INTERNATIONAL MULTIDISCIPLINARY JOURNAL FOR RESEARCH & DEVELOPMENT
SJIF 2019: 5.222 2020: 5.552 2021: 5.637 2022:5.479 2023:6.563 2024: 7,805
eISSN :2394-6334 https://www.ijmrd.in/index.php/imjrd Volume 11, issue 05 (2024)

SCIENTIFIC METHODOLOGICAL PRINCIPLES OF FORMING TECHNICAL CREATIVE SKILLS OF TALENTED STUDENTS

Nematova L.Kh.
Bukhara Engineering-Technological Institute, Bukhara. Uzbekistan.
e-mail: qaxa8004@mail.ru

Keywords: technical creativity skills, gifted students, strategy, critical, Social Media Marketing (SMM), podcast, Tedtalks. Keywords: technical creativity, gifted students, strategy, criticism, Social Media Marketing (SMM), podcast, Tedtalks. Key words: technical creativity skills, talented students, strategy, SCAMPER, method, critical, Social Media Marketing (SMM), podcast, Tedtalks.

Enter. In order to effectively implement the creative approach in the higher education system, it is necessary to create a special curriculum that reflects the main aspects and ideas that reveal the rules, concepts, facts and cognitive and creative tasks in the forms of independent education that activate the creativity of students. By organizing the educational process on the basis of a creative approach, it is possible to ensure systematicity in the interaction of various didactic connections between educational topics and subjects. Today, when the development of creative abilities of talented students is being looked at from a new perspective, special attention is paid to setting educational goals in the teaching of subjects based on a creative approach in modern education, the affective field is gaining more importance. Analysis of literature on the topic (Literature review). We set the goal of achieving the quality and efficiency of education based on the formation and development of students' technical creativity skills. In the implementation of this goal, the pedagogical conditions for the formation of technical creativity are implemented first of all by means of tasks such as searching for, identifying and selecting talented students, i.e., students who are talented technical creative students through questionnaires, tests, and submissions that help to determine technical creative abilities. Technical creative abilities of talented students are formed by organizing educational and methodical work in class and outside of class.

In the creation of technology for the formation of technical creativity in the lesson:

■ use of methods that form technical creativity;

■ making presentations-demonstrations;

■ online and offline seminar trainings;

■ organization of practical mobile training (at production enterprises);

■ work individually and in small groups;

■ developing a system of tasks and problems;

■ is achieved by conducting educational and practical training.

The use of methods that shape technical creativity is one of the criteria for organizing an effective educational process. In particular, "Critical thinking development" method, "SCAMPER" strategy, "Violent attack of thoughts" and "Paradoxes", "Classic couple strategy" methods are among them. The content of the "Critical thinking development technology" method is that it is a complex thinking process that begins with the assimilation of information and ends with drawing a

conclusion. However, critical thinking is a pedagogical technology aimed at developing the ability of students to work with text, to master oral and written speech, and to act together with their classmates on this text as a higher level of cognitive activity.[1-5]

Critical thinking is a set of strategies that can change the mindset of the learning audience, that is, the lesson becomes the creativity of the teacher and the students. The "Violent attack of thoughts" method can be successfully applied in the course of training organized in social, humanitarian and specialized disciplines. Training based on the use of this method is organized in several stages. In the process of using the method of "violent attack of ideas", the following situations occur:

■ to achieve thorough assimilation of certain theoretical knowledge by students;

■ save time;

■ encourage every student to be active;

■ they can develop the ability to think freely.

SCAMPER mnemonic scheme substitute, combine, adapt, modify, maximize/minimize, put to other uses, We managed to develop students' creative thinking skills based on the use of strategies such as eliminate (prevent) and rearrange (change their application). Paradox (from Greek "paradox" "unexpected; strange", - Greek "para" "against, opposite" and - Greek "dox" "opinion; conjecture") in a broad sense - something that deviates from the generally accepted opinion and seems illogical or contrary to reason (often with only a superficial understanding) refers to such concepts as a new statement, opinion, reasoning. The content of the method of paradoxes ensures that students face contradictions (in concepts, knowledge) in the course of the pedagogical exposure. Such a situation is mainly related to misconceptions and mistakes in the student's understanding. So, this problematic situation is a paradoxical situation that contradicts the students' previous thoughts, understandings and conclusions. A student who can think creatively can determine that the action itself is a mistake, not the process of doing it (if such a student is not found, the teacher himself will have to reveal it).

Research methodology (Research Methodology). The "Classic couple strategy" method is a form of cooperative learning technology. It is an education that represents the joint acquisition of knowledge, mutual development, and cooperative organization of the "teacher-student" relationship in the educational process by students in teams, small groups and pairs:

■ its main idea is to perform educational tasks together in pairs, in mutual cooperation.

Its essence:

■ organization of relations based on educational cooperation;

■ individual approach to students based on humanitarian ideas;

■ it is expressed by achieving a decision of professional and spiritual unity in the educational process.

This method promotes the goal of forming a worldview in students based on the development of intellectual, spiritual-moral, physical abilities, interests, and motives. The primary principles of education in the "Classic couple strategy" method are as follows: 1. The mutual unity of the pair, according to which, in the educational process, the educational material is mastered by the pair

based on their mutual actions, the pedagogue creates the necessary conditions for their effective and thorough assimilation of the integrated educational material based on the formation of the pair.

2. Each member's responsibility for personal and collaborative success in a pair ensures mutual, joint learning of learners and creates a favorable environment for each student to fully realize his or her inner potential in a pair. General assessment, responsibility for the result, responsibility for success of the classical pair work are its strategically important aspects.

3. The organization of learning and learning activities based on cooperation in a classical pair, in which the organization of learning and learning activities of students in pairs is ensured both in theoretical and practical activities. In theoretical classes, pairs of students are given relatively uncomplicated tasks that can be solved in a short period of time, while in practical classes, somewhat complex tasks are given. In both cases, students focus on the effective performance of educational tasks and thorough mastering of educational material, concentrating opportunities in pairs.

4. General assessment of the couple's work. According to cooperative education, the performance of all students working in pairs is evaluated directly on the basis of the total performance of their partner. This situation serves to increase the responsibility of each student. After all, each student's activity, approach, and activity make a worthy contribution to increasing the efficiency of the pair's activity. [6-10]

When using it, the main ideas, basic concepts, and important features of the subject are covered based on small text, tables, pictures, schemes and diagrams. Presentations and demonstrations help to develop the ability of creativity by forming an image of the subject in the minds of students. The organization of practical mobile training (in production enterprises) has its important importance in the direct formation and improvement of technical creativity skills of students. Such mobile trainings connect the student's theoretical knowledge and skills, expand and strengthen the creative mind. Organization of methodical works that develop the technical creativity of students outside of class, as well as the establishment of clubs and "Technical creativity center" activities in the development of educational and methodological materials, ensuring the participation of students in scientific practical conferences, participation in international and republican innovation contests, science by organizing participation in the Olympiads, we were convinced that it is possible to achieve the formation of technical creativity skills and qualifications through them. In order to achieve the quality and effectiveness of education based on the formation and development of the technical creativity of talented students, it is necessary to perform a number of tasks.), development of personal qualities to fully reveal technical creativity skills. The term SMM is formed from the initial letter of the words Social Media Marketing. This field refers to marketing in social networks.

Efforts to promote a site, product or service on any social network can be an example of SMM. The SMM Pro course includes the following sections: marketing theory, basic skills in digital marketing, in-depth SMM strategy, technical skills for working on different platforms, using Google services, enhanced targeting lessons, team work and supervision, influence marketing and PR, YouTube marketing. Programming is a science that deals with solving problems in electronic machines and developing the theory and methods of performing various types of mental work in them. One of the main tasks is the methods of creating a program for electronic machines, checking and improving them. The algorithm of the problem to be solved is transferred to "machine language" in programming. It is important for students to acquire design skills in developing technical creativity skills. Design objects (apparatus and tools, buildings and

structures, roads and bridges, machines and equipment, airplanes and spaceships, radio receivers and televisions, telephones and computers, new types and samples of clothing and shoes, furniture and other various products) the process of drawing up and drawing their projects to build and create. Design is used in all fields of science and technology. Design works include economic and technical calculation, estimation, drawing and reproduction of drawings, often a mock-up of an object (building, machine, etc.) is prepared based on the drawings.[11-15]

An object can be designed individually (in a single order) and typical (in a mass order).

Design work can be sector-specific or specialized. Standardized details, aggregates, nodes and regulatory documents are widely used in the design of an object. Nowadays, memory lapses are very common among students. In fact, they do not have a well-developed observational ability, not a memory. Observation is necessary for students, young people, and all people in general. It's a way to improve memory, so to speak. Another key memory booster is reading aloud. Lincoln used two sense organs to project information to his mind. He said, “When I read aloud, the thought is received through two senses. "First, I see what I read, and secondly, I hear it, so I remember it very well." Therefore, it is intended to achieve an effective result by developing mnemonics (the art of remembering) in the formation of technical creativity in students. Mnemonics is a system of methods that facilitate recall and expand memory by creating artificial associations, where words can be remembered by combining their initial letters to form words. In short, having a great memory is not impossible. In fact, it is very easy: observation, learning to concentrate, connecting pictures to remember dates, knowing the meaning of a name to remember it, paying attention to how it is written, memorizing by repeating textbooks over and over again. The joint use of various electronic, textual, and visual educational tools in the organization of the educational process based on technical creativity increases the quality of education. Electronic media audio and video, podcasts, Tedtalks, programs A podcast is an audio file. It is hosted on a server so that it can be listened to anytime over the Internet. In addition, in most cases, it is possible to download it to a computer (usually in Mp3 format) so that you can listen to it as much as you want without the need for the Internet. There are two types of podcasts: audio and video. The role of technical creativity in education is incomparable, and the lectures (TED Talks) of Ken Robinson, an English scientist (pedagogue), an expert on creativity and a speaker and consultant on the development of creative thinking, on the need for creativity in the field of education, are a useful guide for students around the world. [16-20]

TED Talks are a presentation to a large audience about a current topic in a field of interest and expertise. The power of TED Talks lies in original ideas, insightful, useful content, and effective presentation skills. This increases students' interest and motivation in creativity. Reproductive, creative-research, creative-project, active-leadership criteria are used in evaluating the educational process of forming students' creative abilities. The level of preparation of students for technical creativity is manifested in reproductive (working with information related to the field), active-leadership (realizing leadership in professional activities), scientific-research (conducting research), creative-project (creative design in professional activities) issues.

We divided the assessment into levels depending on the level of preparation of students' creativity. They are as follows: it will be possible to evaluate the abilities of gifted students in reproductive (low level) to work with information systems related to science and industry. Creative research (secondary level) is evaluated by the student's curiosity based on the assigned task, compliance with the rules of work with literature analysis, and the presence of creative analysis in each scientific research. Creative - project (higher level) is definitely a level that allows the student to

design samples of technical creativity independent of the subject being studied, unlike those mentioned above. [21-25]

Active - leadership (very high level) is evaluated by the development of the personality of a talented student based on its name, that is, the formation and development of a talented technical creative leader student personality as a result of activities such as reproductive, creative-research, creative-project. Leaders are free to create technical products themselves.

As a result of the effective organization of the educational process, which is approached to technical creativity, the formation and development of technical creativity abilities of talented students is achieved. In training students to the skills and competencies related to the field, the specialized sciences of the oil and gas industry technology should be taught as a continuation of the science in order to fully cover the types of activities, and the knowledge obtained from it should serve as a basis for this. In the formation and development of technical creative abilities of students in the continuing education system, it is important to correctly distribute educational materials in general and specialized subjects between types of education and courses and to ensure technical creativity in them. In this case, knowledge in the stages and courses of higher education should logically complement each other, the content of educational subjects (curriculum, science program) should be focused on ensuring creativity, there should be a certain sequence and a coherent system in the description of educational materials.

References:

1. M.K.Turakulova. Scientific And Creative Training Of Teachers In The Formation Of Technical Creativity Of Talented Students. //International Congress on Multidisciplinary Studies in Education and Applied Sciences. – Malaysia, 2022. –P. 3-6.
2. M.K.Turakulova. Development of technical creative thinking skills of gifted students. // World Bulletin of Social Sciences (WBSS). 2022. Vol. 14. –12-16 pages
3. M.K.Turakulova. Scientific And Creative Training Of Teachers In The Formation Of Technical Creativity Of Talented Students.// International Congress on Multidisciplinary Studies in Education and Applied Sciences. – Malaysia, 2022. –P. 3-6.
4. K.S.Rakhmonov. Influence of leavens of spontaneous fermentation and phytoadditives on the provision of microbiological safety of bread // T. I. Atamuratova, N. R. Djuraeva, I. B. Isabaev, L. N. Haydar-Zade//Journal of Critical Reviews //2020, Vol.7, Issue 5, pp. 850-860.
5. S.K. Jabborova.Application of products of processing mulberries and roots of sugar beet in the production of cupcakes // I.B.Isabaev., N.R. Djuraeva., M.T. Kurbanov.,l.N. Khaydar-Zade., K.S. Rakhmonov //Journal of Critical Reviews //2020, Vol.5, Issue 5, pp. 277-286.
6. K.S.Rakhmonov. Application of phito supplements from medicinal vegetable raw materials in the production of drugs // T. I. Atamuratova., M.E. Mukhamedova., N.K.Madjidova., I.Sh. Sadikov //Journal of Critical Reviews //2020, Vol.7, Issue 12, pp. 934-941.
7. Djurayeva N, Mixtures of Vegetable Fat as a Potential Raw Material for Bakery// Barakayev N, Rakhmonov K,Atamuratova T, Mukhamedova M, Muzaffarova Kh. // International Journal of Current Research and Review// october 2020, Vol.12, Issue 19, pp. 140-148. DOI: http://dx.doi.org/10.31782/IJCRR.2020.12192
8. Djurayeva N, Plant-fat mixtures as a potential raw material for bakery production// Rakhmonov K, Barakayev N, Atamuratova T, Mukhamedova M, Muzaffarova Kh. // Plant Cell Biotechnology and Molecular Biology 2020 21(45-46), pp. 29-42
9. Ravshanov S.S, The impact of ultrasonic activated water on hydrothermal processing of wheat grains grown in dry climate conditions // Rakhmonov K.S., Amanov B.N. // Plant Cell Biotechnology and Molecular Biology 2020 21(45-46), pp. 29-42

10. Kuliev N.SH, Udk 664.8 baking properties and quality expertise wheat flour// Rakhmonov K.S. // European Journal of Molecular & Clinical Medicine, 2020, Volume 7, Issue 2, Pages 6333-6340
11. Ravshanov S.S, The Effect Of Drinking And Activated Water On Field Scales Of Wheat Grains Grown In Arid Climatic Conditions// Rakhmonov K.S. Ergasheva H.B., Yuldasheva Sh. J.// European Journal of Molecular & Clinical Medicine, 2020, Volume 7, Issue 3, Pages 3065-3070.
12. Rakhmonov K.S., Confectionery Products for Therapeutic and Preventive Purpose with Medicinal Herbs Uzbekistan// L.N. Khaydar-Zade., N.SH. Kuliev, G.H.Sulaymonova // Annals of the Romanian Society for Cell Biology, Vol. 25, Issue 2, 2021, Pages. 4126 – 4140.
13. Ravshanov S.S., Influence of the Use of Activated Water during Hydrothermal Treatment on the Quality of Bread// Rakhmonov K.S., Radjabova V.E., Pardayev Z.T. // Annals of the Romanian Society for Cell Biology, Vol. 25, Issue 2, 2021, Pages. 4091 – 4102
14. Azim Oltiev., The role of catalysts in fat transesterification technology// Matluba Kamalova., Kakhramon Rakhmonov., Orifjon Mamatqulov// IOP Conf. Series: Earth and Environmental Science 848(2021) 012220
15. Rakhmonov KS, Spontaneous fermentation starter cultures - an effective means of preventing the potato disease of bread // Isabaev IB. // Journal "Storage and processing of agricultural raw materials" .- M., 2011.- No. 12.- P.23-25.
16. Rakhmonov KS, Influence of the substrate of the nutrient medium on the composition of the populations of microorganisms in the starter cultures of spontaneous fermentation // Isabaev IB, Akhmedova ZR // Journal "Storage and processing of agricultural raw materials". M, 2012 ..- No. 9.- P.40-43
17. Rakhmonov KS, Analysis of typical sources of microbial contamination of bread // Buxoro davlat universiteti ilmiy axboroti. // 2014.- No. 3.- P.37-43.
18. Rakhmonov K.S. Potato Bread Disease and a Method for Its Prevention // T.I. Atamuratova // Russian Bakery Magazine. M, 2014.- No. 5.- P.37-38.
19. Rakhmonov KS, Biotechnological aspects of ensuring the microbiological purity of bread // E. Muratov, T.I. Atamuratova // Kimyo va kimyo texnologiyasi. 2015.- No. 2.- P.64-68.
20. Rakhmonov K.S. Wheaten ferments spontaneous fermentation in biorechnological methods// Isabayev I.B. // Austrian Journal of Technical and Natural Sciences. 2016. - № 7-8. - P. 9-12.
21. Rakhmonov KS, Methods for improving the composition of the nutrient medium of sourdough cultures for bakery products from wheat flour // T.I. Atamuratova. Isabaev I.B. // Bakery of Russia. 2016. –№2. - P.22-24.
22. Rakhmonov KS, Optimization of the recipe composition of wheat breads using spontaneous fermentation starter cultures // Isabaev IB, U.M. Ibragimov, Molchanova E.N. // Bakery of Russia. 2018. –№3. - S. 33-37.
23. I.B. Isabaev, The use of feed flour as a substrate for the nutrient medium of wheat starter cultures in the production of bread // T. I. Atamuratova., Rakhmonov K.S. // Buxoro davlat universiteti ilmiy axboroti.- 2018. No. 2.- P.24-30.
24. Ravshanov S.S, Radjabova V.E, Rakhmonov K.S, Pardayev Z.T. Influence of the Use of Activated Water during Hydrothermal Treatment on the Quality of Bread // Journal Annals of the Romanian Society for Cell Biology - Romania, 2021. Vol. 25, №2 ISSN: 1583-6258, pp. 4091-4102.
25. Ravshanov S.S, Rakhmonov K.S, Ergasheva H.B, Yuldasheva Sh.J. The Effect Of Drinking And Activated Water On Field Scales Of Wheat Grains Grown In Arid Climatic Conditions // European Journal of Molecular & Clinical Medicine. Volume 07. Issue 03. 2020. -pp 3065-3070.