



SOFIA UNIVERSITY "ST. KLIMENT OHRIDSKI"
FACULTY OF EDUCATIONAL STUDIES AND THE ARTS
DEPARTMENT OF PRESCHOOL AND MEDIA PEDAGOGY

Blaga Georgieva Dimova

**COMPETENCE-ORIENTED MODEL OF PEDAGOGICAL
INTERACTION IN THE EDUCATIONAL FIELD "ENVIRONMENTAL
WORLD" FOR 6-7-YEAR-OLD CHILDREN IN PRESCHOOL
EDUCATION**

ABSTRACT

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Scientific supervisor:
Prof. Dr. Lyuboslava Peneva

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The content of the dissertation covers an introduction, four chapters, conclusions, conclusion, literature and appendices. The dissertation contains 327 pages, of which 221 pages are main text, 11 pages of references and 92 pages of appendices. The text includes 61 diagrams, 48 tables, 4 figures, 2 schemes, 153 photographs. The bibliography contains 139 titles in Cyrillic and Latin, including and electron trajectories.

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GENERAL CHARACTERISTICS OF THE DISSERTATION

Actuality of the research

In today's dynamic world, pre-school and school education in Bulgaria aims to renew and achieve a new quality of its results. One of the most important and rapidly developing directions of pedagogical theory and practice is the competence approach - a not entirely new and foreign phenomenon of Bulgarian education. In 2019, the Ministry of Education and Science of the Republic of Bulgaria focused the attention of the pedagogical community on competence-oriented education as an alternative to subject-oriented education.

In preschool age, the foundations of lifelong learning are laid and skills and competences are formed, which determine the attitude of the future citizen to the world. Therefore, preschool education realizes its goals by applying the competence approach. The presence of personal, mental, mental and social achievements in development, self-reliance and independence of the child in behavior, solving elementary everyday problems, participation in accessible activities in practice shows the formation of initial key competences.

The reasons for the relevance of the research problem are based on the following:

1. Education has the priority and responsibility of turning any knowledge into competence continuously, person-oriented and laying a secure foundation for every person from the earliest childhood throughout his life.

2. The competence approach is current and guarantees the significance of the child's position in his personal and emotional plan today and in the next stages of development of modern society.

3. Competence-oriented education is especially important at the stage of compulsory pre-school training, bearing in mind, from a psychological point of view, the sensitive period of the child's development, from a pedagogical point of view - due to the importance of preparing the child for school education, and from a social point of view - the possibility of a good start in life.

4. In upper preschool age, the child daily interacts with the diversity of the surrounding world. The specificity of this interaction is of particular importance for the direction of child development. It is a fact that the realization of the goals in all areas of preschool education is impossible without the basis of knowledge about the surrounding world, without neglecting the importance and necessity of the others.

5. Competence-oriented education can increase the effectiveness of the process of pedagogical interaction in the educational field "Environmental World" and from there - the overall educational process in preschool age.

6. In modern preschool education, competence-oriented education can find its realization in pedagogical interaction through a model on which the State Educational Standard for preschool education is built. Covering it implies mastering a system of competences tailored to the children's age characteristics by the time they enter first grade. This necessitates the need for theoretical and technological research aimed at enriching the abilities and opportunities of those working in preschool education to apply the competence approach to increase its effectiveness.

All the arguments mentioned so far determine the relevance of the topic of a dissertation work.

The motivation for choosing the topic of the current dissertation is related to the need for research to build a comprehensive and concrete concept for preschool education, which outlines a system for applying the competence approach - with characteristics, various models applicable in our country, as well as good practices, adapted for Bulgarian education.

Research program design

In this regard, *the goal* of the present study is: based on a study of the theoretical aspects of the problem, to establish the influence of the parameters of competence-oriented education on the effective formation of a system of competences, its need and its specificity in preschool education, and this basis to develop, approve and implement a competence-oriented model of pedagogical interaction in an educational field "Environmental world" for 6-7-year-old children.

The object of the study is the competence-oriented education of 6-7-year-old children in the process of pedagogical interaction in the educational field "Environmental World" within the framework of public preschool education.

The subject of the study is the possibilities of the process of pedagogical interaction in the educational field "Environmental World" as a system of principled approaches, organizational forms and methods in kindergarten, with a focus on the formation of competences in 6-7-year-old children through a competence-oriented model.

In view of the set goal and its achievement, the following main tasks are defined:

1. To carry out a theoretical study on the competences, competences and competence approach outlined by various authors.

2. To study and analyze the essence and characteristics of competence-oriented education and its specifics in preschool education and, specifically, in the process of pedagogical interaction in the kindergarten under educational field the "Environmental World".

3. To carry out a content analysis of the annual thematic distribution in the educational field "Environmental world" of eight program systems for preschool education.

4. To develop criteria and indicators for diagnosing children's manifestations in the main and additional forms of pedagogical interaction in the educational field "Environmental World", establishing the level of skill formation corresponding to the defined competencies.

5. To develop and approve a diagnostic tool for assessing the specific competences in the educational field "Environmental World" in preschool education.

6. To develop, structure, approve and apply in practice an author's competence-oriented model of pedagogical interaction in the educational field "Environmental World" in preschool education.

7. To outline the possibilities for applying the competence-oriented model in the conditions of preschool education in Bulgaria.

8. To study the opinion of preschool teachers regarding the specific approaches, methods and tools they use in the process of pedagogical interaction in the educational field "Environmental world" for the formation of competencies in preschool children.

9. To analyze the results of the research and formulate conclusions about the applicability of the model in pedagogical practice.

Hypothesis: It is assumed that the application of the developed competence-oriented model in the process of pedagogical interaction in the kindergarten under the educational field "Environmental World" will have a positive effect on the formation of a system of competences in 6-7-year-old children.

The nature of scientific research and the realization of the set tasks determine the use of the following research methods:

- *Method of theoretical analysis* - includes a study of the problem of competence-oriented education in Bulgarian and foreign scientific literature, an analysis of European and national normative documents, as well as a study of the possibilities of the process of pedagogical

interaction in the educational field "Environmental World" in preschool education for bringing out the selected competences in 6-7-year-old children.

- *Pedagogical experiment* - conducted in the period of September 2018. until May 2021. It is implemented in two phases with a total of six stages.

- *Pedagogical Observation* - an important part of the competence approach is the ability to carry out observations. Therefore, the ability of the preschool teacher to put the child in a problem situation develops in him a sense of using a research approach, making hypotheses, looking for solutions, laying the foundations of problem-based learning, as well as result-oriented education already in preschool childhood.

- *Content analysis* – of eight program systems for preschool education regarding the possibilities of the thematic cognitive content of the educational field "Environmental World", according to the criteria of the research in the direction of the formation of competences in children in the fourth age group of the kindergarten.

- *Survey* - conducted with children's teachers with the aim of researching their opinion regarding the relationship between key competences and competences in the educational field "Environmental World", as well as regarding the specific approaches, methods and tools they use in the process of pedagogical interaction for their formation in preschool children.

- *Mathematical-statistical methods* – calculation and comparison of arithmetic mean value, difference calculation, hypothesis testing, Student's T-test for independent samples and dependent samples, Pearson's correlation coefficient were used.

The following tools were used:

A *survey* was prepared for the needs of the present research in order to establish the attitude of preschool teachers regarding the specific approaches, methods and tools they use in the process of pedagogical interaction in the educational field "Environmental world", for the formation of competences in 6-7-year-old children .

The *main diagnostic tool* was selected and authorized based on the diagnostic tools of the eight program systems, the subject of the content analysis performed by the author, as well as based on the conclusions of the analysis of the results of the theoretical study. It is a picture test (cognitive tasks) - to determine the entry and exit level of the competences of the examined children.

The *picture test* contains twenty-four cognitive tasks, through which the level of coverage of the expected results according to the criteria and indicators of the study is established. The content of the cognitive tasks is in accordance with the DOS for preschool education, appendix No. 3 of Ordinance No. 5 on "Environment" and correspond to the indicators of the study.

STRUCTURE AND CONTENT OF THE DISSERTATION

Structure

The dissertation is structured and contains an introduction, four chapters, conclusions, terminal conclusion, references and appendices. The dissertation contains 327 pages, of which 221 pages are main text, 11 pages of references and 92 pages of appendices. The text includes 48 tables, 4 figures, 153 photos. The bibliography contains 136 titles in Cyrillic and Latin, including and electron trajectories.

Content

The **INTRODUCTION** substantiates the relevance and significance of the researched problem, as well as the need to research the possibilities for preparing and implementing a competence-oriented model of pedagogical interaction in the educational field "Environmental World" in preschool education. The design parameters of the research program are outlined: the goal, the object, the subject, the tasks, the hypothesis are formulated.

In **CHAPTER ONE, "Theoretical foundations of the problem of competence-oriented education"**, a theoretical study of conceptual studies by our and foreign authors, as well as European and national normative documents regarding basic concepts related to competences and the competence approach in education, was carried out.

Paragraph 1 deals with "**Basic Concepts in Competency-Oriented Education**". The essence of the categories "competence" and "competence", "competence approach", which are at its foundation, are revealed. For the precision of dissertation research, the difference between competence and competence stands out.

From the literature review and analysis of the scientific research of authors who worked on the problem (Z. Gancheva, R. Dimitrova, M. Mandeva, T. Tomov, I. Zimnya, A. Subetto, P. Georgieva, F. Ivanova, Y. Ilieva, R. Petrova, J. . Raven, D. McClelland, A. Khutorskoi, L. Khutorskaya, A. Zvezdova, B. Oreshkin, R. Boyatzis, P. Ellström, D. Goetz, G. Haensch, W. Hutmacher, H. Wellmann, M. Zwell).

In **1.1. Competency** is the opinion that the definition of the concepts of competence and competency by different authors varies from the statement that they are synonymous to different definitions, which come down, generally speaking, to the fact that they differ. Highlighting their differences allows them to be correctly defined.

In **1.2. Competence. Types of competences** is considered the views and definitions of the above-mentioned and other authors, among which those of R. Baytsis stand out, who in his book "The Competent Manager" (1982) introduced the concept of "competence" and defined it as "a set of basic personality qualities, behavioral characteristics, experience and motives necessary for quality performance of the activity".

In the specialized pedagogical literature in our country, definitions of the concept of competence in its varieties can be found in the works of B. Angelov, L. Angelova, D. Gyurov, V. Gyurova, S. Vatsov, Ya. Rasheva-Merdzhanova, T. Delcheva, G. Hristozova, V. Delibaltova, G. Boneva, S. Chavdarova-Kostova, Pl. Radev, N. Tsankov, R. Kotseva – Hristova, M. Stoyanova, Yu. Doncheva.

Despite the great diversity in the definition of the two concepts, it has been suggested that the prevailing view is that content competence is more comprehensive and includes the motivation and attitude of the individual to put into action the acquired knowledge, skills and attempt to achieve a result in a given area.

For the needs of the present study, the following definitions of the concepts of competency and competence have been adopted, namely that **competency** is a narrower concept that is considered in the context of the demonstrated behavior in a specific situation and in the performance of a specific task, role, etc. Competences always are in dynamics and are permanently proven (assessed, measured) in a certain practical environment, i.e. how the person copes with the work in the specific tasks and problems manifested in specific situations.

Unlike competency competence is a set of knowledge, skills, attitudes, and appropriate behavior, both in familiar and new situations. **Competence** is also assumed to be:

- Level of awareness, knowledge, experience in certain areas: a personal resource providing an opportunity for effective interaction in various areas of the surrounding world, including the degree of possession of the necessary competencies, i.e. competencies are part of competence.

- A broader concept, including personal qualities (knowledge, skills, habits, abilities, values), conditioned by experience and activity in certain different personally significant spheres.

In **1.3 Competence approach in education - essence, dimensions, effects on modern education**. This paragraph also focuses on the types of competences. Based on the detailed list of J. Raven of more than 35 types of competences, a list of competences is derived that are available for laying their foundations in preschool education: self-confidence, involvement of emotions in the process of activities, self-control, independent thinking, originality, critical thinking, persistence, trust, use of resources, attitude to rules as an indicator of desired behavior, ability to make good decisions, personal responsibility, ability to work together to achieve a goal, ability to listen to others and take into account what they say, ability to resolve conflicts and moderate disagreements.

In the course of the theoretical analysis, other types of competences are considered here, such as the three-level hierarchy of educational competence and the classification of seven key educational competences by A. Khutorskoi.

At the end of this paragraph, the argument that the Framework for the nine key competences, reflected in the Preschool and School Education Act, referring to general education (ZPUO, art. 77. (1) item 1-) is accepted for the needs of the dissertation work 9), emphasizing that the rationale for this is that key competences are developed from early childhood and preschool education lays the foundations for lifelong learning.

This framework covers the following competencies:

- Competencies in the field of the Bulgarian language.
- Communication skills in foreign languages.
- Mathematical competence and basic competences in the field of natural sciences and technologies.
- Digital competence.
- Study skills.
- Social and citizenship competences.
- Initiative and entrepreneurship.
- Cultural competence and creative expression skills.
- Skills to support sustainable development and for a healthy lifestyle and sport.

In **1.3.1. Historical dimensions**, an overview of the scientific research of authors regarding the emergence and development of the competence approach as a traditional, but at the same time, current paradigm in education is made. The views of L. Spencer and S. Spencer, S. Widet, N. Chomsky (N. Chomsky), R. White (R. White), J. Raven (J. Raven), I. Zimnya, O. Zhuk, N. Kuzmina, A. Markova, L. Petrovskaya, V. Baydenko, A. Khutorskoi, L. Mitina and others. The stages of confirmation of the competence approach in education are highlighted.

With a view to specifying the parameters of the theoretical formulation and considering the actual dimensions of the problem of the dissertation work, in **1.3.2. Normative dimensions** are analyzed main normative documents establishing the European and national educational policies, in which the essence and characteristics of the competence approach are specifically interpreted - "Key competences for lifelong learning - European reference framework, the European Qualifications Framework for Lifelong Learning (EQF), National Qualification (NKR) of the Republic of Bulgaria. The Preschool and School Education Act (PSE) is examined in the context of the concept of key competences, as well as the Ordinance on Preschool Education, which sets the state educational standard of mandatory requirements for results in the preschool education system, as well as conditions and processes for their achievement, including the achievement of the specified competencies.

In **1.3.3. Current Pedagogical Dimensions** argues the thesis that modern education without the application of the competence approach is not up-to-date and sufficiently effective, and even less future-oriented. This makes the competence approach up-to-date and guarantees a secure basis for the child's development throughout his life.

Paragraph **1.4. Competence-oriented education** - essence, meaning, requirements is aimed at determining the parameters of competence-oriented education.

In 1.4.1 Competence-oriented education - essence, meaning, an analysis is made with the aim of studying the different opinions about competence-oriented education with a focus on the views of experts in education in different countries. J. Gervais (2016), summarizes the opinions of some authors (Le, Wolfe, Steinberg, Book, Riesman (1979), Spady (1977), etc.) that the theoretical basis of competence-oriented education is rooted in learning theory. In this sense it is, according to him, an "eclectic model" based on concepts from contemporary learning theorists such as R. Tyler (1976), J. Carroll (1963), B. Bloom, F. Keller, F. Hall and H. Jones (1976), R. Skager (1979).

Competence-oriented education means for educators and children a gradual reorientation of the dominant educational paradigm - from the predominant teaching and development of knowledge, skills and abilities to creating conditions for mastering a set of competencies contributing to the formation of the personality, its ability to adapt in the rich, a modern space saturated with information and technology.

For the purposes of this study, competence-oriented education is defined as: education for mastering, improving, acquiring and demonstrating knowledge, skills, behavior and attitudes - competences proven in a specific activity and in a different context.

In **1.4.2. Requirements for the implementation of competence-oriented education**, certain requirements have been identified that would be a sufficiently reliable prerequisite for effective competence-oriented education, which can be accepted as a pedagogical, technological and value basis on which competence-oriented education is based.

The organization of effective competence-oriented education (COE) is a complex, dynamic and specific process, according to the specific group of learners, pedagogical specialists and goals of the given stage, degree and type of education. For this reason, the requirements for the organization and realization of the COE may vary among different authors and cases.

However, after the analysis of the specialized literature, specific organizational and technological requirements have been identified that support the preschool teacher in the preparation and implementation of competence-oriented education.

The comparative analysis between competency-based education and traditional education reflected in **paragraph 2** is dictated by the need to highlight the advantages of competency-based education compared to the older traditional paradigm of education. In traditional education, which does not aim at the formation of competences, the main activities in practice are far from learning. Because learning aims at forming abilities and competences and has nothing to do with just transmitting information. This comparative analysis was carried out according to but eight criteria:

- Basic features and methods.
- Learning focus.
- Nature of the child's participation.
- Role of the child.
- Role of the teacher.

- Educational environment.
- Satisfied needs.
- Evaluation of acquired competences (diagnosis).

CHAPTER TWO "Competence-oriented education in the process of pedagogical interaction in the kindergarten under the educational field "Environmental world" in four paragraphs theoretically argues the main thesis of the dissertation work.

Paragraph 1 reveals **the Specificity of competence-oriented education in preschool age**. The organization of the educational environment, based on a competence approach, relying on expected results, which are not separate knowledge, skills and habits, but abilities for effective and productive activity in various, socially significant situations in preschool institutions, is determined by the need to improve the specific practical opportunities of children at this age.

In this sense, the process of the formation of competences in 6-7-year-old children, considered as a current and innovative educational process, covers not only the content, but also the organizational forms, methods and means of pedagogical interaction in preschool age, as well as the assessment of achievements and children's progress.

This implies that competency-oriented preschool education includes the set of educational principles laid down in the state standard for preschool education, selection of educational content, appropriate organization of the educational environment, and evaluation of results.

Interpreting the problem of the purpose of preschool education in the context of current trends for democratic, child-centered and practical-oriented, current world education, the quality of compulsory preschool education in kindergarten is seen as an indicator of the success of modern preschool institutions, and this is a mission to everyone working in preschool education - teachers and leaders. Preschool education is considered as the initial and connecting unit of the acquisition of competences and the quality of life of every person.

In the **second paragraph, "Competence-oriented education in the process of pedagogical interaction in the educational field "Environmental World" for 6-7-year-old children in kindergarten"** the concepts of various authors investigating the problems of the interaction of the preschool age child with the surrounding world are studied. (B. Boneva, I. Koleva, L. Peneva, D. Gyurov, M. Koleva, P. Konakchieva, Yu. Doncheva, M. Stoyanova). It

was found that in terms of content, close views prevail, among which the emphasis that the pedagogical interaction should be aimed more at the formation and improvement of certain skills used in the child's interaction with the surrounding world than at the accumulation of knowledge stands out. .

Differences that occur in the conceptual views are mainly related to the technologies of the child's interaction with the surrounding world, as well as the names, for example, of the pedagogical disciplines with the subject of the regularities of the processes of the child's interaction with the surrounding world, as an aspect of preschool education. But with all of them, the idea of a holistic approach is present, ensuring such inclusion of information in the content, which allows reality to be accepted by children as it is, with its complex and multifaceted aspects, to reveal to them the wealth of dependencies and interrelationships, t .is to form ideas about the unity of the world.

On this basis, the following parameters of the interrelationship "Competence-oriented education - pedagogical interaction in the educational field "Environmental world" have been derived:

- The surrounding world gives the child comprehensive knowledge and ideas about the natural and social world, about people's lives and about themselves.
- In the process of pedagogical interaction with the surrounding world, the preschool teacher, relying on the laws of nature and society, must form not only knowledge, but also skills, attitudes - competences. This can be ensured through such an organization of pedagogical interaction that creates conditions for competence-oriented education.
- Through the organization of the educational process related to the child's interaction with the surrounding world, knowledge, skills and competences are formed. The wealth and diversity of concepts and program systems is an advantage in this direction, which gives freedom of choice for the preschool teacher's creativity and opportunities to implement competence-oriented education in practice.

Competence-oriented education can increase the effectiveness of the process of pedagogical interaction in the educational field "Environmental World", and from there - the overall educational process in preschool age. For its effective realization, etc. principles that must be observed, as well as requirements for the selection of educational content in this direction.

Paragraph 3 Competency-oriented education as a criterion for school readiness

presents another angle of competence-oriented education in the dissertation work.

The main argument for this is the presence of demonstrated knowledge, skills, attitude and behavior, as well as the formation and manifestation of certain personal qualities necessary for the child to painlessly and successfully assume the new social role of "student" in his life. For the formation of the child's readiness for school, it is necessary that all competencies are established at the end of preschool childhood and developed in the child's future school education.

Various authors (G. Ivanova, R. Penev, L. Peneva, N. Poddyakov, A. Govorkova, M. Tereshchenko, A. Gogoberidze, D. Batoeva, G. Bizhkov, F. Stoyanova, etc.) define readiness for school and emphasize the role of the family as a partner in the child's development in this important stage for him.

In this paragraph, as a result of the summary carried out after a study of the problem of competence-oriented education in the Bulgarian and foreign scientific literature and the analysis of European and national normative documents, as well as a study of the possibilities of the process of pedagogical interaction in the educational field "Environmental World" in pre-school education, in order to achieve the tasks of the dissertation work, certain competences have been selected under ERR and NRR, which are formed in 6-7-year-old children, intended for achievement in this direction and which are the basis of the competence-oriented model. These are:

- Social and citizenship competences.
- Skills to support a sustainable development and for a healthy lifestyle and sport.
- Digital competence.

Due to the characteristics and specifics of the educational field "Environmental World", we choose these competencies, which represent a solid foundation for all other fields as well. For example, children's work with tablets facilitates the formation of social and civic competences, but at the same time it also develops digital and all other competences.

Our motive for choosing these competencies is that the expected results (competencies) in the educational field "Environmental world" (Appendix No. 3, Ordinance No. 5 on preschool education) most directly lead to the formation of the first two. We are also based on the view of J. Raven, who, in analyzing the place of competences in education, notes that social and civic

competences "are central to competent behavior in modern society" (Raven, 1999: 113). As for digital competence - our motive for including it in the dissertation thesis is also due to the necessity of working in an electronic environment at a distance and in preschool education. Education in an online environment requires purposeful and organized formation of digital competence, for which it is not too early to start in upper preschool age.

In **Paragraph 4 Content-analysis** of the annual thematic distribution by educational direction "Environment" of 8 program systems for preschool education, a content-analysis was carried out in order to establish the percentage ratio of the topics from the annual thematic distributions of each of the selected program systems, referring to their belonging to the educational cores of the "Environmental World" educational direction, representing the criteria we have adopted for the examination of competencies.

Our motive for choosing this method is the importance of the child's cognitive activity at this age, with an emphasis on his interaction with the social environment, reflected in the first three educational cores of the "Environmental World" educational direction, especially in competence-oriented education.

The results of the content analysis show certain trends characterizing the content parameters of the program systems, which as an "overall concept for the development of the child" must create "conditions for the acquisition of competences" in the educational areas of preschool education, according to Ordinance No. 5, Art. 29, paragraphs 2 and 3.

CHAPTER THREE presents a **Competency-oriented model of pedagogical interaction in the educational field "Environmental World"**.

Paragraph 1 outlines the organization and setting of the study.

In **1.1 Goal, object, subject** of the research are specified:

Goal of the study: based on the study of the theoretical aspects of the problem, to establish the influence of the parameters of competence-oriented education on the effective formation of a system of competences, its necessity and specificity in preschool education, and on this basis to develop, approve and implement competence-oriented model of pedagogical interaction in the educational field "Environmental World" for 6-7-year-old children.

Object of the study: the competence-oriented education of 6-7-year-old children in the process of pedagogical interaction in the educational field "Environmental World" within the framework of the public school education.

Subject of the study: the possibilities of the process of pedagogical interaction in the educational field "Environmental World", as a system of principles, approaches, organizational forms and methods in kindergarten with a focus on the formation of competences in 6-7-year-old children through a competence-oriented model.

In **1.2.** the following main research *tasks* are defined:

1. To carry out a theoretical study on the competences, competences and competence approach outlined by various authors.

2. To study and analyze the essence and characteristics of competence-oriented education and its specifics in preschool education and, specifically, in the process of pedagogical interaction in the kindergarten under educational field the "Environmental World".

3. To carry out a content analysis of the annual thematic distribution in the educational field "Environmental world" of eight program systems for preschool education.

4. To develop criteria and indicators for diagnosing children's manifestations in the main and additional forms of pedagogical interaction in the educational field "Environmental World", establishing the level of skill formation corresponding to the defined competencies.

5. To develop and approve a diagnostic tool for assessing the specific competences in the educational field "Environmental World" in preschool education.

6. To develop, structure, approve and apply in practice an author's competence-oriented model of pedagogical interaction in the educational field "Environmental World" in preschool education.

7. To outline the possibilities for applying the competence-oriented model in the conditions of preschool education in Bulgaria.

8. To study the opinion of preschool teachers regarding the specific approaches, methods and tools they use in the process of pedagogical interaction in the educational field "Environmental world" for the formation of competencies in preschool children.

9. To analyze the results of the research and formulate conclusions about the applicability of the model in pedagogical practice.

Hypothesis:

In **1.3. the hypothesis** of the research is formulated: It is assumed that the application of the developed competence-oriented model in the process of pedagogical interaction in the

kindergarten under the educational field "Environmental World" will have a positive effect on the formation of a system of competences in 6-7-year-old children.

Paragraph 2 Research design includes: research methods, research criteria and indicators, and research stages.

In **2.1. Research methods**, the research methods are described and their choice is justified: method of theoretical analysis, pedagogical experiment, pedagogical observation, content analysis, survey, mathematical and statistical methods. The tools of the research are also described: a survey with preschool teachers and the main diagnostic tool – a picture test.

2.2 Criteria and indicators of the study

For the needs of the study, a system of criteria and indicators was developed for monitoring the children's manifestations in the main and additional forms of pedagogical interaction in the educational field "Environmental World", establishing the level of formation of knowledge and skills corresponding to the defined competencies.

The quantitative reporting and evaluation of the results according to the indicators is carried out on a three-level scale: 1 – Does not cope with it, 2 – Partially copes with it, 3 – Copes with it

CRITERIA	INDICATORS	TOTAL SCORE
1. Self-assertion and communication with others	1.1 Demonstrates independence and is able to express confidence, feelings, wishes, yes	1 – Does not cope with it 2 – Partially copes with it 3 – Copes with it
	1.2 Knows family relationships, interacts effectively with peers and adults, showing tolerance	1 – Does not cope with it 2 – Partially copes with it 3 – Copes with it
	1.3 Makes a self-assessment of his behavior by relating it to rules and values, understands the consequences of breaking the rules and avoids conflicts	1 – Does not cope with it 2 – Partially copes with it 3 – Copes with it
	1.4 Has an idea of the social role "student"	1 – Does not cope with it 2 – Partially copes with it 3 – Copes with it
2. Social and healthy environment	2.1 Recognizes objects from the social environment and demonstrates adequate behavior in kindergarten, on the street, in public places	1 – Does not cope with it 2 – Partially copes with it 3 – Copes with it

	2.2 Recognizes professions from different fields and their importance	1 – Does not cope with it 2 – Partially copes with it 3 – Copes with it
	2.3 Expresses his right of choice and initiative	1 – Does not cope with it 2 – Partially copes with it 3 – Copes with it
	2.4 He is responsible for his health, for his actions in group activities and games	1 – Does not cope with it 2 – Partially copes with it 3 – Copes with it
3. Cultural and national values	3.1 Knows specific national holidays and associates them with specific historical figures and events	1 – Does not cope with it 2 – Partially cope with it 3 – Cope with it
	3.2 Respects and values national symbols (flag and anthem), expressing national pride and reverence	1 – Does not cope with it 2 – Partially copes with it 3 – Copes with it
	3.3 Recognizes personal, official and national holidays, local customs, traditions and rituals	1 – Does not cope with it 2 – Partially copes with it 3 – Copes with it
	3.4 It focuses on the difference between "citizen of the Republic of Bulgaria" and "resident of...".	1 – Does not cope with it 2 – Partially copes with it 3 – Copes with it
4. The world of nature and its preservation	4.1 Discovers the phenomena in non-living nature and through comparative analysis establishes the characteristic features of each season	1 – Does not cope with it 2 – Partially copes with it 3 – Copes with it
	4.2 Describes, searches for and discovers information about the diversity of the plant and animal world, showing research interest	1 – Does not cope with it 2 – Partially copes with it 3 – Copes with it
	4.3 Knows and describes environmental protection activities, knows the rules for safe behavior in nature, showing self-control	1 – Does not cope with it 2 – Partially copes with it 3 – Copes with it
5. Uses and understands the most commonly used functions of an interactive whiteboard/tablet	5.1 Enclose objects	1 – Does not cope with it 2 – Partially copes with it 3 – Copes with it
	5.2 Move objects by dragging	1 – Does not cope with it 2 – Partially cope with it 3 – Cope with it
	5.3 Selects a color and colors a shape	1 – Does not cope with it 2 – Partially copes with it 3 – Copes with it

2.3. Stages of the study describes the two phases – pilot and actual – and the six stages of the study.

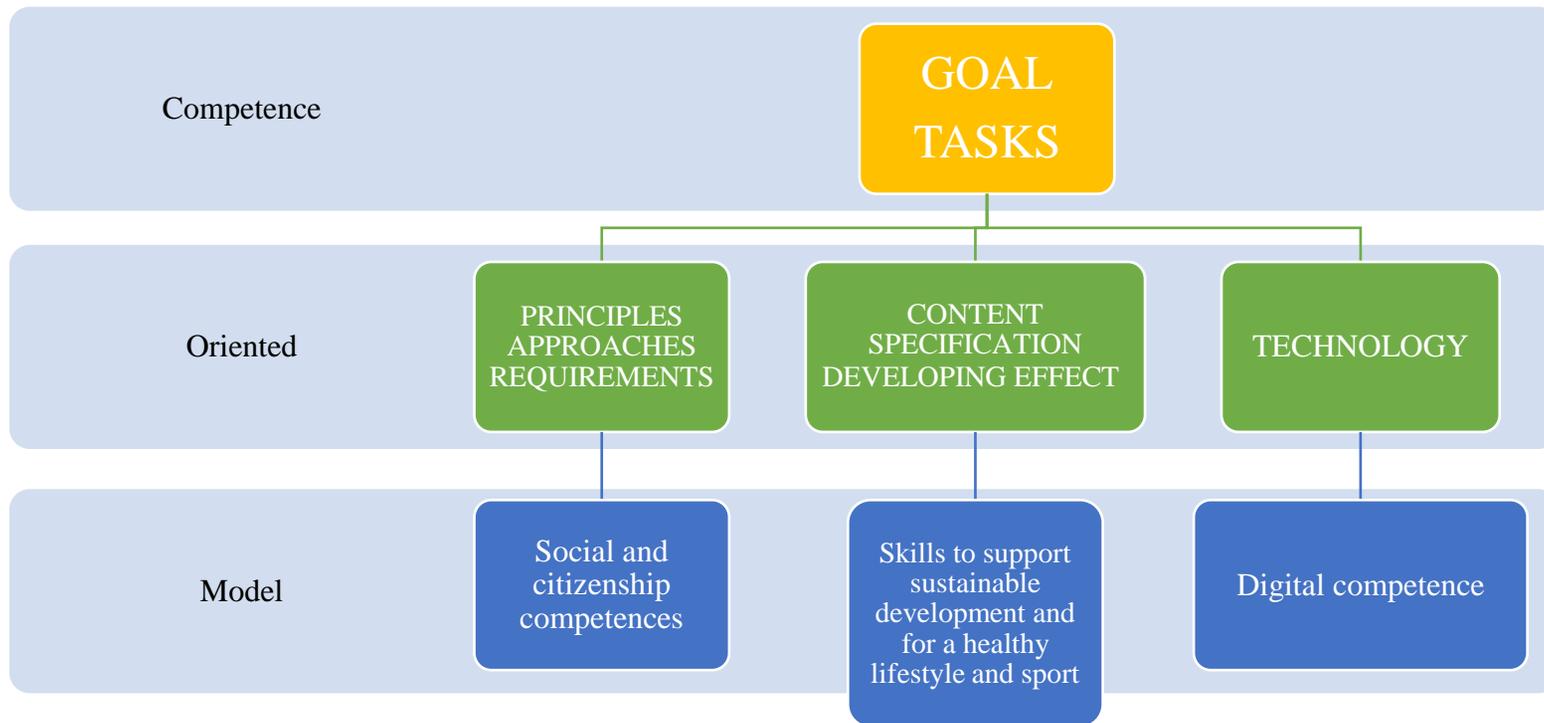
In **2.3.1. Pilot study** - stages are considered realized in the period of September 2018. – May 2019 a pilot study involving a pedagogical experiment and a survey. The total number of 6-7-year-old children who took part in it was 58 - 28 children in the experimental group and 30 children - in the control group. 21 preschool teachers were surveyed.

As a result of the collected data from the pilot study and its analysis, the research tools were optimized and the model refined.

2.3.2. Actual research - stages describes the actual research conducted in the period from September 2020. until May 2021 in three stages: ascertaining stage - September 2020, formative stage - September 2020. - May 2021, control stage - May 2021.

The analysis of the results of the questionnaire survey of the teachers made it possible to establish the attitude of 172 preschool teachers on the issues under consideration and, specifically, on the relationship between the key competences and the competences in the educational field "Environmental World", as well as on the specific approaches, methods and means that they use in the process of pedagogical interaction for their formation in preschool children. A total of 202 children participated in the pedagogical experiment, divided into experimental and control groups: 105 – experimental group and 97 – control group.

Paragraph 3. Competency-oriented model of pedagogical interaction in educational field "Environmental world" - pedagogical design presents: the purpose and tasks, principles, approaches, application requirements, content, specificity and developing effect and technology of the competence-oriented model of pedagogical interaction in educational field "Environmental world" for 6-7-year-old children, as well as the formative program.



Scheme 2. Competence-oriented model of pedagogical interaction on the EF "Environmental Worl

In **Paragraph 4, the formative program** is described in detail, representing a complex of 99 technological elements, purposefully building a complete competency-oriented cycle of pedagogical interaction in the educational field "Environmental World". They direct pedagogical attention to following the natural rhythm of children's development, while at the same time ensuring initial formation of the competencies highlighted in the dissertation work at the end of preschool education.

The goal of the formative program is: during its implementation, the possibility of the pedagogical interaction to fulfill the role of an effective and connecting element in the direction of the formation of the expected competences will be sought.

Its content includes 16 original and adapted thematic educational situations aimed at each of the 18 indicators of the selected criteria system. Each of these situations contains one basic and one variable component.

The structure and distribution of the basic and variable components is tailored and follows the logic of the competencies contained in the model.

The formative program is based on the following approaches in preschool education: the competence approach, the activity approach, the personal-active approach.

The application of the formative program provides an opportunity for interactive, variable, flexible and creative use of the specified elements, which ensures the formation of competences.

For this goal, the following types of elements were used in the implementation of the formative program: didactic game, didactic exercise, interactive game, mobile game, story-role game, building-constructive game, family board game, fairy tale, creative workshop, assertive training, case study, drawing dictation, video lesson, poem, observation, educational walk, projective technique, participation in a competition, song, exhibition, educational film, talk-demonstration, modeling, sensitive training, quiz, visit, flash mob, folk art studio, folk tales for a sweet dream, optional activity, foreign language training, legend, experiential activity, game simulation, parent demonstration, interactive modeling, field trip, project work, experience, story writing, experiment, digital exercise, work with e-knowledge book, Lego game with digital elements .

CHAPTER FOUR Analysis of Study Results contains two paragraphs – Analysis of Pilot Study Results and Analysis of Main Study Results.

Paragraph 1 presents the **Analysis of the results of the pilot study.**

In **1.1. Analysis of the results of the survey of the opinion of preschool teachers** regarding the specific approaches, methods and tools they use in the process of pedagogical interaction in the educational field "Environmental world" for the formation of competences in 6-7-year-old children, the attitude of 21 preschool teachers was established pedagogues on the issues under consideration and, specifically, on the relationship between the key competencies and the competencies in the educational field "Environmental World", as well as on the specific approaches, methods and tools they use in the process of pedagogical interaction for their formation in preschool children.

The survey card includes 12 questions. 2 of them are introductory, in 5 - the respondents can choose from 4 to 8 answer options, 5 of the questions are open-ended, which allows for an in-depth analysis of the results. The first group of questions included in the survey is aimed at establishing the forms, methods, approaches and means used by the pedagogues for the formation of the competences in the educational field "Environmental World" in the process of pedagogical interaction. Another group of questions provides an answer regarding the connection of work on these competencies with those specified in the Ordinance on civic, health, environmental and intercultural education for the preschool stage. The third group - informs about the possibilities of which of the key competences can be worked on in the "Environmental World" educational direction, and the last group of questions is related to the perspectives in this regard.

From the processing and analysis of the results of the survey of preschool teachers regarding their professional opinion on the formation of competences in 6-7-year-old children in the process of pedagogical interaction in the educational field "Environmental World", it can be concluded that:

- Almost all children's teachers have freedom in choosing approaches, methods and means of forming competences in children.
- As the most suitable methods for the formation of competences, according to the respondents, are observation and discussion, game methods, demonstration.
- A significant part of the surveyed children's teachers are of the opinion that there is a connection between the expected results in appendix #3 - Environment of Regulation #5 on

preschool education and the content of this direction, reflected in the program system they work on.

- Bringing the social competence to the first place among the competences they form, and the civic competence to the fifth place, can be interpreted as a neglect of the pedagogical attention to the civic competence or a lack of clarity on how to work on this competence. This result confirms the need for good practices in this direction.

- More than half of the surveyed children's teachers in their work in the educational field "Environmental World" do not reconcile the formation of competencies in the standard for preschool education with those for preschool education, reflected in the standard for civic, health, environmental and intercultural education in the council regulation.

- As the main diagnostic method, the surveyed educators use observation, discussion, game methods, and only a small part (8%) use diagnostic tests to diagnose the competences formed.

- For the more effective formation of competences in 6-7-year-old children, pedagogues recommend more practical activities, gamification of the learning process, learning through experience and outdoor learning.

In **1.2. Analysis of the results of the pedagogical experiment, the results of the pilot phase** are presented and analyzed, which fulfill the set goal of exploring the possibility of applying the research toolkit and approving the formative program, including the two content components, the methods of its implementation for developing competencies y 6 - 7-year-old children, as well as to check their compliance with the set goals, tasks and hypothesis of the dissertation research. The obtained results provide an opportunity to improve the instrumentation and the model in the actual part of the research.

The pedagogical experiment in the pilot phase of the study was implemented in the period September 2018 - May 2019. The total number of 6-7-year-old children who took part in it was 58 - 28 children in the experimental group and 30 children - in the control group. Both studied groups are from kindergartens in the city of Burgas.

The research was conducted in three stages - ascertaining, formative and control. The ascertaining and control stages are implemented using the same previously developed toolkit. The investigated individual manifestations of the children in the experimental and control groups were registered on a three-level scale for the 15 indicators presented.

The diagnosis of the results at the entry and exit level was carried out through the picture test, and the registration - through individual protocols, on the basis of which general protocols were prepared. The data from the ascertainment and control stages in the experimental (EG) and control groups (CG) were compared by means of an arithmetic mean value separately for all indicators forming the defined criteria for each competence laid down in the dissertation research. The general picture of the obtained results from the ascertaining and control stage is presented in diagrams 4.1 and 4.2.

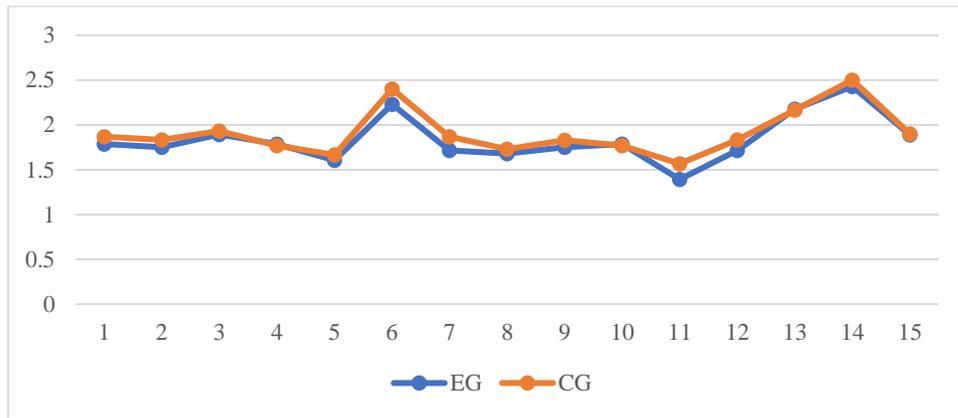


Diagram 4.1.

Mean value according to indicators of EG and CG – ascertaining stage

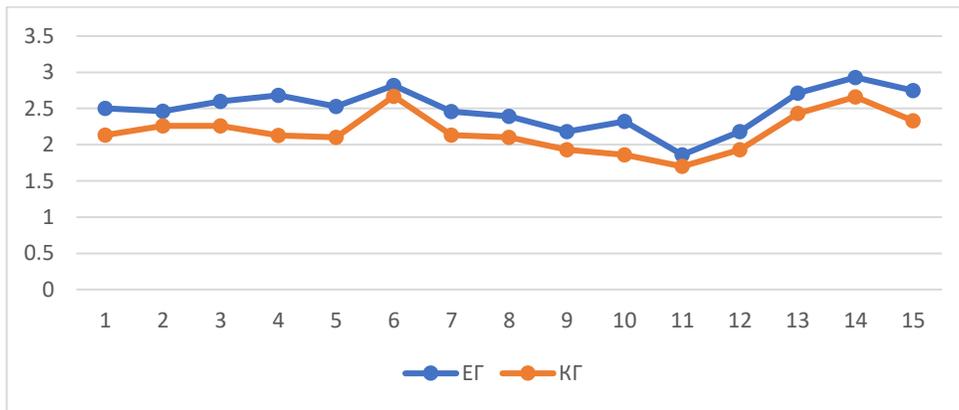


Diagram 4.2.

Mean value according to indicators of EG and CG indicators - control stage

From the collected empirical data from the control stage of the experiment, the following CONCLUSIONS can be made:

1. The differences in the data obtained after the implementation of the formative program show that, although at the beginning both groups - EG and CG - were at a similar level, at the control stage EG showed significant development.

2. An exception is the results according to the "Cultural and national values" criterion, which shows that our formative program needs improvement in its part precisely according to this criterion. We believe that this improvement can be achieved by adding and enriching the additional elements according to this criterion in the formative program, as well as refining in this direction the main diagnostic tool - a picture test in the actual part of the experiment.

3. At CG, there is a certain increase in achievements without applying a formative program, but compared to EG - they are lower.

The obtained results for both studied groups - EG and CG, help us to conclude that the HYPOTHESIS is confirmed, namely:

It is assumed that the application of the developed competence-oriented model in the process of pedagogical interaction in the kindergarten under the educational field "Environmental World" will have a positive effect on the formation of a system of competences in 6-7-year-old children.

Paragraph 2 is Analysis of the results of the actual research.

In 2.1. Analysis of the results of a questionnaire survey of the opinion of preschool teachers regarding the specific approaches, methods and tools they use in the process of pedagogical interaction in the educational field "Environmental world" for the formation of competences in 6-7-year-old children, their answers are interpreted. In this stage was carried out:

- Expanding the sample of the number of respondents (from 21 in the pilot phase to 172) and their representativeness - from five regions in the Republic of Bulgaria (table no. 10), which made it possible to study the conditions under which the environment can be organized and implemented competence-oriented education in pre-school institutions.

Table 10. Respondent data

CITY	NUMBER OF RESPONDENTS	NUMBER (in %)
Blagoevgrad	16	9.30
Burgas	104	60.50
Veliko Tarnovo	33	19.10
Gabrovo	6	3.50
Shumen	13	7.60
TOTAL	172	100

Increasing the number of questions in the survey due to the inclusion of digital competence in the content of the dissertation. The software product IBM SPSS Statistics 20 was used for the statistical processing of the data from the questionnaire.

The analysis of the responses of the surveyed teachers to the first question indicates that their teaching experience ranges from 1 to 39 years with an average value of 11.76 years. The relative share of teachers with 2 years of teaching experience prevails - 14%.

There is a similar variety in the answers to the question since when they have applied the competence approach in their practice, which range from a few months to 18 years with a mean value of 6.84 years. Those who answered "15 years" have the highest relative share - 19.2%.

The next question is one of those whose answers reveal the so-called "missing values" (Missing System). Their relative share is 1.7%. Outside of them, those who determined in which forms of the daily organization of the children's life in the kindergarten it is most effective to work on the formation of competences are graphically reflected in diagram 5.3.

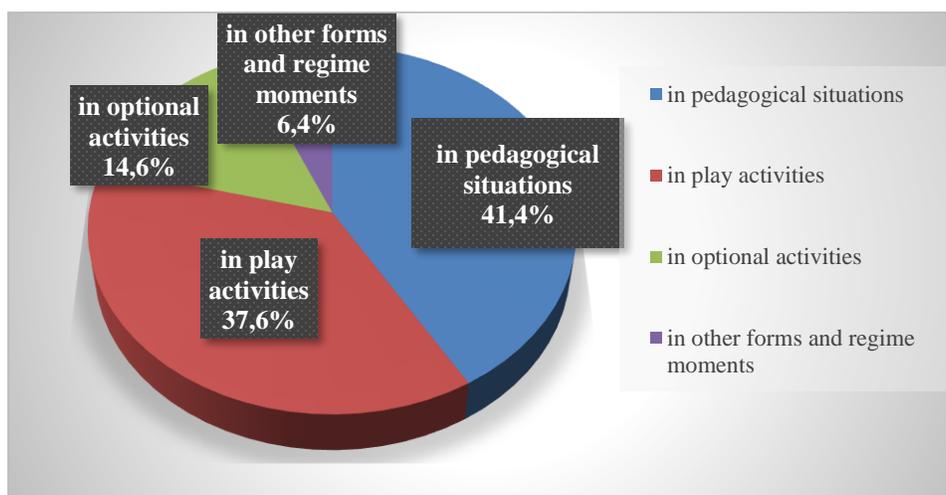


Diagram 5.3.

"In which forms of the daily organization of children's life in kindergarten is it most effective to work on the formation of competences?"

The prevailing answers of the teachers on the question of whether they have the freedom to choose an approach, method, tool when forming the competences under the EF "Environmental World", enable a positive view of the perspectives of competence-oriented education in kindergarten - 64.5%. According to the five-point scale for ranking the answers, no respondent answered negatively and with the answer "rather not", which is also encouraging.

"Rather yes" is 32.6% of the answers, and they cannot judge 0.6%. Those who did not answer are 2.3%.

An expected wide variety of answers is provided by the open question 5 "Which methods are most suitable for the formation of the competences under the EF "Environment?". Leaving aside 8.7% (15 people) of the respondents who did not give an answer, 157 respondents gave a total of 50 types of answers, representing 379 choices. The most common are: talk - 61 choices, observation - 54 choices, demonstration - 32 choices, experiment/narrative - 21 choices, conversation - 12 choices. It is worth noting the position of the exercise as a method – 10 choices, bearing in mind that as a method it is one of the most directly correlated with the formation of competences.

The program systems on which the surveyed preschool teachers work are seven in number.

Important for the practice of competence-oriented education are the answers to the question regarding the binding of the expected results in appendix No. 3 - EF "Environment" of Ordinance No. 5 on preschool education and the content of this direction in the program system on which the surveyed educators work. Almost all respondents (170) answered the question in the affirmative, with 102 being categorical, 68 answering with "rather yes", and only 2 - unable to judge.

The most interesting is the interpretation of the question "In what part of the planned pedagogical situations of the annual allocation under the EF "Environment World do you include those that form competences, according to the REGULATION No. 13?"

All of the respondents who took part in the survey, 138 (80.2%) answered this question by sharing a wide selection of ideas, the remaining 34 (19.8%) did not express their opinion regarding the integration of Ordinance No. 13 in the pedagogical situations of educational field "Environmental World". This is the question with the most suggested answers – 235 different sample topics, 356 suggestions in total. Among the first most frequently offered sample topics that can be integrated into pedagogical situations on "Environmental world" are:

Table 10.6
. Most common sample topics under Ordinance No. 13

EXEMPLARY TOPICS	NUMBER OF ANSWERS
Baba Marta	4
My family	4
The children of the world	4
Health care	4
Healthy foods	4
I have a friend	4
Rules in society	4
Where do the children play?	4
Body hygiene	5
This is me	5
I am healthy	5
Separate waste collection	5
I am a Bulgarian	6
Rights and responsibilities	6
Our street is clean	6
To be healthy	6
If I get lost	6
Healthy eating	7

Analyzing the answers in detail, we could conclude that among the respondents the most common are the answers relating topics under Ordinance No. 13 to the skills to support sustainable development and for a healthy lifestyle and sports, as well as to social and civic competences (specifically , to Indicator 8 Takes responsibility for his health, for his actions in group activities and games).

The analysis of the answers to the question "Which of the 9 key competences of the European Reference Framework for Lifelong Learning (Revised EU Recommendation, May 2018) can you form in your work on EF "Environmental world?" has the most direct connection with the concept of our study. The answers of the respondents confirm the priority place of the holistic approach in competence-oriented education in preschool age. The general view of the picture of the answers gives the impression of familiarity and acceptance of the idea that all competences can be laid down in the educational field "Environmental World". However, 160 responses put social and civic competences in first place, skills to support sustainable development and for a healthy lifestyle and sports appear second - with 133 choices, and digital competence - with 53 choices, occupies the penultimate place (diagram 5.6).

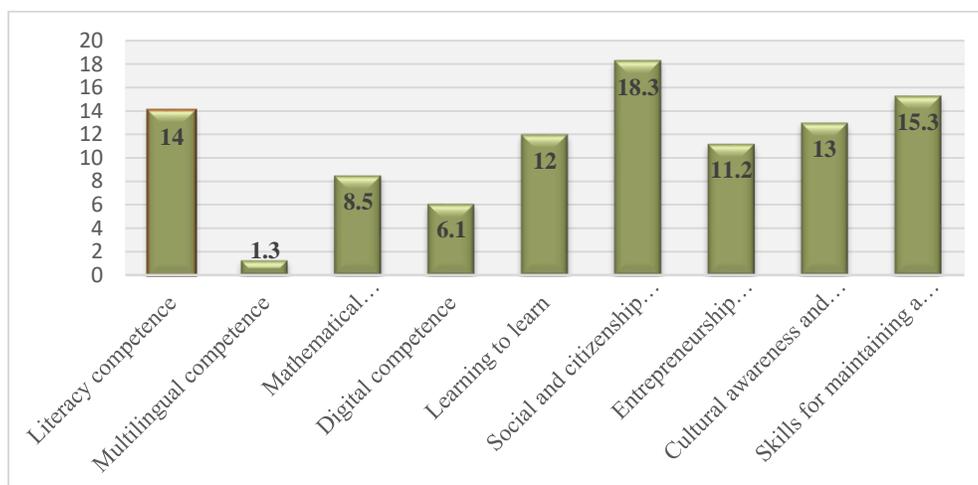


Diagram 5.6.

Relative share of key competences, according to the ERR for lifelong learning, which can be formed in the work on educational field "Environmental world"

The interpretation of the answers to the closed question "Specificity of the pedagogical interaction on EF "Environmental world", which transferable skills allows to be formed?" brings out with the most choices (148) teamwork, followed by responsibility (136), initiative (125), solving of problems (119), creativity (107), presentation skills (102), controlling emotions (82) and critical thinking with 61 choices. The total number of answers is 872. From our point of view, the most important here is the pluralism of the respondents' choices, which again emphasizes the integrality of formation and transferable skills of the modern child.

To the question "Which methods, means, approaches do you use to diagnose the competences formed?" nearly a third (31.4% - 54) of the respondents did not indicate an answer. With the highest frequency are: observation - 49 choices, conversation - 27, cognitive tasks/conversation - 10. Among the rest, although rare choices, the ones actually used make an impression: picture tests - 5, diagnostic card - 1.

An extremely important conclusion about the attitude of the surveyed preschool teachers to the effective formation of competences can be derived from the analysis of the answers to the question "What recommendations would you give for the more effective formation of competences in 6-7-year-old children?"

Table 10.9.
Recommendations for the more effective formation of competences

Recommendations for the more effective formation of competences	Number of answers	(%)
Interaction with parents	1	1.4
High correlation between individual abilities and social skills	2	2.7
Child-Teacher-Parent Relationship	1	1.4
Let's not frame the child	2	2.7
Let the children think	1	1.4
To reduce the number of children	6	8.1
To teach children to express themselves	1	1.4
To develop the digital competence of the teacher	1	1.4
Experiments	1	1.4
Games-dramatizations	2	2.7
Using the competency approach	1	1.4
Using a situational-activity approach	2	2.7
Innovations	1	1.4
Critical thinking	1	1.4
Scientific expeditions to explore the world	1	1.4
More time for play activity	1	1.4
More time to survey outdoors	1	1.4
More opportunities for children to express themselves	1	1.4
More outdoor activities	4	5.4
More outdoor situations in nature	2	2.7
More ICT	1	1.4
More interactive methods	2	2.7
More hands-on activities	14	18.9
More RPGs	3	4.1
More independent work	1	1.4
More technical means	2	2.7
Increasing children's motivation	1	1.4
Zoo visits	2	2.7
Museum visits	1	1.4
Putting in a problem situation	1	1.4
Problem-based, result-oriented educational process	1	1.4
Teamwork	4	5.4
Work in common projects	1	1.4
Case solving	1	1.4

Freedom in choosing topics when planning situations	1	1.4
Simulation games	1	1.4
Empathy through games	1	1.4
Theater activity	1	1.4
Participation in projects	1	1.4
Experiential learning	1	1.4
TOTAL	74	100

The last three questions of the survey are related to the digital competence of preschool teachers. The answers to the first of them, "What is your level of digital competence?", outlines an interesting trend: on the five-point scale, none of the respondents rated themselves as an expert. A positive sign is that 59.9% (103) of respondents are confident in using ICT, 23.8% (41) use new technologies only with guidance and assistance, and 12.2% (21) of respondents use only a little part of the new technologies. Optimistic is the fact that only 2.3% (4) people do not feel comfortable in a digital environment and only 1.7% (3) teachers probably struggle to determine their level of digital competence or neglect this issue.

Preparing digital devices for pedagogical situations as the main forms of work in preschool education takes different time for the respondents. Their responses to the question "How much screen time per week do you use to prepare pedagogical situations?" ranged from 1 hour to 20 hours per week. The largest is the group with the answer "I cannot judge" - 20.3% (35). This is followed by 28 responses (16.3%) of teachers devoting 10 hours a week.

To the question "During the emergency epidemic situation introduced in the country, did you work in an electronic environment? If yes, which platforms (apps) did you use?" 142 (82.6%) answered positively, and only 30 (17.4%) did not work. Of those who worked in an electronic environment, 81 (44%) indicated Facebook as the most frequently used platform, followed by Viber - 27 (14.7%) and Zoom 20 (10.9%). Some of the educators used more than one electronic platform – 142 respondents used 184 platforms.

The generalized analysis of the results of the survey made it possible to establish the attitudes and attitudes of preschool teachers regarding the relationship between the key competencies and the competencies that are formed under the educational direction "Environment" and to draw the following conclusions:

- The majority of preschool teachers believe that in the process of forming the competences in the educational field "Environmental World", they have the freedom to choose approaches, methods and means. This means that they have the conditions to work unhindered to ensure a developing environment for competence-oriented education.

- In the process of pedagogical interaction in the educational field "Environmental World", the majority of active preschool teachers (more than 80%) are able to match the expected results (competencies) with the relevant ones in Ordinance No. 13 in the part for preschool education.

- According to the opinion of almost all surveyed educators, social and civic competences, as well as the skills to support sustainable development and for a healthy lifestyle and sport, occupy the top places of the 9 key competences of ERR for lifelong learning, which can be formed in the educational field "Environmental World" of preschool education in our country.

- The majority of pre-school teachers worked during the pandemic, despite the different preparation time needed by each of them, and judging by their self-assessment – 60.9% are confident in using ICT.

- Among the variety of methods reported in the survey, the respondents believe that the talk, observation, demonstration and experiment are the most suitable for forming the competences in the educational field "Environmental World". It is noticeable here that the interactive methods take a back seat.

- In contrast to this deficit in the answers regarding the methods, an objective measure of the opinion and attitudes of the surveyed preschool teachers regarding the effective formation of competences, are the proposed recommendations for the future of competence-oriented education for 6-7-year-old children. We explain this contradiction by the presence of good pedagogical intuition among the pedagogues on the one hand, and on the other hand by the lack of concrete models for competence-oriented education in preschool age, as well as the lack of adequate qualifications in this direction.

- The processed 74 organizational, methodical and qualification recommendations for the effective formation of competences in 6-7-year-old children are analyzed and particularly valuable and applicable in practice.

- The qualification of pre-school teachers for the implementation of competence-oriented education must be systematic, purposeful, offering diverse models tailored to the specifics of the educational environment.

2.2. Analysis of the results of the pedagogical experiment

To establish the effectiveness of the implemented training program in May 2021, the control stage of the actual phase of the pedagogical experiment was conducted with the same diagnostic procedures used in the ascertainment stage.

Each indicator corresponds to certain cognitive tasks from the main diagnostic tool - a picture test - refined after the conclusions of the pilot study by supplementing three cognitive tasks.

In the actual phase of the pedagogical experiment, based on random selection, a total of 202 children participated, divided into experimental and control groups: 105 – experimental group (EG) and 97 – control group (CG).

The data for the children in EG and CG by gender, average age and ethnic origin other than Bulgarian are presented in tables 6.1 and 6.2. Among the children with a non-Bulgarian ethnicity, there are representatives of the Turkish and Roma and one child from Iran.

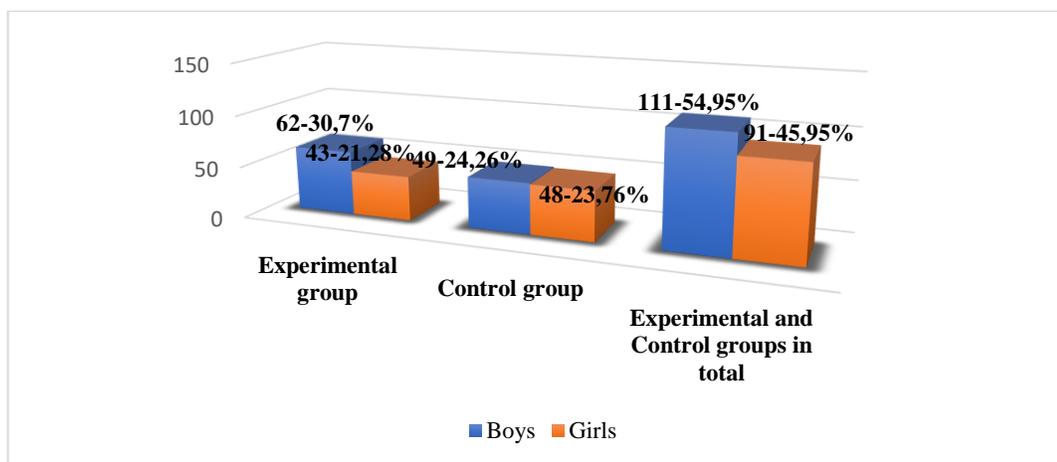


Diagram 6.1.
Distribution by gender EG and KG

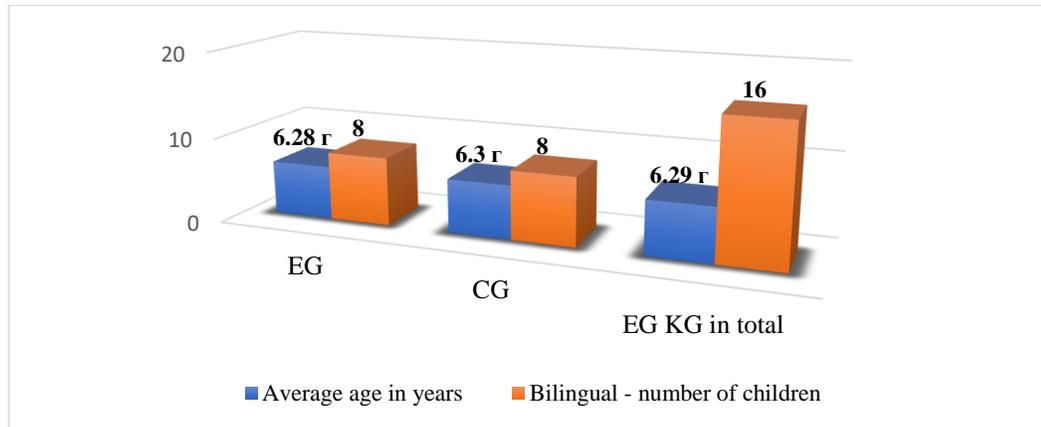


Diagram 6.2.
Distribution Average age and bilinguals

The data from the pedagogical experiment were processed through a series of mathematical and statistical methods. The software product IBM SPSS Statistics 20 and Microsoft Excel 2019 were used. To establish the statistical reliability of the differences found when comparing the arithmetic mean values between EG and CG, the Student's t-test for independent samples was used.

To establish the statistical reliability of the results in the EG, the Student's T-test for dependent samples is used.

The Pearson correlation coefficient was used to calculate the correlation between social and civic competences and skills to support sustainable development and for healthy lifestyle and sports.

The results regarding the competences embedded in the competence-oriented model of the dissertation work, after statistical processing of the data by indicators, look as follows:

- The results showing the influence of the formative program on the development of social and civic competences by indicators are summarized and presented in table 11.1.

Table 11.1.
Impact of the formative program on the development of social and citizenship competences

COMPETENCE	CRITERION	INDICATOR	ASCERTAINING STAGE					CONTROL STAGE				
			Mean value EG	Mean value CG	Difference	<i>t</i>	<i>p</i>	Mean value EG	Mean value CG	Difference	<i>t</i>	<i>p</i>
Social and citizenship competences	COO	1	1,80	1,77	0,03	0,40	0,689	2,73	2,39	0,34	2,17	0,032
		2	2,34	2,25	0,09	1,10	0,272	2,76	2,57	0,19	2,99	0,003
		3	1,80	1,82	-0,02	-0,25	0,800	2,61	2,44	0,17	2,62	0,009
		4	2,07	2,02	0,05	0,59	0,553	2,67	2,50	0,17	2,43	0,016
	CBC	5	2,03	2,12	-0,09	-1,18	0,240	2,67	2,52	0,15	2,30	0,022
		6	2,25	2,39	-0,14	-1,35	0,178	2,82	2,67	0,15	2,21	0,028
		7	2,20	2,25	-0,05	-0,45	0,654	2,79	2,59	0,20	2,75	0,007
		8	1,71	1,59	0,12	1,63	0,104	2,50	2,33	0,17	1,99	0,048
	CN	9	1,79	1,76	0,03	0,40	0,692	2,63	2,30	0,33	3,47	0,001
		10	1,74	1,67	0,07	0,93	0,352	2,63	2,44	0,19	2,82	0,005
		11	1,71	1,58	0,13	1,93	0,053	2,56	2,39	0,17	2,18	0,031
		12	1,51	1,66	-0,15	-1,83	0,069	2,59	2,28	0,31	3,32	0,001

According to indicator 1. Demonstrates independence and confidence and is able to express feelings, desires, share problems and seek help during the incoming diagnosis between the two groups - EG and CG there is no statistically significant difference ($t = 0.40$, $p = 0.689$). At the exit diagnosis, the difference between the two groups is statistically significant ($t = 2.17$, $p = 0.032$), which confirms the impact of the formative program on EG. The experimental group had a higher mean arithmetic value than the control group – 2.73 versus 2.39. As can be seen from the table, this is the highest difference between the average arithmetic values of EG and CG according to the indicators of this competence – 0.34.

In the incoming diagnosis according to indicator 2. Knows family relationships, interacts effectively with peers and adults, showing tolerance, there is no statistically significant difference between the two studied groups ($t = 1.10$, $p = 0.272$), which makes it possible to further study the impact of the application program. And in the outgoing diagnosis, the difference between the two groups is statistically significant ($t = 2.99$, $p = 0.003$), which confirms the effect of the impact of the formative program in this part. 2.76 is the arithmetic mean value of EG, which is higher by 0.19 than that of CG – 2.57.

There is no statistically significant difference at the ascertaining stage between the two studied groups according to indicator 3 – Makes a self-assessment of his behavior by relating it to rules and values, understands the consequences of breaking the rules and avoids conflicts, as evidenced by the values – $t = -0.25$, $p = 0.800$. At the control stage, differences in the effect of impact on EG and CG were observed, the difference between them being statistically significant ($t = 2.62$, $p = 0.009$). The arithmetic mean value of EG is 2.61, of CG – 2.44, and the difference is 0.17.

According to indicator 4 There is an idea of the social role "student" between EG and CG in the incoming diagnosis there is no statistically significant difference ($t = 0.59$, $p = 0.553$). At the exit diagnosis, the difference between the two groups is also statistically significant ($t = 2.43$, $p = 0.016$), which proves the positive effect of the formative program on EG. The experimental group had a higher arithmetic mean (2.67) than the control group (2.50). The difference between them is 0.17.

In the incoming diagnosis according to indicator 5 Recognizes objects from the social environment and demonstrates adequate behavior in the kindergarten, on the street, in public places, there is no statistically significant difference between the two studied groups ($t = -1.18$, $p = 0.240$), which gives reason to the impact of the formative program is investigated. There was a statistically significant difference between the two groups at the exit diagnosis ($t = 2.30$, $p = 0.022$). 2.67 is the arithmetic mean value of EG, which is higher by 0.15 than that of CG – 2.52.

There is no statistically significant difference between the two studied groups in the initial stage of the experiment according to indicator 6 - Recognizes professions from different fields and their importance, which is proved by the values - $t = -1.35$, $p = 0.178$. After applying the formative program, a statistically significant difference was reported between EG and CG ($t = 2.21$, $p = 0.028$). According to this indicator of social and civic competences, the highest average arithmetic values were measured for EG and CG – 2.82 and 2.67, with a difference of 0.15.

According to indicator 7. Expresses his right to choice and initiative in the incoming diagnosis between the two groups - EG and CG there is no statistically significant difference ($t = -0.45$, $p = 0.654$). At the exit diagnosis, the difference between the two groups is statistically significant ($t = 2.75$, $p = 0.007$), which confirms the influence of the formative program on EG.

The experimental group had a higher arithmetic mean value than the control group – 2.79 versus 2.59, the difference between them being 0.20.

There is no statistically significant difference between the two studied groups in the initial diagnosis under indicator 8 Takes responsibility for one's health, for one's actions in group activities and games ($t = 1.63$, $p = 0.104$). And in the outgoing diagnosis, the difference between the two groups is already statistically significant ($t = 1.99$, $p = 0.048$), which confirms the research hypothesis again. The arithmetic mean value of EG is 2.50, which is higher by 0.17 than that of CG – 2.33.

* It is important to note that this indicator and the movement of its results is also used in the diagnosis of skills to support sustainable development and for a healthy lifestyle and sports.

For indicator 9 Knows specific national holidays and connects them with specific historical figures and events in the initial stage of the experiment, there is no statistically significant difference between the two studied groups, as evidenced by the numerical values ($t = 0.40$, $p = 0.692$). In the final stage of the experiment, the difference between the two groups was statistically significant ($t = 3.47$, $p = 0.001$). 2.63 is the arithmetic mean value of EG, which is higher by 0.33 than that of CG – 2.30.

In the incoming diagnostics according to indicator 10 Respects and appreciates national symbols (flag and anthem), expressing national pride and respect, there is also no statistically significant difference between the two studied groups ($t = 0.93$, $p = 0.352$). At the exit diagnosis between the two groups, the difference in the obtained results was statistically significant ($t = 2.82$, $p = 0.005$). The arithmetic mean value of EG 2.63 of CG – 2.44, which makes a difference between the two values of 0.19.

According to indicator 11 Recognizes personal, official and national holidays, local customs, traditions and rituals, with the numerical values of $t = 1.93$ and $p = 0.053$ at the ascertaining stage of the research, no statistically significant difference is established between the two studied groups. After the formative program, the impact on EG had a positive effect on children's ability to recognize personal, official and national holidays, local customs, traditions and rituals, with a statistically significant difference between the two groups ($t = 2.18$, $p = 0.031$). 2.56 is the arithmetic mean of EG, which is higher by 0.17. from that of KG – 2.39.

At the ascertaining stage of the research according to indicator 12, it is oriented in the difference between "citizen of the Republic of Bulgaria" and "resident of...". there was no

statistically significant difference between the two studied groups ($t = -1.83$, $p = 0.069$). At the control stage - $t = 3.32$, $p = 0.001$ - they prove that the difference in the obtained results is statistically significant. Thus, it is confirmed that the experiment influenced the skills of the EG children to navigate the difference between the concepts of "citizen..." and "resident...". The increase in the arithmetic mean value in EG is 0.31 compared to CG.

- The results showing the impact of the formative program on the development of skills to support sustainable development and for a healthy lifestyle and sport by indicators are summarized and presented in a table:

Table 11.2.
Impact of the formative program on the development of skills to support sustainable development and for a healthy lifestyle and sport

COMPETENCE	CRITERION	INDICATOR	ASCERTAINING STAGE					CONTROL STAGE				
			Mean value EG	Mean value CG	Difference	<i>t</i>	<i>p</i>	Mean value EG	Mean value CG	Difference	<i>t</i>	<i>p</i>
Skills to support sustainable development and for a healthy lifestyle and sport	The world of nature and its preservation	8	1,71	1,59	0,12	1,63	0,104	2,50	2,33	0,17	1,99	0,048
		13	2,21	2,27	-0,06	-0,53	0,596	2,80	2,59	0,21	2,73	0,007
		14	2,22	2,27	-0,05	-0,46	0,644	2,71	2,61	0,10	1,13	0,258
		15	2,09	1,98	0,11	1,25	0,212	2,70	2,45	0,25	3,54	0,001

Indicator 8 Takes responsibility for one's health, for one's actions in group activities and games is the only indicator in our empirical study that participates in the diagnostic tool for establishing the results in social and civic competences and in skills to support sustainable development and a healthy way of life and sport. There was no statistically significant difference in the initial diagnosis of the two studied groups ($t = 1.63$, $p = 0.104$). And in the outgoing

diagnosis, the difference between the two groups is already statistically significant ($t = 1.99$, $p = 0.048$), which confirms the research hypothesis again. The arithmetic mean value of EG is 2.50, which is higher by 0.17 than that of CG – 2.33.

According to indicator 13 Detects the phenomena in non-living nature and through a comparative analysis establishes the characteristic features of each season between EG and CG there is no statistically significant difference in the incoming diagnosis ($t = -0.53$, $p = 0.596$). At the initial level, the difference between the two groups is already statistically significant ($t = 2.73$, $p = 0.007$), which proves the positive effect of the formative program on EG. The experimental group had a higher arithmetic mean (2.80) than the control group (2.59). The difference between them is 0.21. The arithmetic mean value of EG (2.80) is the highest among the measured indicators for the development of skills to support sustainable development and for a healthy lifestyle and sports.

The results of the input diagnostics for indicator 14 Describes, searches for and discovers information about the diversity of the plant and animal world, showing research interest indicate that there is no statistically significant difference between the two studied groups ($t = -0.46$, $p = 0.644$). Only for this indicator at the initial level, there is no statistically significant difference in the obtained results between the two groups - $t = 1.13$, $p = 0.258$, and the difference between the two measured arithmetic mean values for EG and CG is the lowest - 0.10 . This means that a close change has occurred in both groups. This could be due to the fact that the knowledge, skills and attitudes meaningfully included in this indicator are as close as possible and accessible to children.

Moreover, adding that their interaction with the natural world is accompanied by strong motivation, curiosity and high cognitive activity, most likely the reason for this result is also influenced by these factors.

The last indicator involved in the diagnosis of this competence - indicator 15 Knows and describes environmental protection activities and knows the rules for safe behavior in nature, showing self-control at the ascertaining stage of the study, there is no statistically significant difference between the two studied groups ($t = 1.25$, $p = 0.212$). At the control stage, the results – $t = 3.54$, $p = 0.001$ – prove that the difference in the obtained results is statistically significant. Thus, the thesis is confirmed that the experiment influenced the knowledge of EG children to describe environmental protection activities and their knowledge of the rules of safe behavior in

nature, showing self-control. The increase of the arithmetic mean value in EG is 0.25 compared to CG.

Due to the specificity of digital competence diagnostics, it was carried out in part of the experimental group in which the author of the dissertation works continuously. The data for the children are presented in table 11.3.

Table 11.3.

Number, gender distribution, average age of children in the experimental group - digital competence

NUMBER OF CHILDREN	GENDER		AGE
	GIRLS	BOYS	
26	13	13	6,34

Diagnostic data are registered in the individual protocols according to criterion #5 Uses and understands the most frequently used functions of an interactive whiteboard/tablet.

- The results showing the influence of the formative program on the development of digital competence by indicators are summarized and presented in table 11.4.

Table 11.4.

Impact of the formative program on the development of digital competence

COMPETENCE	CRITERION	INDICATOR	Mean value EG	Mean value CG	Difference	t	p
DIGITAL COMPETENCE	Uses and understands the most commonly used functions of an interactive whiteboard/tablet	Enclose objects	2,23	2,69	0,46	3,33	0,003
		Move objects by dragging	2,15	2,92	0,77	6,68	0,000
		Selects a color and colors a shape	1,96	2,84	0,88	6,34	0,000

At the ascertaining stage of the research, the highest arithmetic mean value is observed for the indicator Enclose objects – 2.23, while at the control stage the arithmetic mean value for the indicator Moves objects by dragging reaches the highest results – 2.92.

The values of t and p for all three indicators show that a statistically significant change occurred in the experimental group between the entry and exit level, which proves the hypothesis raised in the dissertation, namely that the competency-oriented model of pedagogical interaction in the educational direction "Environmental world" has a positive effect on the formation of skills of the children of the experimental group to surround, move and drag objects, choose color and color shapes.

Probably, these successes are due to the interest with which the children accept the cognitive tasks of the model related to digital devices and the interactive way of interaction.

Graphically, the results of the initial and final stage of the pedagogical experiment regarding the formed competences are presented below.

Diagram 8.1 illustrates the results of all indicators of the diagnostic tool for establishing the level of formation of social and civic competences and skills to support sustainable development and for a healthy lifestyle and sports at the ascertaining stage of the experiment:

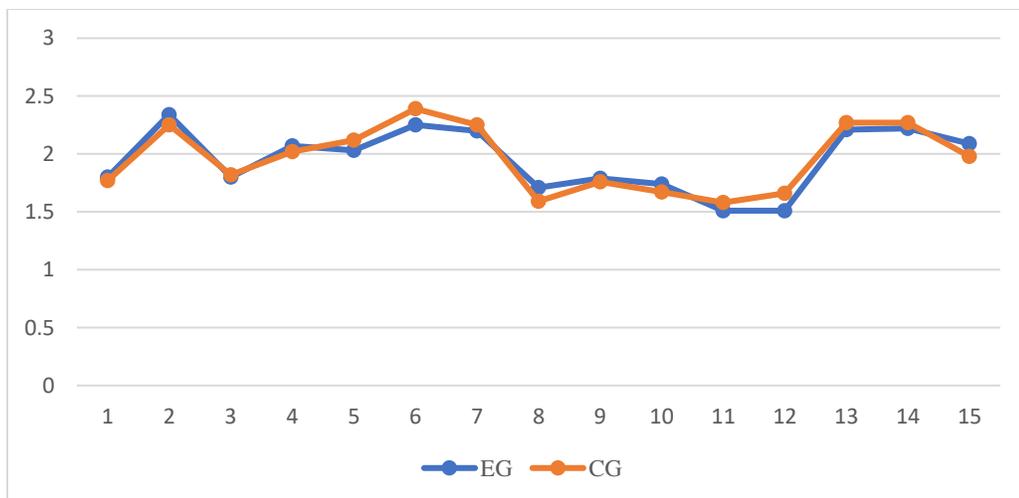


Diagram 8.1.
Mean value according to indicators of EG and CG – ascertaining stage

The summary view of the diagnosis of the results on all indicators establishing the level of formation of social and citizenship competences and skills to support a sustainable

development and for a healthy lifestyle and sport at the control stage of the experiment is presented in diagram 8.2:

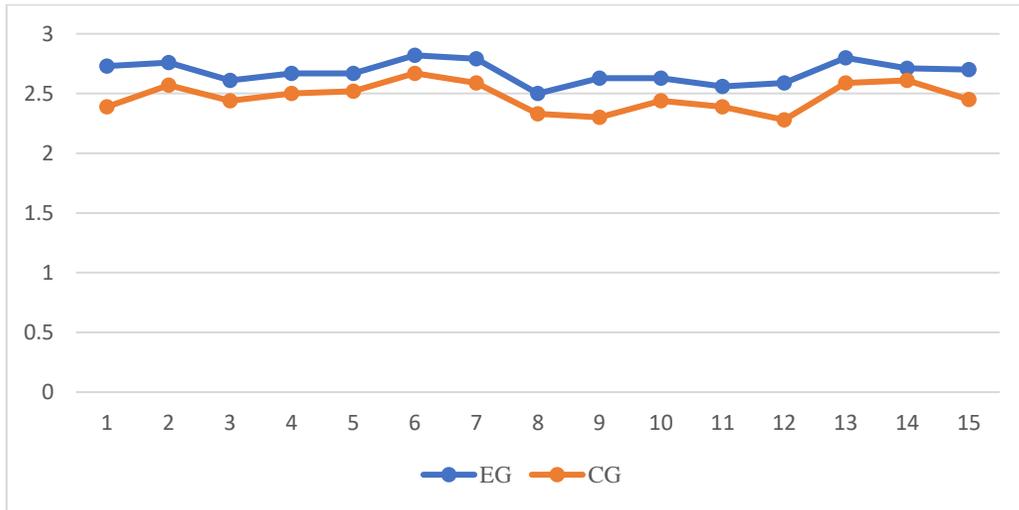


Diagram 8.2.
Mean value according to indicators of EG and CG – control stage

Diagnosing the levels of digital competence at the input and output level of a pedagogical experiment are presented in diagram 9:

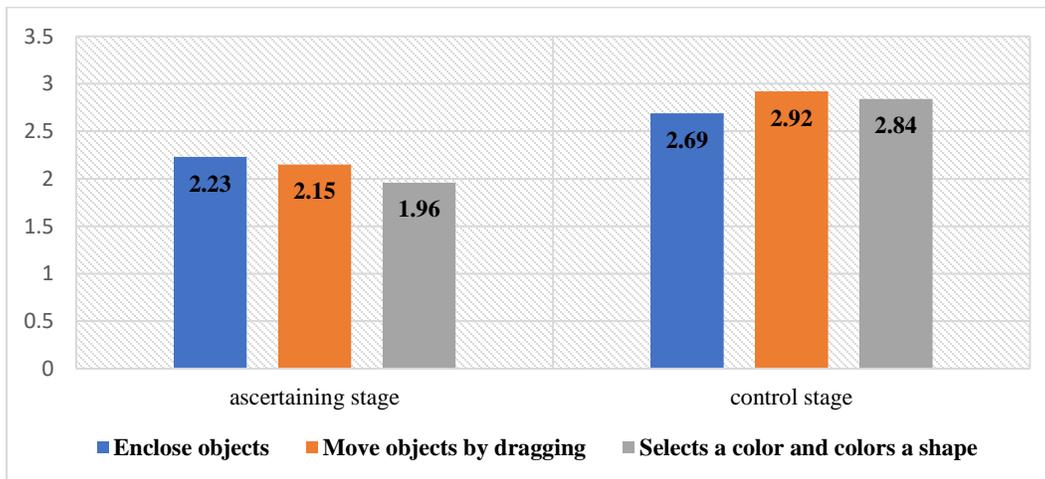


Diagram 9.
Mean value digital competence – ascertaining stage/control stage

Pearson correlation coefficient

It is essential for the purposes of the dissertation to analyze the strength and direction of dependence between the results achieved in terms of the formation of **social and citizenship**

competences and skills to support a sustainable development and for a healthy lifestyle and sport. The data from the control stage of the study in the experimental group, obtained as an arithmetic mean value for all indicators of the given competence for each child, were subjected to statistical analysis.

To establish the correlation between the development of the defined competences, a Pearson correlation coefficient (r) was used.

After the calculations, a Pearson correlation coefficient value of $r = 0.59$ is obtained.

To calculate the statistical significance of the obtained result, the value of the coefficient is compared with the critical values of the Pearson coefficient from a table at a significance level (0.05 or 0.01) and degrees of freedom $k=n-2$. Degree of freedom = 103. With this degree of freedom, $r_{kr}(0.05) = 0.20$, and with $r_{kr}(0.01) = 0.25$.

Since the value of the obtained Pearson coefficient is positive and greater than the critical values of the coefficient at both accepted levels of significance, we assume that the coefficient is statistically significant. There is a significant correlation between the results achieved regarding the formation of social and civic competences and between the results representing the skills to support sustainable development and for a healthy lifestyle and sports.

Comparing at the control stage the arithmetic mean value of the differences in indicators of EG and CG for the two types of competences is obtained:

- social and citizenship competences – 0.254.
- skills to support a sustainable development and for a healthy lifestyle and sport– 0.183.

This means that social and citizenship competences are influenced to a higher degree by the competence-oriented model compared to skills to support a sustainable development and for a healthy lifestyle and sport.

Based on the overall analysis of the results of the applied formative program implementing the competence-oriented model of pedagogical interaction in the educational field "Environmental world" within the framework of the actual part of the pedagogical experiment, the following **conclusions** can be drawn:

1. A diagnostic tool was created - a picture test selected and authorized by the author - to determine the entry and exit level of the indicators of the competences of the examined children laid down in the dissertation work.

2. In the actual phase of the research, a pedagogical experiment was conducted in three stages - September 2020. – May 2021, in which, on the basis of random selection, 202 children in the experimental and control groups attending public preschool institutions participated.

3. The model impacts the social and citizenship competences of the children from the experimental group through a formative program to the greatest extent according to indicator 1 Demonstrates independence and confidence and knows how to express feelings, desires, share problems and seeks help, confirmed by the highest reported difference between the results of EG and CG at the control stage – 0.34.

Indicator 9 Knows specific national holidays and connects them with specific historical figures and events ranks second in terms of the formative effect of the model, with a difference between the average arithmetic values of EG and CG – 0.33.

In third place in terms of results is indicator 12. It is based on the difference between "citizen of the Republic of Bulgaria" and "resident of...", where the achieved difference between EG and CG is 0.31. The success in indicators 9 and 12 proves that the refinement of the model by adding additional elements in the formative program under the Cultural and National Values criterion has stimulated this competence here.

This proves that the priority places of these indicators in the formation of social and civic competences are significantly influenced by the formative program, therefore, together with other elements of the competence-oriented model, they should be included in the process of pedagogical interaction in the "Environmental World" educational direction , according to the cognitive content of the program systems on which preschool institutions work.

At the lowest level, compared to the other indicators, are indicators 5/6 – 5 Recognizes objects from the social environment and demonstrates adequate behavior in kindergarten, on the street, in public places/Recognizes professions from different fields and their meaning with a difference between EG and KG – 0.15. Due to the significant impact of these indicators, the competence-oriented model would not have the overall effect without them.

4. The strongest formative effect regarding the skills to support sustainable development and for a healthy lifestyle and sports is observed at indicator 15 Knows and describes environmental protection activities and knows the rules of safe behavior in nature, showing self-control with a difference between the two studied groups - 0.25.

5. Of interest are the results showing the influence of the formative program on laying the foundations of digital competence in the experimental group. According to the Choose a color and color a figure indicator, a difference of 0.88 was achieved in the results of the ascertaining and control stages.

This proves that the connection between the consistent daily and interactive work of the author and the motivation of children in EG to work with digital devices can be an effective approach for establishing this hard-to-realize competence in 6-7-year-old children.

6. A study of the strength and direction of dependence between the results achieved in terms of the formation social and citizenship competences and skills to support a sustainable development and for a healthy lifestyle and sport was carried out. From the obtained values of the Pearson correlation coefficient ($r = 0.59$), it is proved that in the process of pedagogical interaction in the educational field "Environmental world" there is a significant dependence between the competences listed above.

The results obtained at the end of the empirical study show the positive influence of a competence-oriented model, which confirms the raised hypothesis, namely that the application of the developed competence-oriented model in the process of pedagogical interaction in the kindergarten under the educational field "Environmental world" has a positive effect on the formation of a system of competences in 6-7-year-old children.

CONCLUSIONS

Based on the in-depth analysis of the results of the theoretical study and the obtained empirical data of the study, the following conclusions can be formulated:

1. The study of conceptual studies by our and foreign authors, as well as European and national normative documents regarding basic concepts related to competences and the competence approach in education shows that through competence-oriented education, the foundations of lifelong learning can be laid, focusing are on the development and development of the personality from the earliest childhood.

2. Clarification of the essence of competence-oriented education, its characteristics and specificity in preschool age proves the need to increase the quality of preschool education, by optimizing the pedagogical interaction in the educational field "Environmental world" in the context of the specific projections of the competence approach.

3. The competence approach in preschool education is a holistic, integrating process for a higher degree of efficiency, which ensures, more precisely, it is the "skeleton" of competence-oriented education.

4. The conducted pilot phase of the pedagogical experiment made it possible to specify the parameters of the study and in the actual phase to successfully implement the author's competence-oriented model of pedagogical interaction in the educational field "Environmental world".

5. Effective competence-oriented education includes the set of educational principles laid down in the state educational standard for preschool education, variable organization of the educational environment, flexible selection of educational content and assessment of children's achievements.

6. By organizing a competence-oriented educational environment and implementing the formative program, the competence-oriented model impacts to a high degree on the formation of important components of children's competences.

7. A highly stimulating effect on social and civic competences is exerted by the use of thematic elements from the variable component of the formative program, held outside the kindergarten classroom: educational walk, interactive modeling, flash mob, demonstration by a parent, etc. The opportunity for children to practically and effectively get to know, use and apply in their activities lays a real basis for the formation of competences.

8. The competence-oriented model has a particularly strong activating effect on the formation of the skills to support sustainable development and for a healthy lifestyle and sports. It provides a developing environment and accelerates the conscious understanding of a responsible attitude towards the surrounding world.

9. The symbiosis between the preschool teacher's consistent daily and interactive work and the children's motivation to work with digital devices can be an effective approach for establishing the hard-to-realize digital competence in 6-7-year-old children.

10. The analysis of the results of the conducted survey gives us an answer about the possibilities of applying the competence-oriented approach and its effect on the work of preschool teachers in the online educational environment.

11. The competence-oriented model can be applied synergistically with the program content in the educational field "Environmental World" of the program system, according to

which every preschool institution works. This will enrich, optimize and accelerate the development of children's competencies. The competence-oriented model is a prerequisite for achieving the quality of preschool education, while at the same time affirming a new educational culture.

TERMINAL CONCLUSION

Placing competences in preschool age, in practice, realizes the goals of preschool education by applying the competence approach.

Analyzing the essence of competence-oriented education, it can be said that, in addition to all known characteristics, it is also deeply democratic. Because it does not only aim at knowledge, nor does it deny it. And he puts it as a necessary foundation, the first step, the beginning of the path "to do what I can best", giving freedom and the opportunity to the individual to choose, to follow the pace, the methods, the means, the efforts that he will make, for to be able to turn it into exactly his unique, though not ideal competence.

That is why it is so valuable to be the child's "guide" on this path - from ignorance to knowledge, from a small imprecise skill - to skill, and to the achievement of competence.

That is why it is so important in the last years of "carefree childhood", before the threshold of school, that the kindergarten can offer and implement models that provide the child with a wide choice of ways to learn about the world, looking for and finding his place in it, where to feel secure, capable, useful and happy.

Thus, the acquisition of sustainable safe behavior in nature, in the children's community, in society, directly related to the initial formation of competences, is an important condition in the broad cultural and educational context in the practical realization of the pedagogical interaction in the kindergarten.

In this context, the competence-oriented model allows the pedagogical interaction in the "Environmental World" educational direction to effectively stimulate the development of new concepts and representations of children without worrying that they may make mistakes or fail, and more importantly, to learn to do – i.e. to have competences. The success of the model is also due to the fact that it includes a different developing educational environment in which the preschool teacher can give a new meaning to any usual activity in the basic and additional forms. This results in his educational intentions and efforts, namely, on the basis of the established and changing standards, to succeed in developing competencies. In this sense, models like the present

one, structured and intended for application in the educational field "Environmental World" of preschool education, can be implemented in the practice of preschool education and developed in all forms and moments of the daily organization of the child's life in the preschool institution, ensuring its active participation in the acquisition of social and citizenship competences and skills to support a sustainable development and for a healthy lifestyle and sport, as well as digital competence.

CONTRIBUTIONS OF THE DISSERTATION

Scientific and theoretical contributions

1. The results of theoretical studies regarding the conceptual essence of competence-oriented education, its current aspects, pedagogical conditions and the requirements for its realization have been studied, analyzed and systematized.

2. On the basis of a thorough theoretical analysis, the connection between the pedagogical interaction in the educational field "Environmental World" and competence-oriented education has been proven, as well as the need to organize modern preschool education based on the simultaneous consideration of the specific projections of the competence approach.

3. Valuable trends characterizing the content parameters of eight program systems for preschool education have been derived, which reflect the complex interrelationship between the topics of the educational field "Environmental World" and the expected results in the context of the formation of the competences fixed in the dissertation through the content analysis of the annual thematic distribution of the relevant educational direction.

Scientific and applied contributions

1. An author's competency-oriented model of pedagogical interaction in the educational field "Environmental World" has been developed, tested and implemented for 6-7-year-old children with the aim of forming of social and citizenship competences and skills to support a sustainable development and for a healthy lifestyle and sport, digital competence through an author's formative program, according to the regulatory requirements, age, current time and in perspective.

2. The effectiveness and originality of the model, which emphasizes its specificity, is the presence in the author's formative program, through which it is realized, of two components - basic and variable. This ensures freedom for the preschool teacher to flexibly achieve the set tasks of the model by using the thematic elements, according to the current situation, optionally and variably. In this way, the model is accessible and easy to apply, which gives the teacher the feeling of carrying out the planned without accepting it as a routine.

3. The diagnostic toolkit used in the empirical study was selected, developed by the author and tested.

4. The effectiveness and applicability of the competence-oriented model for the formation of the competences specified in the dissertation in 6-7-year-old children in the pedagogical practice of preschool education has been empirically proven.

5. In the course of the empirical research, a survey card was developed and applied to study the opinion, attitudes and attitude of preschool teachers from five areas regarding the specific approaches, methods and tools they use in the process of pedagogical interaction in the educational field "Environmental World" to form of competences in preschool children. Many organizational, methodological and qualification recommendations for effective formation of competences in 6-7-year-old children have been analyzed and are particularly valuable and applicable in practice.

LIST OF PUBLICATIONS ON THE DISSERTATION TOPIC

1. Dimova, B. (2021). Improving the competences of preschoolers outside of pedagogical situations. Annual scientific-methodical journal Education and Technology, volume 12/2021, issue 2, ISSN 1314-1791 (print), ISSN 2535-1214 (online), pp. 354-358. <http://doi.org/10.26883/2010.212.3480>
2. Dimova, B. (2021). Practical parameters of digital competence in preschoolers. Second scientific-practical conference EDUCATION AND ARTS: TRADITIONS AND PERSPECTIVES. SU "St. Kliment Ohridski", FNOI, ISSN 2738-8999, pp. 388-397.
3. Dimova, B. (2022). Opportunities for formation of sustainable development skills in preschool. Annual scientific and methodological journal Education and Technologies, volume 13/2022, issue 2, ISSN 1314-791 (print), ISSN 2535-1214 (online), pp. 244-247.