

Contract No. 2020-1- BG01-KA201-079295

## **METHODOLOGICAL GUIDE**

### **ON MODULE 3: MULTIDISCIPLINARY TRAINING**

#### **PROCESS OF IMPLEMENTATION OF AN INTERDISCIPLINARY PROJECT**

*Expected results:*

- To acquire skills for implementing project-based learning through the implementation of interdisciplinary projects.
- To apply the knowledge of the basic differences between traditional teaching and learning and technology-based project-based learning in practical terms.
- To apply the technology of project-based learning combined with ideas from Celestine Frene's pedagogy.
- To enrich the methodological toolkit of the teachers with techniques for effective coordination and consultation of the process of project implementation by the students.
- To enrich knowledge about the criteria and indicators for evaluating the process and product of project-based learning in the implementation of interdisciplinary projects by students of different ages, with different socio-cultural backgrounds, from vulnerable groups and those with special educational needs.

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## MAIN EMPHASIS IN THE WORK OF TEACHERS IN THE PROCESS OF IMPLEMENTATION OF INTERDISCIPLINARY PROJECTS

Detailed planning combined with good knowledge of students' cognitive interests and capabilities are absolutely necessary prerequisites for the successful implementation of interdisciplinary projects.

*The main idea* of project-based learning is that real-world problems capture students' interest and provoke serious reflection as they acquire and apply new knowledge in the context of problem solving.

In the implementation process, the teacher takes the roles of consultant, mediator, facilitator, and the students work under his guidance so that:

- to be able to identify the significant questions to which they will seek answers;
- to structure meaningful tasks;
- to distribute tasks in the team according to the wishes, strengths and capabilities of the team members;
- to work effectively and efficiently;
- to reasonably plan the time they will need to perform individual activities and activities;
- to enrich their knowledge with new ones required on their own;
- to develop research and investigative skills when working with different sources of information;
- to enrich their communication and social skills in the course of teamwork;
- to acquire and develop skills for self-assessment and evaluation of what they themselves have learned from their experiences.

Didactic technology founded on the idea of development on cognitive and creative skills on the students, their abilities for construction their own knowledge, skills and attitudes and their basis of formation of competences, and last but not least, it contributes to the development on critical thinking.

Project - based learning is realized from one, two or most often group of students, working together for determined period of time. This approach is organically combined with the team approach of the training. "Projects always include problems containing production

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from one side and use of different methods for integration of knowledge, skills in different areas of science, technology and creativity fields”. (Pavlov, Pitt 2016)

According to a number of authors , working on the problems on the project based training “the considered technology, stimulates the learning process of the students”, due to which it is:

- person-oriented;
- multitude didactic approaches are used;
- self-motivation, which means manifestation on interest and involvement in work though its execution;
- supports pedagogical goals in the cognitive, affective (emotional) and psychomotor domains on all their levels;
- allows to study from their own experience and from the attempt of the others in concrete situation; brings students satisfaction from the product on theirs work” (Pavlova, Pitt 2003)

Project-based learning includes:

- problematization of the educational material;
- cognitive activity and practically oriented activity of the children;
- connection of education with play, work, child's life;
- design and reflection.

The basis of the learning process is cooperation, allowing to create conditions for active joint learning activity and for individualization and differentiation depending on the students' abilities.

Pl. Radev believes that: “There are two main approaches to apply the project method. According to the historically older approach, learners go through two steps: first they are trained in a systematic course to acquire knowledge and some skills, and then they apply these knowledge and skills, creatively and independently directed and to appropriate projects. According to the second approach, the learning by the teacher/educator does not precede the project, but is embedded in it.” (Radev 2016, 93)

In the current project, both approaches can be applied depending on the learning content and the age of the students.

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## PROJECT DOCUMENTATION

In the process on the project activity important element is the preparation of the necessary *project documentations*, to which refers: *passport of the project work (methodically passport of the project)*, *project folder (portfolio)*, *description of the project (explanatory note)*. The skill for work with the project documentation is one of the key indicators for project-research culture of the students.

*The passport of the project work* is filled in the first stage of the project activity and is used in order to protect the project. In the beginning it is teacher's methodically document, official affirmative the beginning of the work on the project. Second, the established passport on the project is task for the students and defines directionality the project activities. Third, in the progress of the activity, in the passport are imported the amendments and clarifications and the it becomes introductory for the performance of the project on the final stage .

*The project folder or portfolio of the project* represents all collected materials by students, and reflects every move/step of the project activity. When performing collective project, it is recommended every participant to have its own portfolio for assessment of its personal results. The portfolio of the project includes: passport of the project; plan for performance of the project or on its separate stages; the whole collected information by the topic of the project; work notes, sketches, drawings, technological cards and more technological documentation; analyzed results and research; reports , natural materials , models and others work materials .

At the end of the work on the project the separate materials of the portfolio are modelled in *explanatory note (or description of the project)*, which in bought to a pleading.

During the pleading of the project, it is the main product of the project activity or serves as a supplement, explanation to the subjects products (products, models, etc. ) The description of the project is necessarily structured as contains everyone main illustrative material - the steps of the project work, reveals the roads for solving specific problems, there are completed result ( product ), reflexive analysis, etc. Along with the description of the project, a presentation on the project is also prepared. The project description in a formalized form is submitted to the expert council (jury).

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During the pleading of the project, the experts evaluate the project activity of the students according to previously developed criteria and indicators.

Example criteria are: the quality of product implementation, the quality of design of the project and its documentation, the quality of project protection, etc.

A template for a project folder is provided in the Appendix to this manual

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## REFERENCES AND RECOMMENDED LITERATURE

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<http://www.freewebs.com/siowyy/Online%20PBL.pdf>

### ONLINE BASED EDUCATIONAL RESOURCES

<http://www.bie.org>

<https://vr.cct.bg>

### VIDEOS FOR PROJECT-BASED LEARNING

Imaginary trip to Brazil with children aged 5-6:

[https://www.youtube.com/watch?app=desktop&feature=player\\_embedded&v=sIb9\\_oK6LB8](https://www.youtube.com/watch?app=desktop&feature=player_embedded&v=sIb9_oK6LB8)

Elementary Science Project:

<https://www.youtube.com/watch?app=desktop&v=v9JokfKBHxA>

Science project in junior high schools classes , implemented using computer technologies:

<https://www.youtube.com/watch?v=W3jD7LJ6AWw>

A project using knowledge of art, history, technology, language, engineering realized by junior high school students: <https://www.youtube.com/watch?v=sqziXTTjrtY>

Natural Science Project

[STEAM + Project-Based Learning: Real Solutions From Driving Questions](#)

[https://www.youtube.com/watch?v=H7LHsL0iB\\_w](https://www.youtube.com/watch?v=H7LHsL0iB_w)

Redesign of the schoolyard group project made by 5th grade students

<https://www.youtube.com/watch?v=kMIslolwzCs>

Grade 11 students present their projects and their teachers talk about the pedagogical effectiveness of project-based learning: <https://www.youtube.com/watch?v=9rdOBn2wI6s>

Bulgarian experience - BRITANICA Park School - two videos

[South America – the interdisciplinary project in which they met knowledge and fun](#)

[Science lessons in the 5th grade : we learn interdisciplinary , project-based based and entirely in English language](#)

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## APPLICATIONS

### PROJECT PASSPORT/PROJECT FOLDER

1	Name of the project	
2	Authors of the project	
3	Educational focus of the project (educational or educational goals and cross-curricular connections)	
4	Project type	
5	Project manager (student)	
6	Project consultants (team of teachers)	
7	Objectives of the project (pedagogical and pragmatic).	
8	(What will they learn and what will they be able to do using the knowledge and skills?)	
9	Problem area of the project	
10	Description of the idea/concept of the project (synopsis)	
11	Description of the activities in the project implementation process	