

USING INNOVATIVE TECHNOLOGIES IN THE METHODOLOGY OF DEVELOPING PUPIL'S TECHNICAL CREATIVITY

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ABSTRACT

The article analyzes the implementation of actions aimed at developing students' technical creativity, the stages of conducting modern lessons, and the methods of using innovative technologies in the learning process.

KEYWORDS

Robotics, modern education, virtual laboratory, divergent, convergent, online platform, project work.

INTRODUCTION

The modern education system has set one of its main goals as the development of students' technical creativity. Technical creativity not only allows students to solve problems but also to develop new and innovative ideas. Using innovative technologies in this process elevates students' knowledge and skills to a new level. This article examines the methodology of using innovative technologies to develop technical creativity.

Innovative technologies represent advanced methods and tools used in the learning process. These

technologies enable students to acquire new knowledge and skills more quickly and effectively. Below are some innovative technologies used to develop technical creativity:

1. 3D Printers - Enable students to bring their projects to life. Through this technology, students learn to transform their designs into three-dimensional objects.
2. Robotics - Programming robots helps students develop algorithmic thinking and problem-solving skills. This technology is very effective in enhancing technical creativity.



3. Arduino and Raspberry Pi - Used to teach the basics of electronics and programming. These platforms provide students with the opportunity to create various technical projects.

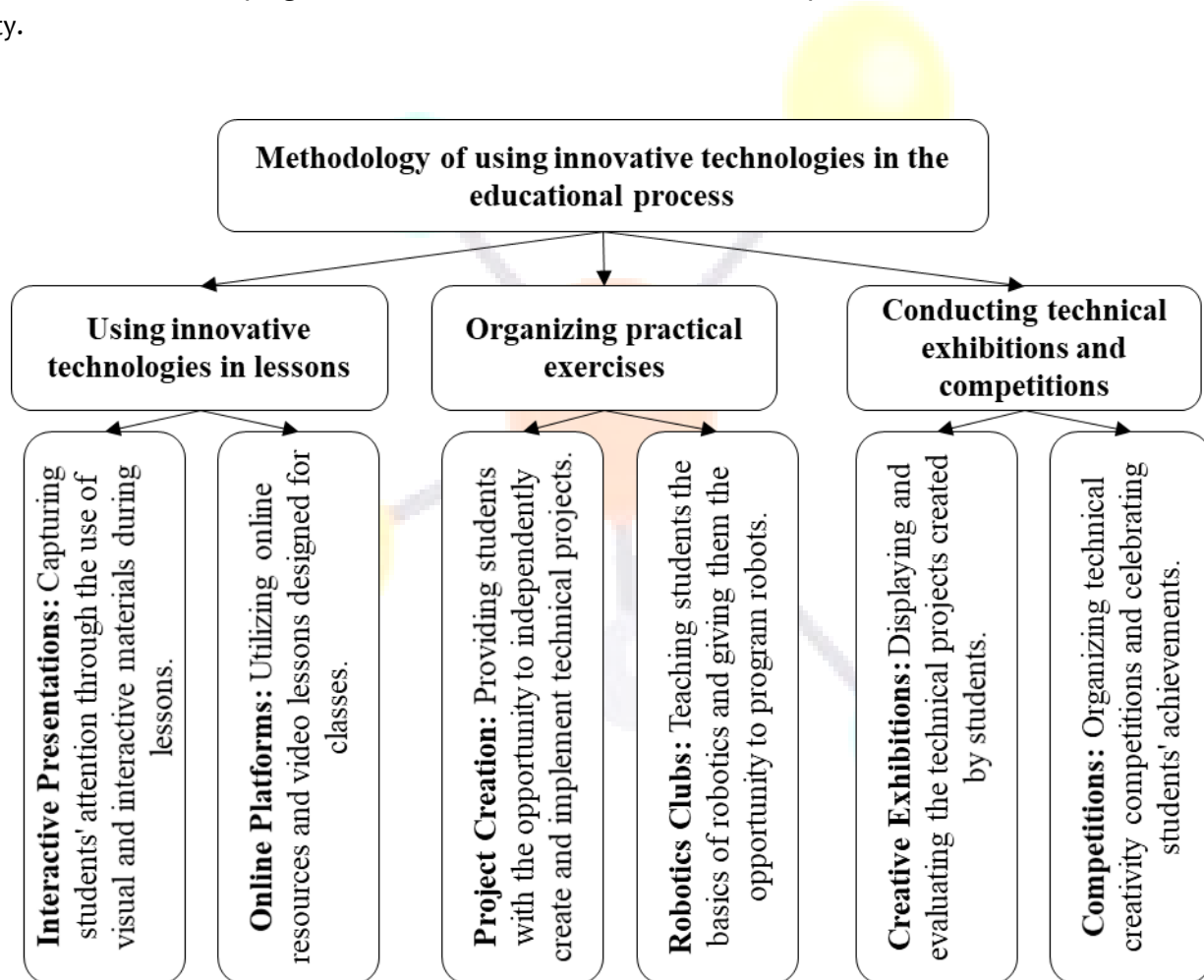
4. Virtual Laboratories - Allow experiments to be conducted in real conditions. This environment helps students test their theoretical knowledge in practice.

Divergent and convergent thinking methods play a significant role in developing students' technical creativity.

Divergent thinking gives students the opportunity to come up with various ideas and approaches to solve a single problem. This method develops students' creativity and broad thinking abilities.

Convergent thinking directs the problem towards a precise and correct solution. This method enhances students' analytical abilities and logical thinking.

Methodology of using innovative technologies in the educational process



The methodology of using innovative technologies includes the following stages:

1. Using Innovative technologies in lessons:



- Interactive Presentations: Using visual and interactive materials in the lesson process to capture students' attention.

- Online Platforms: Online resources and video lessons designed for classes.

2. Organizing Practical Exercises:

- Project Creation: Giving students the opportunity to independently create and implement technical projects.

- Robotics Clubs: Teaching students the basics of robotics and providing them with the opportunity to program robots.

3. Conducting technical exhibitions and competitions:

- Creative Exhibitions: Displaying and evaluating the technical projects created by students.

- Competitions: Organizing technical creativity competitions and celebrating pupils achievements.

Methodology of using innovative technologies in the development of students' technical creativity:

Stage 1: Familiarization with the technical task and its analysis.

In this stage, students need to master the basic parameters necessary to solve the project task. The

analysis of the creative task allows students to determine the conditions for using the item, i.e., what function it is intended to perform. To help students find the design solution of the item more easily, the teacher discusses the achievements and shortcomings of similar projects with the students.

Stage 2: Preparing technical documents appropriate for the pupils level.

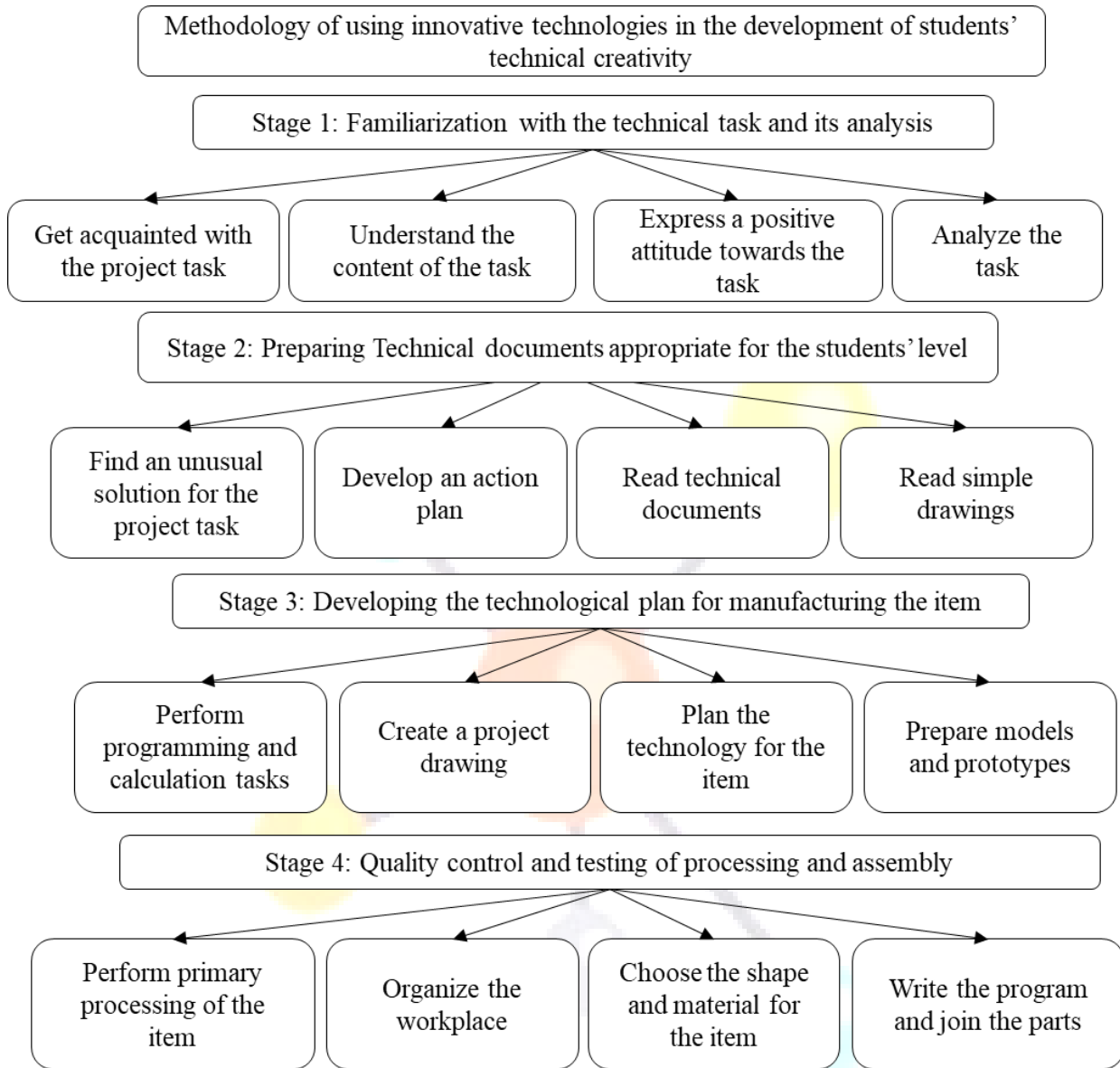
In the second stage, students start creating the design scheme of the item. It is important that students know how to read simple drawings and create design schemes before starting the second stage. The design scheme of the item must be created in accordance with state standards.

Stage 3: Developing the Technological Plan for Manufacturing the Item.

In this stage, students write programs for the item, perform calculations, create the design drawing of the item, plan the technology, model, and prepare the prototype.

Stage 4: Quality Control and Testing of Processing and Assembly.

While completing these stages, students are required to creatively apply technical skills.



Based on the created scheme, students who have a good understanding of the function and use of the item start developing the project, determining its main dimensions, performing simple calculations, choosing the shape and material of the item, programming, and performing the attachment methods.

An electronic platform called "Texnorobot" was developed to be used in lessons to develop students' technical creativity during technology subject lessons.

The innovative activity of the teacher serves as a driving force that motivates and encourages the pedagogical team, and it guarantees the quality of the educational process. Therefore, each teacher must



understand the essence of innovations fully and apply them consistently in their activities to ensure that the educational process progresses both in terms of quality and efficiency. This, in turn, ensures the development of the education system.

CONCLUSION

Using innovative technologies in developing students' technical creativity plays an important role in enhancing their creative thinking, practical skills, and technical knowledge. Teaching through modern technologies and interactive methods makes the learning process interesting and effective. This methodology aims to improve the quality of education by implementing measures to develop students' technical creativity and contribute to their future success.

This methodology not only deepens students' technical knowledge but also enhances their creative potential. Additionally, this process creates opportunities for teachers to apply new approaches

and methods, which helps improve the overall quality of education.

REFERENCES

1. Nasrullayeva F.A. Development of Technical Creativity In Robotics Classes // Journal of Creativity in Volume: 1 Issue: 1 Year: 2023 Art and Design // –B.136–138.
2. Nasrullayeva F.A. Robotics in their classes technical creativity in development used methods technology // AJRCS Intersections of Faith and Culture: American Journal of Religious and Cultural Studies Volume 01, Issue 03, ISSN (E): 2993–2599 //– B.81–83.
3. “Creativity and Innovation in Science and Technology Education” by Mehmet Aydeniz and Michael Stone (2023)
4. “Creativity and technology in teaching and learning: a literature review of the uneasy space of implementation” by Educational Technology Research and Development