



IMPROVING TEACHING METHODOLOGY ON THE BASIS OF DEVELOPING NATURAL SCIENCES IN PRIMARY SCHOOLS

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Article history:	Abstract:
<p>Received: 28th January 2022 Accepted: 28th February 2022 Published: 17th April 2022</p>	<p>This article is about improving the teaching methods based on education that develops science in the primary grades. Today, there is a growing need around the world to improve teaching based on science, and to implement large-scale reforms in the field of international assessment programs to increase students' natural science literacy in the classroom.</p> <p>In the world, it is especially important to conduct research on improving the teaching of science in primary school on the basis of developmental education, the development of creativity, competence and natural-scientific worldview of students. In this regard, the need to use media to improve the methods of teaching science to primary school students, the scientific laws of improving the effectiveness of educational activities, the need to improve the principles of didactics and the application of foreign experience in primary education.</p>

Keywords: Natural sciences, creativity, didactics, methodology, skills, competencies.

INTRODUCTION.

At present, research is being conducted in our country to improve the education system on the basis of developmental education, to strengthen its national base, to raise the education of active, skilled, competent and competent students to world standards. Important tasks have been set, such as training independent-minded, patriotic students, deepening democratic reforms and increasing their social activism in the development of civil society[5].

Today, improving the methodology of teaching primary school students on the basis of natural media, improving the quality and effectiveness of teaching, adapting to international educational standards, increasing students' natural and scientific literacy, improving the education system. is important.

Law of the Republic of Uzbekistan No. 576 of October 29, 2019 "On science and scientific activity", President of the Republic of Uzbekistan dated February 7, 2017 "On further development of the Republic of Uzbekistan" Decree PF-4947 "On the Strategy of Action" and to some extent serve in the implementation of the tasks set out in the relevant regulations.

LITERATURE REVIEW.

The degree to which the problem has been studied is that F.S. Arevedo, L. Darling - Hemmand, A.J. Egalite, B. Kisida, D.S. Yeager, G.M. Walton, P. Cantorand, P. Carter, I.D. Taylarand, A.A. West, A. Wigfield, S. Cambria, C.A. Wolters have studied various aspects of improving teaching based on science-based education in the primary grades.

Problems of Improving the Teaching of Science in the Primary School in the CIS Countries M.S. Ahmedov, T.A. Weiser, S. Grigoreva, N.G. Kalashinova, E.F. Kozina, Kuznetstva, V.V. Levites, S.A. Radianova, D.Z. Raxmonova, S.P. Rusenoye, O.N. Ul'yanova; Specific features of the creativity of primary school students T.V. Sunyaykina, Yu. Studied by A. Sergiyonko, G.A. Chomayeva and others.

Issues of teaching in primary education in our country R. Ibragimov, R. Mavyonova, N. Rakhmonkulova, R. Safarova, M. Inayotova, UA Masharipova; Problems of improving the methods of teaching science D. Yormatova, M.I. Nuriddinova, M.I. Toshplatova; Innovative technologies and methods of teaching science have been studied by Sh. Mirzakhmatova, D. Pulatova, H.B. Norbotayev and others[16].

RESEARCH METHODOLOGY.

Thinking is central to the study of nature. There are 2 types of knowing the being around us. Through perception and cognition of logic. The goal of the science program is to help students develop a clear idea of what they are doing by observing their surroundings. They have to consciously relate to the real being based on the assumptions they make. The science program involves the acquisition of basic concepts of biological, geographical, physical, and chemical processes[4]. The most important natural science concepts need to be identified in the learning process. Natural concepts are generalized knowledge about objects, events, and a whole group of processes combined with common essential features. In particular, the concept of "plants" includes various creatures that are common to all plants and are grouped together by important characteristics. They all grow, develop, breathe, reproduce, and are living organisms[17].

Concepts are different from imaginations. Elementary school students perceive external objects and events through their senses and learn some of the qualities of quality. In particular, the child learns the shape and size of the body by feeling it, that is, it is reflected in his mind. For example, when they see a fruit, a watermelon or a bird, their image is reflected in the child's mind.

After determining the shape, color and taste of fruits and vegetables, the child develops a holistic understanding, which is determined by the beginning of cognition. These images are stored in memory. Perception of the universe provides live observation, psychological perception and perception, which transmits the image of existence to the brain. In order to delve deeper into the mysteries of nature, it is necessary to process the information obtained, to process it.

Imagination is the product of the activity of the sensory organs, memory, and concepts are the product of thinking. There is a creative connection between them. This connection allows thinking and reasoning to be considered as a single thought activity. There are differences between them: imagination is the process of creating new images among previously accepted ones, and thinking is the process of generalizing the world around us, that is, concepts. These thoughts are relative, and any imaginary thought reflects a real being. For example, to imagine a flower, a bird, a compass, just look at them. In order to understand them, it is necessary to think clearly and extensively and to organize them. Assumptions are images of individual objects, while concepts represent generalized content that belongs to a class[6].

In Grade 4, students compare the weather, flora, fauna, and human activities of different natural areas with the natural conditions in which they live. The starting material for thinking is the memorized image of objects and events, which are figurative images. Tulips, purples, rabbits, wolves are easy to imagine. It's important to connect the dots looking forward. For example, when you see a beautiful flower, you often want to touch it, and its appearance will be remembered for a long time[18].

It's hard for a student to imagine something as a whole. Some parts of the object appear in his mind. For example, on the map, the student sees the riverbed, its source, its confluence, and its tributaries. And the whole river is ignored. Looking at the compass, he sees a box, a magnetic shaft. If the student remembers a natural area, he or she imagines the climate, plants, and animals of that area.

How are concepts formed? There is no sharp boundary between imagination and concepts. Concepts reflect generalized content or knowledge related to a particular class of objects. For example, the term "leaf" refers to all the leaves that form on trees, shrubs, and grasses. Imaginations generalize and become concepts as they reflect more important features of objects[19]. Because the concept does not come into being by itself, or the imaginations that are formed do not indicate the concept of them. Concept is formed as a generalization of the essential features of many individual events. All concepts begin with analysis. Specific objects are divided into thought signs and properties, and then some sign is separated and abstracted, as we move away from other signs we know, and look at things and events from the point of view that interests us[7]. The process of mastering concepts is an activity of active creative thinking. To form an understanding of "fruit" in elementary school, the teacher arranges the fruit on his or her desk. Invite students to describe themselves and have them explain:

Tomatoes are red, round.

-Cucumber green, elongated.

-Apples are red, round, juicy, fragrant and delicious.

-Tomatoes and cucumbers taste different.

In science lessons, students should not only form some concepts, but also develop the ability to understand cause and effect, the interdependence of natural phenomena. In grades 1-2, students will gain a general understanding of the natural sciences from the subject "The World Around Us." In later classes, they gain a clear understanding of nature during experiments, observations, trips, practical work. In forming general concepts, the teacher:

- 1) organization of targeted reception of objects;
- 2) Analyze each new concept of natural objects and distinguish important features in all objects.
- 3) It is necessary to abstract all the less important signs of the 2nd degree, to use objects that retain important signs (for example, tulips and violets, daisies and tulips).

The levels of generalization and abstraction of concepts in the course vary. Their definition: content; size; the connection of this concept with another concept. Content is characterized by the most important features of concepts. There are "signs" and "most important signs" of objects and phenomena in nature. N.I. "A sign is an indicator, an

aspect of all things and events, according to which things and events can be selected, identified or described," says the most important sign. thus distinguishes it from other species and groups... If this character is excluded, then the concept is fragmented and does not exist[8].

Depending on the content, the concepts are divided into 2 - simple and complex. For example, the concept of "landforms". Its most important feature is that the flat surface (plain) rises (hills, mountains), falls (mountain range - cliff). At the same time, we can look at the hill as a simple concept; its most important feature is its base, apex, and lateral slope. Simple concepts include knowledge of a single element of a body or natural phenomenon[20]. For example, the concept of "space path" is characterized by the way the earth connects with the sky. Every simple concept becomes more complex. Simple knowledge focused on one element is combined with others, and eventually becomes more complex.

Grade IV has the concept of "space". It also includes the width of the place where a person sees a lot of things around them. Then the "space path" (simple concept) - it is studied that there are 4 sides of space (simple concept 2) - it changes as a result of motion (simple concept 2). Thus, the concept of "space" is supplemented, and "space" is a place where a person always sees his surroundings. Space is bounded by space.

There are 4 sides of space: north, west, south, east. Space and space path change as you move. On this basis, the concepts become more complex. Concepts are divided into individual and general concepts according to their scope. In particular, in the course of natural sciences, "Nature of our country", "Seasonal changes in nature" are among the general concepts. They are related to emotional perception and consist of specific concepts and general perceptions. Both individual and general concepts are divided into biological and geographical concepts according to the content of certain sciences[9].

Individual concepts are individual features that are specific to an object or event. If general concepts are related to terms, individual concepts are represented by a name or a personal name.

Students' attention should be drawn to the connection between the body and the general concept, that is, to the individuality of the body; if it is an apple tree or a vegetable plant, its specific knowledge should be disclosed[21].

Exercises on the transition from non-general to general concepts are of great importance in the formation of scientific concepts. For example, the terms "wolf", "fox", "tiger", and "lion" are included in the concept of "predators" within a generation. Here are the distinctive features - (species characteristics): - wool color, body structure, movement characteristics are reflected in the appearance of these animals. Their ancestral trait is their ability to feed on the meat of another animal. In order for students to be able to differentiate between generational characters, each concept must be clearly articulated and retain specific characters. For example, the definition of "namatak, siren, ligustrums - shrubs" is incorrect because it does not have clarity[22]. Instead, it should be said that "namatak, siren, ligustrum - a bush, because they do not have a main stem, and from the root formed several branches at once."

It is important to focus on developing common concepts and developing common concepts. Thus, in order to form a general concept of "river", it is necessary to distinguish its important features in the process of observation, analysis and generalization of the river. To do this, the teacher must give individual concepts from the map, showing the Syrdarya, Amudarya, Kashkadarya, Chirchik rivers. (They all have a stream, a starting point and a confluence, and streams have right and left banks). On the basis of these signs the general concept of "river" is formed[10].

In addition to the individual concepts, science lessons also form a set of concepts. They consist of individual region concepts with common features. For example, desert plants (saxaul, sand acacia, walnut) are combined in one zone and have common features (long roots, absence of large leaf plates, thorns). Each individual concept that is part of a collective concept retains its individual characteristics. Subtropical plants - laurel, magnolia, tea, cypress, desert plants - saxaul, sand acacia, are very different from yantak.

For plants, the regional symbols that unite them into one concept are common. It is necessary to form a general concept and then study the individual characteristics of plants in each zone from tables, pictures, herbariums.

Geographical concepts are divided into separate (Tashkent, Kashkadarya) and general (mountains, minerals), biological concepts are divided into species (chittak, tulip, spruce, generation, animals, deciduous plants).

In the course of natural sciences, the program involves the study of a number of ideas and concepts in the study of nature and human activities. In the first science lesson, students will be introduced to concepts such as "nature," "inanimate nature," and "living nature."

The most important features of concepts are the basis for systematization. For example, the concept of "inanimate nature" is so important that it must be defined by young children: inanimate objects do not eat, grow, breathe, or multiply. These concepts are further developed in the study of course knowledge[23].

Generalization of concepts is formed in the process of combining objects and events that have common properties. Generalization is only valid when it combines important features of things[11].

To form an accurate understanding of a natural object or phenomenon, first observe them, then look at their description (speed, table, map, diagram), listen to the teacher's story or conversation, and use the textbook to understand the concept. should be strengthened. The teacher's activity helps to form the concepts.

ANALYSIS AND RESULTS.

In science classes, a lot of attention is paid to the demonstration of natural objects. This not only gives children an idea of their size, shape, and other characteristics, but also speeds up and activates the learning process. Students will learn about the practical importance and protection of living plants and animals, as well as some

representatives of herbarium tulum-chuchelas and mammals. Therefore, in preparation for the lesson, the teacher carefully separates the objects, keeping them in the fall so that they can be well represented. The main didactic requirement at this time is for students to consider all the signs and features of the object they are studying, i.e., to love them[24].

For this purpose, the object to be displayed should be placed on a special table in the middle and there should be enough light around it. To do this, use a table lamp or other lamp. Smaller objects should be shown by the teacher walking between the desks[12].

The main type of demonstration method is observation. Observation is a planned, purposeful, conscious perception of the being, body, and events around it.

There are 2 characters in the tracking. A clear goal must be set and the focus must be on the object.

The teacher should organize the observation and mobilize the children to it, highlighting the important features of the observed objects. Students try to identify the characteristics of the object being observed. For example, children compare maple and maple to their colors, identify their differences and common features: look at maple ash, maple, willow, poplar, sada pine fruits, what they differ from each other, look at them, they determine what makes them different from each other, what makes their shape ring, the color of their shape. By planting plant seeds in the pre-school area, children observe the development of plants as the seeds germinate and the first and second leaves form[25].

The importance of observation is that the observation of existence, comparison, identification of similarities and differences, helps to develop children's thinking attention and will to acquire worldly knowledge about their choices.

There are two types of observations: short-term and long-term.

Short-term observations last from a few minutes to 2-3 hours. This time is determined by being able to perceive or accept something. Many animals, such as turtles, snakes, frogs, dragonflies, butterflies, and birds, are observed in structure and movement[13].

Long-term observations are time-consuming or intermittent, but include events that make up a continuous process. In particular, changes in plant growth, leaf discoloration, flight or arrival of birds, and the period from seed germination to fruiting are observed and recorded, and the data collected are compared. , are generalized and certain conclusions are drawn from them. It helps to determine the causes of long-term withdrawal. Observations should be of a geographical nature.

Demonstration tools play a key role in the implementation of the demonstration method.

Exhibits are divided into two groups, natural and visual.

Natural display weapons are objects of nature. These include houseplants, tree branches, leaves, flowers, fruits, seeds, roots, herbariums, seed collections, bouquets, and fruit and vegetable preparations.

In the case of animals, it is a collection of living specimens, owls, skeletons, and insects. (Models, models, paintings, wallpapers, wet preparations, etc.).

Inanimate natural materials are granite, quartz, feldspar, oil, sand, calcium, marble, lime, stone, salts, salt, coal, iron, copper ores, soil, water and others.

Objects that children cannot directly see are conveyed through visual exhibits. They are sold in specialty stores. In particular, a special series of pictures for grades II-IV is a collection of pictures called "Pets", "Animal World", "Plants of our country". Models, models, pictures, screen guides, visual aids.

Understands the relationship between objects and events through direct observation during training. For example, the activity of silkworms in the leaves and leaves of the buds teaches the processes of silk formation. Knowledge based on local observations is of practical importance to students. You do not want to be frustrated if you cannot get the right pitch so invest in a good capo. This will keep the students interested[26].

The content of science lessons is aimed at independent learning of students using visual aids. In the course of the lesson, the children review the visual aids, analyze their parts, compare them, and finally identify similarities and differences. Knowledge created with the help of visual and thinking activities is stored in the memory for a long time. At the same time, it increases the teacher's interest in learning so that students can easily acquire new knowledge.

The essence of the use of the visual method is that students use these exhibitions to create new knowledge about them, that is, about natural objects and phenomena. For example, depending on the nature of the plant world; On the basis of observations, the use of natural materials is formed to predict changes in the weather depending on the behavior of animals and plants, changes in nature.

Observations in grades 1-3 should be used in a variety of forms of learning activities such as homework assignments, field trips, wildlife corners, and homework assignments in independent study areas[14].

Independent study of natural materials develops children's observation and attention. At this point, the teacher should provide a complete plan of the observation and show how to identify the signs and characteristics of the object being studied[27].

The map also plays an important role in the development of observation, the conditional cartographic symbols are gradually mastered on the basis of travel games on the map, the study.

Grade 3 students complete the Nature and Labor Calendar as a result of observing the nature in which they live and the labor of people. This is important for studying changes in nature. Demonstration-based lessons also focus on short-term, engaging experiences that engage children[28].

The experience is fun for students and an effective way to explore the environment. It plays a key role in promoting small, short-term experiences. It has a special place in the development of logical thinking and speech, in revealing the important secrets of nature. As a result, children gain new knowledge.

CONCLUSION/RECOMMENDATIONS.

Improving the methodology of teaching science in the primary school through the development of creative, technological, reflective components;

Improving teaching in the primary school on the basis of science-based education Identifying the components of students' preparation through theoretical, methodological, practical technological indicators, levels and assessment criteria;

Develop suggestions and recommendations using science education in the primary grades. The scientific significance of the results of the article is explained by the levels of improvement and assessment criteria for teaching based on the development of science in the primary grades[15].

The practical significance of the work is determined by the fact that the textbook on improving the methods of teaching science in the primary school on the basis of media is determined by the creation of methodological support in the development of the curriculum.

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