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## **THE METHOD OF PROJECTS AS A MEANS OF DEVELOPING SENIOR STUDENTS**

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The purpose of this article is to investigate the effectiveness of using the method of project-based learning in «Technology» classes as a means of developing senior students. The article examines the impact of the project-based method on the organization of developmental activities for high school students during classes. The method of projects is a means of comprehensive development of students. As a result, this creates conditions where knowledge ceases to be the goal of the educational process, and becomes a means of further self-development and self-education. The practical significance lies in substantiating the importance of using the project-based method as a means of comprehensive development of senior students during «Technology» classes.

**Key words:** *vocational education, competencies, project-based method, knowledge, project-technological activity*

In the context of European integration and the reform of the education system in Ukraine, the most relevant task of general educational institutions is to form a well-rounded personality capable of creative thinking, showing initiative, and ready for conscious choice in different life situations. In light of this, the priority direction of the development of the modern education system is to create conditions for quality education through the introduction of a competency-based approach, which is a characteristic feature of European education (*Tekhnolohii 10-11 klasy (riven standartu)*).

As domestic and foreign experience shows, project activity occupies a leading position among pedagogical technologies that contribute to the formation of students' competencies.

The purpose of the project method is to encourage students to independently form knowledge and skills, develop initiative, communicativeness, logical thinking, identify problems and make appropriate decisions, obtain and use information, and develop their independent creative activity. Working on a project, students conduct personal research on a topic that interests them. The project method provides practical consolidation of theoretical knowledge and stimulates its application in practice in a creative way in the process of learning technologies. The project-based approach in the field of «Technology», according to which current programs are «developed, has the greatest potential for implementing a student-centered approach in achieving comprehensive student development (Kobernyk, 2008).

The following researchers have studied the project method as a means of teaching: Kobernyk O. M., Kurytsyna V. N., Brykova O. V., Nekhorosheva A. V., Orshanskyi L. V., Tkachuk S. M., Shevtsova S. M.

The research on project-based learning as a means of education has been carried out by Kobernyk O.M., Kurytsyna V.N., Brykova O.V., Nekhorosheva A.V., Orshanskyi L.V., Tkachuk S.M., and Shevtsova S.M. Based on the relevance of project-based learning, the problem of the study was formulated during lessons, which consists of searching, identifying, and justifying the effectiveness of this method in teaching high school students as a means of their development.

Teaching aids are a set of objects that are pedagogically appropriate and well-balanced in their use, ensuring the process of acquiring knowledge, practical skills, and abilities by students.

N.V. Morze proposes classifying teaching aids according to their main didactic function:

1. Informational aids (textbooks and teaching manuals).
2. Didactic aids (tables, posters, videos, educational software, demonstration examples).
3. Technical teaching aids (audiovisual aids, computers, telecommunications tools, video-computer systems, multimedia, virtual reality) (Morze, 2003). N.V. Morze also distinguishes traditional and new information and communication technologies among teaching aids. N.G. Lebedeva, O.T. Zhureliuk, and D.O. Samoilenko define the following classification of teaching aids:

1. Natural objects include real-world objects for direct study: samples and collections of materials, plants, tools, parts.

2. Images and representations of material objects - models, replicas, mock-ups, tables, illustrative materials, films.

3. Teaching aids that represent descriptions of objects and phenomena using conventional means - tables, diagrams, graphs, diagrams, plans, technological maps, textbooks.

4. Technical teaching aids: projection and interactive equipment (projectors, multimedia boards, etc.), simulators, computers (Lebedieva, Dzhureliuk, & Samoilenko, 2009).

Learning tools are most effective when they become an organic part of the learning process, ensuring the achievement of educational goals. One such tool is the project method.

In the «Professional Education» dictionary, the concept of «project» is defined as a «plan, idea»; «design» – «creating a project-prototype, model of a predicted or possible object (state)» and «project method» – «a form of organizing learning based on pragmatic pedagogy, in which students themselves set specific practical tasks (projects) and acquire knowledge and skills in the process of their implementation» (Honcharenko, (Comps.), Nychkalo, (Ed.), 2000).

Pekhota O. M., Kiktenko A. Z., Liubarska O. M. define that in the educational process of a general educational institution, there is a technology of designing that «involves the solution of a problem by a student or group of students, which involves, on the one hand, the use of various methods and means of learning, and on the other hand, the integration of knowledge, skills from different fields of science, technology, and creativity» (Pekhota, (Ed.), 2002).

The project is a special form of educational activity of students that has an algorithmic structure.

Project-based learning is an educational technology aimed at students' acquisition of knowledge in close connection with real-life practice, shaping their specific skills and abilities through a systematic organization of problem-oriented learning search. Therefore, project-based learning is sometimes considered as one of the forms of implementing problem-based learning, since the teacher only sets the task, while the students themselves select the research methods and analyze the obtained data.

This is a method of humanistic pedagogy that enables the development and forecasting of the students' abilities, provides an opportunity to approach the search for ways to solve life problems, teaches to make responsible decisions, promotes intellectual and creative growth, as well as professional self-determination (Shevtsova, 2003).

Project-based learning is also an integrative type of activity that synthesizes elements of other types of activities: educational, cognitive, play, etc (Orshanskyi, 2008).

As a result of this activity, a project is created, which is considered a product or service that is independently developed and manufactured from idea to implementation, and possesses subjective or objective novelty and personal or social significance. As a result, at each stage of product creation, the creative and active activity of students requires them to use the knowledge, skills, and abilities they have acquired.

Designing practically helps students realize the role of knowledge in life, which ceases to be the goal and becomes a means of education, helping to master cultural patterns of thinking, form intellectual algorithms and strategies, which allows each individual to independently acquire cultural achievements.

V. O. Sukhomlynskyi in his work «Education of Love and Readiness for Work in Students» noted the importance of a labor school, which is the basis for the development of children and their preparation for life, where the main means of education is pedagogically justified and methodically directed activity. In the late 1950s to mid-1960s, he developed his own pedagogical system, where he demonstrated how the creative forces of each individual develop in conditions of collective cohesion based on ethical-aesthetic values, interests, and needs, ultimately directed towards creative work, which is the basis of the project method (Sukhomlynskyi, 1986).

Melnik O. V. in his research identifies the following main qualities of personality that are formed in the process of using the project method: a technical and engineering worldview and technical thinking, a conscious and responsible attitude towards learning and work, a desire for self-education, the development of imagination and creativity, a developed sense of beauty, independence, industriousness, aesthetic and artistic taste, a culture of work, and others. The implementation of a project task contributes to the personality-oriented education of students in the process of specific creative work taking into account their own interests (Melnik, 2003).

According to the idea of educational project technology, «the role of the teacher is not to dogmatically impart knowledge» and assess the results of students' learning, to be some «source of absolute truth» and «supreme judge» (Zazulina, 2006, p. 35). Such a method of teaching hides the danger of destroying the sprouts of independent activity, students' ability to be critical and creative. Instead, the teacher must not only teach effectively, but also through organizing learning and their own behavior, contribute to the development of critical and creative thinking in students, and help them become citizens of a democratic rule-of-law state. To do this, the teacher should give students a certain informational and motivational push to work, demonstrate examples of necessary actions or behavior, and then act as a consultant, helping to critically evaluate and correct the progress and results of the project, and to some extent, become one of its co-executors – authoritative, but not authoritarian.

Currently, creative educational projects are carried out by students in general education and vocational schools. The main requirements for organizing student project activities are:

- The presence of a significant research problem that requires integrated knowledge and research;
- Theoretical, practical, and cognitive significance of the expected results;
- Independent student activity (group, pair, individual) carried out over a defined period of time;
- Determination of the final goals of project activity;
- Identification of basic knowledge necessary for working on the project;

- Structuring the content of the project with noted step-by-step results;
- Use of research methods;
- Materiality of the results of completed projects, i.e., their presentation in a specified manner (creation of a product);
- Evaluation and defense of the object of activity (presentation) (Hlazova, & Dyka, 2019).

Project results should be «tangible»: if a theoretical problem was solved, its specific solution should be found, and if a practical problem was addressed, a specific result ready for implementation should be achieved. Project-based learning is primarily focused on independent - individual, paired, or group - work that students perform over a defined period of time. Therefore, the essence of project technology, according to modern scholars, lies in stimulating students to solve specific problems, which requires them to possess necessary knowledge (acquired as needed), and, based on project activity, to solve one or several problems, as well as to demonstrate practical application of acquired knowledge and skills. The goal of project-based learning is to create such educational conditions by which the teacher's pedagogical result is the student's individual experience of project activity (Pekhota, (Ed.), 2002).

The following requirements are placed on a project product: technological, economic, ecological, safety, ergonomic, systemic, creative orientation and interest, feasibility, aesthetics, and significance.

According to the stated goal of organizing project-technological activities of the teacher and student, the use of the method of project-based learning is advisable to be implemented step by step.

It should be noted that project-technological activities promote the development of visual-spatial, naturalistic, motor-movement, and logical-mathematical abilities, which activate creative cognitive activity (Tkachuk, 2012).

The greatest practical value lies in affirming students' success, which corresponds to the requirements of the project-based learning system of technology education and guarantees the preservation of students' interest in creativity.

Summary assessment for the project is given taking into account current grades at stages of problem awareness, idea generation, planning, design, construction and modeling, production, product quality, and its defense. In the project-based learning system, the role of the teacher changes, they become organizers of students' cognitive and creative activities and education managers.

During the use of the project method, attention is paid to the special qualities of the student's personality, such as persistence, interest, mobility, courage, self-criticism, ability to adequately evaluate their ideas, take into account elements of the future product's design, its technological aspects, and material costs of production, analyze the results of their activity, note the positive aspects and readiness to correct mistakes, etc. Such personal qualities of students are the guarantee of their successful all-round development as individuals and future professionals capable of self-improvement and professional growth.

The project method integrates all types of modern human activity from the emergence of a creative idea to the implementation of the finished product. The goal of organizing such activity for teachers and students in the system of education is to master the methodology of project technology at theoretical, practical, and creative levels.

The project method performs creative, transforming, research, and technological functions and is aimed at improving the quality of training both as a future specialist and as an all-round developed individual in general. The teacher's functions in the process of students' project implementation include consulting and assistance in selecting projects, observing the students' progress, providing help and stimulating their educational and labor activity, maintaining a working creative atmosphere, regulating students' work, analyzing and summarizing work, evaluating creative project activity at each stage, establishing business contacts between the teacher and students at the level of cooperation and co-creation.

The use of the creative project method in teaching allows for the identification and development of students' creative abilities, talents, and preferences, as well as teaches them to solve new and non-standard problems and discover business qualities.

The project method activates professional self-determination (as students work on the project, they contemplate questions such as: what am I capable of, where can I apply my knowledge).

Teaching through the project method develops the social aspect of the student's personality by involving them in various types of activities in real social and production relations, and instilling in them essential knowledge and skills in the areas of home economics and family economics.

Initially, the basic algorithm of the project is developed within the discipline of «Technology». Then, the direct implementation of scientific and methodological developments takes place in the educational process, and the corresponding practical realization of innovative projects, including the collection of the most complete information on the results of project activities.

When studying the subject of «Technology», students work on individual projects such as metal roses, birdhouses, wire puzzles «Heart in a square», decorative vase «Tree of Life», squirrel house, decorative plate «Petrikivka decorative painting».

The final stage is the presentation of student projects and the publication of the main results of project activities.

Thus, an integral component of the new content of the educational field "Technology" is the reasoned and planned use of the project method, which involves the development of the design, manufacturing technology, and implementation of the project object. The project method should be aimed at forming a certain system of creative-intellectual and subject-transformative knowledge and skills in students.

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**ДЕБРЕ О.**

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#### **МЕТОД ПРОЄКТІВ ЯК ЗАСІБ РОЗВИТКУ СТАРШОКЛАСНИКІВ**

Метою статті є вивчення ефективності застосування проектною діяльністю на уроках «Технології» як засобу розвитку учнів старших класів. У статті розглянуто вплив методу проектів на організацію розвивальної діяльності старшокласників на уроках.

Проектна діяльність є засобом всебічного розвитку учнів. У результаті це створює умови, коли знання перестають бути метою навчального процесу, а стають засобом подальшого саморозвитку та самоосвіти. Практична значимість полягає в обґрунтуванні значення використання проектною діяльністю як засобу всебічного розвитку учнів старших класів на уроках «Технології».

**Ключові слова:** професійно-технічна освіта, компетентності, проектний метод, знання, проектно-технологічна діяльність

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