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## Effective-Practical and Creative (Heuristic) Pedagogical Technologies of Students' Self-Development

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### Abstract

Creative self-development through educational technology is relevant in modern education. The article shows the basic components of educational technology that can be applied in teaching. The usage of pedagogical technologies by teachers allows them to engage students and create a favorable climate during study. At the same time, students are developing their creative thinking, personal, intellectual and creative abilities.

Keywords: effective-practical and creative (heuristic) technologies, pair training, small groups, frontal and individual work, brainstorming, moderation, business game, sinwine, cluster.

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### Introduction

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Within an electronic age, it is necessary to instill spiritual and moral values and develop the creative thinking of students. During the educational process, teachers often use creative methods of learning and consolidating educational material. It helps them to create the most favorable psychological and pedagogical conditions that activate and implement the best features, namely, creative development and self-development of students, improvement of the educational process quality, achievement of predicted educational result.

Due to multifaceted and universal nature of this phenomenon, there are various options of educational technologies in theory, practice and educational organizations. Each teacher or author contributes to the educational process. It allows saying that every creator has his own specific methodology and educational technology.

### **The problem of research.**

The problem of choice and practical application of effective-practical and creative (heuristic) pedagogical technologies of students' self-development is becoming increasingly relevant within the modern education. The education quality, professionalism degree and competence of future graduates depend on timely and proper application of pedagogical technology.

### **Research issues**

#### **3.1. Problem statement**

Based on the domestic and foreign scientific literature analysis, select the basic pedagogical technologies that can be applied in creative self-developing of students.

#### **3.2. Research issues**

During the research, it was necessary to establish:

- What optimal pedagogical technologies are oriented to personality spheres and integration?
- What form of study organization should be when using educational technology?
- What universal methods and techniques can be used for creative self-developing of students?

### **Purpose of the study**

Select and characterize the pedagogical technology components that can be applied in the educational process for students' creative self-development.

### **Methodology and methods**

Theoretical analysis of domestic and foreign scientific literature.

### **The results**

We established effective-practical and creative (heuristic) pedagogical technology. Moreover, we determined universal forms of training organization and gave a description of the methods and training techniques that promote students' creative self-development.

### **Presentation of the main material.**

The term "technology" appeared in pedagogical science when scientists paid their attention to the art of influencing a child's personality. Nowadays, there is no single definition of educational technology semantic meaning. Originally, there was a term «technology of education», meant the audiovisual teaching

aids usage. Scientists rank numerous researches and the introduction of pedagogical technologies by the mid-50s. They correlate it with the scientific and technical approach appearance to the concept of teaching, initially in the American school, and later in the European. At that moment, pedagogical technology meant education engineering, based on programmed education in the United States. In the 70s, pedagogical technologies indicated a pre-designed educational process that guaranteed the clearly defined goals achievement (Zaitsev, 2014). This process led to the expanding the specific meaning of the term “pedagogical technology” foundation. This term refers to methods of planning, developing, evaluating and implementing teaching and learning processes using curricula. The analysis of scientific literature allowed us to select the basic pedagogical technologies that can be applied for students' creative self-development (Figure1).

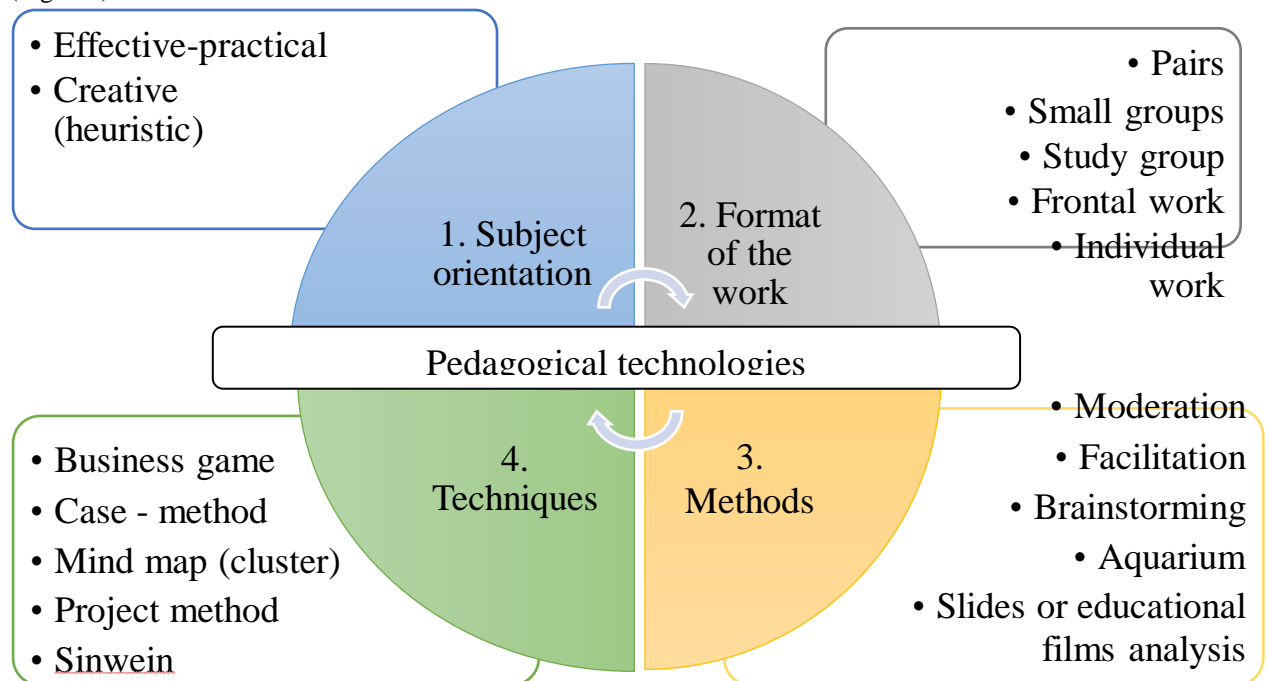


Fig.1. Basic pedagogical technologies of creative self-development

Let's consider the components of the pedagogical technology, reflected in Figure 1, in detail:

1. The subject orientation, “orientation on personal spheres and structures of the individual,” focuses on the personality and its desire for self-improvement and self-realization. The teacher should take into account the openness of the individual to the new experience, knowledge, awareness of responsible choice perception. In contrast to the formalized transmission of information, the above-mentioned qualities achievement is the main goal of educational process. It can be implemented through modern educational technologies:

- Effective-practical technologies imply reproductive activity, that is, it helps to learn how interdisciplinary communication functions, how laws of one science are used intertwining with pedagogy in professional sphere and focusing on technologization. The student, acting on pattern, starts developing his own skill and experience;

- Creative (heuristic) technologies in education allow us to consider the students constructing their own meaning, goals, content of education, as well as its organization, diagnosis and awareness (Bespalko, 1989).

Heuristic study is the continuous discovery of something new (heuristics from the Greek *heurisko* — to search, find, discover). Creative self-development or self-realization of students, as the main task of heuristic training, is also relevant in students' activities and revealed in basic goals:

- Production of educational products in the studied areas;
- Mastering the fundamental nature of the studied areas by comparing students' results;
- Organizing an individual learning route based on personal qualities (Khutorskoy, 2003).

Therefore, heuristic technologies focus on guaranteed and effective pedagogical goals and intellectual development achievement. These technologies are also called active ones because their use leads to a high level of students' internal and external activity.

2. Format of the work - a form of training organization, where any lesson should comply with a teacher's work and carry out a specific part of the whole education process. At the same time, it should perform specific tasks and show real educational results and be distinguished by logic, integrity and completeness:

- Pair training - a type of educational technology, where one participant interacts with another. This may be in a form of joint training or discussion. Students implement the principle of “teaching - learning” and “not delayed knowledge usage” and focus on the cognitive sphere development, knowledge acquisition, communication, cooperation and real learning individualization;

- Small groups - a small students association. They have relationships and are united by a common goal. A group of 3–7 people is considered profitable but the optimal number is 4. During coordination, students experience mutual enrichment, they exchange knowledge and various operational methods;

- Frontal work is one of the most popular forms of education, focused on the simultaneous interaction of a teacher with one (25-30 people) or several groups of students (2-4 groups). In accordance with established work program, everyone is dealing with a single problem or task. In order to engage students, the teacher should give knowledge in a form of discussions, conversations, provocations, press conferences, case studies, consultations, problem and demonstration lectures;

- Individual work - the student acquires new knowledge without a teacher. It is effective if there is an established printed basis and references to necessary sources. The teacher can mentor the student at the same time. The educational curriculum involves 40-60% of independent work. In the programs, there are disciplines and methods of work for students during individual work;

- Study group - the established number of students with the same training level, exploring the same problem with the same time and help of one teacher. The feature is a combination of informal and formal relationships. As a rule, there are a curator, a group leader and a core team - they contribute to the solution of problems, strengthen and support cohesion (Golovanova, Asafova, & Telegin, 2014).

3. Methods of educational technology – methods of teacher and students' orderly interrelated activities (Ebner, 2013):

- Moderation – students independently get new knowledge at regulated time. The teacher performs the knowledge holder functions and a partner of self-obtaining information process. He directs the process of self-study realising the resulting knowledge;

- Facilitation – independent getting by students of new knowledge at regulated time. In this case, the teacher plays the role of organizer and motivator without interfering the process. This method allows

students to consider a disputable situation or problem effectively, increases the profitability of group work, engages students, revealing their creative potential;

- Brainstorming is a method of group creative thinking for the rapid problem resolution, based on the stimulation of creative potential, where students offer different options. Subsequently, the most successful statements are applied in study process;

- Aquarium – students expand the reflexive data mastering a multi-aspect analysis. Two groups of students are working: the internal group discusses the topic, and the external group monitors the situation in the internal group. The internal group works in the mode of cooperative learning, and the external group acts as an analyst and observer;

- Slides or educational films analysis is one of the effective and modern methods for mastering, acquiring, summarizing some information. There is a high efficiency of accessibility, assimilation and influence of visual images on the learning process (Golovanova, Asafova, & Telegin, 2014).

4. Techniques, methods of pedagogical technology – this is a short-term relationship between the teacher and the student, aimed at specific knowledge and skills transfer:

- Business game - the maximum interest in learning process is connected with the game form of interaction between not only the teacher and the student, but also the student and the student. The main emphasis is combination of educational tasks and role-playing games. Properly organized game allows students to train the memory on a specific topic, develop speech skills, stimulate mental activity, and develop attention and cognitive interest. This technique allows unifying the group because all students are involved in the game. They start thinking, explaining, expanding the imagination jointly;

- Case-method is analysis and description of a particular case or situation that has no definite answer. Students should understand the existing situation that reflects a problem. It helps to apply knowledge during the case solving;

- Mind map (cluster) – systematization of information with step-by-step thinking, from the basic concept to smaller connecting elements;

- Project method – allows to embody an idea into a result, structurally distributing the process into stages. A group or an individual can carry out the project. This technique allows students to get knowledge through intense activity. According to this method, it makes possible to develop individual creative abilities of students, including team work, and consciously approach professional and social self-determination (Ebner, 2013; Golovanova, Asafova, & Telegin, 2014);

- Sinwein means “poem” in French. There are established rules for writing a sinwein. There should be only five lines. In the process of sinwein writing, a student uses theoretical material on a specific topic, which allows him to select the most significant elements, analyze, draw conclusions and transfer all elements into brief expressions. Writing a sinwine is a form of free creativity, which is carried out according to the following rules:

1. The noun is the sinwine theme;
2. Two adjectives reveal the sinwine theme;
3. Three verbs describe actions of the noun;

4. A whole phrase or sentence, consisting of several words, is placed. The student characterizes the topic as a whole, shows the attitude to the topic (popular expression, quotation, and proverb);

5. One word-summary – modern interpretation of the topic, the student's personal attitude to the topic (Writing Sinwein, 2015).

### **Conclusion**

Thus, effective-practical and creative (heuristic) pedagogical technologies combined with three main educational areas, namely, information, activity and student-centered, contribute to the creative self-development of students. Implementing these pedagogical technologies, students develop their personal, intellectual and creative abilities. Creative self-development allows students to become qualified specialists, to adapt to a mobile world around them, which requires a high creative initiation, personal and self-development. All these qualities can be achieved by implementing the certain educational techniques in examining disciplines.

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