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DEVELOPING INDEPENDENT LEARNING OF PRESCHOOL EDUCATION STUDENTS THROUGH MULTIMEDIA BASED ON BLOOM'S TAXONOMY

<https://zenodo.org/records/18869532>

Abstract: This article explores the development of independent learning skills in preschool education students through the use of multimedia tools, grounded in Bloom's Taxonomy. It analyzes how different levels of cognitive skills—ranging from knowledge and comprehension to application and analysis—can be effectively activated using interactive and multimedia-based teaching methods. The study highlights the role of digital tools in fostering critical thinking, problem-solving, and self-directed learning. Practical strategies for integrating multimedia into lesson planning are discussed, demonstrating how such approaches enhance student engagement, deepen understanding, and promote the acquisition of professional competencies in early childhood education.

Keywords: independent learning, preschool education, multimedia, Bloom's Taxonomy, interactive methods, critical thinking

РАЗВИТИЕ НАВЫКОВ САМОСТОЯТЕЛЬНОГО ОБУЧЕНИЯ У СТУДЕНТОВ ДОШКОЛЬНОГО ОБРАЗОВАНИЯ С ПОМОЩЬЮ МУЛЬТИМЕДИА НА ОСНОВЕ ТАКСОНОМИИ БЛУМА

Аннотация: В статье рассматривается развитие навыков самостоятельного обучения у студентов направления «Дошкольное образование» с использованием мультимедиа на основе таксономии Блума. В исследовании анализируются возможности эффективного активирования когнитивных умений — от уровня знаний и понимания до применения и анализа — с помощью интерактивных и мультимедийных педагогических методов. Отмечается роль цифровых инструментов в формировании критического мышления, решения проблем и навыков самостоятельного обучения. Кроме того, представлены практические рекомендации по интеграции мультимедиа в планирование уроков, что демонстрирует повышение активности студентов, углубление понимания и развитие профессиональных компетенций в сфере дошкольного образования.

Ключевые слова: самостоятельное обучение, дошкольное образование, мультимедиа, таксономия Блума, интерактивные методы, критическое мышление.

BLOOM TAKSONOMIYASI ASOSIDA MAKTABGACHA TA'LIM YO'NALISHI TALABALARIDA MULTIMEDIA ORQALI MUSTAQIL TA'LIMNI RIVOJLANTIRISH

Annotatsiya: Maqolada maktabgacha ta'lim yo'nalishi talabalarida mustaqil ta'lim ko'nikmalarini rivojlantirishda multimedia vositalaridan foydalanish Bloom taksonomiyasi asosida tahlil qilinadi. Tadqiqotda bilim va tushunish darajasidan tortib qo'llash va tahlil darajasigacha bo'lgan kognitiv ko'nikmalarni interfaol va multimedia asosidagi pedagogik usullar orqali samarali faollashtirish imkoniyatlari ko'rib chiqiladi. Raqamli vositalarning tanqidiy fikrlash, muammolarni hal qilish va mustaqil o'rganish ko'nikmalarini shakllantirishdagi roli yoritiladi. Shuningdek, dars rejasiga multimedia elementlarini integratsiya qilish bo'yicha amaliy tavsiyalar berilib, bu yondashuvlarning talabalar faolligini oshirish, tushunishni chuqurlashtirish va kasbiy kompetensiyalarni shakllantirishdagi samaradorligi namoyon qilinadi.

Kalit so'zlar: mustaqil ta'lim, maktabgacha ta'lim, multimedia, Bloom taksonomiyasi, interfaol metodlar, tanqidiy fikrlash

Introduction

The world of globalization of processes and phenomena, the rapid build-up of new information, information and production technologies, the in-depth development of fundamental and applied science require that each person realize these realities in the light of real time and find their rightful place in this system of interdependence, find personal meanings of activity, determine their positive life guidelines, self-improvement, self-development. All these processes that take place in life are the result of the application of new, innovative ideas, which, in contradiction to the old ones, make their way into life. Such innovative ideas began to function in education, organization of the pedagogical process. Innovation in the pedagogical process optimizes the process of cognition, enhances logical and critical thinking, activates the activity of memory and imagination, enhances the development of a person's competence. The French psychologist A. Vallon, actualizing the role of ideas in the formation of new ideas and concepts, points to their social nature. He writes that the source of such thinking is society, its material is a system of socially developed ideas and concepts. (one)

Given this feature of real time, the international forum on education notes that in the 21st century the main way for the stable development of the world is education and the main task is to encourage quality education and the creative abilities of a developing individual.[16] (2) Rapidly changing world processes change the personality, its outlook, spiritual and moral qualities. Much in the development of cognitive activity and the formation of a person's professional competence directly depends on the mobility of his style of thinking. Currently, people are moving away from traditional thinking intensively. They develop new, innovative thinking. Going beyond the established style of thinking means a progressive leap - a transition to a new style of thinking. The style of thinking, fixing attention on the general tendencies of the cognitive process that are stable at this historical stage, reveals the objective nature of scientific creativity. The systemic style of thinking, providing real connections and relationships between phenomena, objects and processes, provides only a toolkit for solving complex problems.

Actualizing the role of representation in the development of social and professional competence of personnel, many scientists note that a modern specialist must be distinguished by the originality of his thinking, which cannot be developed without representation skills. They argue that the formation of abilities that allow the student to capture non-obvious associations, to produce non-standard ideas and solutions to

problems, is one of the most urgent and at the same time the most difficult pedagogical tasks. (3) Some researchers emphasize the importance of students' self-image, their potential in developing their cognitive confidence. In their opinion, the difficulties of many underachieving children are not the result of their mental or physical disability, but rather the result of their perception of themselves as incapable of serious learning. Success in school, at work, and in life in general, they argue, is no less dependent on a person's idea of his abilities than on those abilities themselves.

(5)The great Ukrainian teacher V.A. Sukhomlinsky, analyzing the possibilities of continuous education, notes that it is gradually necessary to instill in children the skills of intense, creative mental work. Children must understand the very essence of intellectual work, which lies in the strain of mental efforts, in penetrating into various complexities and subtleties, details and contradictions of things, facts and phenomena. [12c.95] (6)

The psychological laws of the cognitive process, the complexities on which the results of a person's quality education directly depend, are revealed by the English specialist in educational psychology E. Stones. He notes that the biggest problem in this case is the lack of agreement on what constitutes quality education. First of all, we want children to learn something and the task of education is to help them in this. This is not only the knowledge of “facts”, but also the ability to think, the desire to know the world, the desire to do something in it, respect for the views of other people and the ability to defend one's point of view.[12c.58].(7)

E. Stones notes that the Swiss psychologist Piaget studied the cognitive development of the child. This gives the key to understanding the mind of the child. In the course of his development, the child moves from the level at which the formal aspect of understanding predominates, i.e. understanding of the physical state of objects to a level at which the dynamic aspect already prevails, i.e. understanding the physical state of objects that change according to certain laws. Piaget believes that the gradual mastery of the laws of transformation of objects is the history of the development of the child's thinking.[12c.95]. (7.) Many experiments conducted in the first half of the 20th century by Western and Eastern researchers prove the conclusion that the process of perception and comprehension is an analytical-synthetic process, although self-observation creates in a person the illusion of a sudden emergence of a holistic image of an object. (eight.)

Developing this idea of A. Wallon, we assume that the essence, meaning and content of the concept is specified and formalized not only by the state of socio-political development, but also by the state of its technical and technological development. The accuracy and identity of the meaning of new concepts is determined by the level of development of the technical, technological development of society and the frequency of the rational functioning of these concepts. The cognitive process today is a systemic, complex, synergistic formation that proceeds according to the laws of psychology, pedagogy and physiology. The mechanism of this process is most clearly revealed in the taxonomy of the American educational psychologist B. Bloom.

According to the results of our study, B. Bloom's taxonomy, which reflects the stages of cognition based on knowledge, understanding, application, analysis, synthesis and evaluation, does not take into account the procedure for consciously evoking a clear, clear, continuous representation between the procedures “knowledge” and “understanding”. According to the requirements of semantic identity, the category “knowledge” means awareness and understanding of the information received. In B.

Bloom's taxonomy, this category mainly means receiving and perceiving information. In order for the perceived information to be systematically and logically understood, we tried to develop a new category - "representation". The study of the patterns of representation is due to the fact that in recent years people, especially young people and children, are addicted to endless useless computer and telephone games, they cannot purposefully choose information, understand its content, and conclude. Due to the fact that people have little idea of the consequences of a new world disease - coronavirus, more than 70% of them do not wear masks, participate in public events, and neglect their own and other people's health.

The weakened view of cause and effect in the cognitive process in humans is a research problem. Solving this problem is the aim of the study. The purpose of our study is to develop the category of "representation" and substantiate its place in B. Bloom's taxonomy to optimize the cognitive process. Research methods: theoretical analysis of the literature, questioning, experiment, modeling, the method of functional value analysis (AFA). To this end, since 2010, we began to research and develop the category "Representation in order to optimally organize the cognitive activity of students and students. In his taxonomy of goals, B. Bloom does not separately consider the presentation process as a category. According to the laws of psychology, the cognitive process proceeds on the basis of receiving, processing and inference through the analysis and synthesis of this information. The organs of sensation, perception, memory, thinking, imagination are actively involved in this process, which will ensure the appearance of the idea.

The category "Knowledge" in taxonomy includes such processes as the reflection of information, its perception, the activity of memory, thinking and imagination. We have divided these mental processes into two parts:

- reflection of information, perception and fixing it in memory are included in the functions of the knowledge procedure;
- the transfer of information from memory to thinking and imagination, where there is a complex process of understanding the reflected information, diverse forms of representation, capturing cause-and-effect relationships and relationships - is included in the functions of the category "representation". We will consider the patterns of formation and implementation of this process in this article.

A modern specialist, even at school, college, then at a university, must be able to generate new ideas, think creatively, work competently with information, be able to use new ideas in practice, and obtain competitive results [4 p. eleven]. (3) The presented and understood information provides the basis for the development of innovative thinking of a specialist. In this article, based on a long analysis of the formation of an active cognitive process in learning, we will try to substantiate the role of the "Representation" procedure for a clear understanding, application, analysis, synthesis and evaluation of the information received. Representation is the restoration by memory of the image of a perceived object or phenomenon, as well as the creation of an image by imagination. Representation is the process and result of the mental reconstruction of images of objects and phenomena that do not currently affect the human senses. Images of representation are the basis of our memory in the full sense of the word.

The main requirement of modern development to the system of education of the younger generation is the transition to competence-based learning. It is implemented on the basis of new pedagogical technologies and makes it even more relevant to

consider the problems of studying the “Representation” process as an additional category. The problem of enhancing the cognitive activity of schoolchildren and university students is actualized by the Russian methodologist of pedagogy B.S. Gershunsky and sees its solution in the use of innovative, creative methods of teaching and education. He sees the strength of American science and higher university education in the fact that US universities, in addition to their educational functions, also perform purely scientific, research functions purposefully and systematically. He emphasizes that the task is for the general education school to adopt the same method of activating the cognitive activity of students, so that the entire pedagogical process is permeated with problems and heuristics. [3p.210] (4)

Materials, Methods and Results

According to the results of our study among teachers of SamSU, the Samarkand branch of TUIT, the Samarkand Medical Institute, which was conducted in the last twelve years, many are poorly aware of the concept of “pedagogical thinking”, the laws of transforming the information received to the level of understanding, the psychological patterns of the competence-based approach to their profession. [8.p.54] (7.) There is a certain trend of a superficial approach of teachers to the psychological and pedagogical foundations of modular-credit education and competent preparation for it. Therefore, we are for the development of competent professional-pedagogical and innovative thinking of future teachers in the classroom in the disciplines “Pedagogy”, “Psychology”,

“Innovative pedagogical technologies”, a special course “Development of skills and competencies”, introduced them to the psychological patterns of the cognitive process in the way of a specially evoked presentation [7.p.92] (8.) The following methods were used in the study: a comparative analysis of foreign and domestic pedagogy, psychology, questioning, observation, testing, mathematical analysis of the information received. The results of the study were covered at many international conferences, meetings, two monographs were published (8.22), articles were published (9.10) in international and local journals. Practice has shown that the organization of the cognitive process and with the help of the “Representation” procedure greatly optimizes mental activity, develops criticality, divergent thinking, and creative imagination.

According to B. Bloom's taxonomy, educational goals are divided into three parts: cognitive, affective and psychomotor. The cognitive (cognitive) area includes goals from memorizing and reproducing the studied material to solving problems, during which it is necessary to rethink existing knowledge, build their new combinations with ideas, methods, including the creation of a new one. The function of the category "Representation" is that from the information received and stored in the memory to create as bright and long-lasting images of the representation as possible, to show the connections between the parts of the received image, to create as many images and pictures about objects, phenomena and processes as possible in order to capture the causal investigative links. The affective part of the cognitive process reflects the fact that a person reacts emotionally. Affective goals are related to human relationships and emotions. The brightness, clarity, intensity of the evoked performance creates a vivid, clear and intense feeling.

The psychomotor part provides the ability to manipulate tools or tools. In this part, skills are developed that are also associated with emerging ideas. In our study of the patterns of the cognitive process with the help of B. Bloom's categories, we studied the role of the procedure for creating the representation process to ensure a more efficient

flow of the understanding process. Memory, thinking, imagination, emotions, etc. actually participate in the process of appearance of a representation. In general, a representation this is the process and result of the mental reconstruction of images of objects and phenomena that at the moment do not affect the human senses. It is also known that representation images are the basis for reflecting information in memory, fixing and reproducing it.

The interpretation of the concept "Representation" is given in dictionaries. The concept of "Representation" has several meanings. In the dictionary of S.I. Ozhegov, five meanings of this concept are given. Only the fourth interpretation of this concept as "reproduction in the mind of previously experienced perceptions" is more or less suitable for its logical understanding [S. 472]. (eleven)In the Dictionary of Synonyms of the Russian Language, the concept of . "Representation" is interpreted as "seeing, thinking, imagining mentally, recreating, reproducing someone - l., What - l." [7; pp.232-233].(12) A more specific interpretation of this concept in psychological terms is given by the Psychological Dictionary. "Representation is a visual image of an object and phenomenon that arises on the basis of past experience by reproducing it in memory or imagination" (p.272-273). (13) In our study of the concept of "Representation", we rely on the interpretation of this concept in psychological terms, as a visual image of an object and phenomenon that arises on the basis of past experience by reproducing it in memory, thinking and imagination.

Education in the 21st century is considered the main way for the sustainable development of society in the world, obtaining a quality education and encouraging the creative abilities of students and students is the main requirement of the international educational concept until 2030. (fourteen) The conscious evoking of ideas in pupils and students by keywords, basic "concepts", "terms", categories of a topic or section of the subject being studied is aimed at increasing the efficiency of the cognitive process, thanks to which, mentally trained, catching cause-and-effect relationships, they learn these laws , moving from the simple to the complex, from the unknown to the known, from understanding the form of phenomena, the processes of reality to their essence, which is the basis for the development of knowledge. Representations, as the basis of the imagination, stimulate it.

All types of imagination need to create a bright, clear, voluminous, long-lasting presentation. This requires the teacher to have special knowledge and skills to develop the representation of learners, which improves their learning activity. Recreating imagination, as a prerequisite for creativity and the development of innovative thinking, manifests itself when a person needs to recreate the representation of an object that matches its description as fully as possible. The same representations are recreated in the verbal description. Sometimes a representation is recreated based on diagrams and drawings. This develops a person's ability to spatial imagination. Here an image is created in three-dimensional space.

The development of ideas goes from the initial, incomplete, undifferentiated, often incorrect and fuzzy, little connected with each other images of reality to the construction of distinct, bright images of reality, distinguished by a certain completeness and correctness, interconnected with each other. The physiological basic idea is the "traces" remaining in the cerebral cortex of those excitations that took place during sensations and perceptions. General and individual representations are visual in nature: these are images of certain specific features of objects, phenomena, processes,

states, etc. Representation as the basis of imagination determines its productivity. Imagination it is the creation of something new in the form of images-representations. For representation, the stimulus is not an external object, but a word or thought about the purpose of the object. A word or thought evokes an image, an idea, revives the traces of physiological reactions stored in the brain, corresponding to past perception processes.

More than 500 university teachers, students, masters, doctoral students, school teachers participated in the experiment. They were asked: out of 50 action verbs associated with invoking a presentation, choose the 10 most necessary for creating a high-quality presentation and number them in order of importance. According to the results of the study, it was revealed that for the emergence of a representation, first of all, it is necessary to carry out the procedures for restoring the image of the necessary information from memory, to hold the information, to systematize, to provide its vision, to design on its basis, to imagine, to structure its components, to foresee, form and design based on it.

These are the main ten verbs of action, which, in our opinion, will help for the emergence of a qualitative representation in the cognitive process, on which a deeper understanding of the perceived information and the development of scientific, practical, innovative thinking and consciousness of the individual in everyday and professional life depend. Thus, we believe that in the six-level hierarchical structure of B. Bloom's cognitive sphere, it is necessary to introduce the seventh category "Representation", which will be located after the category "Knowledge" and before the category "Understanding".

In B. Bloom's pyramid, the category "Representation" performs the function of developing a list of tasks for cognizers to restore in memory previously perceived impressions (temporary neural connections), knowledge, feelings, their causes and possible consequences. Such tasks are aimed at resuming, recreating and penetrating into cause-and-effect relationships, restoring, capturing connections, relationships in representational images. According to B. Bloom's taxonomy for the category "Submission" can be such learning objectives: Levels of learning goals. "Representation" - reproduction in the imagination and thinking of information, ensuring clarity, brightness, stability of the image of representation, capturing connections between the parts of the represented objects, phenomena, showing causes and effects, which provides a deep understanding.

Conclusions

- The cognitive process proceeds according to the laws of psychology, physiology and pedagogy, as a systemic managerial phenomenon.
- Part of the teachers do not know the psychological patterns of the cognitive process and methods of managing it.
- Teachers are required to know B. Bloom's taxonomy.
- The cognitive process is activated by the implementation of the "Representation" procedure in the process of educational work.
- The use of the "Representation" procedure activates the processes of memory, thinking, imagination, develops emotional - sensory perception, logic, criticality, systematic conclusions.
- Coronavirus disease as a cause will lead to a decrease in the analytical thinking of a person due to a false representation of its consequences.

Offers

- Teachers should know the psychological laws of the cognitive process, methods and ways of managing it.
- It is necessary to create special courses, hold seminars, conferences, organize research centers for teaching teachers the skill of optimal organization of the cognitive process.
- B. Bloom's taxonomy is a complex, systemic, logically complete system. In classes, practical work, seminars, etc., more attention should be paid to the analysis and practical application of this taxonomy, enriched by the category "Representation" developed by us
- To teach teachers the real and optimal use of B. Bloom's taxonomy based on the psychological laws of knowledge.
- Since the pandemic is a worldwide phenomenon, in each lesson with students, it is necessary to devote 2-3 minutes to emphasizing the danger with vivid examples that evoke clear ideas.

Thus, the introduction of the category "Representation" in the taxonomy of B. Bloom and the management of the cognitive process with its help will greatly improve the quality of the knowledge gained, the development of skills and abilities of practical activity.

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