DEVELOPING STUDENTS' CRITICAL THINKING THROUGH PROJECT TASKS IN GEOGRAPHY LESSONS

UDC: 37.091.32:91]:159.955.5-057.875(497.11)
DOI: https://doi.org/10.37658/MGD24223gj

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ABSTRACT

A well-developed student personality requires the acquisition of specialized knowledge, but also the development of critical thinking. There is a causal relationship between the acquisition of knowledge and the development of intellectual skills. The task of critical thinking is not the acquisition of numerous facts, but the mastery of cognitive skills. This can be achieved through student activities on a research project in a specific period of time with specific resources and organization. Project tasks allow students to develop their skills and abilities through independent research on concrete examples (model learning) and through a combination of convergent (logical) and divergent (creative) thinking. Project tasks allow the teacher to create different methodological scenarios that achieve a new quality of teaching and a higher level of student motivation. Teachers and students create an interactive, collaborative and constructive relationship in which students acquire knowledge independently based on previous experiences and their own abilities. The aim is to lead students to independent conclusions, the formation of values and the application of knowledge, which in this way becomes more permanent.

Keywords: geography lessons, critical thinking, specialist knowledge, project tasks.

INTRODUCTION

Modern teaching in the 21st century requires the acquisition and application of knowledge from different fields, which requires active participation of students, both in the acquisition of knowledge and in its application. In contrast to lectures, in which the student usually only listens passively, modern teaching places demands on the student, the solutions to which are achieved both through independent activities and in cooperation with other students or society as a whole. Geography lessons offer great opportunities to break free from the constraints of lectures. It is rich in diverse content that is thought-provoking, highly motivating and encourages students to learn actively. A modern organization of geography lessons in primary and secondary schools is inconceivable without innovations. Modernization means not only the modernization of didactic systems, but also the use of new forms and methods of work as well as new didactic materials and tools.

Our research shows that experts' knowledge does not differ semantically, but that information tends to be linked. The experiments carried out showed that the size of words and the speed at which words are retrieved from memory varies among people with different back-

ground knowledge. The results of our study could also help to give better, personalized instructions to users in different areas and support the development of a more interactive dialog between the user and an intelligent tutoring system.

According to Bognar and Matijević (2002), the development of critical thinking in students is achieved through discovery, research, experience, evaluation and creation. In geography lessons, students' critical thinking can be developed through the ability to connect phenomena, processes and laws when analyzing complex geographical systems. In creating project tasks, students can develop the ability to apply innovative activities that improve sustainability at local, regional and global levels. Students develop the ability to question their own role in the local community and global society by motivating them to continuously evaluate and carry out various activities. In this context, the paper analyzes the content of the geography project tasks recommended by the teaching and learning program in primary and secondary school. The implementation of project tasks is done by applying an interdisciplinary approach, linking the content of different subjects to apply students' knowledge in specific situations.

DEVELOPING STUDENTS' CRITICAL THINKING THROUGH THE APPLICATION OF PROJECT-BASED TEACHING IN GEOGRAPHY

The successful development of a student's comprehensive personality involves not only the continuous acquisition of knowledge, but also the development of critical thinking, which has the task of shifting the student's focus from the acquisition of knowledge and the acquisition of numerous facts to the use of cognitive processes in learning, the solution of problem situations and the application of acquired knowledge. This can be achieved through the use of project teaching based on problem solving, research, independent work of students and interaction between students and teachers with the aim of achieving knowledge and results. Project teaching is based on joint, collaborative and partnership learning, is suitable for achieving complex learning goals and promotes the development of students' research, communication, organizational and critical thinking skills (Fabijanić, 2014). The main characteristics of project-based teaching are: Focus on the student, collaborative relationship between students and teachers, addressing current real-life problems in the environment, connection with other scientific fields and human activities, collaborative teamwork, improvement of students' organizational and communication skills, introduction of new learning methods.

Some authors define the basic principles of project teaching: the focus of the lesson is on the student, who must be helped to develop their collaborative skills; each student works at their own pace and according to their abilities; the complexity of the teacher's projects contributes to a balanced development of the students' physical functions; the knowledge acquired during the implementation of the project is of a universal character and has a great transfer value (Vilotijević, Mandić, 2018). The project lesson begins with a question and an assignment. The teacher guides the students through a process of asking questions, researching literature, questioning information and using reliable information. It should be noted that the lessons will be more successful if they are more focused on solving real-world problems and using specific tools and skills, i.e. if the questions are current and important to the students. The teacher helps them to evaluate the effectiveness of each activity and, if they encounter insurmountable

problems, to offer possible solutions or strategies to help them overcome these problems. In this way, they learn to accept criticism, acquire certain knowledge, improve their work and thus achieve better results.

Project-based instruction implements activities that facilitate student learning and are carried out with little or no teacher involvement while accomplishing highly important educational goals. Since project-based lessons have different objectives than lecture-based lessons, they are divided into specific and general objectives (Munjiza, Peko, Sablić, 2006). Specific objectives are those that depend on the chosen topic of the project. The general objectives of project teaching include the acquisition of knowledge and the ability to apply this knowledge in real life, the development of the ability to cope in various situations, interest in research and an exploratory approach to learning, the development of a positive attitude towards work and work values, creative learning and the application of acquired knowledge in practical work, active relationships in any situation, the development of communication skills, environmental awareness, tolerance and respect for human rights, self-confidence, organization and self-responsibility (Munjiza, Peko, Sablić, 2006). In project lessons, all students are active, and the activities and roles of students and teachers also change considerably. In order for each student to learn and develop independently, the teacher must design and plan the activities well so that the learning process is effective. The basic task of project teaching can be described from the teacher's point of view as the development and application of the teacher's creative skills and their influence on the development of the students' creative thinking. In project teaching, the student has much more responsibility for their own learning, a more active role than in traditional forms of learning/teaching, students gain greater autonomy because they know how to learn and communicate, they learn to control their learning and working process, which is important for acquiring knowledge at a higher level and applying acquired knowledge and skills in real life.

Project teaching has the task of getting students to develop and practice higher cognitive functions (organization, synthesis, analysis and evaluation of material). It also develops important skills such as: inventiveness (creative use of knowledge sources, different methods and explanations); problem-solving skills (observing, formulating and solving, analyzing and evaluating the solution obtained); integrative skills (analyzing ideas, experiences and information from different sources and different fields); decision-making skills (deciding what is important to include in the work); the ability to manage one's own work process (the ability to carry out a more complex task independently, the ability to take the initiative); the ability to communicate effectively with others (effective collaboration and exchange with others, the ability to express one's own ideas through written texts) (Đorđević, Živković, Jovanović, 2019). New forms of knowledge acquisition (learning), which are no longer formulated as literal, mechanical, verbal and repetitive learning, are suitable for students guided by the principles of project teaching.

Project tasks with a problem character contribute to a student-centered continuation. When organizing project lessons, the degree of structuring of the task is important, which is reflected in how many options the students are given when selecting the topic and materials for creating the task. In structured tasks, the choice of topics for the work is limited and most

of the material needed to create the task is provided. In unstructured project tasks, students can choose the topic and the materials needed for the work completely independently. The third type of semi-structured assignments are those in which the research field and methodology are predetermined, but the work is such that it requires a certain degree of independence and responsibility from the student (Živković, Jovanović, Rudić, 2015). In addition to the different degrees of structuring of the tasks, the teacher must define the basic rules in order to create a working atmosphere in the team and thus ensure a positive learning environment. In the teaching process, the teacher should remove obstacles to learning, monitor the flow of work and promote the students' key skills by asking open questions and giving constructive feedback. In the application of project teaching, the teacher as a manager has several roles and he is an organizer, planner, guide, collaborator, helper, coordinator, diagnostician and evaluator (Anđelić, Kuleto, Radić, 2013). Successful planning, implementation and evaluation of the project requires that the teacher is trained in new ways of working and uses modern teaching methods to develop students' creativity and encourage teamwork.

By choosing tasks of a problem nature in achieving the results of geography lessons, the teacher is given the opportunity to create different methodological scenarios that achieve a new quality of teaching and a higher level of motivation among students. The teacher and students create an interactive, collaborative and constructive relationship in which students acquire knowledge independently based on previous experiences and their own abilities. By learning about and understanding the connections and relationships that exist in nature, students form desirable values and habits that they retain throughout their lives. They ask questions every day about the world around them and the phenomena that take place in it, and the teacher's role is to help them find answers by encouraging independence and creativity in learning.

Learning through the implementation of project tasks places students at the center of the activity, who independently investigate the selected topic through predefined phases for the implementation of the project (Obradović, 2011). There are many explanations for the project process and its theoretical foundations. What most authors agree on is the fact that concrete action is one of the important starting points of the learning process. During the project, teachers and students alike work to accomplish a very realistic task. "The basis for the project is the confrontation with the experienced reality, and during this confrontation it is necessary to find one or more solutions to a concrete, real problem and to present these solutions in the final product of the project" (Maier, D. In: Sander, W. , 2005). Korkmaz and Kaptan (2000) believe that in order to carry out project tasks, it is necessary to precisely define the phases, which include the initiative to start the project and the search for a topic that can emerge thanks to an idea from a student or teacher. The teacher can offer the students a list of defined topics so that they can choose what they want to do. A concrete work plan for the project is determined, tasks, methods and time frame are defined. During the implementation of the project, the teacher and students gather information, conduct interviews, collect materials and prepare presentations. The final phase consists of a video presentation, an exhibition, a lecture and an evaluation, during which the teacher and students jointly discuss the entire process of creating the project tasks. The results of the project and the knowledge gained are discussed. Following constructive criticism, suggestions are made for improving the preparation of future project

tasks. The mentioned phases of the project enable students to identify questions whose answers they should obtain during independent work, use appropriate materials and techniques for data collection and analysis, give explanations based on the information obtained, develop critical thinking and logical reasoning (Branković, Bošnjak, Maričić, 2011). Depending on how many participants are involved in the project, they can be personal projects or small projects in which only a few students participate. They can be class projects in which all students in a class are involved, but also projects for the whole school. The creation of projects offers students the opportunity to improve themselves in a new environment with the help of modern technology, especially in obtaining the necessary information.

PROJECT TASKS IN GEOGRAPHY LESSONS THAT INFLUENCE THE DEVELOPMENT OF STUDENTS' CRITICAL THINKING

Problem-type project tasks imply that students deal with a specific problem and help to find a solution in real-life situations. The role of problem-type project tasks in pedagogical practice is complex, but also useful in many ways, because they motivate students and teachers to additional engagement, contribute to the improvement of teaching practice, promote creativity, spread ideas about the importance of education, promote ecological habits, encourage creativity, affirm the importance of nature conservation (Turuntaš, Pavlović, 2013). The role of the geography teacher in the education system is based on the provision of quality geographical knowledge to students in regular geography lessons. The most important tasks of teachers are to find the best pedagogical solutions for different circumstances, to identify students' needs and interests, to plan and implement project activities, which should be carried out in a positive working atmosphere. In addition, the teacher must prepare students to critically select and use information, guide them to collaborate with the local community, enable them to use various research techniques, and help them to improve discussion, debating and decision-making skills. In addition to implementing the curriculum, the teacher must also be the initiator and organizer of project activities (Jovanović, Živković, 2009). The right choice of topics, project activities and practical work enables each teacher to develop the initiative among students to take an active role in the local environment.

As of the 2018/2019 school year, project teaching has been introduced in the teaching and learning program for primary school students in the first grade in the Republic of Serbia, which is implemented as part of a compulsory lesson in the weekly schedule. Project lessons are included in the total annual fund of 36 hours, they are compulsory for all students and are carried out in accordance with the instructions that are an integral part of the program for the first grade of elementary school. The instructions for the application of project teaching stipulate that the teacher defines the type of project, its aim, the expected results, the area covered by the project and the connection to the subjects, pupils' activities, the required resources and the dynamics of the work by phases. The application of project teaching does not only apply to students in the first cycle of education. In the second cycle of basic education and in the upper cycle, in the teaching and learning programs for all subjects, it is defined as an innovative form of teaching aimed at developing students' interdisciplinary skills.

When analyzing the teaching and learning program for geography in the fifth grade (Regulations on the teaching and learning plan for the fifth and sixth grades of primary school and the teaching and learning program for the fifth and sixth grades of primary school and education: 15/2018-77, 18/2018- 1, 3/2019-83, 3/2020-3, 6/2020-94, 17/2021-1, 16/2022-1, 13/2023-458, 14/2023-384, 3/2024-1) it was noted that no project assignments were proposed for the students. Teachers are recommended to stick to basic concepts, phenomena and processes when using didactic material, different methods and forms of work. One of the recommended basic skills is proper geographical observation and observation of natural objects, phenomena and processes in the local environment, which encourages students' natural curiosity, independent research and their correct interpretation. The contents of physical geography offer the possibility of acquiring knowledge, skills and habits by using statistical material systematized in tables, as well as handling different measuring instruments and registering and processing the data they display. If there is the possibility, it is suggested that students use ICT for data processing. In this way, quantitative indicators are linked and interpreted and cause-effect relationships and correlations are identified.

When it comes to the content of the sixth grade, the program defines three project tasks (Regulations on the teaching and learning plan for the fifth and sixth grades of primary education and training and the teaching and learning program for the fifth and sixth grades of primary education and training: 15/2018-77, 18/2018-1, 3/2019-83, 3/2020-3, 6/2020-94, 17/2021-1, 16/2022-1, 13/2023-458, 14/2023-384, 3 /2024-1). The first task involves creating a poster about certain demographic characteristics of the population of Serbia, Europe and the world. In pairs, students create posters on which certain demographic features (e.g. areas with high and low population density, areas or countries with population growth and decline, areas with positive and negative natural growth, areas of immigration and emigration), i.e. structural features (the most numerous peoples in the world, arrangement of languages, arrangement of world religions, arrangement of races on earth) are depicted. For certain tasks, mute maps can be used on which characteristic areas and countries can be distinguished using the color method. If the technical possibilities allow, the students can also prepare a Power Point presentation. In this way, students will be able to independently analyze and draw conclusions on certain demographic issues and problems of the modern world and Serbia by visualizing the content. The project task entitled Let's study a settlement can be realized in group work, where each group is assigned a settlement from Serbia or the world. The task of the group is to discover and explain the location of the settlement, its size, significance, functions, appearance (physionomy of the space), way of life and whether it belongs to a certain type. Students work in groups (in class or as homework), so that each group seeks answers to one question: 1st group: What are the causes of these migrations? 2. What are the consequences of these migrations in the village? 3. What are the consequences of this process in the city? 4. What are the structures of the participating population (age, sex, education, economy, etc.)? 5. What are the functions of the village, and what are the functions of the city? 6. What is the way of life in the village and in the city? By doing this task, students apply their knowledge of cause-and-effect relationships in the process of population migration from villages to cities, and thus learn about the laws of the process of urbanization and depopulation of villages. Realization of the project task Disposal

of municipal waste in the local environment can also be achieved by applying a group form of work where students with the help of teachers can show how municipal waste is disposed of in their environment, whether it is a sanitary landfill or a landfill, where it is located, who and how lives on its edge, whether it is an (ecologically) acceptable way of solving the waste problem and how it is solved correctly (on an example in Europe).

When working with seventh-grade students, it is recommended that at the beginning of the school year, the teacher directs the students to independent work, so that during the processing of a new thematic unit, the students will be given tasks to process one or more representative countries. With the help of teachers, available statistical sources, cartographic and means of information and communication technologies, students will study individual countries of the world (geographic position, borders, size, basic natural-geographical and socio-economic characteristics). By the end of the school year, all students will have regional-geographic representations of the selected countries. In this way, students will be able to see the synthetic character of regional geography in relation to the individual disciplines of general (physical and social) geography, which is characterized by the application of analytical scientific methods (Regulations on the teaching and learning program for the seventh grade of basic education and upbringing: 5/ 2019-61, 1/2020-60, 6/2020-99, 8/2020-597, 5/2021-4, 17/2021-42, 16/2022-2, 13/2023-460, 14/2023- 399).

In the eighth grade of elementary school, students study the Geography of Serbia, and the realization of a research project in the local environment implies that the student knows the methodology of research work. The student should: define the project task; collects data from various sources and in the field; processes data, displays them in textual, tabular and graphic form and draws conclusions; presents the results of research work; describes and evaluates the geographical position of the homeland; recognizes, lists and names landforms and hydrographic objects in the area of the homeland, explains the interdependence of climate, soil and the living world; investigates and determines the specificities of the natural-geographical and social-geographical features of the homeland and brings them into correlation; explains the impact of a certain population structure on the socio-economic development of the homeland; lists and describes natural resources and explains the impact of their exploitation; describes the structure of the economy and lists indicators of the development of certain economic activities; explains the needs of natural environment protection; analyzes and proposes various measures for the improvement of the homeland; applies geographical knowledge and skills when solving problem situations in everyday life; properly cites literature sources (Regulations on the teaching and learning program for the eighth grade of basic education and upbringing: 11/2019-61, 2/2020-6, 6/2020-118, 5/2021-8, 17/2021-58, 16 /2022-2, 13/2023-470, 14/2023-407).

When it comes to the first grade of high school, the Program recommended four project tasks (Regulations on the plan and program of teaching and learning for high school: 4/2020-1, 12/2020-1, 15/2020-1, 1/2021-1, 3/2021-1, 7/2021-1, 14/2023-1). The first relates to climate change in the local environment. The source of data for the aforementioned task can be a local meteorological station or the Republic Hydrometeorological Institute of Serbia. Students can graphically present the state of climate elements (climate diagram, thematic maps), compare data for each year and draw conclusions about the movement of climate elements for the last ten

years. Special attention should be paid to the frequency of occurrences of weather disasters that have occurred in the last ten years (source of data can be local newspapers, meteorological station). By comparing data on changes that have occurred in the local environment with data on a global level (data source World Meteorological Organization https://www.wmo.int/), students draw conclusions about climate changes in the local environment and their impact on everyday life. During the preparation of the project task Monitoring the change of the water level in the river during the year, students in pairs create level charts for different rivers, explain their annual changes and compare them. If there are technical possibilities (near a river that is not deep), the students with the help of the teacher can set up a water gauge themselves and monitor the water level changes every day. In this way, students will be able to independently observe and analyze changes in the local environment. The teaching topic of the biosphere is suitable for the implementation of various mini-projects in the local environment. Depending on the conditions and availability, the teaching content can be planned so that the students, through solving various problem situations and analyzing the current situation in the local environment, come to the legality in the biosphere and understand the importance it has on modern natural and social processes. Suggested topics for the project assignment: Land degradation using examples in the local environment; Let's save the local environment from pollution. The project assignment Geoheritage in Serbia and the world implies that the students, based on the offered criteria by which an object is declared a geoheritage, critically analyze examples of geoheritage in Serbia and in the world. Based on those criteria, they should evaluate an object in nature from their environment that they consider very valuable and assess whether it can be declared a geoheritage.

In the second grade of high school, it is recommended to prepare four project tasks (Regulations on the plan and program of teaching and learning for high school: 4/2020-1, 12/2020-1, 15/2020-1, 1/2021-1, 3/2021 -1, 7/2021-1, 14/2023-1). The first one refers to the selection of a representative city settlement. It is recommended to research the development of a selected urban settlement using a group form of work. Students investigate: origin, name, geographical location, physical-geographical and socio-economic characteristics, morphological structure and functions of the urban settlement. The eTwinning project task implies that on the mentioned platform students connect with their peers from other schools in Europe and make a comparative study in the field of sustainable development (eg waste management). Students should notice the similarities and differences in the practice of (un)sustainable waste management and answer the questions that are the key prerequisites and obstacles for establishing such a system at the local level. A comparative analysis of the demographic processes of the selected regions requires students to compare certain processes, present them thematically and point to the transformation of the geographical space. Together with the teacher, the students go through all the stages of work on the project assignment. As a result of the project assignment, the students make a comparative projection of the demographic development of Southern Europe and Southern Asia. I can present research results using different ICT tools. In order for the project task Comparing the geographical position of Serbia and the countries from the region to be successfully implemented, it is necessary to divide the students into several groups. Each group would do a comparative analysis of the geographical position of Serbia and the selected

country from the region, point out the advantages and disadvantages, the impact on socio-geographical processes and the international position. When preparing the assignment, the teacher should encourage students to think critically and develop their own views, by analyzing the historical-geographical position of countries, social-geographical processes and their impact on economic development, integration processes of countries and influence in regional and world frameworks, as well as by analyzing development opportunities economy and economy outside these frameworks.

Three project tasks are planned for the third grade of high school (Regulations on the plan and program of teaching and learning for high school: 4/2020-1, 12/2020-1, 15/2020-1, 1/2021-1, 3/2021-1 , 7/2021-1, 14/2023-1). By visually observing the terrain and collecting data from various written and internet sources, students should prepare a panel or a multimedia presentation about the physical and geographical characteristics of the settlement in which they live. Students can photograph, locate and map landforms, hydrographic objects and basic biogeographic areas that are present in the observed settlement. By collecting data from the nearest weather station, students will determine the basic climate characteristics. The project task Sustainable tourist destination includes students' activities related to ways of waste management in their settlement or they make a proposal for the development of a sustainable tourist destination (where the problem of waste management will be adequately solved, economic profit will be achieved and the traditional culture and folklore of a settlement or region will be nurtured). The third project task refers to the territorial organization and the role of the Serbian Orthodox Church in the diaspora. Students can implement the above project task in correlation with the contents of the History course, which refers to the migration of Serbs, Military Krajina, Serbs in Hungary, the Second World War, the Yugoslav states.

The proposed project tasks enable the functioning of all project members and the activities of students who are enabled to realize practical and research tasks. Working on project tasks additionally motivates students because it enables creative teaching, the development of friendly relations between student and student and student and teacher. The project tasks presented in the paper enable students to develop critical thinking by applying various activities. In this way, they have a greater degree of responsibility for their own learning and have a more active role than in a lecture type of teaching.

CONCLUSION

The aim of project teaching is to acquire knowledge through joint research and practical work that will be of practical use value for students in everyday life. The main features of project teaching are: focus on the student, collaborative relationship between students and teachers, dealing with current problems from real life in the environment, connection with other scientific fields and human activities, collaborative team work, improvement of students' organizational and communication skills, introduction of new learning methods . Project teaching contributes to the development of students' critical thinking and scientific outlook on the world. Project teaching provides great opportunities for correlation and integration of teaching contents of different subjects. Students show greater interest in certain teaching content,

creativity and great motivation for work. Although the positive effects of project-based geography teaching are indisputable, it also has its drawbacks. Some of them are: the time frame of the project duration, students must be trained for this type of teaching beforehand, it requires greater engagement of students, insufficient equipment of schools with material and technical means and obstacles related to the role and competence of teachers. That is why it is necessary to organize professional training that will provide teachers with the necessary knowledge and skills necessary for the role of teaching coordinator. Also, it is necessary to work on the professional training of teachers and conduct research with teachers and students on the results of the application of project-based geography teaching in practice.

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