

WAYS TO DEVELOP MATHEMATICAL THINKING USING INNOVATIVE EDUCATIONAL TECHNOLOGIES

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Annotation. In this article, the effectiveness of intensive and innovative technologies in mathematics is covered by the efficiency of students and their positive impact on the education of students and the place in the teacher's pedagogical career. The study analyzes opportunities for the formation of mathematical computers on the basis of modern classes, digital means, and interactive approaches.

Keywords: Mathematical Education, Intensive Technologies, Innovative Methods, Interactive Teaching, Student Activity, Digital Tools, Efficiency of Education.

Today, the rapid changes in the field of education are demanding that teachers abandon traditional approaches and apply innovative and intensive technologies. In particular, modern methods need to use modern methods to increase the activity of students and systematic science, such as mathematics and develop independent thinking.

Intensive educational technology is ways to highly organize the educational activities in order to achieve the maximum result in a short time. This technology is based on the following principles:

- Concentration - attention is paid to basic knowledge and skills.
- An activity is becoming a student becomes an active participant in the lesson process.
- Outcome in a short time - mastering the maximum period in a short time.

Examples:

- "Quick thinking" exercises
- "Mathematical Express-trainings"
- Game Competent Tests

Innovative technologies are a set of methods that will increase the interest and the interest and motivation of students, which bring new approaches, and increase the interest and motivation of students.

Mainly views:

- Interacting a lesson class using means such as information and communication technologies (ICT) - Geogebra, Desmos, Kahoot, Padlet, PLICKERS.
- Digital platforms - effective organization of remote and mixed training through Moodle, Google Classroom, via Zoom.
- Games - Gamification, Maths Questions, interactive quizzes.
- Steel approach - mentions mathematics, computer science, technology and engineering through practical projects.

The efficiency criteria. The use of intensive and innovative technologies leads to the following results:

If the learner activity is low in the traditional method, it will be highly in an innovative intensive method;

If the interest in lesson is moderated in the traditional way, the growing color in an innovation approach can.

The strength of knowledge is a strong and systematically in an innovative way, if the strength is temporary. If independent thinking is actively formed in the traditional approach, when an innovative method;

Skills and competencies will be developed and practical in an innovative intensive method, if they are limited in the traditional way.

Practical recommendations

- Use at least one interactive method in each lesson (including test games, experiments).
- Automatic assessment of exercises through digital means.
- Forming cooperation skills through group work.
- Leading to students work on mini-projects or real life issues.

1. Systematic use of interactive methods in class

- At least one innovative or interactive method should be set in each lesson plan.
- For example, through methods such as Insert, Insert, Insert, Fishbone, Cluster, Discussion, Disputed Question,
- These technologies not only make the study, but also enhance independent thinking.

2. Integrating the digital technologies in the educational process

- The use of digital platforms such as Geogebra, Desmos, PLICKERS, KAHOOT, KUISZZ, the use of digital platforms such as geogebra, dement, desso, pilickers, kahoot, cuzisms use the use of digital platforms in math classes.
- They will be easier to draw graphs, solve equations, conduct interactive tests.
- Allows students individually to provide assignments and watch their results online.

3. Organize the lesson on the basis of problematic situations • Pupilization skills develop by making a problem on real-life issues on the basis of real life issues.

- For example, "Interest calculations based on the price of store," Find speed through the distance "," priorities using "payment plans" are assignments.
- Through this style, the lesson draws close to life, understands the need for the subject.

4. Establishment of a group of work and collective projects

- Through work in small groups, students are exchanged with each other, cooperating with the problem.
- Mathematical project: "Calculation of distance and travel expenses on the city's map", "Family budget analysis" on the basis of family budgeting "," Make a lay from geometry through forms. "
- Leadership, dialogue and present skills will also develop in collective work.

5. Introduction of gamification elements

- The elements of the game encourage students, evoke the sense of competition.
- Using the scoring, mark, mark, level, and a prize, students are actively involved in lesson.
- For example: "Mathematics quizzes", "Who fast, who is right?", "Who are accumulating" is performed through games such as "Coins."

6. Education based on mini-projects and tasks

- Through the method of "Project-Based Learning, a topic is given to students in the form of practical assignments.
- Examples:

o Salt (size, price, field, volume, field, field, price repair sales "

O "Calculations in buying from market" (value, percentage, surplus)

O "Turning mathematics into art - creation of collages from geometric shapes"

7. Introduction of lesson analysis and feedback (Feedback)

- To create an opportunity for students to express their opinion after each lesson.
- "What I like in today's lesson", "I don't understand," to discuss through questions such as "the offer I want."
- Through this, students are taken into account and lessons develop constantly.

In short, the use of intensive and innovative technologies in math education plays an important role in improving the quality of knowledge of students as a person who is an independent thinker, creative and critical analyst. These approaches expand the territory of pedagogical innovations for the teacher, increasing the effectiveness of the lesson.

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