EFFECTIVENESS OF USING INNOVATIVE TECHNOLOGIES IN MATHEMATICS TEACHING PROCESS

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Annotation. *This article talks about the effectiveness of using innovative technologies in the process of teaching mathematics. Examples of innovative technologies that can be used in the course of the lesson are presented. The issue of using didactic games in the process of teaching mathematics was analyzed. It was noted that the level of organization of lessons depends on the teacher's creativity. It is noted that didactic games provide an opportunity to individualize the work in the lesson, assign tasks to the strengths of each student, and develop his abilities to the maximum. It is said that through the game, students will consolidate the knowledge they have learned from the lesson and prepare to apply it to life.*

Key words: *Innovative technology, Private technology, "Classic couples" method, "Pair-to-couple communication" method, Puzzle method, "Mathematical market" game, "Find your partner" method, "Choose a litter" method, "Choose what you like" method.*

Currently, a lot of experience in traditional education has been accumulated, and research continues in the field of improving the traditional method of education, but its objective possibilities are limited. Reforms in the field of education, the rapidly developing requirements of Science and technology created a discrepancy in the need of society for the training of competitive highly qualified personnel, the formation of

a harmonious generation by the method of Education. It should be solved by applying other approaches to education.

Experts note that a student who has mastered mathematics well will have a higher level of analytical and logical thinking. He forms in himself the skills not only in solving examples and issues, but also in various situations in life, to quickly make decisions, discuss and negotiate, to do things step by step. Also, thinking inherent in mathematicians leads him to the level of predicting the development of what is happening in the future, tevarak-what is happening around him.

Taking into account the immeasurable role of mathematics in our life, this subject has been included in school textbooks from the first grade, focusing on improving the education of mathematics on the basis of modern requirements, introducing the latest pedagogical and innovative methods, multimedia tools and information and communication technologies in its teaching [1-2].

Education can also be organized on the basis of small groups, which implies a transition to a three-way interaction in the form of an educator-group-Educator. In Group teaching, the study group is divided into mobile subgroups by composition, and each of them absorbs the teaching material in its own way. A strong connection is established between the teacher and the students, a personal and at the same time collective mental state is enhanced.

In the group form of Education:

- The learning-cognition process is activated;

- The development and implementation of the potential capabilities of each learner is ensured;

- Student's knowledge is enriched in cooperation, problems are solved in cooperation, communicative development takes place in them;

- Working in a group changes the attitude towards those around them, allowing the reader to feel like a part of the group.

Groups of learners by character: mixed-group, structured by voluntary or abnormal symptoms; by educational level achievement; by psychologically overlapping level, by number: 2-5 people-for performing minor tasks; 5 – 7 people-for complex tasks, can be divided by time [3-20].

The first session of working in a group setting is decisive, in which it is important to adhere to the following conditions:

1. That the teacher defines the group himself.

2. Thinking about the most active and other readers who can be firmly guided.

3. Inclusion in each group of the most intelligent and capable students.

4. Also select students who are not active in the lesson and hide them in any group.

5. Meeting the leader with the group before completing the task.

6. Explanation of the task of the group and the leader.

7. Arrange for each group to sit in a circle (the members of the group should look at each other).

8. The teacher's walk around each group during working hours.

9. At the end of the discussion, the teacher will tell the feedback based on his own observation.

After organizing work in a group setting for the first time and getting students used to such work, the teacher can use various forms of Group Organization, game methods. Examples of some of the ways to divide into subgroups are.

The "Find Your Partner" way of forming a group. We divide a large group (or class) into four subgroups. In this case, concepts from four disciplines or fields are written on cards. For example in mathematics: function, fraction, sine, cosine, tangent, kotangens, logarithm may refer to; native speaker: grammar, syntax, morphology, noun, adjective, number, verb, pronoun; Related to the field of Education: words such as mental, moral, aesthetic, physical, legal, economic, environmental, labor and In psychology: words of intuition, perception, memory, attention, imagination, thinking, speech, temperament. Each student receives one card. Students (students) find their partners in the group to which they belong, and students who choose concepts related to one discipline or field merge into one group. Four groups of students are formed.

"Pocket selection" method of group formation. If the teacher wants to form a group of five, he will tell the students that they can get from one to five pieces of matchstick (which can also be any smaller item, stationery, simple chopsticks, pebbles, peas). Students may have received 1, 2, 3, 4, or 5 from the hut. Those who received one form Group 1, those who received two form group 2, those who received three form group 3, those who received four form Group 4 and those who received five form group 5.

"Choose what you like" method of forming a group. Having collected from the leaves of different trees (as many leaves as you want to form a group of several), students are offered to choose the desired leaf. If you want to form a group of five, five different tree leaves are offered, for example, the leaves of apple, apricot, Mulberry, poplar, willow trees. Those who choose the same tree leaf are united into one group [18-28].

Groups can also be made according to the season of birth again, depending on the flower, fruit or animal you like, and in other ways.

Working in small groups in general teaches students and students to be even more active, to feel responsible for the group, helps to develop communicative abilities.

Examples of questions asked to groups:

1. Commutativity property of the addition action:

$$\forall a, b \epsilon N_0 \ a + b = b + a$$

2. Assosiativity property of addition action:

$$\forall a, b, c \epsilon N_0 \ a + (b + c) = (a + b) + c$$

3. Reducibility property of addition action:

$$\forall a, b, c \epsilon N_0 \ a = b \leftrightarrow a + c = b + c$$

4. Monotonicity property of addition action:

$$\forall a, b, c \epsilon N_0 \ a < b \rightarrow a + c < b + c$$

The following positive results can be achieved when working in groups into subgroups:

● mutual information exchange is carried out regularly;

● gathering and sharing ideas and ideas is ensured.

In order to be able to apply the interactive method "work in small groups" in the educational process in the order given above, topics should be selected in which the parts allocated to the groups cannot be interconnected, that is, they can master the second or third parts without mastering the first part [1-28].

Advantages **-** this exercise helps students to identify the connection between the subjects studied at school, making it very convenient for students to learn the connection between the subjects with which they have already managed to do some preliminary work.

REFERENCES

1.Толипов Ў., Усмонбоева М. Педагогик технологияларнинг тадбиқий асослари. Ўқув қўлланма. Т.: 2006. – 163 б.

2. Н.А.Муслимов, М.Усмонбоева, М.Мирсолиева. Инновацион таълим технологиялари ва педагогик компетентлик. Ўқув-услубий мажмуа.

3. Boboyeva M.N., Qutliyeva Z.O. Formation of elementary mathematical concepts in preschool children. Journal of Global Research in Mathematical Archives. 11:6 (2019), p. 10-12.

4. Boboyeva M.N. Increasing creative activity of students by application of methods of analysis and synthesis in mathematics lessons. Research Jet Journal of Analysis and Inventions. 3:05 (2022), p.67-75.

5. Boboyeva M.N. Maktab matematika darslarida misol-masalalar yechish orqali turli kasblarga oid ma'lumotlarni singdirish. Science and Education 2:8 (2021), 496-504 b.

6. Boboyeva M.N. Differensial hisobning iqtisodda qo'llanilishini takomillashtirish istiqbollari. Science and Education 2:8 (2021),476-485 b.

7. Boboyeva M.N. "Matritsalar haqida tushuncha va ular ustida amallar" mavzusini ayrim interfaol metodlardan foydalanib o'qitish. Pedagogik mahorat Maxsus son (2021), 38-42 b.

8. Бобоева М.Н. "Чизиқли тенгламалар системаси" мавзусини ўқитишда муаммоли таълим технологияси ва "зинама-зина" методини қўллаш. Pedagogik akmeologiya. Maxsus son (2022) 67-74 b.

9. Марданова Ф.Я. Нестандартные методы обучения высшей математике. Проблемы педагогики. 53:2 (2021), С. 19-22.

10. Rasulov, R. X. R. (2022). Некоторые методические рекомендации по преподаванию темы об абсолютных непрерывных функциях. Центр научных публикаций (buxdu.Uz), 23(23).

11. Расулов Х.Р. Об одной квадратичной динамической системе с непрерывным временем // Тезисы международной научно-практической конференции «Актуальные задачи математического моделирования и информационных технологий» Nukus, May 2-3, 2023, Стр.286-287.

12. Rasulov, R. X. R. (2023). Вопросы формировании индуктивного мышления школьников. Центр научных публикаций (buxdu.Uz), 40(40).

13. Марданова Ф.Я. Математикадан фан тўгаракларини ташкил этиш ҳақида баъзи мулоҳазалар. Science and Education. 2:11 (2021), 870-882 бетлар.

14. Sayliyeva G. Talabalarning o'qitilayotgan fanlarga qiziqishini oshirishda foydalaniladigan samarali pedagogik metodlar //Ilmiy nashriyotlar markazi (buxdu. uz). – 2023. – Т. 44. – Yo'q. 44.

15. Gafurovna K. K. Some applications of the derivative of a function //Лучшие интеллектуальные исследования. – 2024. – Т. 19. – №. 3. – С. 7-12.

16. G'afurovna X. X. et al. Olmos panjaradagi diskret Shryodinger operatorining spektri//Journal of new century innovations. – 2023. – Т. 29. – №. 2. – С. 120-125.

17. Марданова Ф.Я.Технология преподования комплексного анализа с использованием математических пакетов. Лучшие интеллектуальные исследования. 22 (1), (2024),292-296.

18. M.F.Yadgarovna, X.M.Ismatullayevna. Keli daraxtida kombinatorik xossalar: daraxt qirralari misolida. d-muntazam daraxt ustida konturlar Journal of new century innovations 29 (5), (2023),185-187.

19. Xayitova X. Chiziqli tenglamalarni o'qitishda «aqliy hujum» va «kichik guruhlarda ishlash» metodlaridan foydalanish //Центр научных публикаций (buxdu. uz). – 2021. – Т. 8. – №. 8.

20. Sayliyeva G. Ehtimollar nazariyasi va matematik statistika fanidan "Ta'riflar, teoremalar, isbotlar, formulalar, misollar" usulidan foydalanish//Ilmiy nashirlar markazi (buxdu. uz). – 2021. – Т. 8. – Yo'q. 8.

21. Jumayeva C. Основы и способы развития речемыслительной деятельности школьников при обучении математике //Центр научных публикаций (buxdu. uz). – 2024. – Т. 45. – №. 45.

22. Jumayeva C. Local inner derivations on four-dimensional lie algebras //Центр научных публикаций (buxdu. uz). – 2024. – Т. 45. – №. 45.

23. Jumayeva C. "Jegalkin ko'phadi" mavzusini o'qitishda interfaol metodlarni qo'llash //Центр научных публикаций (buxdu. uz). – 2023. – Т. 44. – №. 44.

24. Марданова Ф.Я.Использование научного наследия великих предков на уроках математики. Проблемы педагогики. 6-51 (2020), С. 40-42.

25. Марданова Ф.Я. Рекомендации по организации самостоятельной работы в высших учебных заведениях. Вестник науки и образования. 95:17-2 (2020), С. 83-86.

26. F.Ya. Matematika fani olimpiadalarida tayyorlash bo'yicha uslubiy ko'rsatmalar. Science and Education. 2:9 (2021), 297-308 betlar.

27. Марданова Ф.Я. Масалалар ечишда тенгсизликларнинг айрим тадбиқлари. Science and Education. 2:11 (2021), 50-56 бетлар.

28. Mardanova F.Ya. Maktab matematikasida algebraik tenglamalarni yechishni o'rgatishda interfaol usullarni qo'llash. Science and Education. 2:11 (2021), 835-850 betlar.