

TRIZ — THE KEY TO CHILDREN'S THINKING: INSPIRING CREATIVE THINKING IN ELEMENTARY SCHOOL

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Abstract

This The article describes the use of TRIZ technology school students , creative his/her thinking in development importance analysis will be made in the article TRIZ main principles , them start education to the process integration to do methods and training in the process creative problems solution skills formation roads seeing is released . In the study national and international literature studied , TRIZ students motivation positive impact and effective lesson modules create according to practical recommendations working was released . Results based on education TRIZ technology in the process current to grow through of the students critical thinking abilities , problems solution to grow skills and creative approach increase opportunity existence shown .

Key words

TRIZ technology , creative thought , beginning education , school students , problems solution , pedagogical technologies , education process , critical thinking .

Login : New Uzbekistan progress in the strategy education to the field separately attention aimed at is innovative approaches and intellectual potential development – national of the idea important from the pillars is one . The state programs and education reforms step by step done increasing in time pedagogy in the field modern methodologies , in particular TRIZ technology integration to do necessity TRIZ (Russian : Теория) is increasing . Solutions Izobretatelskikh Task – problems solution and creative thinking to develop aimed at systematic methodology to be , academic and practical at the level wide is being used .

This The article describes the use of TRIZ technology school of the students thinking ability in formation role and educators preparation to the process impact theoretical basically is studied . Main goal – New Uzbekistan the concept of TRIZ in the conditions school to the environment adaptation for conceptual pedagogical model proposal to grow and future educators for necessary skill and qualifications is to determine .

Literature Comment : TRIZ (Inventions the problem solution to do theory) technology initially industry in the field problems systematic analysis to do and creative solutions working exit for the purpose created today on the day education to the field deep are integrating . This technology founder Henry Altshuller and he/ she /it TRIZ every how problem creative and systematic basically solution to grow tool as previously driven [Altshuller , 1984].

TRIZ technology in Uzbekistan in education opportunities to study aimed at scientific research is also taking shape In particular , Gulomava G. (2022) in his TRIZ technology in the article elementary education to the process integration students independent thinking , problematic to situations creative approach and decision acceptance to do skills in formation importance deep

analysis Author 's states that the TRIZ principles include "ideal final result " and " contradictions eliminate " based on " used without lessons organization If done , students not only think , maybe training motivation also increases .

Ga'ofurova D. (2023) and own TRIZ methods in research elementary class students creative his/her thinking in development role wide comprehensive learned It is based on TRIZ. training through in students free thinking , problem various roads with solution to do attempt , new ideas previously push skills is taking shape scientific basically showing He also gave the TRIZ methodology with lessons in design pedagogical approaches and motivational factors awakening importance emphasizes .

By Kurbanova N. (2023) written in the article and TRIZ technology modern STEAM approach with integration about word He goes to this technology start in education project affairs and practical assignments with harmonization through in students systematic and critical thinking formation possible Especially Kurbanova own TRIZ- based research roller games , in groups problem solution methods and visual thought maps through students cognitive in capacity noticeable positive changes record that was done brought .

Conclusion as in other words , TRIZ technology education to the process enter As he arrives , he is among the students . not only creative think , maybe systematic approach , critical thinking , decision acceptance to do and himself manifestation to grow such as competencies in development effective to the tool is spinning . This technology start to education adaptation and modern pedagogical reforms for important from directions one is considered .

Methodology : This of the article methodological basis theoretical-analytical approach organization will . Subject within previously pushed scientific views , TRIZ technology pedagogical opportunities , as well as intellectual potential personnel in preparation modern trends deep studied . Main goal — start in education students thinking ability TRIZ technology in development based on future of educators readiness scientific is justification .

Theoretical analysis in the process local and foreign authors works , scientific articles , methodological manuals , regulatory and legal documents and state education programs studied . GS Altshuller by basis TRIZ technology main principles , their in education application roads systematized . From now on outside , creative pedagogy , problematic education , divergent thinking and alternative solutions working exit such as concepts basis as received .

Research during following main methodological from approaches used :

- *Systematic approach* – TRIZ all elements each other related pedagogical system as seeing to go out help gave ;
- *Cognitive approach* – students mental potential to develop directed idea to conduct forms and strategies analysis to do basis it has been ;
- *Innovative approach* – education TRIZ technology into the process in integration pedagogical news and progressive experiments attention to take opportunity gave ;
- *Comparison analysis* – available approaches with TRIZ comparing them efficiency determination opportunity gave .

Methodological basically take visited analyses this shows that TRIZ technology through elementary in education not only creative think , maybe independent thinking , problem relatively various look and innovative solutions working exit ability is formed . Therefore , the

future educators this technology deep understand it to practice implementation to do ready to be important .

Research during there is approaches based on problems identified and identified eliminate to grow roads according to theoretical offer and recommendations was formed . This recommendations education quality and intellectual potential personnel preparation system further to improve focused .

Home Part : Today on the day New Uzbekistan in progress innovative thinker , problem solver analysis do recipient , independent decision acceptance doer intellectual potential young generation upbringing priority from directions This is one of them . school at the stage of the students his/her thinking to form them to think , analyze to do and creative to approach guide from technologies In this regard , TRIZ technology requires the use of to education current to do It is a pressing issue . remains .

TRIZ is " Creative problems solution " theory " was introduced in 1946 by the Soviet engineer GS Altshuller by working TRIZ technology main goal — problem standard without approaches , innovative in a way solution to do This technology is to the students every how problem in solution creatively approach , systematic analysis and logical thinking teaches . Exactly this aspects today's on the day intellectual potential personnel in preparation necessary skills to the point enters .

TRIZ technology following main to principles relied on without works :

Systematic approach – problem whole system within seeing exit

Contradictions through solution find – in the problem contradictions solution is the key .

From resources effective use – available opportunities and from tools maximum result release

Ideal final result – problem the most perfect in a way solution to grow the ways find .

Start drinking education based on TRIZ lesson to give in the process first of all them problem according to to take , then him/her analysis to do and independent solution to find For example , simple fairy tale or vital event based on to the students questions to give , situation analysis , " what to be possible " was it ? " questions through thoughts redirect possible . In this process teacher 's role important : it is a guide , questions with to think instigator to be necessary .

TRIZ technology to education integration in doing following pedagogical methods are effective :

- Problematic situations create
- Role games (creative) scenarios via)
- Socratic interviews (questions and answers) based on analysis)
- Analytical tables and graphs to compose
- The contradiction to him / her solution offer to do exercises

Through TRIZ students thinking deepens , they own their views basically obtainable , alternative acknowledging thoughts and own point of view his/her opinion protection do can to the person They are spinning . This is their not only current study to the activity , but future professional also positive for the formation impact does .

From this In addition , TRIZ technology national education to our program customized in case application necessary . Because every one study institution to oneself typical training environment and cultural context available . TRIZ conceptual approaches national values , Uzbek people creativity to the samples tied without application further more efficient the results For example , Uzbek people in fairy tales problematic situations based on analysis transfer through in students not only think , maybe national Pride is also formed .

So so , TRIZ technology not only sciences mastery process , but student's personal intellectual potential in development strong tool become service This technology through future educators modern and effective education environment to create Therefore , the teacher personnel preparer supreme education institutions use TRIZ technology deep study and to practice implementation to grow according to separately directions working performances necessary .

Conclusion and Recommendations : Above analyses based on conclusion to do It is possible that TRIZ technology school to education integration in students creative thinking , problematic to situations effective approach and systematic analysis skills to form service Especially education TRIZ principles in the process based assignments , analytical exercises and problematic situations based on lesson organization to grow the students active to think encourages them intellectual to develop positive impact shows .

This in the article learned scientific-theoretical sources analysis , available experience and TRIZ technology from the essence come out , following suggestions previously push possible :

Education TRIZ elements in the process systematic Use : TRIZ principles within each discipline suitable methodical instructions working exit necessary .

Start drinking and middle education training TRIZ technology to programs based on structured assignment and training input : Students young and psychological to the characteristics customized materials working exit to the goal according to .

Pedagogical personnel in preparation To TRIZ related special courses current to be : Future teachers creative to think redirect and TRIZ technology to master help gives .

National values with Harmonized TRIZ approaches : People fairy tales , proverbs , historical individuals to the activity based problematic assignments students his/her thinking in development effective tool be takes .

Based on TRIZ created lesson developments , methodological manuals and electronic resources base Create : This is for teachers own work in the activity use for clear , effective sources presented will reach .

In general In short , TRIZ technology in students thought culture to form , their independent thinking and problems creative solution to grow potential increase for modern , scientific based and pedagogical in terms of effective tool is considered . In the thesis statement done recommendations to practice current if it is done , this school education of quality to increase , as well as to advance pedagogical technologies implementation to grow according to to the formation of a national model service does .

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