

Application of the project method using modern IT technologies

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Abstract. This article is devoted to the application of project methodology using IT technologies in the process of studying the subject "Foreign language" and "Foreign language in professional sphere" in the conditions of professional education among students of non-language high school. The article also analyzes the project methodology used as one of the best methods of teaching a foreign language. The article deals with the main theoretical and practical foundations of using project methodology in the educational process. Particular attention is paid to the consideration of the working phases of the project, as well as shown methodological techniques used by the teacher at different stages of the project. Besides, the article has covered the results of the experiment held by the "Foreign language in the sphere of Engineering and Technologies" department among the students of the Faculty of Industrial and Civil Engineering of the Don State Technical University, in connection with which the conclusion is made that the project method application has a considerable influence on the increase of the level of motivation of students to learn a foreign language and the effectiveness of teaching.

1 Introduction

Improving the education system is a fundamental factor in developing of the Russian state. In this context, there is a need to modernize the higher education system in order to attain its qualitative conformity with the intellectual potential of society [1].

Non-standard forms of education and performance control are widely used in modern education, which invariably leads to a change in the educational paradigm [2]. The task of the teacher is to teach students to think and apply their knowledge in practice, as well as in accordance with the state educational standards of higher vocational education [3], an expert in all areas of activity should be able to communicate orally and in writing [4].

In today's methodology to teach a foreign language, quality improvement in education remains important [5]. The introduction of new pedagogical techniques in practical classes is a condition for an individual's intellectual, creative and moral development [6].

It is undeniable that the project method is a creative activity and it is the most effective means of forming students' communicative competence [7]. With its help, we teach students to think, to systematize and to analyze material for a future project, to work individually and in groups [8], to competently express their point of view, to correctly

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allocate their time, to encourage creative search [9]. It is undeniable that the active involvement of students in the implementation of projects in foreign languages significantly increases the interest in the subject [10].

The main idea of using the project method in the teaching of a foreign language is to exclude traditional teaching methods and to promote the development of mental activity among students. The teacher is the assistant in this case, who can choose methods and technologies for the successful implementation of the project activities depending on the goals and tasks chosen by the students [11].

In a non-linguistic university, in order to train a specialist who is ready to communicate professionally in a foreign language with foreign-speaking partners, it is also necessary to train students to master the terminology of the specialty being studied. The theme of the projects may address both theoretical and practical issues of the subject in the specialty, which requires the integration of knowledge of the field being studied [12]. In the process of foreign-language education, foreign-language professional competence should be formed, and students should be able to actively apply foreign-language linguistic, scientific and subject knowledge in professional subjects for the implementation of full-fledged foreign-language professional communication [13].

Most of the work on the project is carried out during extracurricular time, which undoubtedly increases the incentive to learn a foreign language [14].

To demonstrate effectiveness of project methodology, we conducted a research within our groups and proved the effectiveness of the technology of using the project methodology in the teaching of a foreign language, based on our own pedagogical experience [15], while taking into account the specifics of teaching a foreign language at a nonlinguistic university. First-year students of the Faculty of Industrial and Civil Engineering in the number of 191 people participated in our experiment. At the same time, half of the students were offered a traditional form of learning a foreign language, which implied the classical study of oral topics in the specialty and grammar according to the program, and the other half of the students studied the discipline using project methods. At the end of the course, with the assistance of the final examination, conclusions were drawn as to the effectiveness of applying the project method in the educational process.

2 Materials and methods

In developing the project, the following criteria should be applied to achieve the best possible result:

1. The project should have an interesting, relevant and problematic theme.
2. Goals and targets should be clearly spelled out.
3. The teacher has to play the role of coordinator and assistant at all stages of the preparation of the project, while allowing the students maximum freedom in the preparation of the project.

There are various types of projects: mini-projects carried out during one lesson, as well as projects carried out within a few days before the end of the semester [16]. According to the type of activity, research, creative and practice-oriented projects are distinguished [17]. Depending on the number of participants, there are individual, paired and group projects [18]. The choice of a project is characterized by a communicative task.

Project work is completed in accordance with the following steps:

- **Organizational stage.** At this stage, students are explained what a project is and what its structure is. The project should be based on some kind of problem, and to solve it is necessary to set research tasks, to define research methods, sources of information, to process the received information [19], draw conclusions and present results in final product format: summary, presentation, video, etc.

- Project development stage. This phase involves dividing students into groups, defining and allocating tasks and roles [20]. The teacher takes into account the interests of each student, thus implementing a personality-oriented approach.
- Project implementation stage. At this stage, students work independently, the teacher acts as a coordinator, monitors the implementation of the project, is interested in the process and gives advice.
- The final stage (presentation of the project). Students show the final product. Visual reflection takes place during the class and is necessarily accompanied by a report, video, essay, participation in the conference, etc.

Working on the project, students need to apply knowledge on other subjects and transfer them to the new situation. While working on a professionally-oriented project, non-language students learn to speak publicly in a foreign language when defending a project, master the use of scientific and specialized information sources, learn to work individually, in pairs and groups, successfully overcoming the language barrier [21]. In the process of these activities, communication skills, intellectual and creative abilities are developed.

Table 1 shows the first-year groups of the Faculty of Industrial and Civil Engineering studying the subject "Foreign Language in the Professional Sphere", who participated in the work on the creation of projects and groups who studied according to the classical program, in accordance with the work program of this discipline., and also indicates the quantitative composition of these groups.

Table 1. First-year groups

List of groups not participating in project activities	List of groups participating in project activities
ASP16 – 19 students	ASP 11 – 20 students
ASSU11 – 20 students	ASP 12 – 21 students
ASSU12 – 21 students	ASP 13 – 20 students
ASSU13 – 20 students	ASP 14 – 18 students
ASEUN11 – 13 students	ASP 15 – 19 students
Total number of students: 93 students	Total number of students: 98 students

Let's determine the percentage ratio of the number of students participating in the project to the number of students not participating in project activities. Let's build a diagram.

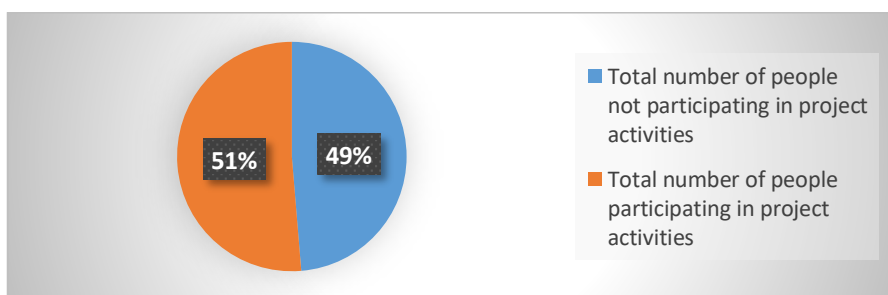


Fig. 1. The ratio of people participating and not participating in project activities.

The project topic was proposed as follows: Building materials. Which building materials will be popular in the future. Compare building materials in different countries.

In table 2, we identified the following criteria for evaluating the design and content of this project, while the maximum number of points that could be obtained for the content of the project, taking into account the selected criteria, was 20 points.

Table 2. Criteria for evaluating the design and content of this project

Evaluation topic	Evaluation Criteria	Credit
• Project relevance	- novelty of idea, - independent formulation of the problem - relevance of the project idea	4
• Project content	- the relevance of the project content to the stated theme - The use of scientific methods of research - originality of the project - relevance of the conclusions to the aims of the project	2
• The logic of the presentation of the material	- maintaining logic and consistency throughout the project narrative - logical progression from one stage to the next	2
• Project presentation	- a vivid, logical, unconventional, interesting and visual presentation that captures the audience's attention	2
• Relevance of project form and content	- the form and content of the project corresponds to the stated theme - the way in which the material is presented corresponds to the idea of the project	2
• The sources of information used are well written	- use of modern and relevant sources in project development - competent design of sources of used literature in accordance with requirements	3
• Ease of use of project materials and resources	- project navigation - project ease of use	2
• A "passport" of the project, showing the main stages of the project	- availability of a project passport - the interrelationship and sequence of project phases	3

3 Results

To work on the project "Building materials. Which building materials will be popular in the future. Comparing building materials in different countries" the main steps were underlined:

- Presenting a situation that allows you to point out several problematic topics, for example: "Building materials and its properties. Where is it used for? Traditional and modern building materials».

- Activation of lexical material on the problem of research.
- Directly creative activity, which resulted in a finished project.
- Presentation of the project.

Interdisciplinary links in the course of the project were carried out in the following form:

- Emphasis is given to the identification of sources of information. Students were invited to analyze foreign literature on the subject of the project and make annotations, summarize foreign sources, and include foreign publications in the list of literature. Another positive point in this work is that the topic of the project may in the future coincide with the course work or with the final qualification work of students, the compiled list of links can be added to the final qualification work and later in the thesis.
- Creative, individual report on the results of activities in the form of presentations accompanied by oral reports. Options for presentation of results: an oral report with a demonstration of materials, a video, a speech at a student conference.

An important indicator of the successful implementation of the project is the indicator of the formation of linguistic competence [22]. The teacher is the curator of the project, he monitors and determines the progress of students at all stages of the project preparation, as well as during the defense and answering questions [23]. It is clear that well-organized work and collaborative efforts by all project participants at all stages and the ability to manage project development roles are important to the success of the project modality.

Before starting the learning process, all students were asked to take a test to determine the level of language proficiency. Graph 1 shows the results of this testing. Worth mentioning that the level of foreign language proficiency among students who chose the classical form of education and students who are going to work on projects turned out to be almost the same.

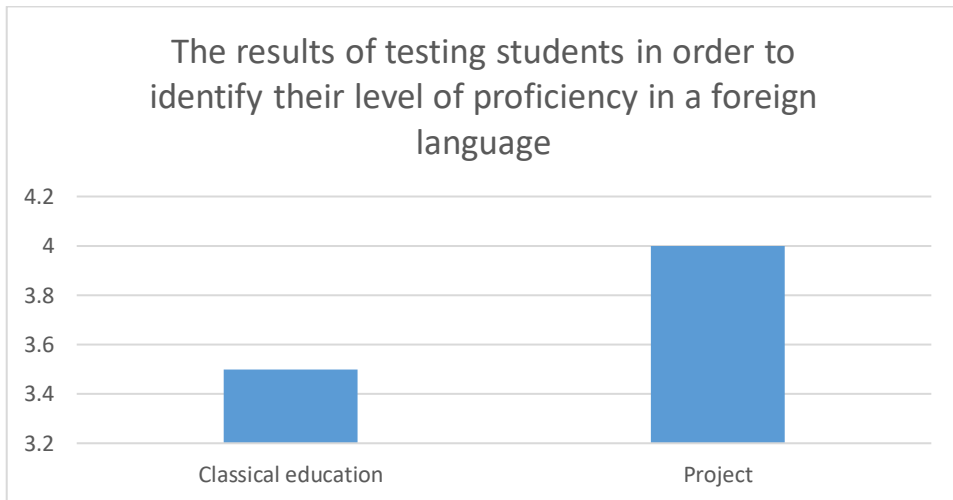


Fig. 2. The results of testing students in order to identify their level of proficiency in a foreign language.

Then the students were offered project topics, goals and objectives were clearly outlined, they started working on projects with the gradual completion of all tasks under the strict guidance of a teacher.

The dominant methods offered to our students when working on projects were creative, research, informational and practice-oriented. By the nature of the contacts, the projects carried out by our students were internal, by the nature of coordination - with good coordination, by the number of participants - individual and group.

Using the project method to develop communicative skills, students become familiar with the features of speech behavior in a specific communicative situation, learn new lexical and grammatical units, practice in group and individually in replicating a typical dialogue, learn to respond to certain lines, activate the use of speech cliches, make

situation-based dialogues according to the project topic, discuss and model different communicative situations.

4 Discussion

The project method satisfies the need for active, independent practice-oriented learning, gives students with any level of language proficiency an opportunity to prove themselves. In table 3, we have divided the work on the project between the teacher and students at each stage.

Table 3. Activity of the teacher and students:

Name	Teachers' work	Students' work
Stage of immersion in the project	The teacher decides what the project needs to do, what it wants to achieve, and what it wants to achieve	Students think about the issue and identify goals and targets
Stage of organisation of activities	a) Teacher arranges for student groups b) Teacher arranges activities to resolve project tasks c) The teacher suggests how to present the results	a) Students are assigned to groups b) Students plan activities to meet the objectives of the project c) Students choose the forms of presentation of the results
Stage of implementation	The teacher advises, supervises, proofreaders, helps to find sources of information and coordinates the project	Students work independently and in teams, both in and out of class, presenting project ideas, seeking assistance when questions and difficulties arise, finding information from national and international literature
Stage of presentation	The teacher accepts the report, summarises the results, summarises the results and assesses the development of communication skills	Students demonstrate an understanding of the issues, goals and targets

After all stages of project preparation are completed, students present the finished product in class or at a student conference. The presenters are asked questions about the presentation and the topic of the project, and then all students take an active part in the discussion on the topic of the project, which is one of the prerequisites for the defense of the project. When defending a project, students also learn to evaluate their own work and the work of their classmates, to answer questions with reasoned arguments, and to defend their point of view. It is important to note that the project is the final certification of students for the semester, that is, there is a formal passing of the test.

Students studying in the classical form of study did not work on projects, but passed the test according to the requirements of the existing working program of the discipline "Foreign language in the professional sphere", which implies the presence of a test card with two questions:

1. Referencing of a newspaper article of foreign publications
2. A conversation on the oral topics covered in the specialty.

After conducting final controls among students using the project method and among students studying in the classical form, the effectiveness of passing the test was monitored, on the basis of which it was concluded that students working on projects showed higher final results. Their grades were higher, and the interest in learning was also extremely high. In Graph 2, we showed the final results of passing the test by students of all test groups in percentage terms. From this graph it can be seen that the academic performance of students who used the project method during training is 75%, and the academic performance of students studying in the classical form is 25%.

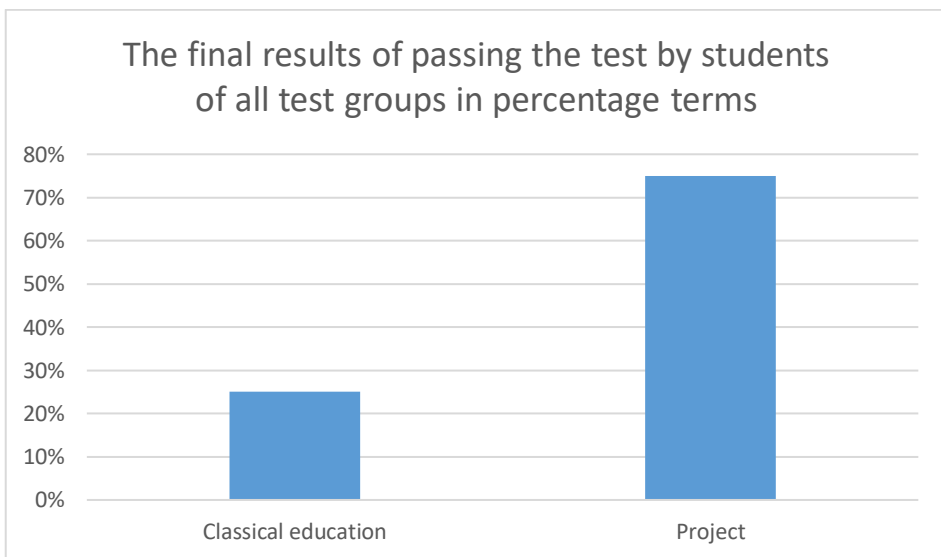


Fig. 3. The final results of passing the test by students of all test groups in percentage terms

Thus, based on the above, we conclude that the project method allows you to increase motivation to learn a foreign language by teaching.

5 Conclusion

Considering the systematic work on the projects, analyzing the results and controlling all stages of work, we can confidently summarize that this type of work significantly expands and deepens professional knowledge of students, helps to increase students' motivation to learn a foreign language, there is always a friendly atmosphere in the classroom, students are involved in the process at school and out of school hours, showing genuine interest in this type of work. A positive aspect of group work is also the development of professionally significant personal qualities.

Each student is involved in the learning process and is responsible for the results in his/her field. Project activities take place in a relaxed atmosphere. Students' activities are clearly structured, meaningful and purposeful. It is important that at all stages of work on

the project there is constant interaction of students with each other and with the teacher, who becomes an equal partner and consultant.

The method of projects is aimed at professional training of students and forms responsibility, initiative, efficiency, determination, ability to work in a team.

It is no secret that learning a foreign language requires a lot of effort, time, patience and perseverance. Non-linguistic university students always have quite low motivation to learn a foreign language due to their focus on core subjects. The teacher's task is to reveal the students' creative potential, interest them in the project problem, increase their interest and activity.

When working on projects the following distinctive characteristics of active learning methods can be distinguished: motivation, activity, creativity, interaction, formation of such qualities in students as self-control and self-learning.

In contrast to traditional forms of learning, the use of the project method encourages students to creative search, they like to get new knowledge in their main subjects with the active use of a foreign language. Work on projects activates mental activity of students, teaches them to analyze, correctly state their point of view, to build a coherent logical statement, to respect other opinions.

Project-based methods make learning problem-oriented and stimulate students' ability to formulate their own opinions. Taking into account the final data on students' performance, we believe it is logical to reconsider the traditional role of the teacher and students in the classroom. New trends in personal development and training dictate the need to use the project methodology in modern foreign language teaching.

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