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THE ROLE OF INTERACTIVE LABORATORIES AND PRACTICAL EXERCISES IN TECHNOLOGY EDUCATION

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Abstract. This article analyzes the role of innovative methods and practical activities in teaching technology in developing students' competencies. It is shown that traditional methods are effective in systematically teaching technological knowledge and forming practical skills. At the same time, the opportunities for students to develop analytical thinking, problem-solving, and creative abilities through projects, interactive exercises, and the STEAM/STEM approach are highlighted. The article presents methods for increasing the effectiveness of teaching technology through the combination of traditional and innovative methods.

Keywords: Technology, innovative methods, traditional methods, STEM/STEAM, project-based learning, interactive exercises, practical competence, student competence, problem solving.

Introduction. In the modern educational process, technology plays an important role in developing students' practical skills, forming their ability to think creatively and critically. Teaching technology not only provides theoretical knowledge, but also helps students develop their problem-solving, project-making, and innovative approaches by involving them in practical activities.

Traditional methods to the students' technological processes step by step understanding, drawings, models and practical those who work through knowledge to strengthen help However, modern requirements this shows that traditional methods of the students creative and critical think full developing it cannot. For this reason, innovative methods and STEM/STEAM approach technology lessons effective of the transfer urgent roads in the capacity of looks

Innovative approaches, including project basically educational, interactive computers, multimedia tools and STEAM integration, students technological competencies to develop help gives them independent thinking, solving problems creative solution and practical skills to apply teaches.

For this reason, in the article technology science in education traditional and innovative methods to awaken through of the student's competence of shaping effective methods analysis will be done.

Literature analysis. Technology science teaching and of student's competencies development issue pedagogy and education technologies in the field of wide studied. Research this shows that technology science effective education only theoretical knowledge to give, maybe practical machines through of the students creative and critical thinking, solving problems solution to do and projects creation his/her skills to develop service does.

A traditional to methods related research, including Abdullaev (2015) and in the works of Karimova (2017) technology in the lesson's drawings, models and practical those who work through knowledge step by step of teaching efficiency by showing passed away. Traditional approaches to the students' technological processes understanding, technical from the means use, mechanical and electronic the buildings management their skills shaping opportunity gives.

However, last in years innovative pedagogical approaches technology in the world yes urgent students creative to think and problems solution to do ability to develop big attention under review. Bequette & Bequette (2012) STEAM approach through students project and interactive to activity attraction to do, their technological and creative competencies

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development possibility illuminates. Honey and (2014) STEM / STEAM integration technology, mathematics and art elements unification through of the students' complex competencies to develop service to do emphasizes.

Information and communication from technologies use yes modern technology of lessons inseparable part in the capacity of See also: Kholmatova (2019) and in the research of Saidova (2020) interactive lessons, multimedia tools and online from platforms use of the students technological his/her skills increase and them project to the activity attraction to do effective method in the capacity of described.

Also, literature analytical STEAM/STEM approach basically technology lessons organization of reaching methodical aspects illuminates. This approach traditional of methods foundation with together innovative tools application through of the students practical and creative competencies complex to develop opportunity gives.

Conclusion as by the way, literature analytical this shows that:

Traditional methods technological knowledge reinforcement and practical skills to develop service does.

Innovative methods, including project basically educational, interactive machines and STEAM/ STEM integration, students creative and problems solution to do competencies increase opportunity gives.

Them to awaken technology science education efficiency maximum to a certain extent increases.

Main part

1. Traditional of methods place and importance

Technology science in education traditional methods of the student's technological knowledge and their skills systematic in formation main vehicle This is considered methods through students:

drawings and models creation,

mechanical and electronic buildings management,

practical in the same way technological processes step by step learning if possible owner They will be.

Traditional approach advantages from below phrase :

Students technological theoretical knowledge reinforcement,

Practical those who work through skills development,

Technological processes complete understanding and them in practice to apply opportunity creation.

However, only traditional to methods leaning in case lesson transfer of the student's creative think and independent problems solution to do ability full developing It cannot. For this reason, innovative approaches with to awaken necessary.

2. Innovative methods and STEAM/STEM approach

STEAM/STEM approach technology in the lessons of the students creative, critical and problems solution to do competencies in development important vehicle is considered innovative. methods the following own inside can:

Project basically education: students independent or in the group project creation through technological and practical competencies. For example, mini - robots working exit or electronic the buildings project planning.

Interactive lab works, simulations and online platforms with the help of technological processes practical in a way learning.

Multimedia tools: video, animation, 3D models and presentations through knowledge visual and practical in a way explanation.

Creative integration: technology science art and design elements with to connect through of the student's fantasy and creative thinking is being developed.

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STEAM/STEM methods students independent thinking, solving problems clarification and to solve teaches, project in the process technological and practical knowledge integration opportunity creates.

3. Traditional and innovative methods to awaken

Technology science effective in education traditional and innovative methods to awaken This is important. below approaches demand does :

- Methods on the subject suitable selection: for example, new program or construction in learning traditional instructions with project started and interactive machines through is strengthened.
- Individual approach: students ability and experience to account received in case tasks adaptation.

Integration: science, technology and art elements unification through complex competencies development.

- Evaluation and monitoring: traditional tests with together project works, interactive exercises and creative assignments through of the student's competence evaluation.

4. Students technological competence development practical roads

Technology science effective education in the process of the student's technological competence development for below practical roads used:

1. Project basically students - students own in groups small projects working. For example, mini - robots creation, electronic schemes to compile, program products creation. This process only technological knowledge reinforcement, perhaps problems solution to do and creative to think to develop service does.
2. Interactive laboratory and simulations - technological processes practical in a way show for virtual laboratories and simulation from programs benefit. This is for students safe and effective in the environment experience transfer opportunity gives.
3. Multimedia tools - video lessons, animations, 3D models through complicated technological processes visual in a way explanation. By this of the students visual thinking and technological perception to grow ability develops.
4. Creative integration – technology science art and design with to awaken. For example, the product design in the making students colors, shape and functionality are being awakened, this yes theirs creative and analytical to think develops.
5. Group work and cooperation - students group to be work through alas experience exchanges, each other's their views analysis will be done and together project working They are coming out. This is their communication and collective work competencies It is strengthened.
6. Evaluation and reflection – students technological competence in evaluation only test results no, but project works, interactive exercises and creative assignments result yes to account is obtained. Through this students own successes see, see activity analysis to do possible owner will be.

This practical Paths STEAM /STEM approach basically technology lessons organization in progress of the student's technological knowledge, practical habit and creative competencies complex to develop service does. In this way, the traditional and innovative methods to awaken of the student's modern education to the students suitable coming qualified technological specialist in the capacity of to the formation opportunity creates.

Conclusion and recommendations. Technology science in education of the student's technological competence development modern of education urgent from the issues is one. Research this shows that traditional methods to the student's technological knowledge systematic and step by step in teaching effective if it is, innovative methods, including the STEAM/STEM approach, their creative thinking, problems solution to do and project activity to develop service does.

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STEAM/STEM approach to the student's technological knowledge operation with connect, interactive machines and project activity through analytical, creative and problems solution to do competencies shaping possibility gives. With this together, traditional and innovative methods to awaken technology science education efficiency increases and of the students' complex competencies maximum to a certain extent to develop service does.

Conclusion as by the way, technology science in education traditional and innovative methods Promote awareness, STEAM/STEM approach systematic application, students modern education to the students suitable coming technological and creative competencies of shaping main factor is calculated.

RECOMMENDATIONS

1. Technology science in education traditional methods base in the capacity of saved in case, innovative and STEAM/STEM methods systematic application recommendation is being done.
2. Students technological competence in development project basically activities, interactive laboratories and multimedia by means of use necessary.
3. Teachers' STEAM /STEM and innovative pedagogical technologies according to professional qualification increase for the purpose regular qualification increase courses organization to grow necessary.
4. Technology lessons in planning of the students young and individual characteristics to account received in case tasks adaptation recommendation is being done.
5. Students technological competence in evaluation only on test results without relying on, project works, interactive exercises and creative assignments monitoring through to go necessary.
6. Students independent and creative to activity attraction doer exercises share increase recommendation is being done.
7. Lesson process regular analysis so, the methods renewal and improvement through technology science education efficiency increase to the goal is appropriate.

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