



Methodology for the Development of Communicative Competence Through Steam Technologies

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Abstract

This article is devoted to the study and analysis of methods for developing communicative competencies through STEAM technologies, as well as the study of didactic conditions for conducting experimental work, which involves the selection and structuring of pedagogical technologies, active methods, cases and tasks for the use of educational technologies and digital applications. The paper raises issues of improving the quality of education and improving the educational system while integrating several sciences to improve the system for developing communicative competencies among future specialists.

Keywords: *Speech Skill; Communicative Competence; Pedagogical Activity; Educational Process; Teaching Methodology*

Introduction

The education system is in constant reform. However, there is a need to increase students' awareness of key competencies for free orientation in the innovative and digital space; preparation for a professional future and various life situations. In this issue, an important place is occupied by STEAM education, which covers several areas. The universality of scientific knowledge is one of the fundamental principles of STEAM.

There are many examples of outstanding personalities who were equally successful in several sciences at once, humanitarian and technical, as well as in creativity. For example, Leonardo da Vinci was a master in many areas - not only painting: he was a sculptor, anatomist, musician, urban planner, geographer, engineer who built optical instruments, castles and other technical developments.

His intellectual abilities, together with personal qualities, have become a help in solving a number of life tasks in various fields of activity. This is one of the clearest examples of a multifaceted personality, which educators should strive for in order to develop a systematic, experimental and critical attitude to the reality under study.

Time and technology do not stand still, and some problems of speech development of the individual can be correct with the help of innovative technologies. One of the directions is STEAM-technology - this is a modular direction of education, the purpose of which is to develop the intellectual abilities of a person with the possibility of involving him in scientific and technical creativity. If you decipher this abbreviation, then translated from English it will turn out: S - sciences, T - technology, E - engineering, A - art, M - mathematics.

These disciplines are becoming the most popular in the modern world. STEAM education based on the application of an interdisciplinary and applied approach, as well as the integration of all five disciplines into a single learning scheme. This innovation involves a blended learning environment, and shows a person how to apply science and art together in everyday life.

Main Part

The study of Russian as a foreign language and the ability to speak it are the main goals for many students who use this language for various purposes.

In the course of experimental work, it turned out that few students who entered the university could conduct a conversation or discuss topics of interest to them. Most first-year students find it difficult to maintain a conversation and give personal or specific information due to insufficient development of communication competencies and conversational skills.

In the classroom, students sometimes find it difficult to express their opinions in front of their partners due to a language barrier or due to a lack of sufficient knowledge of grammatical structures, vocabulary and appropriate pronunciation, which will allow them to build coherent speech acts that take into account the context and situation in which communication takes place. Therefore, oral communication of students in a foreign language can sometimes be unsuccessful. The speaker may not be using the correct vocabulary, grammar, or functional language for a given situation, or may not have the correct cultural or contextual knowledge of the topic of conversation.

These and other circumstances contribute to the more complex development of conversational skills and communicative competencies in the classroom. In addition, for most students, foreign language classes are the only time they can get to know the language they are learning. As mentioned earlier, various factors can influence the appropriate development of an effective student communication process in a higher education institution where people are needed somebody who can communicate in Russian fluently. This is a requirement of the time, on which the further development of the country in the field of economy and tourism depends.

There is another important aspect in which a number of difficulties arise for students in the development of communicative competencies. This is due to the lack of an initial language base, which is built in the process of learning the Russian language at school, where at the end of the program being studied, students should be able to talk on elementary topics with a partner in an educational institution.

You can start using STEAM technologies in your work with a series of team building exercises. When organizing the educational process, they make it possible to introduce students to technical creativity and team spirit, to contribute to the formation of engineering inclinations and technical thinking. It also gives students the opportunity to show initiative and independence, the ability to set goals and cognitive actions. Exercises combine elements of play and experimentation and contribute to the development of attention, memory, thinking, imagination, communication skills, and ability to communicate with peers, vocabulary enrichment, and the formation of coherent speech. The implementation of the STEAM-education model, which is an important component of many projects being implemented today, largely depends on the creation of a new subject-spatial environment of the

education system as a whole, updating the content, software and methodological support, and material and technical base.

At the same time, educational technologies were used I-technologies (interactive whiteboard and other multimedia equipment).

Depending on the level of knowledge, students can also develop the language skills used in various STEAM professions. These language skills include listening and negotiating, reading and interpreting text or data, writing down hypotheses, labeling projects, writing down data, exchanging explanations, exchanging ideas and solutions, and publishing results.

Vocabulary classes can integrate STEAM through texts such as educational stories that develop creativity, thinking skills, critical thinking and scientific thinking.

For example, if you read stories about animals or plants with students, you can ask them to make or draw this or that plant or animal from improvised materials.

This includes art and design, engineering and mathematics. Students can retell the story or tell about the properties of this plant, describe it or talk about what the selected animal eats, talk about its life cycle. You can even extend your learning to the life cycles of other animals, including science. The educational material in universities does not allow the full use of STEM technologies, but almost every module has topics in which it is possible to use project research methods. These are, of course, mini projects.

Some modules contain topics related to ecology and natural sciences. These topics have interdisciplinary connections of the Russian language with ecology and chemistry. Within these topics, students make a presentation and use visual material.

The students carry out a project dedicated to the life and scientific work of outstanding scientists. The history of the discovery of radioactivity is considered in detail. Some of the participants in the project work collect materials prepare a report and presentation about outstanding personalities and their contribution to science. When studying a topic, new vocabulary is practiced. In this topic, interdisciplinary connections of the Russian language and physics are viewed.

STEAM is one of the trends in global education, which implies a blended learning environment, and shows how to apply science and art together in everyday life.

According to the curriculum, students study the topic of modern styles of painting, cubism and surrealism. When studying the topic of cubism, the vocabulary associated with geometry is repeated. For example, rectangle (rectangular), triangle (triangular), square, cube, cylinder. Students carry out a project where they search for information about interesting facts from the life of world art masters and the history of writing their works, about museums that store these masterpieces. Under special attention to domestic museums. They also collected works of these two areas of art. This topic examines the interdisciplinary connections of the Russian language with mathematics and painting.

Results and Discussions

The results obtained after examining the data collected using qualitative tools. These tools divided into six main categories: teacher methodology, interaction, language skills, error correction, student characteristics, and materials. Under each main category are grouped several sub-categories used to analyze the main results obtained with the tools used to collect data.

The main category "teaching methodology" refers to some of the practices carried out by the teacher in the classroom that characterize each and are important factors for improving language learning and oral skills.

The category "interaction" refers to the various ways that the teacher and students can take advantage of facilitating collaboration with peers.

The category "language skills" refers to the skills that students must demonstrate in the classroom in order to achieve the desired level of Russian language proficiency that they should have upon graduation from high school.

The category "error correction" includes various strategies that the teacher uses to correct students' mistakes, giving them the opportunity to learn from their own mistakes. The category "characteristics of students" includes some characteristics that determine the attitudes and feelings of students.

The last category of "materials" includes all the resources that teachers use to improve the process of language learning by students and the development of oral skills.

After collecting data using the tools used, the following was determined:

1. Some methodological aspects contribute to the development of communicative competencies and speech skills, while others, on the contrary, hinder their development.
2. Interaction promotes collaborative learning.
3. Attractive pedagogical activity promotes sympathy and active interaction.
4. The successful mastering of the language program of a higher educational institution is facilitated by a high-quality basic level obtained at school.
5. The availability of educational materials facilitates the process of teaching and learning the Russian language.

The analysis of the observations showed that the excessive use of traditional teaching methods, the predominant use of the grammatical aspects of the language, the deductive method, the few opportunities for communication in Russian, as well as the non-use of educational materials, the lack of some educational resources can hinder the development of communicative competencies and conversational skills among students.

The use of available materials and corrective feedback, as well as the inductive method for language familiarization, provides more opportunities for communication and can help develop speaking skills in the classroom.

The results also showed that students enjoy engaging in engaging activities such as listening to songs, watching movies, chatting with their partners, and doing collaborative activities that promote interaction and teamwork.

In addition, the results revealed that most of the study participants do not speak Russian at a sufficient level. Poor language training of students at the initial stage does not allow continuing the study of the Russian language according to the program of higher educational institutions without additional classes.

Given the results of this study, it may be useful for educators to provide some of the sessions as teach facilitators to ensure successful group communication. At the same time, it is necessary to be aware of some methodological aspects that contribute to the development of students' Russian language skills, as well as to work out a plan to promote the attractiveness of error correction activities and ways of positive feedback.

Analysis of the data obtained showed that most of the methodological aspects contribute to the development of communicative competencies and conversational skills. Based on the results, it can be argued that despite the many shortcomings that may affect the process of learning the Russian language, the methodology used by the audience can positively affect the development of communicative competencies and conversational skills among students.

According to the results of this study, important aspects related to the methodology of the teacher and used in the educational process were identified. The sequence of the educational process allowed students to expand their knowledge on the topic being studied, exchange information with their partners and the teacher, strengthen their knowledge, clarifying possible doubts that they might have. Using the inductive method to be acquainted with the language gives students the opportunity to independently discover the meaning of the word and use some language features. It is also worth highlighting the use of educational materials that give students the opportunity to interact with their peers, improving their oral skills and communicative competencies.

The conducted research made it possible to determine to what extent the methodological aspects and pedagogical prerequisites used in the educational process can contribute to or hinder the development of the process of oral interaction of students and the improvement of their communicative competencies. Based on the data obtained, the following conclusions were reached.

Each student has his own way of learning and perception, despite the fact that the participants in the educational process may be from the same group and the same educational institution. Each of them has different interests, needs and disadvantages. Teachers must take into account the differences of students in order to provide them with an effective and adapted to their characteristics way of learning a foreign language.

The use of STEAM technology in experimental classes can be carried out with the help of information programs designed for learning a language as a foreign language. These methods turn a boring process into an exciting one, developing coherent speech with the help of text tasks and cognitive content. It can also serve as an excellent help in the formation of the grammatical structure of speech, consolidating the skills of working with information technology and spatial orientation.

Conclusion

After studying this issue, we have drawn some conclusions. Typical human speech problems include: monosyllabic speech, consisting only of simple sentences; poor vocabulary; the use of non-literary words and expressions; poor dialogic speech: inability to formulate a question correctly and easily, build a short or detailed question; inability to build a monologue; bad diction.

STEAM technologies will allow educators to raise a generation of successful researchers, inventors, scientists, technologists, artists and mathematicians. Our graduates must be ready for innovation, creating projects and the ability to implement them in reality.

To implement this project, it is necessary to create a number of conditions. Firstly, the creation of a mixed object-spatial environment that will allow for design and experimental research activities, the creation of IT technology classrooms, STEAM laboratories.

Secondly, STEAM integrates various student activities that combine all five areas, and provides an opportunity to demonstrate results. After all, the main motto of the STEAM program is "Minimum theory, maximum practice."

Only the innovative approach of teachers makes it possible to achieve high results through practical research activities, thanks to which a person can master several professions, be sociable, creative, and fluent in the audience and defend their projects.

Summarizing, we can say that the possession of modern STEM technologies is a component of the teacher's methodological culture. The introduction of new technologies into the educational process changes the position and habitual attitudes of not only the student, but also the teacher himself.

Thus, in the experimental classes, the basic knowledge and skills of the future specialist formed communication, cooperation, critical thinking, creativity, observed game exercises for the development of speech and thinking of specialists.

The potential of the individual is more successfully revealing in the conditions of an innovative educational environment, which should correspond to international interests. The innovative and educational component of the educational process should have something in common with the optimal learning space and technological criteria.

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