific problem. While traditional learning develops evidence-based knowledge, our STEAM program will develop the skills needed to grow - flexibility, critical thinking, creativity, and communication.

There is also ample evidence that STEAM has a beneficial effect on learning in all areas precisely because it helps develop these versatile skills.

Learning through STEAM fosters innovation and creativity and improves collaboration. A 2013 academic study found that when humanities subjects were combined with science, problem learning, and technology, student performance also increased in science and mathematics. So STEAM not only prepares our students for the future - it can also be a potential catalyst to accelerate learning. Massachusetts Institute of Technology is consistently leading the STEAM concept. Their philosophy - *Mens et Manus* (mind and hands) - reflects the combination of theory and practical application that is critical to quality education. Inspired by MIT, a core element of our STEAM program will stimulate learners to learn by helping

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them better understand their knowledge by analyzing theories in practice.

Creating hands-on challenges for learners means they can develop their knowledge and skills through hands-on exercises. Active participation and the freedom to explore and express ideas with others in solving these real-world open-ended problems has been proven to improve learning.

Our society sets a task for higher education institutions to train specialists who have a thorough theoretical knowledge for their future professional activities, who can effectively apply their knowledge in practice, who can creatively apply their practical skills in their work. In today's world of international relations, knowledge of languages is also of great importance for multilingual technologists.

A modern technical specialist is a person who has developed professional communicative competence in English, has a thorough knowledge of advanced foreign engineering technologies, and is able to actively participate in international relations with the use of computer technology.

In order to form professional communicative competence in English in future engineers, it is important to obtain information in the field of engineering from foreign sources. The Resolution of the First President of the Republic of Uzbekistan «On measures to further improve the system of learning foreign languages» (Tashkent, December 10, 2012) further expanded the opportunities for consistent research in this area.

It is precisely the future professional activity that determines the content and form of education, and today requires a radical change in the methodology of teaching foreign languages at technical universities.

A study conducted at Almalyk branch of Tashkent state technical university, an analysis of the level of English proficiency of students, showed that only 20% of them can speak on everyday topics. However, they also cannot express themselves freely in their fields because their speaking skills are not formed at the required level. One of the current problems of foreign language teaching methods is the lack of existing curricula, textbooks and teaching hours, which do not allow to fully master a foreign language. Therefore, graduates of technical schools are not able to express their opinions in English in their fields.

Currently, the demand for highly qualified engineers who can speak a foreign language fluently and exchange information and experience at an international level remains high.

The future engineer's professional communicative competence in a foreign language is an integrative feature of the person, characterized by the amount of knowledge, skills and competencies in a foreign language, communication ethics in technics and formed by modeling the engineer's professional communication in a foreign language.

The system of training of non-linguistic higher education institutions should meet the requirements of rapidly changing international relations, the formation of independent, creative solutions to problems of professional communication, which can quickly adapt to the exchange of information on updated economic and professional fields. Improving the effectiveness of vocational-oriented foreign language teaching to students of technical universities requires the development and implementation of new STEAM technologies in practice.

Results and discussions

The STEAM technology we have developed will help to solve the problem by modeling the professional communication competence of future engineers (mechanical engineers) in a foreign language - by modeling their professional communicative activity in a foreign language.

STEAM technology model

Goals:

Formation of professional qualities necessary for communication in the field of engineering; these qualities are as follows: promotion of professional skills in the field of engineering; interacting with colleagues; work with technical literature and write down their communicative goals.

Methods:

In-class and out-of-class work. Modeling of professional communicative activity specific to the future engineer, organization of training based on the principle of problem-information-communication.

Content:

In-class and out-of-class work. Modeling of professional communicative activity specific to the future engineer, organization of training based on the principle of problem-information-communication.

Tools:

Authentic texts, textbooks, manuals, scientific literature on technics in foreign languages, as well as Internet materials.

In our study, we are talking about a system of foreign language teaching based on software and hardware, in which information and communication technologies are an integral part of education.

Software and hardware for teaching a foreign language means a set of computer equipment and software used in foreign language teaching and is a necessary element of various information and communication technologies. In this regard, during the study, special «information and communication technologies» were developed and put into practice.

The analysis of the impact of the modern educational paradigm on the system of foreign language education at technical universities showed the need to develop this system of foreign language teaching based on personal, communicative, developmental, career-oriented approaches.

This STEAM technology is an interactive communication, fully informing students about how the stages of the learning process go; effective teaching methods that provide modeling of situations related to professional communicative-cognitive activity in the educational process, taking into account the modern communication environment; students' interest in learning throughout their lives and careers includes continuing education, which involves the development of foreign language learning skills independently, promotes the idea of self-education, and requires students to develop an independent stable personality based on reflexive skills. At the same time, it requires the development of students' ability to communicate in a foreign language and the use of information and communication technologies, along with the formation of communicative competence.

These skills can be incorporated into the core professional competence of a specialist as intellectual competence. The study of the genre of texts as an integral part of the content of foreign language teaching at technical universities has

shown the following. The rapid updating of data and its obsolescence have led to a significant increase in the share of technical scientific articles, their inclusion in the list of secondary texts and their importance in the general scientific and professional literature in the field of engineering.

Their main task is not to present new facts, theories, concepts, but to generalize and interpret basic scientific and professional information and create secondary information on this basis. Such information is easily assimilated by students.

The specific features of the selected articles during the study revealed the expediency of using this genre of scientific literature as a basis for the development of interrelated receptive and reproductive skills and competencies and modeling of scientific-professional communication. The inclusion of information letters (CV, technical job resumes descriptions and objectives, technical job application forms), information on new sanitary norms, rules and hygiene standards, texts of lectures of famous foreign scientists, their audio and video recordings in the content of foreign language teaching will increase the effectiveness of foreign language learning proved.

Websites of international technical organizations, universities, companies cooperating with universities, training of specialists in this field and other technical organizations (factories, plants) are a necessary element of the content of foreign language teaching in technical universities.

The basis of information and communication technology, which we have developed, is the modeling and repetition of communicative situations in the learning environment, the preparation and conduct of scientific conferences based on the

materials of international factories, as well as the development of software systems.

Accordingly, skills were selected, appropriate means of speech were selected, exercises aimed at mastering this type of communication were developed, and requirements for the necessary teaching aids were formed. Achieving the ultimate goal of foreign language teaching at technical universities requires a variety of information and communication tools (software and hardware) that are relevant to the formation of students' professional communicative competence in a foreign language.

The study proved that regular use of software systems in the educational process creates a mixed type of learning environment that provides the formation of knowledge, skills and competencies, as well as provides a gradual transition of students to independent learning activities.

The use of ready-made foreign language teaching aids in the learning process presented on the Internet has shown that teaching in technical universities is not in line with the goals and objectives of professional orientation. This highlighted the need to develop a system of software tools suitable for technical prevention.

Also, as a necessary element of a modern system of foreign language teaching and an important element of teaching based on information and communication technologies, it is necessary to develop a system of software tools for learning foreign languages, including:

- 1) curriculum that provides some skills and abilities;

- 2) a textbook containing audio exercises that provide the formation of speaking and listening skills;

4) electronic technical dictionaries that provide the development of professional communication in a foreign language.

Conclusion

STEAM technology is an interactive communication, fully informing students about how the stages of the learning process go; effective teaching methods that provide modeling of situations related to professional communicative-cognitive activity in the educational process, taking into account the modern communication environment; students' interest in learning throughout their lives and careers includes continuing education, which involves the development of foreign language learning skills independently, promotes the idea of self-education, and requires students to develop an independent stable personality based on reflexive skills.

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