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### EXPERIENCE IN USE OF PROJECT METHOD DURING TECHNOLOGY LESSONS IN SECONDARY SCHOOLS OF THE USA

#### ABSTRACT

*The article examines the opportunities and prospects for the use of experience of project method during “technology lessons” in US secondary schools, since the value of project technology implementation experience into the educational process in the USA for ensuring holistic development of children, preparing them for adult life, in which they will be able to realize themselves and benefit society, seems undeniable to improve the quality of Ukrainian education. Its structure and content accorded with national traditions and European standards have made possible the success of educational components of American secondary school. This encourages national scientists and teachers to identify and scientifically justify the ways how to use scientific achievements of American educational system. Given the above, we have defined the following objectives: to summarize progressive trends and innovative approaches to the quality training of students in national secondary schools; to formulate guidelines that will improve the efficiency of training Ukrainian students during technology lessons and as a result, will provide the successful integration of the national education system into the European educational space.*

**Key words:** education system, technology, teaching experience, educational process, project method, creative project.

#### INTRODUCTION

Despite the worldwide crisis in education, American school is in search for new methods and forms of educational process organization, particularly in terms of the use of project method being an effective tool for implementing the content of the educational field “Technology” in secondary schools, but not the only way to achieve educational goals.

In the context of educational field “Technology” the implementation of comprehensive tasks provides for design, technology and information activities of students, which requires appropriate selection methods. Project-in structure fosters creative self design and technology of students using various sources of information and therefore fully meets all these requirements (Marginson, 2008; Болюбаш, 1997).

The search for own ways of education system improvement by Ukrainian educators is justified. The value of project technology implementation experience into the educational process in the USA for ensuring holistic development of children, preparing them for adult life, in which they will be able to realize themselves and benefit society, seems undeniable to improve the quality of Ukrainian education. Due to historical and mental features scientific inquiry in the USA is characterized by intensity, dynamism and urgency that is needed for teachers and researchers who care about the problem of radical modernization of school education, the introduction of new, innovative models of teaching and studying the experience of foreign countries.



### THE AIM OF THE STUDY

The aim of the study is to justify recommendations for implementing the experience of using project method during technology lessons in US secondary schools into practice of Ukrainian schools.

### THEORETICAL FRAMEWORK AND RESEARCH METHODS

The main purpose of education is to develop a system of teacher education, based on the national heritage of world significance and established European tradition which ensures the formation of teaching staff, able to carry out professional activities at a high level.

Due to the implementation of education-centered approach the project method is being widely implemented into the practice of secondary and higher education. Of great importance for the development of theoretical foundations of project activity are works of such scientists as V. Huzyeyeva, A. Kobernyk, N. Pakhomova, O. Pechota, E. Polat, S. Yashchuk. A review of this problem is presented in the thesis of M. Pelaheychenko. Historiography of the project method (since John Dewey's work up till now) is given in the thesis of M. Elkin, where the author performed a detailed analysis of the nature of concepts such as "project", "project activity", "creative project activity", "project education", "project method" (Valimaa, 1995; Беспалько, 1995).

During the study we used the following methods: analysis and synthesis of psychological and pedagogical scientific knowledge, comparison, classification, systematization, generalization.

### RESULTS

The interest of native and foreign teachers to the project method (Marginson, 2008; Болюбаш, 1997) is caused by its focus on the direct involvement of students into practical problems of modern life, the ability to create and implement variable and author programs into the learning process (e.g. "Experimental Programs for Secondary Schools: Handmade Studies for 5-9 Grades", "Handmade Studies for 5-9 Grades (revised) edited by Madzihon (Болюбаш, 1997), which are based on "The State Standard of Educational Field "Technology"" (Valimaa, 1995) and project-technological education system, etc).

The term "project" (Italian: "progetto", German: "Projekt", French: "projet") is used to describe an educational approach. First, the term "project method" appeared during engineers' training in 1824 and only in 1908 it started to be used widely in US rural schools.

For further use of the term "project" such its definition is offered (see Table. 1). It should be noted that the definitions are chosen in order to illustrate the direct connection between project and technology education.

The historiographical review proves that native and foreign researchers understood project method in different ways and put their personal semantic content in it.

Theoretical analysis of the experience of American and Ukrainian schools enables to outline abilities students acquire due to project activities during educational process:

- planing their work and estimating possible outcomes;
- using many sources of information;
- independent collection and accumulation of the material;
- analyzing and comparing facts, advance arguments for their views;
- taking decisions;
- establishing social contacts;
- creating a "final product" that is the material result of project activities;
- presenting creations to the audience, evaluating themselves and others (Селевко, 1998).



Table 1

**The definition of the term “project”**

| Researchers                 | Definition  |
|-----------------------------|---|
| B. Vulfson                  | the process of studying certain material with an acquisition of knowledge and skills, and then design based on the acquired knowledge of projects   |
| N. Matias                   | “immersion” into the chosen problem and its thorough research   |
| A. Kobernik                 | a set of actions specially organized by teacher and independently performed by students that result in the creation of a product  |
| J. Stevenson                | an action that solves the given task under natural conditions, that are crucial for the project   |
| C. Shabaha,<br>V. Sidorenko | practical solving of intersubject tasks (in the narrow pedagogical sense) / learning system (in the broad sense)  |
| E. Kaganov                  | any action that is sincerely carried out with a definite purpose  |
| E. Polat                    | a way of achieving didactic goals through detailed development of the problem (technology), which should result in a quite realistic practical achievement, decorated in one or another way |

Theoretically justified application of project method did not accidentally take place in the late XIX – the early XX century in the USA. During this period there was a need for new forms of knowledge, because life required a creative individual personality, which could quickly and effectively apply their knowledge in practice.

Pedagogical ideas of an American teacher, psychologist, sociologist, representative of pragmatic philosophy John Dewey became the base for project method. J. Dewey supposed that mankind had experienced three major revolutions that affected the state and the need for education reforming at the beginning of the twentieth century: intellectual revolution, which resulted in a great number of scientific discoveries; technocratic revolution, accompanied by the development of modern technology and inventions; social revolution, which was the result of increasing current democracy (Селевко, 1998).

An American scientist B. Kilpatrick considered students’ motivation to learn an important feature of project method. At the same he defined not only positive but also “shadow” sides of project method. The scientists argued that the disadvantage of this method was that it is not always possible to use because it is not always possible to arouse a meaningful purposefulness in a child. That is why B. Kilpatrick did not consider it necessary to limit the learning process only by one project (Valimaa, 1995), which is quite motivated.

Since the 1920s of the XX century American educators have been implementing project method into the educational system. In particular, during the conference in Brookwood (1924) teachers working in the field of labour education, were trying to attract serious attention to the possibility of using project method in labour schools.

In the 1940s of the XX century the project method was encouraging the development of collaborative or cooperative learning based on socio-psychological theory of K. Lewin, J. Piaget, L. Vygotskyi and also cognitive theory of B. Skinner, R. Slavin. The project method oriented at individual, pair or group activities, started to combine successfully with the abovementioned method.

Despite criticism of progressivism and J. Dewey’s ideas in the 60s, active use of project method while developing new theories and models based on cognitivism was observed to achieve educational goals in the last decades of the XX – an early XXI century (Болюбаш, 1997).



It should be noted that at this time mostly applied were two types of projects: the first one – in experimental schools where projects were based on the real life of children and with their help the children acquired knowledge of the main subjects; second one implies projects that are carried out mainly in rural schools, based on a subject and took into account students' interests. Also, the projects were divided into collective (performed by a group of students) and individual (performed by a student) (Селевко, 1998; Болюбаш, 1997).

It must be emphasized that in the United States the project method is used not only in secondary schools. Thus, in the early XX century the USA were struggling to eliminate illiteracy, so in daytime and evening schools the project method was actively used (Болюбаш, 1997). Clearly, the projects being done outside school hours (extracurricular, hobby groups, educational work), are more long-term and diverse in its topics, since they are not limited in time.

The project method was being implemented into the learning process in the United States during the whole XX century and is actively used today. Studying in his monograph the peculiarities of students' labour training in developed countries, in particular the USA, Ukrainian researcher V. Madzihon pays attention to the fact that main methods of labour education in primary and middle schools are project method, business game method and problem solving (Болюбаш, 1997).

Studying the experience of using technologies in American schools one can see that the project methodology teaches students to acquire new knowledge independently, thus preparing them to life in society; the attention is also paid to partnerships during activities that develop responsibility and communication skills. In the late XX century American scientists became very interested in the project method as means of motivation and increasing interest of modern students are gaining importance (Беспалько, 1997).

The concept of an American school is to prepare children for the "real life". Interesting is the fact that not only each school can have its own study program, but each student can study by an individual program. It involves the implementation of a specific individual program of studying courses according to the aptitudes and abilities of the child and is realized under the supervision of the Consultative Council (Болюбаш, 1997).

B. Melnychenko thoroughly considered a model of technological education in the USA, initiated by the project method where one can clearly observe learning by this method or the widespread use of some its ideas. This is a model of "Individual training" (the 60s, Pittsburgh University), research methodology "Invitation to study" (the mid-60s, the method of an American educator J. Schwab; College in Pittsburgh, Eaton etc.), the project of cooperative training (the 80s–90s, University of Baltimore, Minnesota, California), alternative schools (opened in 1968), public schools (Minnesota and others) etc.

In American schools educators are trying to develop experience of non-traditional educational institutions based on J. Dewey's ideas adapting to new present conditions. In the USA project activities are being implemented outside school hours too. For example, a program of additional education for American students "4-Hs" (head, heart, hands and health) provides such activities that cover all areas of children's lives, and the main activity is a project, i.e. independent practical tasks that are of creative nature. Children receive all necessary life skills and knowledge during independent practical work. Moreover, mental and physical activities are perfectly combined (Marginson, 2008).

It is clear that the project method based on the idea of free education will be modified in time. Now it has become an integrated component while developing the education structure. Though basic principles remain the same: to gain practical experience



from life situations (the environment becomes a classroom), development of critical and creative thinking, the ability to analyze, systematize, generalize, and most importantly to apply the acquired knowledge to practice; preparing necessary conditions for self-expression and self-development of a child, forming research skills, widening students' outlooks, development of their cognitive and mental activities; establishing necessary strong interdisciplinary connections and creative collaboration among students, with their teacher and learning material.

### CONCLUSIONS

Due to the expansion of pedagogical experience the project method can be revived and improved taking into account today's changes, and according to the requirements of modern society, which positively affects the development of the educational field "Technology" and the content of the labour training lessons at schools. Experience of using the project method is positive because it is consistent with the concepts of the educational field "Technology" and is used for the implementation of the current program of labor training.

The problem of training or retraining of qualified teachers is still topical. Quite relevant is also the use of appropriate informative and methodological provision by teachers, since the efficiency of its use in the educational process depends on teacher's professional level as he/she is an organizer, coordinator and expert at different stages of project activities and builds a lesson on the principles of democracy, cooperation and creativity.

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