



Educational and Technical Tools for Developing Students' Creativity in Computer Lessons

Navbakhor Nurillo-kizi Israilova

Computer Science and Mathematics Teacher, Secondary School No. 10, Samarkand, Uzbekistan

<http://dx.doi.org/10.18415/ijmmu.v11i3.5659>

Abstract

In the modern post-industrial society, the problem of developing creative abilities of students using information technologies is especially relevant. At the moment, society needs specialists who can think differently, find creative solutions to problems, and skillfully work with information. The problem of studying the phenomenon of creativity is not new. Many researchers have presented this problem in different interpretations.

Keywords: *Development; Creativity; Educational Computer Program; Innovations*

Introduction

Currently, thanks to the achievements of science and technology, students' creative activities are carried out with the help of computers. In the 1990s, personal computers, which became a relatively cheap and manageable teaching tool, entered the educational process and stabilized the informatization of education. The use of information technologies (E.S.Polat, I.V.Robert) made the educational process more interesting, bright and rich. In the process of learning and cognitive activities, students turn to Internet opportunities in their creative projects. They independently create their own mini-projects in educational activities in the course of creative activity using ICT tools. Information technologies include microprocessors, software, hardware and software and devices based on computer technologies, as well as modern systems for information broadcasting and information exchange, which provide operations on information collection, production, collection, storage, processing, transmission.

Main Part

Students model various phenomena and objects using computer programs. Computers create favorable conditions for them to work independently, which encourages them to master the educational project in formulating a topic, setting a goal, and solving a problem.

Students become direct participants in the cultural and historical process through creative activity. The result of creative activity (project, craft, computer program, new idea) is compared with cultural and historical analogues with the help of the teacher, as a result of which this product of children's creativity is

improved and rationalized. This creates a need for new activities for students. It has a certain value for the development of a person, because the acquisition of independent practical experience is carried out through the acquisition of the experience of others (L. S. Vygotsky). It is known that mastering any complex form of development is carried out by an individual first in cooperation, and then independently. In the course of educational activities, a social experiment consisting of certain patterns of actions is conducted in cooperation with adults (teachers, parents) and peers.[1]

In the modern scientific concept, a specific trend called "creative evolution" has been formed, in which the creative process is determined by activity and development (A. Bergson).

Describing this problem, G.L. Davydova [2] in her work "Creativity and Dialectic" states that the philosophical category of creativity expresses the historical connection between action and the social whole.

In the great encyclopedic dictionary, creativity is defined as an activity that creates qualitatively new things and is distinguished by its originality, originality and socio-historical identity. [3]

The sociological aspect of creativity (Ya.U.Astafiev, I.V. Bestujev-Lada, V.N.Shubkin, V.A. Yadov) reveals its role in the process of acquiring values, knowledge, skills and abilities that allow a person to function successfully in society.

In the psychological dictionary, creativity is defined as "an activity resulting in the creation of new material and spiritual values." [4] Creativity is essentially a cultural-historical phenomenon and one of the factors of socialization of a person. In the process of educational creative activity, social experience is transferred to the younger generation. Each era adds new content to culture that meets the needs, goals and tasks of modern society, and the educational institution is a separate state institution that fulfills the social order of its time.

The indicators of the level of productivity of knowledge are as follows:

- Understanding (transferring the material from one form of expression to another, interpreting the material, predicting the next course of events and events);
- Practical (ability to use the studied material in specific conditions and new situations);
- Analysis (the ability to divide the material into components for a clear view of the structure);
- Synthesis (the ability to combine elements to obtain a new product);
- Assessment (the ability to estimate the value of a particular material).

Independent work of students in the course of a pedagogical experiment conducted on the basis of the algorithm of learning educational and scientific text (I.G. Guzenko) through an educational computer program consisting of information cards (OKP-M) includes the following rules:

1. Compilation of The Studied Text Necessary for The Educational Project - Selection of Information On the Given Issue for Creative Work.
2. Forming The Topic of Educational and Scientific Assignments.
3. Creating a Question and Problem Plan for Educational and Scientific Research on the Topic.
4. Compilation of Summaries of the Results of the Independent Solution of the Educational Task.
5. Performing the results of forming independent actions under test control.[1]

The problem of creativity has been studied in great depth. The development of the theory of abilities was significantly influenced by A. N. Leontiev, the main representative of the strong and

reasonable concept of the formation of abilities. The problem of abilities received its most fundamental development in the works of the philosopher and psychologist S. L. Rubinstein. The famous Russian psychologist L.S. Rubinstein helped develop the theory of creative abilities of schoolchildren. Vygotsky and teacher - psychologist D. B. Bogoyavlenskaya revealed. According to the studies of the phenomenon of creativity is associated with the names of scientists A. Ponomarev, V.A. Levin, "the tendency to creativity is the highest manifestation of human activity." [5] Observation of creativity, ease of combining information stored in memory, readiness for voluntary tension and many other psychological characteristics favor it. [6,7,8] Although the problem of developing creative abilities of schoolchildren has been widely considered and developed, it remains important and relevant today.

In the process of teaching computer science, the development of students' creative abilities is ensured if:

- If teaching is carried out by increasing the share of independently completed creative educational tasks;
- Uses a set of heuristic methods to develop creative qualities at each stage of computer science education.

The following tasks can be defined [10, 11, 12, 13, 14]:

- Analysis of psychological, pedagogical and methodological literature on the problem of developing creative abilities of schoolchildren;
- Determining the conditions for the development of creative abilities of schoolchildren in informatics classes;
- Conducting diagnostic work and analyzing its results;
- Development and implementation of a set of problem situations and creative assignments for the development of students' creative abilities in computer science classes;
- Summarizing the results of experimental work. [9]

In order to provide students with creativity in computer science classes, the following directions can be considered:

1. Counseling and communication: Allow students to develop consensus by asking questions about their goals and supporting their own ideas.
2. Practical training: To provide students with the ability to turn theoretical knowledge into practice by performing practical exercises. For example, creating games and programs written in programming languages.
3. Projects: Encourage students to create projects and projects based on their interests to channel their creativity. This enables them to participate in transformative and transformative activities.
4. Technical tools: To enable students to understand, support and create new information technologies by teaching them the technical tools used in their classes.
5. Educational Computer Games: Engaging students through educational computer games used to review information, solve problems, and find innovative solutions.

Conclusion

Undoubtedly, the science of "Informatics" is very difficult for students to understand and master. However, in the course of studying computer science, the use of creative and problematic assignments in

classes, the use of project methods, group and individual forms of work, and the organization of work on the basis of selection showed the presence of positive dynamics. The general level of creative abilities of students has increased, indicators of students' attendance, activity and interest in working in the lesson have improved in experimental classes.

Thus, we can conclude that the use of creative assignments in informatics classes is an important result of acquiring new knowledge, strengthening it, developing students' creative thinking and creative abilities.[9]

To summarize the above, it should be noted that the positive experience gained in the use of educational computer programs for the development of students' creative abilities in the process of creating educational projects suggests that information technologies used in the creative process stimulate non-standard thinking. allows to come to a conclusion.

References

1. Штакина, О. В. (2013). Развитие творческих способностей учащихся в процессе создания учебных проектов средствами информационных технологий. Вестник Воронежского института МВД России, (3), 226-231.
2. Давыдова Г.А. Творчество и диалектика. — М., (1976). — 176 с.
3. Большой энциклопедический словарь / под ред. А.М. Прохорова. — М.: Большая российская энциклопедия, (1998). — 918 с.
4. Психологический словарь / под общ. ред. А.В. Петровского, М.Г. Ярошевского. — 2-е изд. — М.: Политиздат, (1989). — 494 с.
5. Левин В.А. Воспитание творчества. Томск: Пеленг, (2013). 238 с.
6. Гизутдинова Д.Р., Разумова О.В. Компьютерные обучающие игры на уроках математики // Математическое образование в школе и вузе: инновации в информационном пространстве (MATHEDU-2018): Материалы VIII Международной научно-практической конференции (Казань, 17-21 октября 2018 г.) Казань: Изд-во Казан. ун-та, 2018. С. 64-68.
7. Падалко А.Е. Задачи и упражнения по развитию творческой фантазии учащихся. М.: Просвещение, (2013). 128 с.
8. Разумова О.В., Садыкова Е.Р., Хрусталева А.В. Универсальные инструментальные программные комплексы моделирования в математическом образовании // Информатика и образование. 2013. №6(245). С.85-55.
9. Копарова, М. Э. (2019). Развитие творческих способностей учащихся в процессе обучения информатике. In *Актуальные проблемы методики обучения информатике и математике в современной школе* (pp. 129-133).
10. Пидкасистый П.И. Самостоятельная деятельность учащихся (Дидактический анализ процесса и структуры воспроизведения творчества). — М.: Педагогика, (1972). — 184 с.
11. Роберт И .В. Теория и методика информатизации образования (психолого-педагогический и технологический аспекты). 2-е изд., доп. — М.: ИИО РАО, (2008). — 274с.
12. Шапарь В. Новейший психологический словарь. — Ростов -на-Дону: Феникс, (2007). — 816 с.

13. Rustamova, N. R. (2019). The Technology of Developing Media Culture in Secondary School Students. *International Journal of Innovative Technology and Exploring Engineering (IJITEE)*, ISSN, 2278-3075.
14. Isyanov, R., Rustamov, K., Rustamova, N., & Sharifhodjaeva, H. (2020). Formation of ICT competence of future teachers in the classes of general physics. *Journal of Critical Reviews*, 7(5), 235-239.

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).