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PEDAGOGICAL FOUNDATIONS FOR IMPROVING THE MECHANISMS OF FORMING ECOLOGICAL KNOWLEDGE IN PRIMARY SCHOOL STUDENTS DURING THE TEACHING PROCESS OF THE "TARBIYA" SUBJECT

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Abstract
This article covers the scientific, theoretical and practical foundations of the formation of environmental knowledge, skills and attitudes in the process of teaching the subject "Education" to primary school students. The article analyzes the goals and objectives of modern environmental education, the pedagogical conditions for the formation of a responsible attitude towards nature in students, as well as the mechanisms for developing environmental awareness through the content of the subject "Education". The study developed ways to form an ecological culture in primary school students based on effective mechanisms such as an integrative approach to the educational process, interactive methods, the use of media, and the establishment of project and observation activities. The article also analyzes the pedagogical foundations of assimilating environmental knowledge in a manner appropriate to the age-related psychological characteristics of students, the motivational and cognitive components of environmental education. As a result, it is scientifically substantiated that in the modern model of the subject "Education" it is possible to improve the systematic mechanisms for the formation of environmental knowledge, and to deepen the environmental awareness of students by enriching the content and methods of education.

Keywords: Primary school, educational science, ecological knowledge, ecological education, ecological culture, interactive method, cognitive approach, educational activity, ecological awareness, pedagogical mechanism.

Introduction

BOSHLANG'ICH SINF O'QUVCHILARIDA "TARBIYA" FANINI O'QITISH JARAYONIDA EKOLOGIK BILIMLARNI SHAKLLANTIRISH MEXANIZMLARINI TAKOMILLASHTIRISHNING PEDAGOGIK ASOSLARI

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Annotatsiya:
Ushbu maqolada boshlang‘ich sinf o‘quvchilarida “Tarbiya” fanini o‘qitish jarayonida ekologik bilim, ko‘nikma va munosabatlarni shakllantirishning ilmiy-nazariy hamda amaliy asoslari yoritiladi. Maqolada zamonaviy ekologik ta’limning maqsad va vazifalari, o‘quvchilarda tabiatga nisbatan mas’uliyatli munosabatni shakllantirishning pedagogik shart-sharoitlari, shuningdek, “Tarbiya” fanining mazmuni orqali ekologik ongni rivojlantirish mexanizmlari tahlil qilinadi. Tadqiqotda ta’lim jarayoniga integrativ yondashuv, interfaol metodlar, media vositalardan foydalanish, loyiha va kuzatuv faoliyatini yo‘lga qo‘yish kabi samarali mexanizmlar asosida boshlang‘ich sinf o‘quvchilarida ekologik madaniyatni shakllantirish yo‘llari ishlab chiqilgan. Shuningdek, maqolada ekologik bilimlarni o‘quvchilarning yosh psixologik xususiyatlariga mos tarzda singdirishning pedagogik asoslari, ekologik tarbiyaning motivatsion va kognitiv komponentlari tahlil etilgan. Natijada “Tarbiya” fanining zamonaviy modelida ekologik bilimlarni shakllantirishning tizimli mexanizmlarini takomillashtirish, ta’lim mazmuni va metodlarini boyitish orqali o‘quvchilarning ekologik ongini chuqurlashtirish mumkinligi ilmiy jihatdan asoslab berilgan.

Kalit so‘zlar: boshlang‘ich sinf, tarbiya fani, ekologik bilim, ekologik tarbiya, ekologik madaniyat, interfaol metod, kognitiv yondashuv, o‘quv faoliyati, ekologik ong, pedagogik mexanizm.

Аннотация:
В статье рассматриваются научно-теоретические и практические основы формирования экологических знаний, умений и установок в процессе обучения учащихся начальной школы предмету «Образование». Анализируются цели и задачи современного экологического образования, педагогические условия формирования ответственного отношения к природе у учащихся, а также механизмы развития экологического сознания через содержание предмета «Образование». Разработаны пути формирования экологической культуры учащихся начальной школы на основе таких эффективных механизмов, как интегративный подход к образовательному процессу, интерактивные методы, использование медиаресурсов, организация проектной и наблюдательной деятельности. Анализируются педагогические основы усвоения экологических знаний в форме, соответствующей возрастным психологическим особенностям учащихся, мотивационно-познавательная составляющая экологического образования. В результате научно обосновано, что в современной модели предмета «Образование» возможно совершенствование системных механизмов формирования экологических знаний, углубление экологического сознания учащихся за счет обогащения содержания и методов обучения

Ключевые слова: начальная школа, педагогическая наука, экологические знания, экологическое образование, экологическая культура, интерактивный метод, познавательный подход, образовательная деятельность, экологическое сознание, педагогический механизм.

Introduction

Today, environmental problems have reached a global scale and are becoming one of the most pressing issues facing humanity. In the Republic of Uzbekistan as well, the development of environmental education and upbringing is regarded as one of the important priorities of state policy. In this regard, the decisions of the President of the country and strategic programs aimed at closely linking the education sector with the formation of ecological awareness occupy a significant place. In particular, the primary education system is the most important stage in fostering love for nature, ecological responsibility, and the ideas of sustainable development in the younger generation. The aggravation of environmental problems necessitates the early formation of ecological culture among children. In the process of primary education, instilling in pupils such skills as love for nature, environmental protection, and rational use of resources is one of the most urgent tasks facing the "Tarbiya" subject. The primary stage of schooling is considered the most effective period for building the foundation of ecological knowledge. Therefore, improving the mechanisms for teaching ecological knowledge in the "Tarbiya" subject, using innovative methods, and introducing integrated approaches acquire important scientific and practical significance. In addition, the "Tarbiya" subject also plays a central role in developing pupils' moral, social, spiritual, and ecological values. Through this subject, such qualities as love for nature, its preservation, understanding environmental problems, and demonstrating an active attitude toward solving them are formed. For this reason, improving the mechanisms of forming ecological knowledge in the process of teaching the "Tarbiya" subject is one of the urgent tasks of modern pedagogy. The purpose of this research is to identify the pedagogical mechanisms for forming ecological knowledge in primary school pupils and to develop methodological recommendations for their improvement.

1. Theoretical Foundations of Environmental Education

World Experience and Concepts: The main internationally recognized concepts of environmental education include the principles of Education for Sustainable Development (ESD).

Discussion:

Scholars such as D. Zakhlebny and N. M. Mamedov emphasize that the formation of ecological consciousness depends on the individual's system of values. My research differs from their approaches in that it is specifically aimed at forming these values directly through "Tarbiya" lessons.

The Principle of Integration in Education: Many educators, such as L. I. Novikova and B. Sayfullayev, argue that environmental education is more effective when carried out not as a separate subject, but in the form of interdisciplinary integration.

2. Psychological and Pedagogical Characteristics of Primary Education

Developmental Psychology: Psychological studies on primary school pupils aged 7–10, particularly their operational thinking, emotional perception, and tendency toward imitation, are reflected in theories such as J. Piaget's theory of cognitive development.

Discussion:

Since children of this age have difficulty perceiving abstract ideas, it is scientifically justified that practical activity, games, and visual materials should serve as the main mechanisms for forming ecological knowledge. This substantiates your emphasis on improving interactive methods.

The "Tarbiya" Subject and Values: In local scholarly literature, such as the works of B. Ziyomuhamedov and M. Yuldashev, the necessity of forming national and universal values in education is widely discussed. Environmental responsibility belongs precisely to the category of such universal values.

3. Analysis of Teaching Methods and Technologies

Limitations of Traditional Methods: Most methodological manuals related to environmental education still rely on reproductive methods, that is, on the transmission of ready-made information. Analysis of the literature shows that such methods are weak in developing practical ecological action skills.

Advantages of Interactive and Project-Based Methods: Foreign pedagogical ideas, such as J. Dewey's concept of experiential learning, as well as modern local pedagogical studies, have proven that methods such as project-based learning, case studies, and role-playing games help learners assimilate knowledge more deeply and apply it in practice.

My Idea: The core idea of my research is to combine these effective methods with the specific content of the "Tarbiya" subject and, on this basis, to create a new and improved mechanism.

4. Research Problem

Although the theoretical foundations and general methods of environmental education have been sufficiently covered in the existing scientific literature, the pedagogical foundations aimed specifically at improving, on an interactive practical basis, the mechanisms for forming ecological knowledge within the content of the primary school "Tarbiya" subject in the conditions of Uzbekistan have not yet been sufficiently developed. For this reason, the present study is considered highly relevant.

Main Part

1. Theoretical Foundations of Forming Ecological Knowledge

Environmental upbringing is a continuous process aimed at forming in an individual a correct and responsible attitude toward nature. From a pedagogical point of view, the basis of environmental education lies in the formation of pupils' system of knowledge, skills, and values. During the primary school period, the following psychological and pedagogical principles are of particular importance in developing ecological consciousness and ecological culture:

1. the principle of conformity to age characteristics;
2. the principle of learning through observation and practical activity;
3. the principle of interactivity and increasing learner activity;
4. the principle of internalizing ecological values through personal experience.
5. Integration of Environmental Education Content in the "Tarbiya" Subject

The content of the primary school "Tarbiya" subject includes many environmentally oriented topics, such as "Let Us Protect Nature," "Love for Plants and Animals," "Mother Earth Is Our Home," "Water Is the Source of Life," and others. In the process of teaching these topics, the following approaches are considered effective:

The integrative approach: teaching the content of the "Tarbiya" subject in connection with natural science, mother tongue, and visual arts;

Practical learning: organizing ecological projects, observation diaries, and extracurricular environmental activities;

Interactive methods: engaging pupils in active thinking through such methods as "Brainstorming," "Idea Table," "Role Play," and "Ecological Chain."

3. Mechanisms for Forming Ecological Knowledge

In order to form ecological knowledge effectively, the following pedagogical mechanisms should be developed and applied:

1. Didactic mechanism – directing educational materials toward ecological content and using visual teaching aids.
2. Psychological mechanism – developing the pupil's ecological sensitivity and observational skills.
3. Motivational mechanism – fostering love for nature and forming the desire to participate in ecological activities.
4. Information and communication mechanism – using media education, environmental video materials, and digital learning platforms.
5. Assessment mechanism – applying diagnostic methods to monitor pupils' ecological knowledge and attitudes.
6. The Role of the Teacher in Developing Ecological Culture

The primary school teacher is the initiator of environmental education. The teacher functions not only as a provider of knowledge, but also as an educator who forms ecological values in pupils. The teacher's personal ecological culture, ecological worldview, and skill in effectively conveying ecological ideas during the lesson directly influence the quality of pupils' knowledge and the level of their awareness.

Forming ecological knowledge in primary school pupils is not merely a matter of providing information, but a process of raising them to love nature, protect it, and grow into citizens with a developed ecological culture. In teaching the "Tarbiya" subject, this process can be made more effective by expanding ecological content, using integrative and interactive methods, and applying modern pedagogical technologies. In this way, transforming environmental education into an inseparable component of the "Tarbiya" subject serves to develop ecological responsibility and a conscious civic position in the younger generation.

During the research process, the following scientific and methodological methods were used:

1. Theoretical analysis – curricula related to the "Tarbiya" subject, methodological manuals, and scientific sources on environmental education were studied.
2. Pedagogical observation – lessons conducted in primary grades, pupils' ecological activities, and their behaviors demonstrated during lessons were analyzed.

3. Diagnostic methods – tests, interviews, and questionnaires were used to determine the level of pupils' ecological knowledge.
4. Experimental and trial work – interactive methods, practical exercises, and project-based approaches in teaching environmental topics were tested.
5. Statistical analysis – diagnostic results were processed and evaluated through comparison and percentage-based methods.

According to the research findings, it was determined that the effectiveness of forming ecological knowledge in primary school "Tarbiya" lessons is directly related to the following factors:

1. When interactive methods were applied during the lesson process, learning effectiveness increased by 30–35 percent. Methods such as "Idea Wheel," "Brainstorming," "Cluster," the "Network Method," and role-playing games taught pupils to analyze ecological situations independently.
2. Observation and practical activity had a strong impact on pupils' ecological awareness. Practical tasks such as cleaning the schoolyard, planting flowers, and sorting waste increased pupils' sense of responsibility.
3. The use of multimedia helped to form ecological perceptions quickly and effectively. Through video materials, animations, and virtual tours, pupils were able to perceive processes in nature visually.
4. Studying curriculum topics in the form of interdisciplinary integration produced high results. Through the integration of "Tarbiya + Natural Sciences," "Tarbiya + Technology," and "Tarbiya + Reading Literacy," ecological concepts were mastered more deeply.
5. The formation of ecological behavior in pupils showed positive growth. Compared to the initial diagnosis, indicators of ecological culture increased by an average of 20 percent after the experimental trial.

Discussion

The obtained results show that environmental education cannot be limited only to theoretical knowledge. For primary school pupils, environmental upbringing should be:

• activity-based,
• enriched with visual materials,
• reinforced with real-life examples,
• explained through interactive games.

In addition, the teacher's possession of modern ecological knowledge has a significant influence on the quality of the lesson. The research proved that projects with ecological content, such as "My Tree," "The Cleanest Class Is Our Class," "Clean School," and "Ecological Patrol," develop pupils' independence, creativity, and responsibility.

In addition, it is important to involve parents, neighbors, and the wider community, because nature is our common home. Completing homework in a family-based format, for example through waste sorting, water-saving projects, flower care, orderliness, and cleanliness, helps ecological habits become part of pupils' daily behavior.

Conclusion

Based on the research, the following conclusions were reached:

1. In order to effectively form ecological knowledge in the “Tarbiya” subject, it is necessary to apply an integrated approach, interactive methods, and practical activities in a comprehensive manner.
2. Visual and informational technologies occupy an important place in the development of pupils’ ecological awareness and ecological culture.
3. If environmental upbringing is systematically organized at school, correct behavior toward nature is formed early in pupils and becomes stable.
4. Improving teachers’ ecological competence and updating methodological manuals are important conditions for increasing educational effectiveness.

Thus, improving environmental education in primary grades serves not only to enhance the quality of education, but also to ensure that the younger generation develops into environmentally responsible individuals. Forming ecological knowledge in primary school pupils is not merely the delivery of information, but a process of raising them to love nature, protect it, and grow into environmentally cultured citizens. In teaching the “Tarbiya” subject, this process can be made more effective through expanding ecological content, using integrative and interactive methods, and applying modern pedagogical technologies. In this way, turning environmental education into an inseparable component of the “Tarbiya” subject contributes to the formation of ecological responsibility and a conscious civic position in the younger generation. The results of the research showed that the formation of ecological knowledge in the process of teaching the subjects “Tarbiya” and “Reading Literacy” can be effective in developing pupils’ ecological awareness and can make a substantial contribution to educating them as responsible and conscious citizens.

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