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PEDAGOGICAL-PSYCHOLOGICAL FEATURES OF IMPROVING THE "4K" COMPETENCE IN PRIMARY EDUCATION STUDENTS

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Abstract: The article examines the urgent need to modernize primary education in Uzbekistan in the context of forming 21st-century competencies, with special emphasis on the "4K" model (Critical Thinking, Creativity, Communication, Collaboration). The author substantiates the necessity of shifting from a traditional knowledge-transfer paradigm to a competence-oriented approach based on constructivism, Vygotsky's zone of proximal development, Piaget's theory of cognitive development, Gardner's multiple intelligences, and Bloom's revised taxonomy. Particular attention is paid to the role of primary school teachers as key figures in laying the intellectual, spiritual-moral and socio-emotional foundations of the "Third Renaissance generation" in accordance with the strategic guidelines set by President Sh.M. Mirziyoyev (Address to the Oliy Majlis, 29 December 2020). The article highlights the critical shortcomings of the existing school psychological service, especially the lack of objective diagnostics of children's psychological and intellectual readiness for school, and proposes the introduction of scientifically grounded longitudinal monitoring and individualized educational trajectories. Practical recommendations are given for the systematic development of "4K" competencies through activating strategies, interdisciplinary projects, problem-based and reflective learning, and the creation of a supportive developmental environment.

Keywords: primary education, 4K competencies, critical thinking, creativity, communication, collaboration, zone of proximal development, constructivism, Third Renaissance generation, psychological-pedagogical diagnostics, individualized.

Introduction. The modern world is characterized by rapid change and increasing complexity, and education is facing new challenges and demands. The global shift in the educational paradigm emphasizes the increasing importance of 21st century skills for personal and professional success. Traditional education systems, focused solely on the transfer of knowledge, are giving way to approaches that form individuals who can solve complex problems, think innovatively, and collaborate effectively.

Primary education pedagogy is a scientific field that studies the process of educating primary school students. It analyzes the age-specific psychological and physiological characteristics of students, includes theoretical and practical issues related to the comprehensive formation of their intellectual potential, spiritual and moral qualities, and physical development. [1] Start 'internal education can be achieved through the use of innovative educational technologies in the effective organization of education. Innovation means novelty.

Terms such as innovation in pedagogy, innovative activity, innovative pedagogy, and management of innovative processes in education were formed in the 60s of the 20th century in the USA and Western European countries, when the concept of "educational technology" entered scientific circulation, and began to acquire scientific and theoretical content. In those years, special scientific centers and institutes were established in Europe to study pedagogical innovations.

The Main Part. According to the analysis of sources, the emergence of these concepts was due to the need to improve the education system, organize it on a technological basis, and implement pedagogical technologies in practice. This process is aimed at improving the quality of education, supporting the socialization of students as individuals, also aimed to achieve high results by forming humane and cooperative relationships in the educational environment. [3]

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Based on this, it is very important to form the “4K” competence in the primary education process. The teacher forms the 4K competence by instilling it in students. For this, first of all, the teacher must have formed the “4K” competence, that is, Critical Thinking, Creativity, Communication and Collaboration.

In order to correctly predict and plan the future educational path of each student from a pedagogical point of view, it is necessary, first of all, to deeply and comprehensively study his cognitive abilities, individual specific capabilities, personal characteristics, motivational state, and psycho-emotional characteristics. The lack of high-quality psychological and pedagogical diagnostics and monitoring remains a serious obstacle. Currently, the school psychological service faces a number of unresolved problems in ensuring the active participation of students. One of the most important of them is the practice of making decisions based on a single criterion (for example, age or a simple interview) when admitting children to school, without objectively assessing their level of mental and intellectual readiness. This situation makes it difficult to differentiate in the educational process at later stages and limits the possibility of fully realizing the potential of students. Therefore, one of the urgent tasks is to introduce a system of grouping and determining the psychological and intellectual readiness of children for school through scientifically based diagnostic tools by the school psychological service. [2]

The modern educational paradigm should be aimed at developing the following key competencies in students in accordance with the requirements of the 21st century:

The ability to independently identify, analyze and find effective solutions to complex, multi-stage and context-dependent problems (complex problem-solving);

Critical thinking based on scientific knowledge, logical reasoning, analysis of evidence and empirical observations; the ability to approach the problem from different perspectives, draw objective conclusions and make informed decisions;

Creative thinking - the ability to create new ideas and approaches, combine existing knowledge in an unusual way and offer innovative solutions;

Effective interaction with different individuals and groups, achieving joint goals in an atmosphere of mutual respect and trust;

The ability to correctly distribute roles and responsibilities in team activities, effectively use collective intelligence and achieve synergy effects;

Development of all components of emotional intelligence (recognition and management of one's own emotions, correct perception of the emotional state of others, empathy, social skills);

Cognitive flexibility - the ability to quickly and effectively switch attention from one task to another, adapt to changing conditions and respond quickly to new requirements.

For the systematic and targeted development of these competencies, it is advisable to use the internationally recognized “4K” model (English: Communication, Collaboration, Critical Thinking, Creativity; Uzbek: Мулоқот, Хамкорлик, Кранкидий изкус, Ижодкорлик) as the main methodological framework in the educational process. When this model is used in an integrated manner at all stages of the educational process (lesson structure, type of tasks, assessment criteria, project activities), the above seven competencies develop consistently and interdependently.

The President of the Republic of Uzbekistan Sh.M. Mirziyoyev, in his Address to the Chambers of the Oliy Majlis on December 29, 2020, identified improving the health of the population, the quality of education, and the general standard of living as the central direction of state policy. In this speech, broad goals were put forward for the comprehensive modernization of the country, in particular, the creation of equal, high-quality, and modern educational opportunities for every child and youth.

One of the most important ideas of the President’s speech was expressed as follows: if Uzbekistan has set a strategic goal of building the foundation of the Third Renaissance, then the formation of an educational ecosystem in society capable of raising a new generation of Khorezmians, Berunis, Ibn Sina, Ulugbeks, Navoiys, and Baburs becomes an essential task.

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The following were identified as the main directions for achieving this goal:

-radically renewing the education system and bringing it to the level of global competitiveness;

-widely promoting a healthy lifestyle among the population and improving the quality of medical services;

-rapidly developing fundamental and applied sciences, innovative technologies.

The primary education stage is of particular importance in achieving the above ambitious goals. It is at this stage that educators working are directly responsible for laying the intellectual, spiritual-moral and socio-emotional foundations of the child. In this regard, primary school teachers are required to have high professional qualifications, deep psychological-pedagogical knowledge, a creative approach, great patience and constant self-improvement. Their activities are considered one of the main factors determining the quality level of national education.

In order to gain a deep understanding of the individual and group psychological characteristics of students, a primary school teacher must systematically organize the learning process in two main directions:

Taking into account general psychological laws and age-specific development dynamics;

Within the framework of a specific educational process, that is, in the context of lesson activities, group interactions, and everyday pedagogical situations.

It is advisable to conduct scientific diagnostics (monitoring and analysis) of the level of psychological development of students in compliance with the following fundamental requirements:

The age-specific psychological characteristics of students and the specific dynamics of the class team should be studied in terms of specific pedagogical goals (for example, a differentiated approach, the formation of an individual trajectory, the distribution of social roles within the group). The psychological development of each student should be analyzed using the method of longitudinal observation - comparing it with indicators of academic activity, motivation and personal growth throughout all years of primary education.

Diagnostic and experimental tasks should be fully appropriate to the child's age and aimed at determining his zone of proximal development (ZPD); excessive difficulty or simplicity can distort the psychological state.

The process of assessing psychological development should be carried out in a natural educational environment, as opposed to artificial laboratory conditions, within the context of a real lesson (the principle of ecological validity).

Based on the diagnostic data obtained, not only the current state of the student, but also the zone of proximal development (ZPD) and the dynamics of expected changes should be accurately predicted and used to build an individual educational trajectory.

This approach allows the teacher to educate each child taking into account his real capabilities and development potential, thereby serving the great goal of forming the "Third Renaissance Generation". [4]

Modern development is a systematic motivating factor in the work of organizing the educational process on a scientific and pedagogical basis, in which the teacher deeply relies on and strengthens the fundamental theoretical platforms: The theory of constructivism (J. Dewey, J. Piaget, L.S. Vygotsky, etc.) - knowledge is actively “constructed” in the child, a system created on the basis of experience and under the influence of social changes. The theory of cognitive productions (J. Piaget) - reveals the qualitative games of logical thinking, imagination and time at certain ages;

The concept of the zone of proximal development (L.S. Vygotsky) - emphasizes that the difference between the tasks that a child can perform independently and those that he can perform with the help of a leader is the main source of development; The theory of multiple intelligences (H. Gardner) - proves that each child has linguistic, logical-mathematical, musical, spatial, corporal-kinesthetic, personal-internal, interpersonal, naturalistic and (in subsequent

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studies) existential types of intelligence to varying degrees; Taxonomy of educational goals (updated by B. Bloom, L. Anderson and others) - clearly defines the stages of "remembering → understanding → applying → analyzing → evaluating → creating" in the cognitive sphere, allowing for a hierarchical structure of lesson goals.

Not only knowing these theoretical constructs well, but also being able to adapt and integrate them into real pedagogical situations in the classroom is an integral part of professional competence for every primary school teacher. It is based on this theoretical basis that the teacher can correctly design the individual development trajectory of each student, differentiate the lesson and can organize it based on a personal approach and achieve maximum realization of the child's intellectual and personal potential.

In the late 20th century, against the backdrop of the widespread use of active, problem-oriented, and research-based methods and forms in the educational process, the principles and methods of developing critical thinking developed by John Dewey gained relevance. The main principles of this approach are as follows:

The principle of polysemanticity (multiple-meaning expression) - the ability to freely and clearly convey any concept or theory in various forms of representation (verbal text, visual image, mathematical formula, graphic model, etc.) is required. In this case, it is important that the student can independently express the concept through his own individual language or symbolic system.

The principle of information compression and generalization - the skill of reducing a large amount of information to a compact, highly generalized form is developed. The most effective generalization reaches the level of being able to convey content that requires several thousand words through a single conceptual image or diagram. Therefore, students are instilled with the ability to independently create conceptual maps, cognitive schemes, structural diagrams and other compacting tools that correspond to their personal cognitive styles.

The principle of abstraction - the formation of the ability to work with general laws and relationships, separated from concrete sensory experience; developing the skill of building and using general models, moving away from specific examples and contexts.

The principle of identifying dominant (leading) principles is the ability to isolate the main laws, structure, or logical center that determine the essence of any complex phenomenon or process and transfer it to other contexts.

The theory of cognitive development, developed by the Swiss psychologist and epistemologist Jean Piaget (1896–1980), is one of the most influential achievements of 20th-century psychology. This theory analyzes the intellectual development of children from a genetic-epistemological perspective and reveals the age-specific characteristics of thinking. Piaget argues that children's thinking is qualitatively different from that of adults and has the following characteristic features:

Egocentrism - the tendency of a child to consider his point of view as the only truth and not to take into account the mental state of other individuals;

Syncretism - the perception of individual phenomena as a single, vague whole, without identifying logically based connections between them;

Transduction - a logical operation based on the transition from particular facts to other particular facts, bypassing the level of generality, unlike induction and deduction;

Artificialism - the understanding of natural phenomena and the world as a product of human activity, that is, artificially created;

Animism - the attribution of life, intentions, and feelings to inanimate objects, while not noticing their inherent contradictions.

Piaget divides children's cognitive development into four stages; each stage is qualitatively different from the previous one and is characterized by its own cognitive structures:

Sensorimotor stage (0–2 years to 2 years) The child knows the world only through sensory and motor experiences. During this period, a permanent object concept, goal-directed actions,

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and initial symbolic function are formed.

Preoperational stage (2–7 years) Language and symbolic play develop rapidly, but thinking still remains egocentric, syncretic, and phenomenal in nature. The concept of conservation (preservation of quantity despite external changes) and inverse operations do not yet exist.

Concrete operational stage (7–11-12 years) The child is able to perform logical operations only on concrete, visible objects and real situations. Operations such as conservation, classification, serialization, and inverse thinking are mastered. Egocentrism is significantly reduced, social norms are internalized.

Formal Operations Stage (11-12 years to adulthood) Hypothetical-deductive thinking, abstract and formal logical operations appear. A young teenager can think about not real, but only possible situations, systematically formulate hypotheses and test them through experience. During this period, personal identification, value system and ideological searches are activated. This theory of Piaget remains the main theoretical support of child psychology, pedagogy and cognitive sciences today and is an important source of modern neuropsychological, constructivist and educational research. [5]

The development of “4K” competencies requires well-thought-out and consistent systematic and didactic actions, as well as sufficient training of teachers. By analyzing the literature on the topic, we can identify the most relevant recommendations that will help improve the process of forming these basic skills in primary school students:

Teachers can study educational programs, take into account modern pedagogical concepts such as constructivism, project pedagogy and reflective learning, and implement them by making changes to their professional development. It is very important for primary school teachers to have theoretical and practical knowledge on the development of “4K” competencies and other competencies of the future.

The learning environment should be designed to develop the child’s critical thinking, creative abilities, communication skills and the ability to work in a team. The learning process should be flexible, supporting group and creative work, stimulating and rich in learning materials and allowing for procedures adapted to different learning styles. It is very important for teachers to use activating teaching strategies and methods, especially problem-solving and interdisciplinary tasks that require students to be critical and creative, communicate and interact with others. Supporting children’s emotional and social development should be considered as a basis for the “4K” competence. Empathy, conflict resolution skills and self-awareness develop effective communication and collaboration.

Conclusion. Children's development in the 4K competencies should be monitored and documented regularly. Assessment should be formative, supportive, and tailored to the child's developmental abilities. [6]

In some pedagogical processes, the “4K” competence increases student engagement and helps develop practical and socio-emotional growth - qualitative research increases teacher confidence in facilitating open-ended tasks. Similarly, schools that organize interdisciplinary projects that require communication, teamwork, and critical problem-solving tend to foster higher levels of critical thinking and team spirit among teachers. Cross-national evidence supports this: Finland’s curriculum-based modules and Singapore’s inquiry periods are associated with higher levels of student performance. In the United States, regular participation in Professional Learning Communities (PLCs) increases self-efficacy and the adoption of innovative practices. Interdisciplinary, student-centered formats are most likely to develop the “4K” competence, provided that teachers are specifically trained and supported.

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