MODERN PRACTICES AND EXPERIENCE OF USING INNOVATIVE TECHNOLOGIES IN ELEMENTARY SCHOOL

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Abstract: Modernization of the education system is associated with the introduction of innovative technologies into the educational environment. The word "innovation" means updating, changing, introducing something new, that is, an innovation that improves the progress and results of the educational process. The article reveals the essence and features of the implementation of innovative technologies in elementary school lessons. The main innovative forms of work with elementary school students in lessons are analyzed. In the process of learning, students develop ideas and concepts about the integrity of the world; natural and social environment as a human environment.

Keywords: Innovative learning, Junior high school student, Pedagogical technologies, Primary school teacher.

1 Introduction

Innovative technologies quickly entered all areas of our lives. What do we mean by innovative technologies today? These are modern technologies that bring novelty, innovation and changes for the better in the educational process [6].

The education system is being reformed in Ukraine. The tool for the formation of new education is innovative activity, which consists in introducing qualitatively new elements into the educational process.

The modern stage of modernization of the education system is characterized by increased attention to the individual, directing the efforts of teachers to the development of the creative potential of participants in the educational process. Increasing the level of the teacher's professional skills is the main task at all stages of school development. A modern school today needs a teacher who could update and improve the content of his activities. It is possible to cope with this task only if there is a reasonable combination of traditional and innovative forms and methods of education.

The category of "technology" is considered by modern representatives of pedagogical science in a didactic way (V. Bespalko, I. Volkov, S. Goncharenko, B. Lykhachov, A. Nisimchuk, A. Pehota, S. Podmazin, O. Savchenko, G. Selevko, etc.) and educational (I. Beh, V. Rybak, N. Shurkova, etc.) aspects.

A number of works that reveal the specifics and requirements for its use are devoted to the problem of introducing innovative technologies into the educational process of primary school. These studies are devoted to the issues of using innovative technologies in work with younger schoolchildren (G. Kobernyk), innovative mechanisms for the activation of pedagogical and scientific processes (I. Halytsia), the theory and practice of innovative activities in the general secondary school (L. Danylenko), didactic issues of organization of group educational activities of junior high school students (V. Vykhrush, I. Vitkovska), arouse considerable interest.

The goal of the article is to reveal the importance of introducing innovative technologies into the educational process of schoolchildren, which contributes to the formation of key competences of students, increases their intelligence, strengthens their faith in their own abilities, stimulates activity and creativity.

2 Materials and Methods

Traditionally, modern education is considered as the acquisition by students of certain knowledge, abilities, and skills, which is determined by State standards and programs. Today, there is an urgent need to analyze those factors that negatively affect the improvement of the quality of education and the formation of a viable and competitive personality. After all, the modern world is complex, so the knowledge they possess is not enough for students. They must be taught to use this knowledge in practice.

In a modern school, a student must possess certain qualities:

- Flexibly adapt to changing life situations;
- To think independently and critically;
- To be able to see a problem, find ways to rationally solve it;
- To be aware of where and how the acquired knowledge can be used in the surrounding reality;
- To be able to generate new ideas, think creatively;
- Competently work with information (be able to collect the necessary facts, analyze them, put forward hypotheses for solving problems, make the necessary generalizations, comparisons, give reasoned conclusions, use them to solve new problems);
- To be communicative, contact in different social groups, be able to work in a team, easily prevent and be able to get out of any conflict situations;
- To be able to work independently on the development of personal morality, intelligence, and cultural level.

A student can master these qualities only thanks to a modern and creative teacher who acts as a competent consultant and assistant. The professional skills of a modern teacher should be aimed not only at controlling the knowledge and skills of schoolchildren, but also at diagnosing their activity and development.

This can be achieved with the help of educational technologies. Therefore, an important and urgent problem of the modern teacher is the correct choice of educational technologies. Thanks to effectively selected pedagogical technologies, correctly selected methods and techniques, it is possible to form the key competences of students, necessary for their further implementation in society.

The choice of modern pedagogical technologies is always a choice of strategy, priorities, system of interaction, teaching tactics and the style of work of the teacher with the student.

3 Results and Discussion

Pedagogical technology is defined in the literature as "a set of means and methods of reproducing theoretically grounded learning and upbringing processes, which make it possible to successfully implement the set educational goals" [13, p.359]. Pedagogical technology is a well-thought-out model of joint educational and pedagogical activities for designing, organizing and conducting the educational process with the provision of comfortable conditions for students and teachers.

One of the ways to reform modern education is the right choice of pedagogical technologies aimed at comprehensive personal development of younger schoolchildren, taking into account their physiological properties.

Updating the content and methods of teaching in a modern school requires the introduction of the latest pedagogical technologies, the search for new ideas, new ways, prompts to

pay attention to the use of innovative technologies in the practice of teaching junior high school students.

Innovation in education is "the introduction of new things into the goals, content, forms and methods of education and upbringing; in the organization of the joint activity of the teacher and the student, pupil" [9, p. 637].

Innovative learning is an educational activity aimed at the development of the individual, his creative abilities, thinking and oriented towards dynamic changes in the surrounding world and personal initiative.

The process of formation of abilities and skills will be more effective if to organize training in cooperation, which is based on joint activity and mutual understanding of the teacher and students. This kind of training with the use of innovative technologies contributes to the formation of key competences of students, increases the child's intelligence, strengthens his belief in his own abilities, stimulates activity and creativity.

The idea of implementing innovations in the work of primary schools involves the development of high-quality and successful education, which will provide decent conditions for the independent achievement of goals, the disclosure of the creative abilities of each student.

We found out that almost all teachers systematically use innovative technologies in their activities. Most often, they use ICT, game technologies, project technologies, LEGO technology, Bloom's cube, six thinking hats, storytelling technology, and rotation models "Daily 5", "Daily 3" are used a little less (Figure 1).
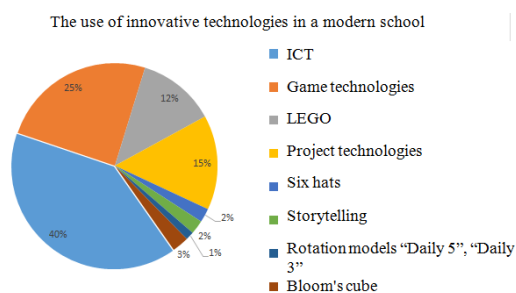

Figure 1 – The use of innovative technologies in modern school: percentage distribution

After analyzing the diagram, it should be noted that teachers most often use in their activities exactly those technologies that are universal in all lessons and ensure the principles of individualization, accessibility, connection with life, emotionality and consciousness, and activity in lessons. Innovations make it possible to integrate different educational fields during one lesson, thus comprehensively develop students, creating situations inseparable from life. This contributes to the development of students' critical thinking. These technologies make it possible to involve all students in intellectual activities, despite the large number of classes, which, according to teachers, is a big problem.

A survey conducted with primary school teachers showed that technologies such as Bloom's cube and storytelling should be used in Ukrainian language and reading lessons, "Daily 5" and "Daily 3" rotational models – in mathematics and Ukrainian language lessons, project technologies – in lessons I explore the world, six thinking hats and LEGO – in math lessons.

In order to develop effective and efficient training, we introduced innovative technologies and conducted experimental work with students of the 4th grades of Ivano-Frankivsk Lyceum No. 26.

We will describe the innovative technologies that are the broadest and universal in working with younger schoolchildren, these are Smart Kids or Smart Kids. *Smart Kids* is an all-Ukrainian commercial project that not only teaches, but also helps and motivates students and teachers.

Since 2016, the school has become an active participant in the all-Ukrainian experiment "Smart People". Its goal is formation of a modern educational environment of an elementary school using electronic educational resources. During lessons, students perform interesting tasks in a game form on an animation device, and easily consolidate the studied material. This is how learning occurs using "smart" technology "Smart Kids", which involves the use of an interactive whiteboard, a projector, a teacher's computer and student laptops – 2 in 1 transformers [2].

Smart Kids is learning through play. The author of the technology is the Kyiv animation publishing house "Rozumniki", which has published more than 16,000 interactive tasks in the Ukrainian language and mathematics for primary school students.

The "Edugames" program is downloaded to the electronic device (mobile phone, laptop, tablet) from the website: https://edugames.rozumniki.ua/ [4]. The symbol of the game is a white owl – it is the logo and label of this publishing house, installed from the Internet. It can also work offline. All tasks are arranged by topic, topics are combined into parts – booklets. There are 10–15 topics in one book, and the educational material is distributed from 1 to 4 classes.

"Smart Kids" technology is approved by the Ministry of Education of Ukraine and corresponds to the current education program. This is an alternative and unique method that is suitable for teaching textbooks by different authors [4]. Working with this technology greatly facilitates teacher preparation for mathematics and Ukrainian language lessons. Advantages of this technology are as follows:

- A huge saving of time for the teacher, student, and parents (the teacher does not need to look for video lessons, games, develop diagrams, schemes, additional tasks, because "Rozumnyki" represent ready-made theoretical and practical materials);
- Availability of material, suitable for the age group of 6-10 years;
- During the pandemic, it is used as distance learning;
- Sound accompaniment by a child's voice, which interests children;
- Bright and informative interface;
- Math tasks are given not only in Ukrainian, but also in Russian and English;
- The digital teacher's journal gives an opportunity to see the work and scope of the tasks performed by each student;
- It is possible to use the downloaded program without the Internet (in offline mode);
- The use of pedagogical games at any stage of the lesson;
- Instead of points, children receive an owlet.

We see the relevance of this technology in improving the quality of students' education in the conditions of a modern new Ukrainian school, in the creation of an innovative digital space, culture. The ability to correctly and successfully work with computer devices, to be media literate represents the task of every competent teacher and successful student in today's conditions.

Important question still exists: What problems does the teacher face in his pedagogical work? Today we work with generation A. These are digital children who are not interested in reading paper books, they have involuntary attention and it is not so easy to interest such children. There is only one way out – to completely replace old methods and technologies with more modern ones. Students will learn when they are interested [7].

During stationary lessons, Smart Kids allows organizing different types of lessons: travel lessons, KVK lessons, cooking lessons, lessons – quests. Work in large and small groups, work in pairs according to interests is practiced. This form of

organization helps to activate the cognitive activity of younger schoolchildren.

This is how problem situations are created: – Help launch a rocket into space!, – or: – Let's go in search of ancient treasures. Namely through dialogue children learn to overcome difficulties by solving creative tasks, and most importantly, students learn independently, without coercion.

A big plus of this technology is learning at child' own pace. Theoretical material is selected for each topic. It is marked with a book on the device panel. Explanations are voiced by virtual heroes – the boy Smart and the girl Smart. Each student can listen to the new material again. In order not to disturb other students, we must work with headphones.

As it is known, any work deserves a reward. Here, a surprise awaits the students. The level of their knowledge is assessed by a conditional mark – an owl that has fully hatched from an egg. A whole owl means error-free work. If the child makes 1-2 mistakes, the little owl's head is covered with a shell. If there are more than 2 mistakes, only the eyes of the bird are visible. I would like to note that assessment is not by points, children like it very much. This gives them the right to painlessly respond to their mistakes. The result can be improved if to complete the level again. A large part of the class always wants to achieve more and is eager to do the task again.

After the completion of all the work, the teacher gives an assessment in points in accordance with the current Assessment Criteria. Be sure to add recommendations, wishes, suggestions and the score itself only in a private, confidential form.

At the ascertainment stage of our research, we conducted testing and questionnaires with students of the experimental class (4-A) and the control class (4-B). But we got the following results (Figure 2 and Figure 3).
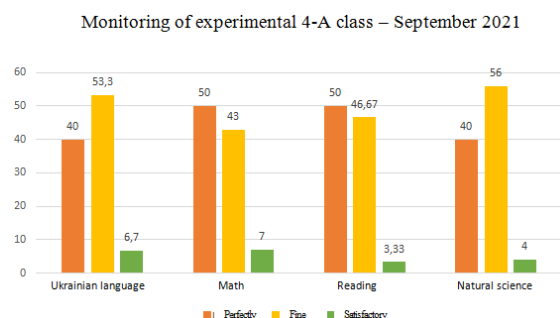
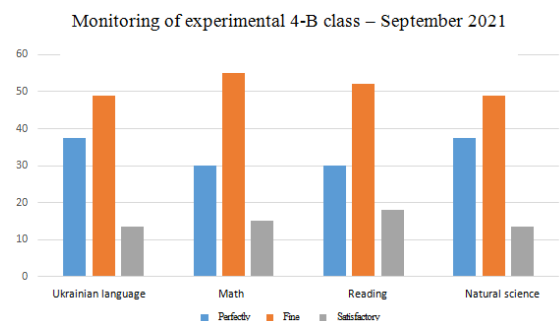*Figure 2 – The results of ascertainment stage of research, 4-A class, Smart Kids technology*

Figure 3 – The results of ascertainment stage of research, 4-B class, Smart Kids technology

In the conditions of the pandemic, Smart Kids is a technology that is ideally suited to distance learning. On Zoom, Skype Meet platforms? With the help of the "projection on the screen" function of Google Meet, it was possible to hold online conferences, online consultations, create live communication and perform educational material in frontal form.

Game content meets the requirements of a modern Ukrainian school. In particular, "Eidetics" technology is of interest. Eidetic is a new pedagogical technology, using which children of primary school age develop figurative thinking, imagination and interest in learning. The author of the "Eidetics School" in Ukraine is Ihor Matyugin, Doctor of Pedagogical Sciences, Professor of the Russian Encyclopedia Academy.

The implementation of this methodology in Ukraine is carried out by Yevhen Antoshchuk - honorary doctor of pedagogical sciences of the Academy of Russian Encyclopedias, founder of "Ukrainian school of eidetics", author of books and articles on eidetics, developer of know-how and computer games, representative of the method in Ukraine (since 1990), instructor-methodologist. He notes that the ability of an adult to "descend" to the level of a child, that is, to see 'in bright colors', to be able to fantasize, is the secret of eidetics [1].

The essence of this technology is that students learn to memorize images (items) without serrations. Associations are taken as a basis, students imagine, fantasize about the subject, clearly see it in front of them.

Goals include development of memorization speed and vivid representation of any images, expansion of perception of information (visual, auditory, kinesthetic, tactile, olfactory, taste) [1].

Before using technology in lessons, we suggest that students remember some rules of eidetic:

1.   We perceive and fantasize only positively.
2.   We do not teach, but try to turn selected subjects and numbers into images.
3.   We make a cartoon, that is, we logically combine the images we remember with each other in our imagination.

In reading lessons, in order to develop imaginative thinking, develop memory, and attention, we play the game "Coach and Student" with the students. Children choose roles as they wish. The timer is turned on for 1 minute and at the command "start" the student names the objects that are found in the zoo. At this time, the trainer records the answers in the notebook with certain signs (dots, sticks). At the teacher's command "stop", the trainer silently counts the number of dots and sticks and announces the result aloud.

In order to name more objects, the student must imagine them. The action can be offered not only in the zoo, but also in the stadium, in the forest, circus, etc.

In the lessons of mathematics, the Ukrainian language of natural science, neuroscience exercises are conducted with the children during the moments of rest. Purpose is development and harmonization of the two hemispheres of the brain.

Students are invited to draw with two hands at the same time. For example: circle and oval, letters B, T, numbers 1 and 4, sun and cloud.

Cicero's method of Eidetic technology is often used for public speaking. His secret is not to memorize anything, but only to imagine information and "embellish" it, invent fabulous events. This method is named after the Roman thinker - Mark Cicero, who became famous for not using any notes during his speeches.

The essence here is that one has to remember items of information mentally in a well-known room, for example, his own. While walking along it, he should place objects in the order in which it is necessary to remember [12].

In the Ukrainian language lesson, students need to remember vocabulary words in the 4th grade: umbrella, girlfriend, deer, doll, sugar. This is how one can remember these words by creating a cartoon story in imagination.

The first thing people remember in their room is the door. Visually we draw a bright umbrella on the door. Then they remember: a bedside table with a mirror; Let us attach an imaginary photo of a friend to the mirror. In the corner, on the table, there is a TV, which broadcasts a program about deer. There is also a wardrobe in the room. A large doll with long hair is sitting on it. It looks out the window, the frame of which is as white as sugar. Thus, when the child mentally remembers own room with all the things in it, he will definitely name the objects attached to the things.

Then we check the memorized words: umbrella, girlfriend, deer, doll, sugar. Also, the Kahoot online service to create quizzes is used.

In conducting a pedagogical experiment at the formative stage of the research, innovative technologies were used: "Smart Kids" and "Eidetics" in lessons: Ukrainian language, mathematics, reading, natural science. The following results were obtained (Figure 4 and Figure 5):
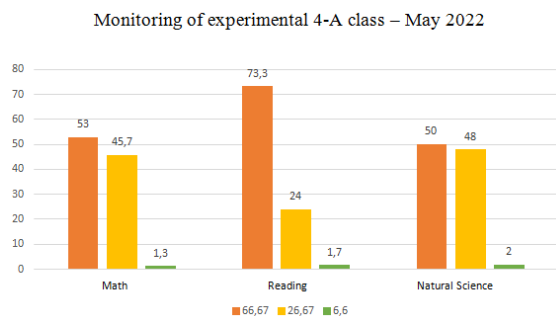

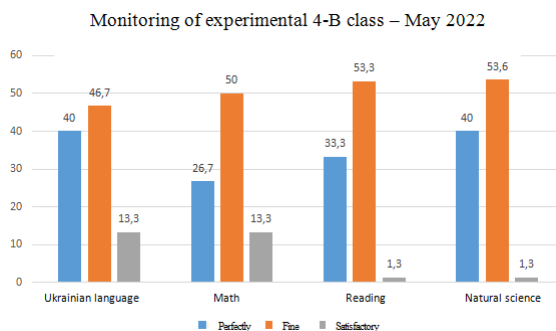*Figure 4 – The results of ascertainment stage of research, 4-A class, "Eidetics" technology*

Figure 5 – The results of ascertainment stage of research, 4-B class, "Eidetics" technology

Monitoring studies at school No. 26 prove that students who are part of the all-Ukrainian experiment "Smart Kids" and are engaged in eidetics have more thorough knowledge and are prize-winners and winners of the I and II stages of subject Olympiads, competitions, online Olympiads on platforms "To the lesson" and "Vseosvita".

During the period of attestation tests, it was seen that the quality of students' writing of final test papers on educational subjects also improved. Pupils are active participants and prize-winners of interactive international contests "Kangaroo", "Kolosok". Out of 29 students in the class, 24 students successfully passed the entrance exams and entered the Lyceum named after R. Huryk (19 students), to Ukrainian Gymnasium No. 1 (5 students).

4 Conclusion

A modern teacher must possess and effectively work with ICT technologies, be informationally literate. The use of various types of innovative exercises in lessons provides an opportunity to expand, enrich with various information, and various types of activities arouse the interest of students and encourage them to work.

The process of forming abilities and skills becomes much more effective if to organize cooperative learning, which is based on joint activity and mutual understanding between the teacher and students. This kind of training using interactive technologies contributes to the formation of key competences of school students, increases the children intelligence, strengthens their belief in own abilities, stimulates activity and creativity.

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