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THE IMPORTANCE OF THE PROJECT TEACHING FOR ACQUIREMENT OF GEOGRAPHICAL FUNCTIONAL KNOWLEDGE

Ivana ĐORĐEVIĆ, Ljiljana ŽIVKOVIĆ, Slavoljub JOVANOVIĆ

University of Belgrade - Faculty of Geography
ivanadj.92@gmail.com

Abstract

Project teaching includes teaching activities of students on a research project in a defined period of time and requires certain resources and organization. Students allows to acquire functional geographical knowledge through independent research that involves consideration of certain problems through a critical aspect. Students during the project acquire cognitive and social skills. In the project teaching connects known and unknown, knowledge is acquired through examples (exemplary learning) as well as a combination of convergent (logic) and a divergent (creative) opinion. By applying project teaching, the teacher has multiple roles and he is the organizer, planner, associate, coordinator and evaluator. Successful planning, implementation and evaluation of a project implies that a teacher should be trained in new ways of working, using modern teaching methods in order to develop student's creativity and encourage teamwork. By selecting a problem-type project, the teacher is provided with the possibility of creating various methodical scenarios that achieve new quality of teaching and a greater degree of motivation among the students. The teacher and students create an interactive, collaborative and constructive relationship where students independently acquire knowledge based on previous experience and their own possibilities. The aim is to put students on self-thinking, developing skills, forming value attitudes and acquire functional knowledge that in this way becomes more permanent and applicable.

Key words: project teaching, students, geographical functional knowledge, teacher, methodical scenarios

Introduction

A school based on the concept of knowledge transfer slows students' development. It is far more effective to base the educational process on the activities of students, as this accelerates their intellectual development and prepares them for practical action. Teaching in schools should be based on the needs of the social environment and on the interests and thinking abilities of the students. Students should be given tasks that require knowledge of an interdisciplinary character as they encourage them to take a research approach (e.g., research relation to human-natural environment in a specific environment, pollution of land, water, air, industry's relation to the environment). Students' knowledge should have practical applicability and value, in order to improve living conditions and solve specific problems (e.g., how to make the school environment more humane, how to liaise with interested organizations in order to achieve this aim).

Contemporary school involves the application of those forms and methods of work that

contribute to a more efficient, creative and rational organization of the teaching process in which students acquire functional knowledge and skills. The need to acquire knowledge more effectively, develop skills and acquire habits that will allow students to better understand natural and social phenomena, processes and regularities, requires the introduction of innovation and different processing of geographical content in the teaching process (Živković et al., 2017). One of the possibilities that would satisfy such a requirement is the application of project teaching in the study of geographical content.

Historical development of project teaching

The beginning of the implementation of projects in education (Knol, 1997) relates to the Renaissance period and the systematic study of architecture at the universities of the time. The origins of project teaching are primarily related to University Professors Charles Richards and John Dewey and their manual and industrial work program from 1900. The conceptual designer of the project method was considered agricultural expert John Alford Stevenson, the author of the "Home Project Plan" from 1908. (Stevenson, 1921). At the end of the 20th century, the term "project" began to be used in the context of education and learning.

According to recent studies (Knol, 1997), the project as a method of institutional education emerged within the framework of architectural and engineering education in Italy in the second half of the 16th century. Architects in Italy demanded the professionalization of their profession because their aim was to distinguish themselves from the class of artisans and to equate themselves with artists who belonged to a higher class. In order to satisfy professional and social ambitions, as well as the desire to move from a class of artisans to an artist class, architects had to fulfill an important prerequisite - that architecture develop its theoretical basis, with the aim of establishing the art of construction as a scholastic subject at the university. As this was the aspiration of both painters and sculptors, the architects made an alliance with them and in 1577 in Rome, under the auspices of Pope Gregory XIII, established the Academy of Arts. Teachers have given more advanced students serious tasks such as designing churches, monuments, or palaces. These tasks presented real professional challenges for the students and at the same time enabled them to apply, independently and creatively, the rules and principles of composition and construction that they had acquired in the Academy's lectures and workshops. Competitions were organized and their structure fully corresponded to real architectural competitions. In both cases, the candidates had to complete the task, meet deadlines and convince the jury of the quality of their work. However, unlike real architectural competitions, hypothetical tasks were set in academic competitions. For these reasons, they were called *progetti*. Thus, at the Academy of San Lucas, the term "project" first appeared in an educational context. However, this does not mean that the project became a central teaching method, since competitions at the Academy were not an integral part of the compulsory education of architects. Participation was allowed to any young architect, whether he was a student at the Academy or not. The project achieved cooperative, original and independent student activity, which was an integral part of their education. Cooperativeness, originality and independence are at the same time the main attributes of project activity (Knol, 1997).

The Royal Academy of Architecture was founded in Paris in 1671, modeled on the Italian model. The French architects did not literally copy the Italian model of the competition, but changed the conditions of competition, limiting them only to students enrolled. Competitions

have become more frequent and annual and monthly awards have been introduced. With the introduction of monthly awards, teaching has become more focused on learning through projects. Students were required to do several monthly projects for which they received medals or other awards. These awards were necessary for advancement during his studies and for the academic title of architect. The idea of project work eventually evolved into a recognized teaching method in 1763 (Knol, 1997).

The history of project teaching can be traced back to the historical development of teaching and the school as a whole, and its beginnings are evident in the understandings of pedagogical classics. Jean Jacques Rousseau in "Emil, or Education", insists on linking teaching with the environment and child's experiences. At a certain age, independence, activity and ability to perceive should be developed through teaching. From this point of view, especially important are the excursions, where the child will explore nature independently, and afterwards, discuss his observations and conclusions with the teacher (Žlebnik, 1983). Building on Rousseau's ideas, Johan Heinrich Pestaloci advocated the harmonious development of thinking, morals and working skills. In his educational institutions he realized practical teaching, which could be conditionally called a kind of project work (Matijević, 2008).

In addition to the above and other insights that make up the history of project teaching, its true scientific founding and application in schools began in the late 19th and early 20th centuries under the influence of reform and progressivist pedagogy. The founder of the project is American philosopher and educator John Dewey, although he did not use the term. He has developed teaching-pedagogical and psychological aspects of a comprehensive concept, and his ideas are useful in explaining the basic assumptions of project teaching.

In the 1930s, educators Dewey and Kilpatrick introduced the concept of project teaching into literature and educational practice. Their idea was to use research methods in addition to traditional teaching to increase student activity. Kilpatrick published the text "The Project Method" in 1918 (Kilpatrik, 1918), followed by works by American authors who both theoretically and practically addressed the phenomenon of project teaching (Branom, 1919; Stevenson, 1921; Hotchkiss, 1924). In addition to the term project, the literature also uses the terms Project-Method Teaching, Project-Plan and Project-based learning.

Contemporary teaching involves an extremely dynamic and creative interaction of teachers and students in an appropriate pedagogical atmosphere. This interaction can only be realized through the cooperative partnership of the participants of the process realized by modern technology. One trend is the complex study of parallel flows of integration and differentiation of current problems of collective work in synchronized coordination and correlation of content, methods and means of all subjects, thus stimulating the student's thinking and creative abilities. One of the underused teaching models is certainly the project teaching model. The project attribute involves teaching that is a aim-oriented process of limited duration and requires specific resources and organization. As a rule, a teaching project can be organized as a research, development or innovation project that entails and encompasses a high level of independent thought and practical activity by both teachers and students.

The importance of the project teaching for acquirement of functional knowledge

The modernization of the conception of education in Serbia implies the introduction of innovations that, due to the rapid growth of knowledge, cannot be reduced to reproductive

learning, ie. to simply communicate existing knowledge, and test the effects of learning on repetition of communicated content. Innovation in educational concepts must encompass the acquisition of general competences (digital and information competences, social competences, communication skills) that are the basic intellectual means for finding and acquiring new knowledge and competences for life. The formal education system should ensure the acquisition of functional knowledge through the introduction of reliable quality assurance systems in modern education. The process of acquiring basic knowledge, skills and competences requires the planned mass introduction of modern information and communication technologies at all levels of education, the training of teachers for the use of these resources, as well as all electronic educational resources in the educational process and the training of students for the independent use of these technologies and educational resources (Education in Serbia, How to Get Better Results, 2011).

A problem that is catching the attention of many professionals is whether school responsibilities burden the students. Some of them believe that students are overburdened with school obligations, while others point out that they are less burdened than before, which was achieved by the perfect development of the Curriculum and the modernization of teaching. Some studies have shown that the average daily and weekly workload of students is sometimes higher than the working hours of employed people (Prodanović & Ničković, 1976). In addition, as fatigue occurs in such situations and the effects of learning are reduced, students do not achieve the expected functional knowledge and their health is endangered (Pešikan, 1990).

A number of teachers and parents point out that the content that students need to adopt is complex and extensive. One of the sources of student workloads is that teachers expose complex content to a small number of classes, so they are unable to identify it with students, which they have to do at home as a task. The dominance of front-line work and the use of traditional teaching methods lead to students not being active participants in teaching. The role of the teacher is of great importance in the organization, realization and achievement of successful effects. One of the causes is the unplanned and unsystematic fulfillment of students' obligations. Considering the consequences of high student workload, it is concluded that the acquisition of functional knowledge in such conditions is difficult.

Students' attitudes toward school are also expressed through their attitudes towards particular subjects. Research has shown that it is quite expected that students will not adopt the content of each subject equally successfully, which is a consequence of their interest and understanding of the content itself (Mandel, Marcus, Dean, 1995). Students do not like all subjects equally, which is related to students' personal preferences, their interest, and the success they achieve from that subject (Bader, 2006).

Developing and applying the functional abilities of teachers and their direct influence on the development of students' creative thinking (that is, all participants in the educational process) is the main task of project teaching. Project teaching is the most complex form of practical functional and intensive knowledge acquisition. The requirements of this teaching are the fastest and most efficient achievement of the aims, as well as the elaborated criteria for evaluating the results of the final aims of the teaching through their concretization in solving problems. Communication techniques and means of identifying problems in project teaching help teachers to better understand the problem as a whole and thus present it to students. Project teaching is based on the concept of working in a group. In this way, extroverted and introverted students participate actively and equally in teaching, discuss

the problem, come up with ideas, devise a process, and so this approach contributes to the socialization of students.

The starting point for each type of teaching is the Curriculum. The aims of teaching are to overcome the aspirations for purely programmatic knowledge and content acquisition. The current situation requires that the participant in the educational process be empowered to solve problems, to acquire knowledge, develop skills and abilities, which is most effectively realized by linking school learning from textbooks with learning from the personal and from the experience of others. Students guided by the principles of project-based teaching are responding to new forms of knowledge acquisition that are no longer formulated as mechanical, verbal, and reproductive learning. They are trained in the functional acquisition of knowledge, on their own reaching broader knowledge, on convergent and divergent learning, as well as on the creative application of their knowledge. Forms of learning to acquire knowledge, improve skills and develop ability are creative and extremely productive. They are realized by setting up an adequately designed structure of different types of tasks that prompt the student to apply or use the integrated structure of acquired knowledge, to the transfer of the learned, to the connection and comparison of concepts, which enables the acquisition of complete knowledge that is connected with the conclusion and enables the application of concrete knowledge.

The Teaching and Learning program must also be tailored to the individual abilities and capabilities of the student. Content that follows students' interests is learned more effectively, remembered better and longer. It is necessary to use forms of teaching that enable individualization, independence and activity of all students. Memorizing facts beyond the minimum must give way to creative learning through increased engagement of thinking skills, which together with practiced techniques of selective use of information sources and effective learning, as well as independent work, enable better results to be achieved. Despite the natural tendency of a person to learn conceptually, functionally, what he understands, the large amount of information of current school curricula, textbooks and broad interpretations of teachers makes learning at school degrades to mechanical learning, learning by heart, which, beyond memory, no longer develops mental capacity (Prodanović & Ničković, 1976).

It is essential to change the role of students and teachers in the teaching process. It should start with the Program of Teaching and Learning, textbooks, teachers, didactic-methodical organization of classes. In primary school, students should acquire knowledge and develop skills that will form the basis for further education and professional education. It is important to teach students the techniques of rational and effective learning by creating as many scenarios as possible that allow the student to be in an active position, to speak freely, to observe, to present and defend their ideas, to apply the acquired knowledge and to express their creativity, all of which point to the necessity of project teaching.

Learning outcomes for acquirement of functional knowledge

The introduction of the concept of learning outcomes into the education reform process in Serbia follows international trends in education and indicates an increasingly shifting focus of interest, from a teacher-centered approach to a more student-centered and learning-oriented approach. This trend has gained prominence by adopting an Education Strategy that emphasizes student-centered learning and the need for greater precision and clarity

when designing Teaching and Learning programs. If the learning outcomes are adequately planned, the focus of the educational process shifts from teacher to student, allowing students to actively participate in the learning process. The challenge for all those involved in the development of teaching and learning programs in primary and secondary education is the use of outcomes so that the learning process is viewed from the perspective of students and not from the needs of the teaching process and thus to improve the quality of learning (Lungulov, 2017).

Numerous authors define learning outcomes (Allan, 1996; Moon, 2002; Adam, 2006; Kennedy, 2007; Hussey, Smith, 2008; James, Brown, 2005; Kennedy, Hyland, Ryan, 2012 according to: Lungulov, 2017) and agree that there is not yet a clear definition of them in education, but that all references in the literature are conceptualized around several key elements:

- learning outcomes mean the expected results of the learning process;
- students are in focus and relate to what the student should know and be able to do after the learning process;
- they include the acquisition of knowledge, skills and values;
- the emphasis is on the student and what he or she has achieved while learning, not the teacher or the content;
- they are conceptualized at the level of the subject, which represents the subject outcome, but also for the individual teaching units.

A definition has been adopted that defines learning outcomes as the expected or achieved program results or the achievement of the aims of class or annual program, which shows a wide range of indicators (student knowledge, cognitive attitudes). Outcomes are the results of a teaching program planned in the context of the development of the learning person (Kennedy, 2007). Learning outcomes are defined as "statements about what the student is expected to know, understand and/or be able to demonstrate after completing the learning process, as well as specific intellectual abilities and practical skills that he/she has acquired and demonstrated by successfully mastering part of the subject, of the whole subject or program. The literature cites the division of learning outcomes on the basis of different criteria" (James, Brown, 2005; Hussey, Smith, 2003 according to: Lungulov, 2017), however, it is important to emphasize that they can also be divided according to the purpose, or according to which the teaching activity or educational unit is related. Accordingly, Hussey and Smith (2008) define three groups of learning outcomes: (1) outcomes that relate to an individual teaching activity, such as a seminar, class, or lecture; (2) outcomes that are created at the module, short course or individual subject and (3) outcomes that relate to the entire program of study leading to the acquisition of a specific qualification (Hussey & Smith, 2008).

Within the teaching unit, the teacher should formulate the aim of the class and define the outcomes that are important to achieve during the class. Therefore, methodical preparation for teaching is important because it decides what students will learn in class. It is advisable for the teacher to create a scenario for the class and define the expected learning outcomes, as well as teaching methods, tools and forms of work that will enable to achieve the set learning outcomes (The Law on the fundamentals of the education system, 2017).

A problem-type project for the 6th grade in primary school

The Teaching and Learning Program for the 6th grade of primary school is oriented towards learning outcomes and gives the teacher the freedom to create and design the teaching process. The contents are recommended and divided into seven thematic sections: *Society and Geography, Geographic Map, Population, Settlements, Economy, Country and Integration Processes* and *Geography of Europe*. The topic Population consists of contents dealing with phenomena and processes in population development and their spatial characteristics. Students should be introduced to specific features and factors of demographic development, the distribution of the population on Earth, and its structural features by concrete examples. For the processing of social content, especially migration, suitable research work of students, which involves the use of different sources of information, the study of literature, visual and textual media, monitoring the process mobility of the population through questionnaire and interviewing. The hypotheses on which the students' project tasks are based include:

- introducing students to research work (highlighting the aims and presenting a thematic unit with topics for group work);
- forming groups and expert teams exploring socio-geographical topics;
- organizing students independently in groups (the teacher helps with the sources of information and the choice of how to collect the data);
- students realizing out research, collect, process data and prepare presentations;
- each group represents the research process, results and conclusions (Šefer, 2005).

In the age of global migration flows and increased mobility of the labour force in the world, there is a need to understand the main determinants of this phenomenon and to direct the focus of migration research to the various challenges it brings (Đorđević & Šantić, 2017). Considering the above hypotheses, many research activities can be realized out with students within the framework of migration topics and they include:

- collecting data on complex migration phenomena;
- comparison of data on mobility of the population of a certain territory on the basis of stages in historical development;
- preparing albums and collections of data on the common life of peoples and national minorities;
- realization of thematic exhibitions for celebrations of significant dates (World Migration Day);
- presentation of historical and contemporary migration flows;
- creation of thematic maps, collections of photographs, texts and other articles that testify to the migration of peoples in our region (Đorđević & Živković, 2017).

Migration is not a new phenomenon, but due to the increased mobility of the population at all territorial levels, as well as the current conflicts in the world (Šantić, Spasovski, Antić, 2018), it is necessary for students to become familiar with their qualitative and quantitative indicators in addition to basic terms and processes. Migration issues through diverse and always current contents encourage thinking and self-conclusion. In this way, students form critical thinking towards important sociogeographical and globalization processes. They are

also introduced to ways of dealing with migration flows that present a global challenge today.

The project task *Challenges of Contemporary Migration* enables students, in pairs or groups, to create posters prezenting immigration and emigration spaces. Population migration trends in the selected period can be represented graphically, which enables students to see the trend of its further development. Presentation of project results can take the form of papers, encyclopaedias, thematic atlases, statistics, photo albums, poster presentations or videos from your travels. Migrations are most often shown on maps using arrows that indicate the direction of population migration trends, where the thickness of the arrow is in proportion to the number of migrants, and their qualitative characteristics can be represented by the color method. If there are technical options, students can prepare a Power Point presentation. In this way, they are able to through the visualization of content independently analyze and they conclude about the migration issues of the modern world.

The project work is organized to match the individual abilities and capabilities of each student. Choosing a problem-type project of gives the teacher the opportunity to create various methodical scenarios that achieve a new quality of teaching and a greater degree of motivation for students. The teacher and the students create an interactive, collaborative and constructive relationship where students independently acquire knowledge based on previous experience and their own capabilities (Živković & Đorđević, 2018). The mentioned project enables the partnership functioning of all its members, and the emphasis is on the activities of students who are enabled to realizing out practical and research tasks. Students should collaborate and exchange ideas in a group at the project level, make arguments and decisions. The project work further motivates students because it enables creative teaching, developing partnerships and friendships between student-student and student-teacher, and facilitates the development of their interdisciplinary competences.

In the last decades, after the Cold War and the fall of the Berlin wall, the strengthening of overall population mobility is evident on local, regional, national and global scale. In addition, there are changes in the scope and direction of migration, their structural characteristics and increasing in the number of determining factors and consequences, which affects the complexity of this phenomenon. It is necessary to properly use terminology related to certain types of migration (Šantić & Spasovski, 2016). The implementation a problem-type project involves the processing of content on migration, first through their conceptual definition, types, causes and consequences of mobility, as well as on the importance of these processes for contemporary demographic development. When processing content about migration, students should not be burdened with quantitative values and factual material, but rather insist on phenomena and processes that affect the demographic development of the world. Considering the complexity of the issue, to present the project results, it is necessary to use geographical maps, thematic maps, diagrams and graphical representations. In this way, students are able to adopt and properly define concepts such as population explosion, uneven population distribution, overpopulation, depopulation, white plague, immigration and emigration areas, in order to understand contemporary migration processes. Processing content on migratory characteristics contributes to the students' understanding of the relationship between population mobility and geographical area, using appropriate examples in the local environment.

Conclusion

Project teaching develops important competencies such as inventiveness (creative use of knowledge sources, various methods and explanations); ability to solve problems (spotting, formulating, analyzing and evaluating the obtained solution); integrative abilities (synthesis of ideas, experiences and information from different sources and different fields); decision-making skills (deciding what is important, what should be included in the work); ability to manage their own work process (ability to perform a more complex job independently, ability to take initiative); ability to communicate effectively with others (effective collaboration and exchange with others). Project teaching value also exists when no defined aims have been achieved or when unplanned situations hinder project implementation. Much more important than the aim of the project is to motivate students for activities, improve collaboration, students 'ability to make decisions, the process of monitoring their own and others' work that results in anticipation and planning. In the 21st century, project teaching must follow the humanist call for lifelong education and training.

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