



PAISII HILENDARSKI  
UNIVERSITY OF PLOVDIV  
FACULTY OF EDUCATION  
DEPARTMENT OF PRIMARY SCHOOL PEDAGOGY

GERGANA GEORGIEVA KOMSIYSKA

**PROJECT-BASED INSTRUCTION IN BULGARIAN  
LANGUAGE AND LITERATURE AT THE PRIMARY  
LEVEL OF BASIC EDUCATION**

**ABSTRACT**

Disertation for the award of the educational and scientific degree **Doctor**

In Higher Education Area 1. Pedagogical Sciences,

Professional Field 1.2. Pedagogy,

Doctoral Program „Theory of Education and Didactics“

Scientific supervisors: Prof. D.Sc. Romyana Tankova

Prof. D.Sc. Georgi Ivanov

Plovdiv, 2025

The dissertation was reviewed and approved for defense at a meeting of the Department of Primary School Pedagogy at the Faculty of Education of Paisii Hilendarski Plovdiv University, held on June 16, 2025.

The dissertation is structured into an introduction, three chapters, a conclusion with findings and contributions, publications related to the topic, a bibliography, and six appendices. The total length is 242 pages, of which 224 pages constitute the main text. It includes 25 tables and 61 figures. The list of literary sources comprises 128 references, of which 69 are in Cyrillic, 45 in Latin script, and 14 are internet sources. The list of the author's publications consists of 12 titles.

The materials related to the dissertation defense are available at the Department for Academic Staff Development and Doctoral Studies of Paisii Hilendarski Plovdiv University and at the University's Central Library.

The public meeting of the academic jury for the defense of the dissertation titled "Project-Based Learning in Bulgarian Language and Literature in the Primary Stage of Basic Education" submitted by Gergana Georgieva Komsijska for the award of the educational and scientific degree "Doctor" will be held on September 18, 2025, at 13:00, in Room 416 (New Building of the University).

## CONTENTS

<b>I. TOPIC AND RELEVANCE OF THE STUDY .....</b>	<b>4</b>
<b>II. METHODOLOGY OF THE STUDY .....</b>	<b>5</b>
2.1. Object, Subject, and Aim of the Study .....	5
2.2. Research Tasks .....	5
2.3. Hypothesis of the Study .....	5
2.4. Organization and Methodology of the Study .....	5
2.5. Research Sample .....	7
2.6. Methodological Model .....	7
<b>III. EXPERIMENTAL PART .....</b>	<b>8</b>
3.1. Methodology of the Formative Stage.....	8
3.2. Results from the Formative Stage of the Experiment .....	16
3.3. Analysis of the Results from the Control Study.....	24
<b>IV. CONCLUSIONS .....</b>	<b>31</b>
<b>V. CONTRIBUTIONS.....</b>	<b>31</b>
<b>VI. PUBLICATIONS.....</b>	<b>32</b>

## I. TOPIC AND RELEVANCE OF THE RESEARCH

The topic of the present dissertation explores the development of students' communicative and speech skills in the primary stage of education through project-based learning, which is increasingly recognized as an effective method for enhancing students' motivation and engagement in the learning process. Contemporary education is progressively oriented toward innovative pedagogical approaches that integrate interdisciplinary connections and practical application of knowledge in order to support the holistic development of the student.

The formation of communicative and speech skills is of key importance in the early years of schooling, as this period lays the foundations for both oral and written communication. However, traditional teaching methods do not always provide sufficient opportunities for students to use language actively in real and meaningful contexts. Project-based learning offers such opportunities by encouraging collaboration, creative thinking, and student autonomy.

The integration of interdisciplinary and cross-curricular links in the teaching of Bulgarian language and literature allows students to perceive linguistic knowledge not as isolated skills but as part of a broader educational and life context. This leads to better understanding, internalization, and application of language, which are essential for successful education and personal development.

Achieving sustainable and effective results in the development of communicative and speech skills in the primary stage of education is a challenge that requires innovative approaches and methods. Traditional forms of instruction often fail to ensure sufficient opportunities for active communication, and the lack of connection between school subjects can hinder the meaningful comprehension and application of knowledge in real-life situations.

It is precisely the aspiration to overcome these challenges and the search for more effective pedagogical strategies that form the basis of the present dissertation, titled: **"Project-Based Learning in Bulgarian Language and Literature Classes in the Primary Stage: Communicative Skills and Cross-Curricular Connections."** Through the project-oriented approach and the integration of knowledge from various academic subjects, students not only develop their language competencies but also acquire critical thinking, creative expression, and teamwork skills – all of which are essential for their successful education and socialization.

The dissertation consists of 227 pages, including 210 pages of main text and 9 pages of references (consisting of 123 sources – 64 in Cyrillic, 45 in Latin, and 14 websites). It is structured into an introduction, three chapters, conclusions, and contributions. An additional printed volume of 58 pages has been developed as part of the dissertation. It contains appendices with a technological model for the development of students' communicative skills within the framework of project-based learning. The model includes worksheets structured into six levels of increasing difficulty, providing a differentiated approach to the acquisition and application of language knowledge. The first two levels contain 10 worksheets each, and the remaining four levels contain 5 each, making a total of 40 developed materials. The structure of the worksheets is aligned with the principles of progression and individualization in education, allowing adaptation to the diverse cognitive abilities and language competencies of students. The applied technological model enables a gradual and targeted improvement of communicative skills while encouraging students' active participation in the learning process.

## II. METHODOLOGY OF THE RESEARCH

**2.1. The object of the research** is the communicative and speech skills of primary school students in the context of project-based learning and the interdisciplinary approach, as well as the teaching process of Bulgarian language and literature at the primary stage of basic education. **The subject of the research** is the development of communicative and speech skills within the framework of project-oriented learning and the implemented cross-curricular connections in Bulgarian language and literature instruction at the primary level. The study will analyze how projects, as a teaching method, can improve teamwork skills, foster critical thinking and creative expression, as well as stimulate a deeper understanding of literary content and language norms. **The goal of the research** is to substantiate and develop an effective approach for enhancing students' communicative and speech skills in primary school through project-based learning and the integration of cross-curricular and interdisciplinary connections. The research aims to analyze and evaluate the impact of this method on the learning process by identifying best practices and proposing a technological model to optimize language teaching.

### 2.2. Research Objectives:

- To study the scientific literature related to project-based learning and interdisciplinary connections, and to identify best practices for their application in the teaching of Bulgarian language and literature in the primary grades.
- To analyze the specifics of forming and developing the communicative and speech skills of students at the primary stage and the role of project-based learning in this process.
- To conduct a survey and interviews with teachers and students regarding the effectiveness of the project-oriented approach in acquiring language competencies.
- To develop a technological model with worksheets, graded by difficulty across six levels, aimed at the step-by-step development of communicative and speech skills.
- To experiment with the application of the developed model in a real classroom setting and to analyze the results of its use.
- To diagnose the level of communicative and speech competencies of students in both the control and experimental groups before and after the implementation of project-based learning.
- To carry out the necessary statistical and mathematical analyses of the research results in order to validate the effectiveness of the proposed methods and approaches.

### 2.3. Hypothesis of the research

The central hypothesis of the present research posits that the implementation of Project-Oriented Learning (POL)<sup>1</sup> in Bulgarian language and literature instruction results in enhanced academic performance. It is anticipated that the project-based approach fosters the development of students' teamwork abilities, critical thinking, creative expression, and functional literacy.

### 2.4. Organization and methodology of the research

This study employs both theoretical and empirical methods. The theoretical methods include theoretical analysis, summarization, and systematization of scientific literature describing the features of project-based learning and cross-curricular connections, as well as existing educational approaches based on these methods. Additionally, an analysis of educational technologies in Bulgarian language and literature instruction at the primary level is conducted, with a special focus on the development of communicative skills in the context of

---

<sup>1</sup> In this study, Project-Oriented Learning (POL) is understood as a broader educational approach in which the curriculum content is integrated through projects based on real and meaningful situations for the students. The term is used closely to Project-Based Learning (PBL) but emphasizes the project as a didactic principle rather than merely a specific method, as is the case with PBL.

the project-oriented approach and interdisciplinary links. The empirical methods involve surveys and interviews with teachers and students, conducted to examine the perception and effectiveness of project-based learning and the use of cross-curricular connections in Bulgarian language and literature instruction. The empirical part also includes a pedagogical experiment.

**The empirical methods** include surveys and interviews with teachers and students, conducted to examine the perception and effectiveness of project-based learning and the use of interdisciplinary connections in the teaching of Bulgarian language and literature. A pedagogical experiment is also included. The experiment involves a total of 140 students: 70 fourth-grade students from "Otets Paisiy" Primary School in Pazardzhik, divided into control and experimental groups during the 2021/2022 school year, and another 70 fourth-grade students from the same school during the 2024/2025 school year, aimed at validating the results. The stages of the experiment are: pre-diagnostic, ascertaining, formative, and control.

**The preliminary stage** involves researching the opinions of teachers and students regarding activities related to project-based learning and the integration of cross-curricular connections in Bulgarian language and literature classes. This includes observation and surveying of teachers and students to monitor the perception of the approach within the educational environment and to assess students' readiness to work with this method.

**The identifying stage** aims to establish the initial communicative and speech skills of the students, including their ability to answer questions about the content of literary texts, formulate conclusions, and identify the main messages in the texts. For this purpose, a diagnostic lesson was conducted to assess the level of reading comprehension skills through independent completion of a set of learning tasks related to text analysis.

**During the formative stage**, the qualities of the proposed conceptual model of project-based learning are evaluated, and the research hypothesis is tested. The model is aimed at developing reading comprehension and Bulgarian language production skills among primary school students, including creative tasks related to cross-curricular and interdisciplinary connections. These tasks are intended to support students in acquiring new knowledge and developing communicative skills through the integration of various academic disciplines.

**The control stage** identifies the changes that have occurred in the communicative and speech skills of primary school students as a result of the implemented system of work within project-based learning and the interdisciplinary connections applied during the formative stage. For this purpose, the methods of observation and testing are used—diagnosing the level of mastery of reading comprehension and the production of Bulgarian speech through the independent completion of learning tasks related to the studied texts. The results of the experiment will be processed using statistical methods in order to evaluate the effectiveness of project-based learning and the application of interdisciplinary connections in the teaching of Bulgarian language and literature at the primary level.

**The objectives implemented through the proposed model are:**

- Developing students' communicative and speech skills, as well as their reading literacy;
- Forming skills for perceiving, understanding, and interpreting literary works;
- Building relationships based on universal human values through project-based learning;
- Enhancing students' self-confidence and assurance in their communicative abilities;
- Enriching students' vocabulary and improving their skills in working with texts;
- Developing teamwork skills and the ability to collaboratively solve academic tasks;
- Engaging all students in the learning process, regardless of their level of preparation;
- Increasing motivation for learning through the practical application of knowledge;
- Creating interest in the learning process and a positive classroom atmosphere through the use of innovative teaching methods.

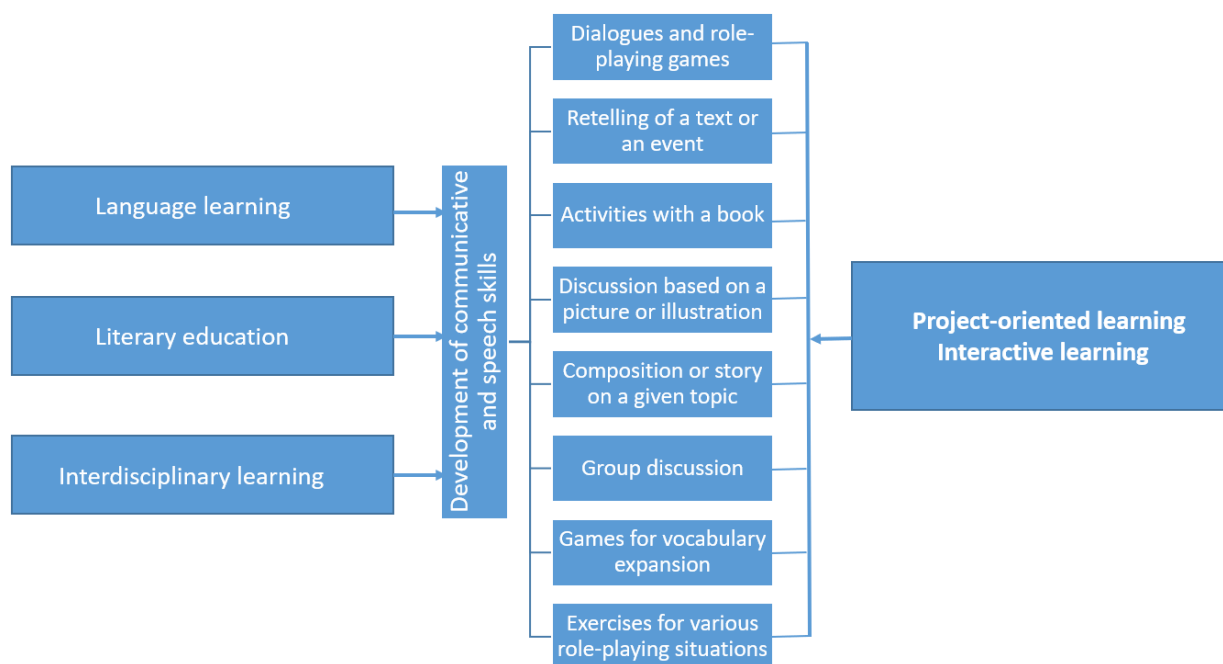
## 2.5. Research Sample

The pedagogical experiment involved a total of 140 students: the main sample included 70 fourth-grade students from "Otets Paisiy" Primary School in Pazardzhik, divided into control (CG) and experimental (EG) groups, studied during the 2021/2022 academic year; and 70 fourth-grade students from the same school in the 2024/2025 academic year, aimed at verifying whether the results obtained in the initial study are stable and applicable in a broader context—particularly important in pedagogical research, where the effectiveness of a model must be confirmed with more students and under different conditions.

Both the experimental and control groups underwent initial assessment through entry diagnostics to determine the level of literary competencies (the identifying stage of the experiment) and final assessment (the control stage of the experiment). Only the experimental group of 35 students and the other group of 70 students participated in the formative stage of the pedagogical experiment.

An additional sample included 26 primary school teachers from "Otets Paisiy" Primary School in Pazardzhik, who were surveyed for the purposes of the pedagogical study.

## 2.6. Methodological Model – Development of Communicative and Speech Skills in the Context of Project-Based and Interdisciplinary Learning



**Figure 1. A Model for Fostering Communicative and Speech Competence in a Project-Oriented and Interdisciplinary Educational Setting.**

The methodological model illustrates the relationship in the formation of communicative and speech skills through the lens of language and literary education, within the context of project-oriented learning and knowledge transfer in interdisciplinary education.

### III. EXPERIMENTAL PART

#### 3.1. Methodology of the Formative Stage

For the purposes of the pedagogical study, a technological model for project-based learning was developed to support the development of a complex set of skills: reading comprehension skills (ability to extract main ideas and key information, analyze and interpret texts), communicative and speech skills (oral and written expression of ideas, logical structuring and argumentation of statements), and teamwork skills (ability to cooperate and communicate effectively within a group).

The proposed technological model includes six methodological algorithms ranked according to the complexity of the verbal material, the specifics of visual aids, and levels of difficulty and execution. Six types of worksheets with varying levels of complexity were created and used for these purposes. They are intended for Bulgarian language and literature lessons, as well as for independent work:

- Perception, analysis, and interpretation of a literary or popular science text;
- Understanding and analyzing content – identifying facts, making comparisons, language skills;
- Retelling by using information from verbal support to organize the content;
- Analyzing and interpreting, formulating direct conclusions on a given topic;
- Developing an emotional-evaluative attitude towards a character or historical figure;
- Integrating knowledge and creative potential – producing a creative project.

##### 3.1.1. Perception, Analysis, and Interpretation of Literary or Popular Science Text

The worksheets are ten in total and consist of structured educational materials that support the learning process through diverse tasks and exercises. They include various components that make them effective and useful for students. One of the main elements is the textual content, which can be presented through literary excerpts, popular science texts, or informational materials. To this are added questions and exercises that check comprehension, encourage analysis, and promote reflection.

***First type of worksheets /one of the ten included in the appendix is presented/:***

##### ***April Uprising***

*The April Uprising is one of the most important events in Bulgarian history. It broke out in 1876 in the regions of Western Bulgaria. The uprising was organized by Bulgarians who wanted to free themselves from Ottoman rule. The main goal was to create a free and independent Bulgaria.*

*The uprising began on April 20, 1876, in Koprivshtitsa, but quickly spread to other villages and towns. Many Bulgarians joined the fight, despite knowing that the Turkish army was much stronger. Many of the rebels were young people dreaming of freedom and justice.*

*After a short but fierce struggle, the uprising was suppressed by Ottoman troops. Many Bulgarians were killed, and others were sent to prisons. Despite the failure, the uprising left its mark on history because it showed the determination and spirit of Bulgarians to fight for their liberation.*

*The April Uprising was an important moment in the preparation for Bulgaria's Liberation, which happened in 1878. This Uprising inspired many Bulgarians and gave new strength to the movement for independence.*

##### **Questions related to reading comprehension:**

- ✓ When and where did the April Uprising begin?
- ✓ What was the main goal of the Uprising?
- ✓ How did the people feel during the Uprising?



- ✓ How did the April Uprising end?
- ✓ What is the significance of the April Uprising for Bulgaria?

### **3.1.2. Comprehension and Content Analysis – Recognition of Facts, Comparison, Language Skills**

Ten worksheets are offered, aimed at developing students' abilities not only to recognize and analyze basic geographical facts, plant and animal species, but also to interpret and apply them in various contexts. The worksheets encourage students to connect what they have learned with specific geographical and ecological phenomena, thus stimulating their active engagement in the learning process.

**Second type of worksheets** (one of the ten included in the appendix is presented):

#### ***Text about Bulgaria***

*Bulgaria is located in Southeastern Europe, on the Balkan Peninsula. It borders Romania to the north, Serbia and North Macedonia to the west, Greece and Turkey to the south, and has a coastline along the Black Sea to the east. The capital of Bulgaria is Sofia, and the largest city is Plovdiv.*

*The country has a rich history, being home to one of the oldest civilizations in Europe. Bulgaria was founded in 681 by Khan Asparuh and later established a powerful empire. Over the centuries, Bulgaria went through different historical periods, including kingdoms, Ottoman rule, and the National Revival.*

*Bulgaria is known for its natural beauty, mountains, rivers, and fertile valleys. The country is home to national parks such as Rila and Pirin, which are listed as UNESCO World Heritage sites. Bulgaria also has many cultural monuments, churches, monasteries, and archaeological sites.*

*The traditions and customs of Bulgarians are deeply connected with nature and holidays. Folklore, folk dances, and music are an integral part of Bulgarian culture.*

#### **Questions and Tasks:**

##### **Recognizing Basic Information**

- ✓ On which peninsula is Bulgaria located?
- ✓ What is the name of Bulgaria's capital?
- ✓ When was Bulgaria founded?

##### **Natural and Cultural Features of Bulgaria**

✓ Describe in 2-3 sentences what natural landmarks and cultural monuments Bulgaria has, using information from the text.

##### **Historical Significance of Bulgaria**

- ✓ Who founded Bulgaria in 681?
- ✓ What role did Bulgaria play during the historical periods mentioned in the text? (1 point)

##### **Geographical Knowledge**

- ✓ Which countries border Bulgaria to the north?
- ✓ What is the main river associated with Bulgaria?

##### **Language Task: Descriptive Epithets**

- ✓ Find three descriptive epithets related to Bulgaria in the text.

##### **Creative Task: Short Description**

✓ Write a short description (2-3 sentences) of Bulgaria using the following words: history, mountains, traditions, folklore.

### **3.1.3. Retelling using verbal support for content structuring**

Students are provided with worksheets (five in total) for retelling texts, with goals focusing both on the knowledge they acquire and the skills they develop. One key educational outcome is for students to understand the text about the historical figures discussed. They should be able to extract main ideas and events, recognizing the significance of the historical figure and their role in Bulgarian history.

Awareness of historical context: Students need basic knowledge about historical events related to Vasil Levski and be able to recognize the importance of his mission for Bulgaria's freedom; as well as about Khan Asparuh, Tsar Simeon, and their roles in Bulgarian history. Familiarization with the characters in the text: Children should be able to identify and understand the roles of the characters in the text, for example, Levski and the shepherd, and comprehend their role in the narrated story.

**Third type of worksheets: Read the text carefully and then retell it in writing using your own words.**

#### **Vasil Levski**

*Vasil Levski often traveled from town to town to gather people for the Bulgarian revolution. One day, he stopped in a small village. There, he met a poor shepherd who gave him bread and cheese. Levski told the shepherd about his dream — a free Bulgaria where all people live in peace and harmony.*

*The shepherd was impressed by Levski's courage and promised to help. When Levski set off on his way, he smiled because he knew that one more person was ready to fight for freedom.*

#### **Instructions for retelling:**

- ✓ Retell the story in your own words, keeping the main events.
- ✓ Use sentences that are clear and connected.
- ✓ You may add your feelings or impressions about the characters.
- ✓ Additional question:
- ✓ What did you like most about the story of Vasil Levski?

#### **3.1.4. Analysis and interpretation, formulation of direct conclusions on a given topic**

The proposed worksheets (five in total) assist students in analyzing the text, understanding its messages, and expressing their attitudes toward the theme of friendship.

The educational goals are closely connected to the teaching methodology of Bulgarian language and literature (BLL) and correspond to the subject's objectives. Here is how they fit:

Development of reading literacy—students learn to understand text content, identify the main idea, and reflect on it;

Development of language and communication skills—they develop skills to express thoughts and feelings in oral and written form; formation of values and attitude toward literature—students realize the importance of ethical and moral concepts like friendship, kindness, and mutual help.

Through this type of worksheet, skills for reading comprehension are achieved. Reading literacy is developed by reading and understanding text, analyzing content, and extracting the main message.

**Fourth type of worksheets: Read the text about friendship carefully. Then answer the questions using your knowledge, observations, and feelings.**

#### **Friendship**

*One day, a little boy named Petar and his best friend Ivan decided to build a small house in the park. They worked together, carrying wood and building, until the sun began to set. But at one point, Ivan accidentally broke one of the boards, and Petar got angry.*

*– Why don't you pay attention? Now everything is ruined! – shouted Petar.*

*Ivan felt sad and started walking home.*

*The next day, Petar realized that without Ivan, the little house wouldn't be the same. He went to his friend and said:*

*– I'm sorry I got angry. You are my best friend, and I want us to keep building together.*

*Ivan smiled and said:*

*– It's nothing, my friend. Together we can fix everything.*

*The two of them got back to work and ended up building the most beautiful little house in the park.*

Questions for text analysis

- ✓ What is the main message of this story?
- ✓ What qualities do Peter and Ivan show as friends?
- ✓ Why did Peter apologize to Ivan? Why do you think this is important in friendship?
- ✓ Questions for interpretation:
- ✓ What do you think true friendship means? Give an example from your life or the lives of people around you.
- ✓ What would you do if you were in Peter's or Ivan's place? Explain your choice.
- ✓ Creative task:
- ✓ Draw the little house that Peter and Ivan built. How does it look to you?
- ✓ Write a short message to a friend thanking them for their support.

### **3.1.5. Developing an emotional and evaluative attitude toward a character or historical figure**

The applied technological model includes five worksheets covering five topics. The proposed working model for developing an emotional and evaluative attitude toward a historical figure also helps students analyze and interpret the text, requiring them to reflect on important historical personalities and express their opinions and feelings about them. This work is fundamental for developing critical thinking and fostering a positive attitude toward national heroes and values.

The attached worksheets aim to develop students' reading and historical literacy by encouraging them to analyze the actions and significance of key historical figures. Through reading and reflecting on texts about personalities such as Vasil Levski, Tsar Boris the Baptizer, and Khan Asparuh, students learn to extract main messages, interpret events within a historical context, and identify the connection between personal qualities and historical achievements. This fosters a deep understanding of the role of historical figures and their lasting impact on the development of society and the state.

#### **The Apostle of Freedom**

*Vasil Levski (1837 – 1873) was a Bulgarian revolutionary and fighter for Bulgaria's freedom. He organized secret committees to prepare the people for self-governance. He is called "The Apostle of Freedom" because he dedicated his life to national liberation. Levski believed that Bulgarians must win their freedom by themselves.*

*Despite the dangers, he never gave up on his mission. He was brave and devoted. Unfortunately, he was captured by the Ottoman authorities and sentenced to death. His sacrifice remains in the hearts of generations of Bulgarians.*

#### **Questions about the text:**

- Who is Vasil Levski and what is he known for?
- What qualities does Levski possess? (Choose three words, write them down, and support your choice with the text.)
- How do you feel when you read about Levski? (Mark with ✓)
  - I admire him
  - I feel proud
  - I strive to be like him
  - I feel sad about his fate

### **3.1.6. Integration of Knowledge and Creative Potential – Creating a Creative Project**

Five project-based topics are included. The project activities take place during lessons in literature, visual arts, and technology and entrepreneurship—projects with an open structure for

collaborative work. This task offers opportunities for integrative learning, simultaneously developing students' cognitive, linguistic, creative, and emotional skills. By combining knowledge and skills from different subjects, students not only acquire new competencies but also gain an understanding of the cultural heritage's importance, presented in a creative and compelling way.

**Task:** Create a promotional poster on the topic: "Visit the Vasil Levski House Museum in Karlovo"

**Goal:** To develop creative, communicative, and analytical skills by combining knowledge from different subjects (Bulgarian Language and Literature, Visual Arts, and Social Studies).

**Guidelines for the task:**

- ✓ Historical information (Social Studies): Brief presentation of Vasil Levski and the significance of the house-museum.
- ✓ Communicative text (Bulgarian Language and Literature): Create a short, appealing text to persuade people to visit the museum. Example: "Come to Karlovo to experience the history of the Apostle!"
- ✓ Design and visual layout (Visual Arts): Include appropriate images or drawings (the house-museum, portrait of Levski, etc.).
- ✓ Clarity and attractiveness of the poster.

**Educational Objectives:**

✓ **Development of key competences:** Students will develop skills in written and visual communication, teamwork, and creative thinking.

✓ **Integration:** The project combines knowledge and skills from different school subjects:

Bulgarian Language and Literature: Developing skills for writing coherent and persuasive texts suitable for promotional materials.

Man and Society: Deepening knowledge about Vasil Levski and the historical sites associated with him.

Visual Arts (subject): Developing aesthetic sensitivity and skills for graphic design.

**Specific goals:**

- ✓ Development of creative skills through the creation of an original promotional poster.
- ✓ Improvement of communication skills, including writing advertising texts and using persuasive arguments.
- ✓ Encouragement of analytical thinking by selecting the most important information to present.

The project activity takes place within the school hours of History, Bulgarian Language and Literature, Visual Arts, as well as Technology and Entrepreneurship. The project is role-based and game-oriented, characterized by an open structure of collaborative work.

**Stage 1. Project Planning.** The main concept is formulated as the creation of a promotional poster dedicated to the "Vasil Levski" House-Museum in Karlovo. The initial stage includes a history lesson held in the school library, where students have the opportunity to learn biographical information about Vasil Levski and the significance of the museum as a cultural-historical site. The teacher presents key historical facts and interesting details that can be included in the poster's content. An interactive approach is applied through group discussion.

**Stage 2. Implementation of the project idea.** To increase students' interest, in the Bulgarian language and literature class, literary texts related to Levski's personality are analyzed. Based on these, students identify key moments and compose the informative text for

the poster. At this stage, the rules, work structure, timeline, and necessary resources are clarified.

**Stage 3.** Research activity and product creation. This stage unfolds through several consecutive sub-stages. In the Technology and Entrepreneurship class, students work in teams to create a poster mock-up. They discuss impactful visual concepts and strategies for effective presentation of the museum. During the Visual Arts class, the visual component of the poster is created – a drawing or collage including an image of the “Vasil Levski” House-Museum. Students apply various artistic techniques to aesthetically and compositionally enhance the final product. In the Bulgarian Language and Literature class, an additional textual component is formulated – an interesting fact related to Levski’s childhood, as well as a call to visit the museum, aimed at engaging and motivating the audience. Students focus on clarity, persuasiveness, and stylistic consistency of the text.

**Stage 4.** Project completion. The final stage includes a public presentation of the completed posters within the school environment in front of classmates, teachers, and parents. A discussion is organized regarding the effectiveness of the promotional content and the importance of cultural and historical heritage. The best posters may be exhibited at the school or provided to local cultural institutions.

The pedagogical experiment was conducted during the 2021-2022 school year with 70 fourth-grade students, divided into an experimental group and a control group, in four stages – preliminary, control, formative, and concluding stages. In the 2024-2025 school year, to validate the obtained results, the developed technological model was applied with an additional 70 fourth-grade students.

In the preliminary stage of the study, the opinions of primary school teachers and students from "Otets Paisiy" Primary School in Pazardzhik were surveyed regarding the use of Project-Based Learning (PBL) in Bulgarian Language and Literature classes, integrated with subjects such as Man and Society, Man and Nature, Visual Arts, and Technology and Entrepreneurship. A total of 26 primary school teachers and 140 students were surveyed with the following objectives:

- To gather information about the use of Project-Based Learning (PBL) in Bulgarian Language and Literature classes from teachers;
- To assess the needs and desires of teachers for improving the use of PBL in their teaching practice;
- To identify opportunities for professional development and support that would help teachers integrate PBL more successfully into their lessons;
- To understand teachers’ perceptions regarding the effectiveness and challenges of implementing PBL in education.

For the purposes of the pedagogical study, a questionnaire was created using Google Forms.

**Key findings from the teacher survey conducted:**

✓ **PBL is a well-known and integrated approach.**

The fact that all teachers use PBL to some extent shows that the method has been integrated into educational practice. This may be the result of training, guidelines from the Ministry of Education, school policies, or personal initiatives.

✓ **Variation in the frequency of use**

73.1% of teachers apply it at least "sometimes" (23.1% often + 50% sometimes), indicating that a significant portion of educators recognize the benefits of the method. About one quarter (26.9%) use it rarely, which may signal difficulties in its practical implementation.

✓ **Potential barriers to wider use**

Teachers who use project-based learning (PBL) rarely or sometimes may face difficulties such as:

- Insufficient time for preparing and conducting projects.
- Lack of suitable resources for their specific class or subject.
- Limited knowledge or confidence in effectively applying PBL.
- The curriculum content may not be adapted for a project-based approach, especially in 4th grade, where the program is structured and focused on covering basic knowledge and skills.

Despite the possible difficulties, the use of project-based learning (PBL) by all respondents shows that teachers recognize it as an effective method. This is especially important in Bulgarian language and literature classes, where projects can develop key skills such as critical thinking, creativity, and communication.

#### **Key findings from the student survey:**

✓ More than half of the students prefer project work and group tasks, indicating that these methods can effectively engage their attention and support the assimilation of the curriculum content.

✓ A significant number of students find the application of project-based learning (PBL) in the educational process interesting, as it gives them the opportunity for more active participation and practical application of knowledge.

✓ Most students feel confident when assigning roles, working in teams, and creating visual and textual elements within projects. They face difficulties when required to independently formulate conclusions from research, organize complex tasks, or plan the time needed to complete the project.

For the purposes of the dissertation research, the students were divided into two groups – an experimental group (EG) and a control group (CG), each consisting of 35 students.

To assess the level of literary competencies of the students from both study groups, an initial independent task was conducted. It included 10 questions/tasks related to a literary text, designed to evaluate skills such as extracting information from the text, identifying characters through their dialogues, recognizing and retelling an episode, expressing emotional and evaluative attitudes towards the characters, arranging episodes in the correct narrative order, formulating and interpreting conclusions, and developing students' creative abilities by expressing and supporting their own opinions.

***Table 3.1. Results from the Initial Assessment of the Experimental Group (EG) and Control Group (CG)***

Final assessment results for EG and CG	Excellent (6)	Very good (5)	Good (4)	Satisfactory (3)	Fail (2)	Average grade
Experimental group	4	23	8	0	0	4.88
Control group	10	14	11	0	0	4.97

The results of the study show that the control group (CG) has significantly more students with an "Excellent" grade compared to the experimental group (EG), while the EG has more students in the "Very Good" category. The average grade of the CG (4.97) is slightly higher than that of the EG (4.88). The absence of failing grades in both groups indicates a high initial level of students, creating favorable conditions for the implementation of project-based learning.

The analysis of the entry-level results shows that students from both groups demonstrate nearly identical skills in working with literary text tasks. The difference in their knowledge is minimal—only 0.09—which means the two classes are equivalent. This makes them suitable for conducting a pedagogical experiment, as they are comparable both in size and achievement level.

**Table 3.2. Descriptive Statistical Characteristics of the Experimental Group (EG) and Control Group (CG)**

Column2 KF		Column1 ET	
Mean	4,97	Mean	4,88
Standard Error	0,132752	Standard Error	0,098488
Median	5	Median	5
Mode	5	Mode	5
Standard Deviation	0,78537	Standard Deviation	0,582663
Sample Variance	0,616807	Sample Variance	0,339496
Kurtosis	-1,34807	Kurtosis	0,093788
Skewness	0,051411	Skewness	0,001545
Range	2	Range	2
Minimum	4	Minimum	4
Maximum	6	Maximum	6
Sum	174	Sum	171
Count	35	Count	35

The initial data are grouped, presented as a statistical distribution series. To calculate the arithmetic mean, the so-called weighted formula is used, where the values of the variable are weighted by their corresponding frequencies before averaging:

where  $f_i$  is the frequency in the  $i$ -th group of the averaged variable,  $x_i$  is the class representative in the  $i$ -th group, and  $k$  is the number of groups.

From the table, the values of  $x_i$  (the grades) and  $f_i$  (the frequencies for EG and CG) are:

EG –  $x_i = [6,5,4,3,2]$   $f_i = [4,23,8,0,0]$

CG –  $x_i = [6,5,4,3,2]$   $f_i = [10,14,11,0,0]$

The formula used to calculate variance is:

$$\sigma^2 = \frac{\sum_{i=1}^m f_i \cdot (x_i - \bar{x})^2}{\sum_{i=1}^m f_i}$$

where  $f_i$  is the frequency (number of students) for each grade  $x_i$ ,  $x_i$  - (6, 5, 4, 3, 2) each individual grade,  $m$ : the number of grade levels.

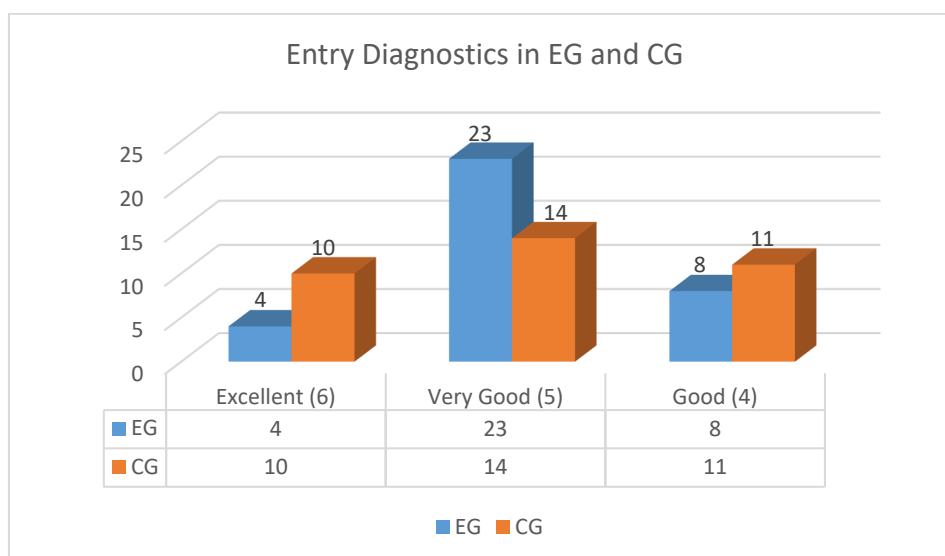
Steps of Calculation:

- Calculation of the arithmetic mean using the so-called weighted (aggregated) formula, as described above;
- For each category, the difference  $(x_i - \bar{x})$ , is calculated and then squared:  $(x_i - \bar{x})^2$ ;
- Each squared difference :  $(x_i - \bar{x})^2$  is multiplied by the corresponding  $f_i$
- All values from the previous step are summed up and divided by the total number of students  $\sum f_i$  to obtain the variance.

The **coefficient of variation (V)** is calculated using the following formula:  $V = \frac{\sigma}{\bar{x}} \times 100$

The obtained values for the coefficient of variation are: CV% = 11.75% for the experimental group and CV% = 15.57% for the control group. The coefficient of variation values are below 50%, which indicates that the samples are homogeneous, as the results show little dispersion around their mean value.

**Chart 1. Results from the Entry Diagnostics**

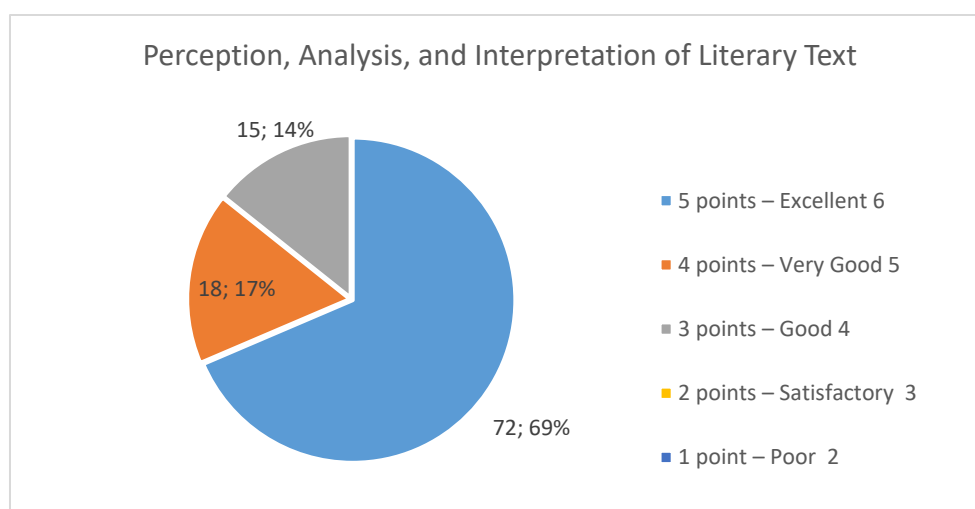


The entry diagnostics show that the percentage of students with excellent grades in the experimental group (EG) is lower compared to the control group (CG). Before applying the technological model of project-based learning (PBL), the EG demonstrated greater homogeneity with a concentration of results in the "Very Good" category, whereas the CG had a higher number of students in the extreme categories ("Excellent" and "Good"), which may indicate greater polarization in achievements. This grade distribution provides an opportunity for effective comparison after the implementation of PBL, aiming to assess its impact on students' skills.

### 3.2. Results from the Formative Stage of the Experiment

The study involves 105 students, of whom 35 participated in the experimental group during the 2021/2022 academic year, and 70 were part of the validation group during the 2024/2025 academic year. The developed technological model for project-based learning in Bulgarian language and literature was applied. The model includes six methodological algorithms with varying levels of complexity, designed for use in literature classes.

#### 3.2.1. Analysis of the Results from the Worksheets on the Perception, Analysis, and Interpretation of Literary Texts



**Figure 2.**



The analysis of the results shows that 69% of the students achieved excellent performance, successfully answering all questions, which demonstrates a good understanding of literary texts and historical events. Seventeen percent of the students fall into the "Very Good" category, with probable causes of errors being inaccuracies in expression or gaps in analysis. Fourteen percent of the students showed average performance, experiencing difficulties in understanding and interpreting historical facts, which may be attributed to less developed analytical skills.

**Table 3.3. Criteria, Indicators, and Points for the First Type of Worksheet**

<b>Criteria</b>	<b>Indicators</b>	<b>Points</b>
1. When and where did the April Uprising begin?	Complete and correct answer: "The April Uprising began on April 20, 1876, in Koprivshtitsa."	1
2. What was the main goal of the uprising?	Complete and correct answer: "The main goal was the liberation of Bulgaria from Ottoman rule and the establishment of an independent state."	1
3. How did the people feel during the uprising?	Accurate answer reflecting the emotional state: "The people felt courage and hope, but also fear, because the Ottoman army was much stronger."	1
4. How did the April Uprising end?	Complete and clear answer: "The uprising was suppressed by the Ottoman forces; many Bulgarians were killed or imprisoned."	1
5. What is the significance of the April Uprising for Bulgaria?	Accurate answer emphasizing the historical importance: "Despite its failure, the uprising drew the attention of Europe and contributed to the Liberation of Bulgaria in 1878."	1
Total points: 5		15 p.

### **Conversion Scale of Results to the Six-Grade Assessment System:**

#### **Assessment Scale (maximum 5 points):**

5 points: Excellent (Grade 6) – Demonstrates in-depth understanding of the topic, with clear and logical formulation of answers. Responses include detailed argumentation and accurate presentation of historical facts.

4 points: Very Good (Grade 5) – Shows good comprehension of the text; the interpretation of events is correct with only minor omissions.

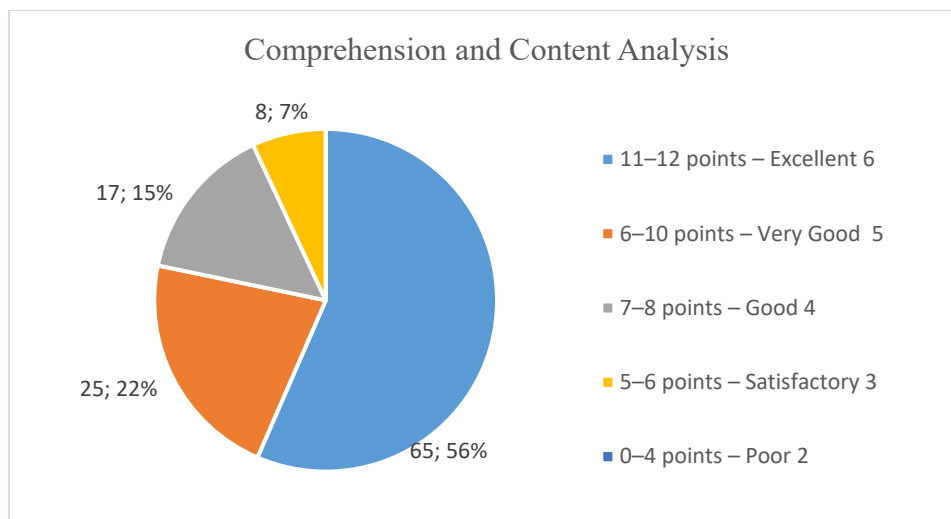
3 points: Good (Grade 4) – Answers are mostly correct but lack specific details or personal interpretation. Basic understanding of events is evident, though argumentation is limited.

2 points: Satisfactory (Grade 3) – Partial understanding of main ideas is shown, but responses are superficial, poorly formulated, or missing key information.

0–1 point: Poor (Grade 2) – Does not demonstrate understanding of the topic; answers are incomplete, unclear, or missing. There is no evidence of processing the events or their significance.

### **3.2.2. Comprehension and Content Analysis – Recognition of Facts, Comparison, and Language Skills**

The results show that 56% of the students achieved excellent results, demonstrating well-developed comprehension and analytical skills. Twenty-two percent fall into the "Very Good" category, with solid knowledge but some omissions. Fifteen percent received a "Good" grade, indicating difficulties in detailed analysis. Only 7% scored "Satisfactory," which points to challenges in extracting and comparing information. The absence of students with the lowest grade is a positive indicator, as all participants demonstrated at least basic knowledge of the topic.



**Figure 3.**

**Table 3.4. Criteria, Indicators, and Points for the Second Type of Worksheet**

Criteria	Indicators	Points
<b>1. Recognition of Basic Information:</b> a) On which peninsula is Bulgaria located? b) What is the name of the capital of Bulgaria? c) When was Bulgaria founded?	Correctly identifies the location (Balkan Peninsula). Correctly names the capital – Sofia. Correctly states the year – 681 AD.	3 pts
<b>2. Natural and Cultural Features:</b> Describe in 2–3 sentences some natural landmarks and cultural monuments.	Specific examples from the text are used.	1 pt
<b>3. Historical Significance of Bulgaria:</b> a) Who founded Bulgaria in 681 AD? b) What was Bulgaria’s role during historical periods?	Correctly identifies Khan Asparuh. A brief but meaningful answer based on the text.	2 pts
<b>4. Geographical Knowledge:</b> a) Which countries border Bulgaria to the north? b) What is the main river associated with Bulgaria?	Correctly identifies the neighboring country – Romania. Correctly names the Danube River.	2 pts
<b>5. Language Task – Descriptive Epithets:</b> Find three descriptive epithets for Bulgaria in the text.	1 point for each correctly identified epithet.	3 pts
<b>6. Creative Task – Short Description:</b> Write a short description of Bulgaria using the words “history, mountains, traditions, folklore.”	Logically connected text using the given words.	1 pt
<b>Total Points:</b>		12 pts

**Grading Scale Conversion to the Six-Point System:**

**Assessment Scale (Total: 12 points)**

**11–12 points:** Excellent (6)

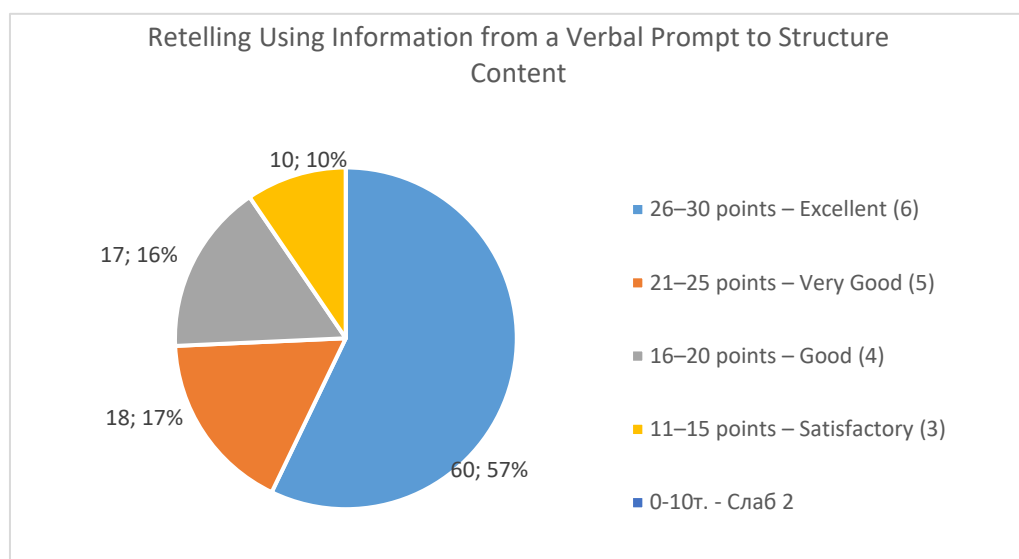
**9–10 points:** Very Good (5)

**7–8 points:** Good (4)

**5–6 points:** Satisfactory (3)

**0–4 points:** Poor (2)

### 3.2.3. Retelling Using Information from a Verbal Prompt to Structure Content



**Figure 4.**

The diagram illustrates students' performance in the retelling task, with emphasis on their ability to use textual information. 57% received an **“Excellent”** grade, demonstrating a well-structured retelling supported by effective use of verbal cues. 17% achieved a **“Very Good”** grade, showing minor omissions. 16% were assessed with a **“Good”** grade, experiencing difficulties in organizing the information coherently. 10% received a **“Satisfactory”** grade, indicating the need for additional support in achieving logical sequence and clarity of expression.

**Table 3.4. Criteria, Indicators, and Points for the Third Type of Worksheet**

Criteria	Indicators	Points
1. Content and Accuracy to the Text	10: All key events correctly ordered; no omissions. 8–9: Minor omissions or deviations. 6–7: Important moments omitted. 4–5: Incomplete and inaccurate retelling. 0–3: Severely distorted or missing retelling.	10 points
2. Logical Structure	5: Logical sequence and smooth transitions. 4: Slight lack of coherence. 3: Fragmented structure. 2: Difficult to follow. 0–1: No logical structure.	5 points
3. Language Use	5: Accurate word choice, varied and appropriate sentences. 4: Slightly limited vocabulary. 3: Many repetitions and simplistic style. 2: Limited language affecting the retelling. 0–1: Inappropriate language.	5 points
4. Spelling and Grammar	5: No spelling or grammar mistakes. 4: Up to 2 minor errors. 3: 3–5 errors, but meaning remains clear. 2: More than 5 errors affecting clarity. 0–1: Many errors, unclear text.	5 points

5. Creative Element	5: Personal impressions and emotions added, relevant to the text. 4: Impressions added but limited. 3: Superficial impressions. 2: Unrelated impressions. 0–1: No creative elements.	5 points
Total Points:		30 points

### Grading Scale Conversion to the Six-Point System:

#### Assessment Scale (Total: 30 points)

**26–30 points:** Excellent (6)

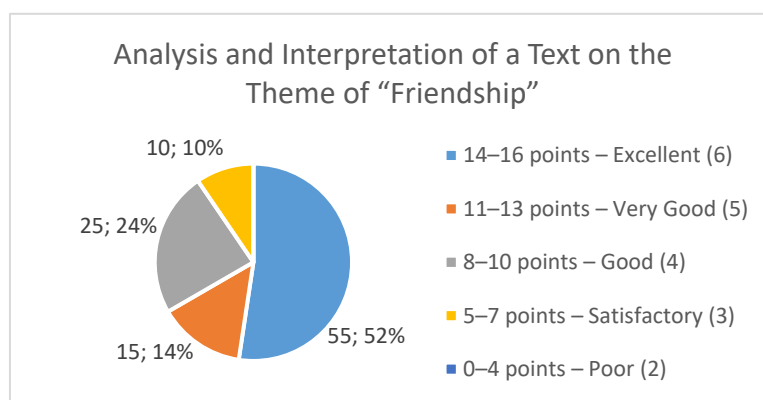
**21–25 points:** Very Good (5)

**16–20 points:** Good (4)

**11–15 points:** Satisfactory (3)

**0–10 points:** Poor (2)

### 3.2.4. Analysis and Interpretation, Formulation of Direct Conclusions on a Given Topic



**Figure 5.**

The results from the worksheet based on the story “*The Magic Umbrella*” show that 52% of the students achieved an “Excellent” grade (14–16 points), 14% were rated as “Very Good” (11–13 points), 24% received a “Good” grade (8–10 points), and 10% attained a “Satisfactory” result (5–7 points). These data indicate that the majority of students successfully identified the main message of the text and demonstrated the ability to analyze the characters’ qualities.

**Table 3.5. Criteria, Indicators, and Points for the Fourth Type of Worksheet**

Criteria	Indicators	Points
Text Comprehension	2 pts – Correctly identifies the main message of the text. 2 pts – Accurately and clearly explains the characters’ qualities. 2 pts – Explains why the characters’ actions are important for friendship.	6 pts
Analysis and Personal Interpretation	2 pts – Shares a meaningful and personal interpretation of the theme of friendship. 2 pts – Provides an example from their own life or from the lives of people around them.	4 pts

Critical Thinking Skills	2 pts – Explains what actions they would take if they were in the characters' place, with clear reasoning.	2 pts
Creativity	2 pts – Creates a drawing or message clearly expressing a message about friendship.	2 pts
Format and Clarity of Expression	2 pts – Expresses ideas clearly and uses correct spelling and punctuation.	2 pts
Total Points:		16 pts

### Scale for Converting Results to the Six-Grade Evaluation System:

#### Grading Scale (total of 16 points)

14–16 points: Excellent (6) – Demonstrates deep understanding, creativity, and clear expression.

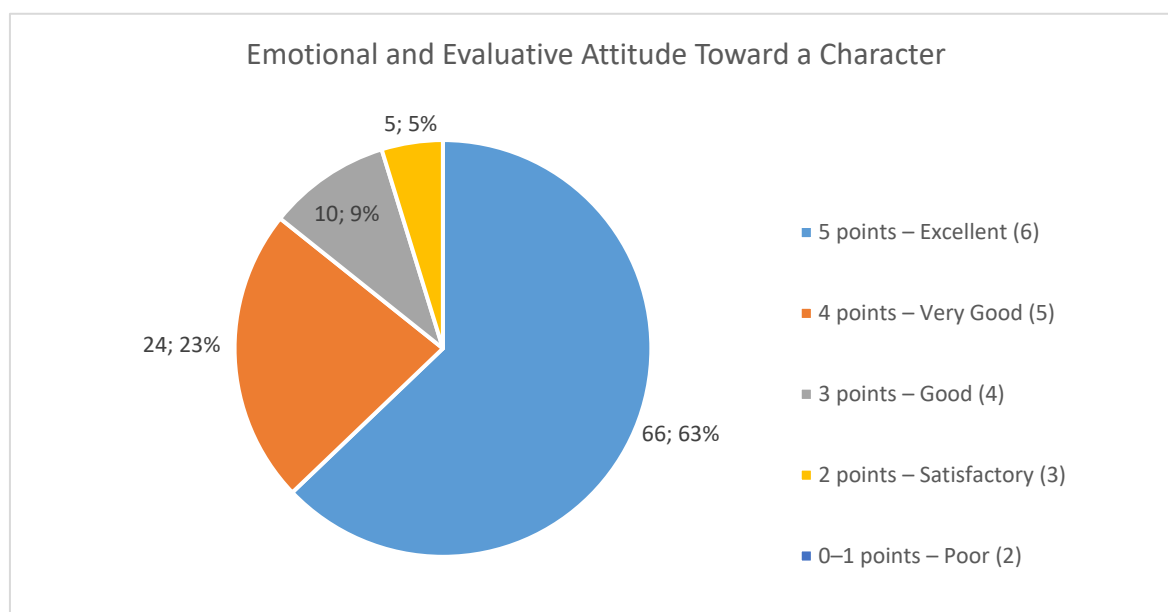
11–13 points: Very Good (5) – Shows good understanding and logical interpretation with minor omissions.

8–10 points: Good (4) – Answers the main questions correctly, but lacks detail or creativity.

5–7 points: Satisfactory (3) – Shows some understanding of the text, but with gaps in analysis and argumentation.

0–4 points: Poor (2) – Demonstrates no clear understanding or expression.

### 3.3.5. Formation of Emotional and Evaluative Attitude Toward a Character or Historical Figure



**Figure 6.**

The diagram presents the students' results according to the grading scale: 63% of the students (66 students) received Excellent (5 points) – This indicates that the majority of students demonstrated a deep understanding of the topic, expressing an emotionally evaluative attitude with detailed argumentation. 23% (24 students) received Very Good (4 points) – These students showed a good understanding of the content and provided correct answers, but with minor gaps in their argumentation. 9% (10 students) received Good (3 points) – They gave mostly correct answers but lacked sufficient details or justification. 5% (5 students) received Average (2 points) – These students understood the main ideas but expressed limited opinions and made errors in selecting qualities.

**Table 3.6. Criteria, Indicators, and Points for the Fifth Type of Worksheet**

Criteria	Indicators	Points
1. Who is Vasil Levski and what is he known for?	Precise, clear, and accurate answer about Levski's personality and deeds.	1
2. What qualities does Levski possess?	Three appropriate and significant qualities describing Levski's personality (e.g., courage, honesty, dedication). Argumentation.	3
3. How do you feel when you read about Levski?	Clearly expressed personal opinion related to feelings about Levski, with a brief explanation.	1
Total points:		5

**Scale for converting results to the six-point grading system:**

**Grading scale (maximum of 5 points):**

5 points: Excellent (6) – Demonstrates deep understanding of the topic and the ability to express an emotionally evaluative attitude toward the person, with detailed argumentation.

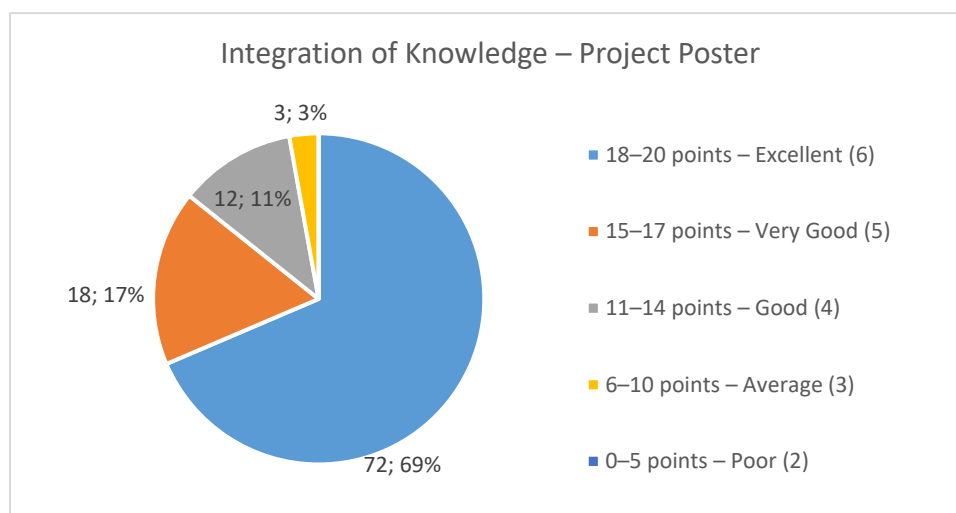
4 points: Very Good (5) – Demonstrates good understanding of the text and correctly interprets the person's qualities, with minor omissions.

3 points: Good (4) – Answers are mostly correct but lack sufficient detail or personal interpretation.

2 points: Average (3) – Shows understanding of the main ideas but provides limited argumentation or weak choice of qualities.

0–1 point: Poor (2) – Demonstrates no clear understanding of the topic or the responses are unclear.

**3.3.6. Integration of Knowledge and Creative Potential: Development of a Creative Project**



**Figure 7.**

The diagram shows students' results according to the evaluation criteria (maximum 20 points). 69% received an **Excellent**, demonstrating high quality, good structure, and visual engagement in their posters. 17% received a **Very Good**, having performed well but with minor omissions. 11% achieved a **Good**, indicating the presence of basic elements but with weaker argumentation or visual presentation. 3% received an **Average**, as their projects did not fully meet the criteria or contained insufficient information. The absence of **Poor** grades is a positive outcome, showing that all students presented content to some extent.

**Table 3.7. Criteria, Indicators, and Points for the Sixth Type of Worksheet**

<b>Criteria</b>	<b>Indicators</b>	<b>Points</b>
1. Content of the Text	<p>Selection of accurate, engaging, and persuasive information.</p> <ul style="list-style-type: none"> <li>– The text provides comprehensive, well-structured, and compelling information about the presented object. It offers relevant and engaging details, highlighting the historical significance with clarity, precision, and academic consistency.– 5 pts.</li> <li>– The information is accurate and appropriately selected, demonstrating understanding of the topic. However, it lacks depth, elaboration, or a more distinctive and original approach in presenting the object’s significance.– 4 pts.</li> <li>– Presents basic information, but lacks detail or fails to emphasize historical importance – 3 pts.</li> <li>– Missing key facts or information is inaccurate/unconvincing – 2 pts.</li> <li>– Incomplete text with insignificant information – 1 pt.</li> <li>– No content or entirely incorrect – 0 pts.</li> </ul>	5 points
2. Language Accuracy	<p>Correct spelling, punctuation, and appropriate style.</p> <ul style="list-style-type: none"> <li>– No spelling, punctuation, or grammatical errors. Style suitable for promotional material – 5 pts.</li> <li>– Minor spelling or punctuation mistakes that do not hinder understanding – 4 pts.</li> <li>– Several spelling or grammar mistakes that slightly affect text quality – 3 pts.</li> <li>– Frequent spelling or punctuation errors that make comprehension difficult – 2 pts.</li> <li>– Numerous mistakes that significantly reduce clarity and impact – 1 pt.</li> <li>– Text is unintelligible or missing – 0 pts.</li> </ul>	5 points
3. Creativity of Design	Visual appeal, originality, balance between text and graphics.	5 points
4. Message and Impact	<p>Clarity of the main message and emotional effect.</p> <ul style="list-style-type: none"> <li>– The poster has a clear, persuasive, and emotional message that captures attention and inspires action – 5 pts.</li> <li>– Message is clear and impactful, but slightly lacks originality or emotional depth – 4 pts.</li> <li>– Message is understandable but not sufficiently persuasive or emotional – 3 pts.</li> <li>– Message is weakly formulated and barely impactful – 2 pts.</li> <li>– Message is unclear or poorly targeted to the intended audience – 1 pt.</li> <li>– No message or entirely inappropriate – 0 pts.</li> </ul>	5 points
Total Points:		5 points

### **Conversion scale for mapping results to the six-point grading system:**

#### **Evaluation Scale Based on Total Score (Maximum: 20 points):**

18–20 points: Excellent (6): The poster demonstrates a deep understanding of the topic, a high level of creativity, flawless language, and a powerful, impactful message.

15–17 points: Very Good (5): The poster presents accurate information and a creative design, but shows minor shortcomings in spelling, composition, or clarity of the message.

11–14 points: Good (4): The poster includes basic information, but lacks detail, originality, or a balanced integration of text and visuals. The message may be less impactful.

6–10 points: Satisfactory (3): The poster has significant gaps in content, text, or design, which hinders its effectiveness in reaching the audience.

0–5 points: Poor (2): The poster does not meet the intended goals. Key information is missing, there are major spelling or stylistic errors, and the design fails to attract attention.

#### **Summary of Student Learning Outcomes from a Technological Model Based on Six Methodological Algorithms**

The analysis of the results indicates a high level of student achievement according to the established criteria. In the various assessed areas, excellent and very good results prevail, demonstrating a solid understanding of the learning content, analytical skills, and the ability to create coherent texts and projects.

Between 56% and 69% of the students received an "Excellent" grade, which indicates profound knowledge, well-founded arguments, and effective use of information. Approximately 17% to 23% achieved a "Very Good" grade – this group demonstrates solid knowledge but with minor gaps in argumentation, analysis, or structure.

Between 9% and 16% received a "Good" grade, meaning they understand the core content but face difficulties with details, interpretation, or organization of information. A small percentage (3% to 10%) of students received an "Average" grade – in this group, weaknesses are observed in logical structure, argumentation, and completeness of the presented information. No students received the lowest grade ("Poor") in any of the evaluated categories, which is a positive indicator of the students' good preparation and engagement.

These data confirm that the students successfully apply their knowledge, utilize the provided educational resources, and develop key skills such as analysis, critical thinking, and creative expression. The achieved results demonstrate potential for further enhancement and development through project-based learning methods.

### **3.3. Analysis of the Results from the Control Study**

To assess the knowledge and skills of the students from the experimental and control groups, an initial diagnostic test was conducted. It follows the structure of the entrance test and includes 10 questions/tasks based on a literary text, through which achievements are measured according to pre-established criteria. The maximum possible score is 18 points. The analysis of the results shows the following:

***Table 3.8. Results of the Final Diagnostic Assessment of the Experimental Group (EG) and Control Group (CG)***

Final Scores of EG and CG	From 18 to 16 points	From 15 to 12 points	From 11 to 8 points	From 7 to 4 points	Below 3 points
Experimental Group (EG)	25	9	1	0	0
Control Group (CG)	18	10	7	0	0



**Scale for converting test results to the six-point grading system:**

From 16 to 18 points – Excellent (6.00)

From 12 to 15 points – Very Good (5.00)

From 8 to 11 points – Good (4.00)

From 4 to 7 points – Average (3.00)

From 0 to 3 points – Poor (2.00)

**Table 3.9. Final Assessment Results of the Experimental Group (EG) and Control Group (CG)**

Group	Excellent (6)	Very Good (5)	Good (4)	Average (3)	Poor (2)	Mean Grade
Experimental Group	25	9	1	0	0	5.68
Control Group	18	10	7	0	0	5.31

The research results reveal significant differences in performance between the experimental group (EG) and the control group (CG), both in terms of the criterion for creativity in expressing thoughts and in the overall average achievement.

**Average achievement:**

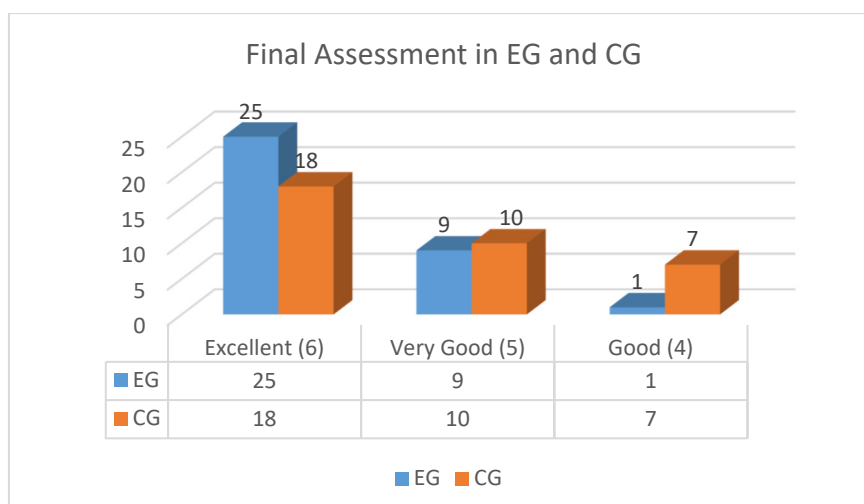
**EG:** The average achievement of the students in the experimental group (EG) at the end of the study is 5.68, indicating a high level of performance.

**CG:** The average achievement in the control group (CG) is 5.31, which is 0.37 points lower than that of the experimental group (EG).

This difference reflects a consistent advantage of the experimental group (EG), associated with a deeper acquisition of key competencies, stimulated by project-based learning and the applied methodology during the formative stage.

The results from the final assessment indicate that in the experimental group (EG), the majority of students received an “Excellent” grade (25), which reflects a high level of acquired competencies. In the control group (CG), there is also a considerable number of students with excellent results (18), but it is lower compared to the EG. The number of students with a “Very Good” grade is similar in both groups (9 in EG and 10 in CG), indicating relatively equal achievement in this category. In the EG, only one student received a “Good” grade, while in the CG there are seven, suggesting that traditional teaching methods lead to greater variability in student performance.

**Diagram 2. Results from the Final Assessment**



**Table 3.10. Statistical Characteristics of the Results from the Initial Assessment (IA) and Final Assessment (FA) of the Experimental Group (EG)**

t-Test: Paired Two Sample for Means		
	IA EG Score	FA EG Score
Mean	4,885714	5,685714
Variance	0,339496	0,280672
Observations	35	35
Pearson Correlation	0,737743	
Hypothesized Mean Difference	0	
df	34	
t Stat	-11,6619	
P(T<=t) one-tail	9,88E-14	
t Critical one-tail	1,690924	
P(T<=t) two-tail	1,98E-13	
t Critical two-tail	2,032245	

A paired samples t-test was applied to compare the mean values of the results from the Initial Assessment (IA) and the Final Assessment (FA) of the Experimental Group (EG), in order to verify the significance of the impact of the applied methodology. As shown in the table, there is a significant difference between the mean values of the IA and FA. The Pearson correlation coefficient of 0.737 indicates a strong degree of association between the two variables, demonstrating that they move in the same direction. The strength of the correlation is interpreted according to the following scale:

- A correlation coefficient between 0 and 0.3 (absolute value) is considered a weak relationship;
- A correlation coefficient between 0.3 and 0.7 (absolute value) is considered a moderate relationship;
- A correlation coefficient between 0.7 and 1.0 (absolute value) is considered a strong relationship.

A Pearson correlation coefficient of 0.737 indicates a strong positive correlation between the mean values of the Initial Assessment (IA) and the Final Assessment (FA) of the Experimental Group (EG) following the implementation of the methodology during the formative phase.

#### **Summary of the Data:**

Mean value (Mean):

Initial Level (IA EG Score) = 4.88

Final Level (FA EG Score) = 5.68

**The results indicate a significant increase in the mean score.**

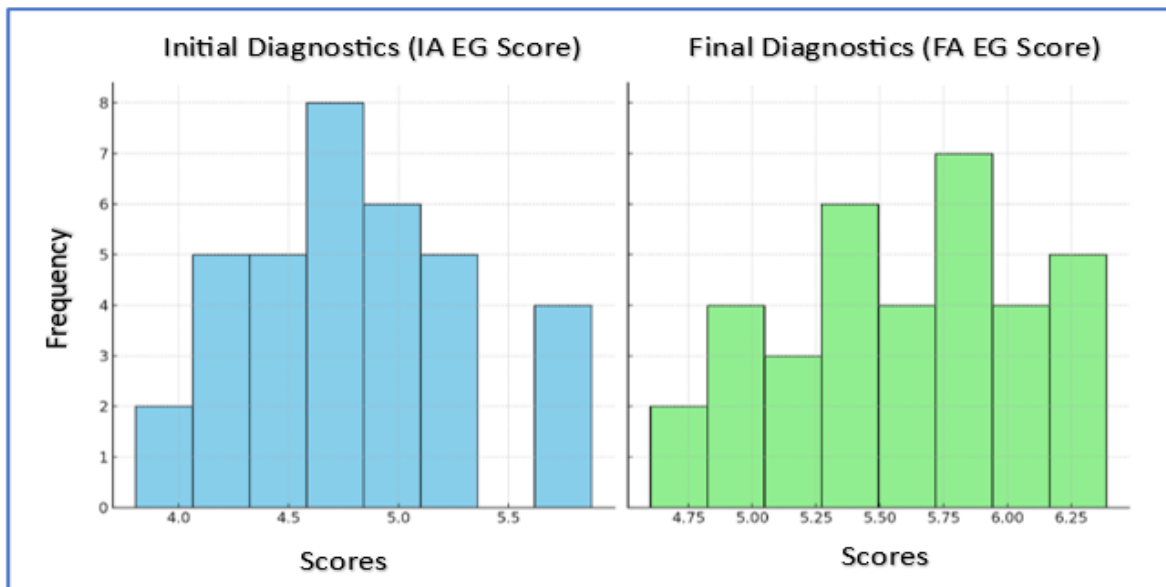
Interpretation of the Results:

The t-statistic (-11.66) is **much lower** than the critical value of -2.0322 for a two-tailed test. The p-value (1.98E-13) is significantly less than the significance level of 0.05.

Both p-values are **very small**, indicating a **statistically significant difference** between the two groups. Since both p-values are below the conventional significance level of 0.05, **we can reject the null hypothesis**, which states that there is no difference between the mean values.

**Therefore, we reject the null hypothesis ( $H_0$ ) and accept that there is a statistically significant difference between the mean values of the initial and final levels.**

***Histograms 3.1 and 3.2 of the Scores from the Initial and Final Assessments of the Experimental Group (EG)***



The results of the final diagnostic assessment are clearly skewed toward higher values, which is consistent with the statistical analysis confirming a significant improvement.

In summary, the results of the t-test reveal an extremely low t-statistic value, suggesting that the likelihood of this being a random occurrence is minimal. This outcome provides strong grounds for rejecting the null hypothesis, which posits that there is no difference between the mean values at the initial and final levels. Instead, it can be concluded that there is a statistically significant difference between these two variables. The statistical analysis of the final assessment results of the students in the control and experimental groups was conducted using a t-test, which is a standard method for comparing the means of two independent samples.

***Table 3.11. Descriptive statistical characteristics of the results from the final (FA) assessment of the EG and CG***

t-Test: Two-Sample Assuming Equal Variances		
	FA EG Score	FA CG Score
Mean	5,685714	5,314286
Variance	0,280672	0,633613
Observations	35	35
Pooled Variance	0,457143	
Hypothesized Mean Difference	0	
df	68	
t Stat	2,298097	
P(T<=t) one-tail	0,012319	
t Critical one-tail	1,667572	
P(T<=t) two-tail	0,024638	
t Critical two-tail	1,995469	

We define the null hypothesis (H0) and the alternative hypothesis (H1):

- **H0:** The positive changes in the students' achievements in the experimental group are due to random factors.

- **H1:** The improvement in the results is a consequence of the applied experimental intervention.

In the analysis of the results from the Final Assessment (FA) of the students from the Experimental Group (EG) and the Control Group (CG), we use the two-sample t-test assuming equal variances. The main statistical parameters are:

Mean score of students in the **EG: 5.69**

Mean score of students in the **CG: 5.31**

Variance in the **EG: 0.28**

Variance in the **CG: 0.63**

Number of observations in both groups: **35**

#### **Statistical testing of hypotheses**

To determine whether the difference between the mean scores of the two groups is statistically significant, we use Student's t-test. The obtained t-statistic is 2.298097, and the critical value for a two-tailed test with 68 degrees of freedom is 1.995469. Since the t-statistic is greater than the critical value ( $2.298097 > 1.995469$ ), we can conclude that the difference between the mean values of the two groups is statistically significant at the 0.05 (5%) significance level.

#### **Interpretation of the p-value**

Additionally, we consider the p-value, which indicates the probability that the differences in the results occurred by chance.

**For a one-tailed test:  $p = 0.012319$**

**For a two-tailed test:  $p = 0.024638$**

**Since  $p < 0.05$ , the null hypothesis is rejected**, which confirms that the difference between the groups is not due to chance but is a result of the applied intervention.

#### **Conclusion:**

**Statistical analysis** shows that the students from the **experimental group** achieved higher results compared to those from the **control group**, with the difference being **significant** and not explainable solely by random factors. This supports the **hypothesis** that the **experimental intervention** had a positive effect on the students' achievements.

**Table 3.12. Descriptive statistical characteristics of the results from the Initial Assessment (IA) and Final Assessment (FA) of the results verification group**

t-Test: Paired Two Sample for Means		
	<i>IA score</i>	<i>FA score</i>
Mean	5,2	5,557143
Variance	0,742029	0,685093
Observations	70	70
Pearson Correlation	0,837458	
Hypothesized Mean Difference	0	
df	69	
t Stat	-6,19139	
P(T<=t) one-tail	1,88E-08	
t Critical one-tail	1,667239	
P(T<=t) two-tail	3,75E-08	
t Critical two-tail	1,994945	

The conducted paired-samples t-test aims to verify whether there is a statistically significant difference between the results of the Initial Assessment (IA) and the Final Assessment (FA) for the students in the verification group. The null hypothesis ( $H_0$ ), stating that there is no difference between the two mean values, is rejected at a significance level of  $\alpha = 0.05$ . The t-statistic value is -6.19, and the p-value is  $3.75 \times 10^{-8}$ , indicating a high level of confidence in the presence of an effect from the applied educational intervention. Therefore, based on the empirical data, it can be concluded that the applied methodology has a positive effect on the students' knowledge and skills. The results in this phase support the hypothesis that project-based learning positively influences the communicative and speech skills of the students in the results verification group (the second stage of the study during the 2024/2025 academic year).

## CONCLUSIONS

The experiment confirms the expectations that the implementation of project-based learning and an interdisciplinary approach leads to higher engagement and effectiveness in students' knowledge acquisition. The results of the experimental teaching support the stated hypothesis that the integration of various academic subjects through projects facilitates the development of key competencies, critical thinking, and the ability to solve problems independently. This summary can be specified in the following conclusions:

1. The studied theoretical concepts of project-based learning and the analyzed best practices in the interdisciplinary approach contributed to the development of innovative teaching models aimed at the primary education level.

2. The examined specifics of active and interactive methods in the context of PBL allowed for testing the created models and their successful implementation in a real educational environment.

3. The data from the conducted assessments indicate a need to develop skills in analysis, interpretation, and text creation across various academic subjects. Students demonstrate the ability to work on projects but face difficulties in independently formulating ideas and using appropriate academic or literary language.

4. Long-term project work contributes to the development of lasting learning skills that increase motivation and foster an attitude of independent inquiry and critical reflection on information.

5. The integration of interdisciplinary connections in project-based learning facilitated the understanding of complex topics, increased student engagement, and encouraged creative thinking.

6. The implementation of PBL strengthened interaction among students, improved their communicative and speech skills, and created conditions for effective collaboration in the learning process.

7. The developed methodological model for project-based learning met the educational needs of the students, attracted teachers' interest, and enhanced the effectiveness of the learning process in the primary education level.

The obtained results confirm that the implementation of project-based learning at the primary education stage is an effective model that supports the assimilation of educational material, develops students' cognitive abilities, and encourages their independence. It is recommended to emphasize the purposeful application of interdisciplinary strategies that correspond to the students' cognitive capacities and contribute to their overall intellectual and creative development.

## CONTRIBUTIONS

The conducted research confirms the relevance of the issue related to the implementation of project-based learning, the constructivist approach, and interdisciplinary strategies in the educational process. The topic is of particular importance for pedagogical practice and the scientific community, aligning with contemporary educational trends and the requirements of curricula. The development of critical thinking, collaboration skills, and creative problem-solving through projects is a key aspect of modern education, which motivates the present study.

### **Scientific-theoretical and scientific-applied contributions:**

1. From a theoretical perspective, the possibilities of the project-based approach have been explored, revealing its educational potential as an effective means for language and literature teaching that meets the needs of the modern student.

2. The characteristics of project-oriented learning (POL) in its implementation at the primary education stage, specifically in Bulgarian language and literature classes, have been clarified. Particular attention has been paid to the teacher's role as a facilitator of learning and to the importance of fostering students' creative engagement.

3. An interactive technological model with a six-step methodological algorithm has been developed, tested, and implemented, aimed at mastering language and literary competencies through project activities based on interdisciplinary connections between Bulgarian language and literature, environmental studies, and visual arts.

4. Educational resources have been developed for teachers to facilitate the implementation of project-oriented learning (POL) in practice, enhance students' motivation to learn, and increase the effectiveness of the educational process. These resources are designed to support project-based work related to real-life situations, promoting critical and creative thinking.

### **Perspectives for future research:**

The results of the study open opportunities for further development in several directions. The proposed methodology can be adapted for students at the lower secondary and upper secondary levels, with research focusing on its applicability in more complex educational contexts. Additionally, a suitable direction for expanding the research is to monitor the effectiveness of project-oriented learning (POL) in multicultural educational environments. Another important aspect deserving attention is the perception of POL by teachers — both as an innovative methodology and as an opportunity to individualize instruction according to students' needs.

In this way, the study not only contributes to a better understanding and implementation of project-based learning at the primary education level but also lays the foundation for future research focused on educational innovations and the development of autonomous, motivated, and competent students.

## PUBLICATIONS

1. Fidanova<sup>2</sup>, & Eshkenazi, M. (2015). *Project-Based Learning as a Core Method of Active Learning – One of the Best Strategies for Developing Children's Creativity*. Proceedings of the Regional Pedagogical Conference “Children and the Big World”, Pazardzhik: Makros Publishing, p. 253. ISBN 978-954-561-366-1.
2. Komsiyiska, G. (2017). *An Interdisciplinary Approach to Developing Key Competences in Primary School Age*. Ministry of Education and Science, XII National Pedagogical Readings, Lovech, pp. 116–121. ISBN 978-954-784-134-5.
3. Komsiyiska, G. (2018). *The Outdoor Classroom*. Ministry of Education and Science, XIII National Pedagogical Readings, Lovech: Safo Publishing, pp. 145–150. ISBN 978-954-784-139-0.
4. Komsiyiska, G. (2018). *An Interactive Approach to Developing Key Competences in Teaching “Man and Society”*. Proceedings of the Regional Pedagogical Conference “Children and Education in the 21st Century”, Pazardzhik: Diagon 88 Publishing, p. 24. ISBN 978-619-7414-10-3.
5. Komsiyiska, G. (2019). *Let Us Be Europeans, but Above All Bulgarians*. Ministry of Education and Science, XIV National Pedagogical Readings, Lovech: Safo Publishing, pp. 26–30. ISBN 978-954-784-141-3.
6. Komsiyiska, G. (2021). *Digital Bridges and Interactions. Digital Generation*. Ministry of Education and Science, XV National Pedagogical Readings, Safo Publishing, pp. 90–97. ISBN 978-954-784-143-7.
7. Komsiyiska, G. (2022). *Implementation of National Programs and Project-Based Learning in the Primary Stage of Basic Education*. Doctoral Research, Paisii Hilendarski University Publishing, Issue 6, pp. 39–47. ISSN 2367-7309.
8. Komsiyiska, G. (2023). *Project-Based Learning – A Strategy for Activating Students' Cognitive Potential*. Ministry of Education and Science, XVII National Pedagogical Readings, Nitos Design, pp. 339–347. ISBN 978-954-92992-5-0.
9. Komsiyiska, G. (2023). *An Interdisciplinary Approach to Developing Communicative and Speech Skills in Primary School*. Doctoral Research, Paisii Hilendarski University Publishing, Issue 7, pp. 109–115. ISSN 2367-7309.
10. Komsiyiska, G. (2024). *Integrating Social-Emotional Education into Bulgarian Language and Literature Teaching for Grades 1–4*. Ministry of Education and Science, XVIII National Pedagogical Readings, Karis Group Publishing, pp. 4–8. ISBN 978-954-92992-5-0.
11. Komsiyiska, G. (2024). *Social-Emotional Learning in Developing Communication Skills in Bulgarian Language and Literature Education at the Primary Level*. Doctoral Research, Paisii Hilendarski University Publishing, Issue 8, pp. 18–30. ISSN 2367-7309.
12. Komsiyiska, G. (2024). *Learning with Hands, Heart, and Mind: An Interdisciplinary Approach to Developing Key Skills through Group Project Activities*. Ministry of Education and Science, IX National Pedagogical Readings, Karis Group Publishing, pp. 150–156. ISBN 3033-0696.

---

<sup>2</sup> Fidanova, G. and Komsiyiska, G. are the same person; Fidanova is her maiden name