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ESSENTIAL CONDITIONS FOR PREPARING GENERAL EDUCATION SCHOOL STUDENTS TO LEARN CRITICAL THINKING

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Abstract. *The article emphasizes the need for systematic and targeted activities to develop critical thinking skills in students, highlighting the importance of specifically preparing learners for this purpose. In cultivating students' critical thinking, it is necessary not only to enhance their objective and emotional cognitive abilities but also to design a set of didactic tasks, specialized methodological approaches, and pedagogical intervention mechanisms tailored to effectively guide and support their learning process.*

Keywords: *critical thinking, process, didactics, assimilation, learning acquisition, ability, objective, content, form, methods and techniques, means and motives.*

Introduction. It is of paramount importance to structure the learning process in a way that enhances students' interest in their studies, ensures their independence and active participation, and fosters the development of critical thinking. In this context, the need to cultivate students' knowledge and support their ability to engage in free reasoning must primarily be addressed by the instructors.

Relevance of the Topic. It is well recognized in the existing scientific literature that a student's knowledge and their ability to engage in independent reasoning are often discussed in conjunction with concepts such as "intellect," "wisdom," and "thirst for knowledge." From both pedagogical and psychological perspectives, these terms carry distinct nuances and should not be considered entirely synonymous. The eminent thinker Alisher Navoi emphasized that the notion of "intellect" represents a relatively broader concept, encompassing multiple levels and qualities, some of which also pertain directly to knowledge acquisition [1]. This distinction highlights the importance of understanding the multidimensional nature of cognitive development, suggesting that fostering students' critical thinking and independent reasoning involves more than merely imparting factual knowledge – it also requires cultivating higher-order intellectual skills and reflective capacities.

Brief Analysis of Scientific Research on the Topic. The scientific and pedagogical, as well as practical technological aspects of preparing primary school students for reflective reasoning, have been explored by M. Abdullayeva, A. Nurmanov, and others. Meanwhile, B. Mirzahmedov, N. Mamadiyorov, and A. Abduvahobov have investigated the challenges related to intellectual education and its implementation within classroom settings. Despite these studies, the analysis of existing literature reveals that the issue of developing critical thinking skills among primary school students, particularly in the context of general secondary education under a market economy, remains insufficiently examined.

According to J. Hasanboyev, O. Hasanboyeva, X. Sariboyev, G. Niyozov, and M. Usmonboyev, reading and cognitive engagement play a crucial role even for children transitioning from early to middle childhood (around 11–12 years old, early adolescence).

However, increasing academic demands can, in some cases, lead to a “decline” in the effectiveness of learning specific subjects [2]. Therefore, in fostering critical thinking among students, maintaining pedagogical-psychological continuity and coherence must be a primary and ongoing focus for primary school teachers, ensuring that students’ cognitive development proceeds in a consistent and supportive environment..

Scientific Novelty and Research Framework. The scientific novelty of this study lies in highlighting the necessity of systematic, targeted activities for developing critical thinking in students, emphasizing that learners must be specially prepared for this purpose [3]. Cultivating critical thinking in students requires not only the development of their objective and emotional cognitive capacities but also the design of a comprehensive set of didactic tasks, specialized methodological approaches, and pedagogical intervention mechanisms tailored to effectively guide their learning process.

The main aim of the research is to identify the need for fostering critical thinking in students and to reveal the mechanisms of pedagogical influence that can support this development.

The object of the study is the process of developing critical thinking in students.

Methodologically, the research employed systematic and comparative-logical analyses to examine the formation of critical thinking. Empirical data were obtained through the results of structured questionnaire surveys conducted among the students, providing a quantitative and qualitative basis for evaluating the effectiveness of the proposed pedagogical strategies.

The empirical basis of the study was formed by the results obtained from structured questionnaire surveys.

Main Section. To effectively enhance children’s interest in academic subjects, assess their level of mastery, make predictions, and use interpretative methods wisely in the learning process, it is essential to have a clear understanding of the psychological and pedagogical characteristics present during instruction. In order to develop students’ critical thinking skills, teachers must have a precise comprehension of each student’s individual academic profile expressed through measurable digital indicators. Only with such an understanding can the pedagogical process be interpreted objectively [4]. Appropriate use of scales in pedagogical diagnostics and comparative methods plays a crucial role in achieving this goal.

When discussing quantities, it becomes necessary to clarify the meaning of the term “empirical quantity.” For example, in a dictation exercise, the correctly written words can be considered as the measure of “empirical facts.” If Asror writes 44 words correctly, Akbar 34, and Mohira 28, the analysis does not merely compare Asror with Akbar or Akbar with Mohira. It also considers comparisons such as Asror versus Mohira to reflect the relative frequency of correct responses. Empirical facts are interrelated, and quantitative measurement must accurately represent these relationships. Such an approach ensures that the development of critical thinking is informed by precise, data-driven insights rather than subjective impressions.

However, assessing primary school students who read poetry expressively and fully convey the composition of a literary work is a complex task, and measuring their level of subject mastery in such cases is challenging [5]. Therefore, contemporary assessment practices utilize the following level-appropriate scales:

- Nominal scale;

- Ordinal scale;
- Interval scale;
- Ratio or proportion scale.

In developing critical thinking in students, ensuring pedagogical-psychological continuity and coherence places particular emphasis on the objectivity of data analysis [6]. In traditional assessment systems, the objectivity of data interpretation is often low; for example, a single written assignment may be graded differently by different teachers, meaning the evaluation lacks consistency and reliability.

The concept of "reliability" refers to the degree of trustworthiness and precision with which a particular characteristic or variable has been measured. If a trait is measured with a high degree of precision, its representation on a scale corresponds to a single, exact value. To illustrate the difference between precise and approximate measurement, consider the example of distance: it may be measured exactly as 4,188 mm, or approximately as about 4 meters.

The reliability of a measurement is quantified using a reliability coefficient, which provides an objective indication of the consistency and dependability of the observed data. Such precision is essential in pedagogical research and assessment, as it underpins accurate evaluation of students' critical thinking skills and the effectiveness of educational interventions.

Validity is considered one of the most important methodological requirements of measurement quality. Validity determines whether the measurement actually assesses what it is intended to measure, ensuring absolute confidence that the target construct has been measured rather than an unrelated or secondary factor.

In test methodology, several types of validity are commonly distinguished:

❖ Content validity, which reflects the extent to which test items adequately represent the subject matter being assessed;

❖ Criterion-related validity, which indicates the consistency between test results and external criteria;

❖ Predictive validity, which shows the degree to which test outcomes can accurately forecast future performance;

❖ Construct validity, which demonstrates how well the test measures the theoretical construct it is designed to assess [7].

In addition to these fundamental requirements of measurement quality, the pedagogical literature highlights several additional criteria:

➢ the standardization of tests, meaning that tests are normalized and applied under uniform conditions;

➢ the comparability of tests, where a test is evaluated in relation to its parallel or alternative versions;

➢ the efficiency of tests, referring to the economical use of time and resources;

➢ the practical usefulness of tests, indicating their applicability and relevance in real educational settings.

To examine students' levels of subject mastery, the widely used observation method is often applied.

In many cases, this method proves effective for diagnosing children's cognitive development, as it allows educators to monitor learning behaviors, intellectual growth, and thinking processes within authentic classroom contexts.

It is well known that the observation method is a rather complex research tool and is applied to achieve clearly defined objectives. In particular, it is used to analyze the influence of interpersonal communication among students, as well as interactions between adults and children, and to compare individual differences in behavior, thinking styles, and learning attitudes.

The level of consistent critical thinking among primary school students can also be identified through the analysis of their written assignments. Written tasks allow educators to examine students' ability to reason logically, justify their opinions, and express independent judgments in a structured manner.

To determine the degree to which critical thinking has been formed, it is advisable to conduct dialogue-based lessons on various topics with students. Such interactive learning environments create favorable conditions for expressing personal viewpoints, engaging in argumentation, and reflecting on alternative perspectives. The level of students' critical thinking can be assessed using the following indicators:

- the objectivity of the expressed critical opinion;
- the reliability and credibility of the evidence supporting the expressed viewpoint;
- the validity of the arguments presented by the student.

When assessing students' levels of critical thinking, it is essential to create equal and supportive pedagogical conditions for all learners. Ensuring uniform learning environments contributes to the fairness and objectivity of the assessment process. In the development of students' critical thinking skills, particular pedagogical importance is attached to the objectivity of the opinions expressed by learners [8]. Therefore, when evaluating written work, special attention should be paid to the impartiality, accuracy, and factual correctness of the ideas articulated by students.

The reliability of a critical opinion expressed by a student is determined by the quality and credibility of the evidence provided in its support. The more accurate, factual, and convincing the evidence is, the more trustworthy the expressed viewpoint becomes. If a particular piece of evidence clearly substantiates the precision of an argument, that same evidence simultaneously ensures the overall reliability of the student's critical judgment.

The validity of critical thinking reflects the extent to which this thinking skill has been developed. Validity allows for the differentiation of students according to the level of their critical thinking ability, such as learners demonstrating a high, moderate, or low level of critical reasoning. In this context, the validity of an opinion serves as a clear indicator of the depth, consistency, and maturity of the student's analytical approach.

To examine students' levels of critical thinking, it is especially important to observe their engagement in communicative interactions. The observation method is widely used to compare learners' thinking processes, communication skills, and their ability to participate in meaningful dialogue. Within diagnostic studies, observation plays a key role in identifying the degree to which critical thinking skills have been formed.

The observation method enables educators to analyze primary school students' worldview, cognitive development, dynamics of reasoning, independence in drawing conclusions, and the ability to express an active personal stance. Through systematic observation, it becomes possible to assess how learners construct arguments, respond to alternative viewpoints, and demonstrate reflective thinking in various learning situations.

The active manifestation of critical thinking among primary school students is also closely related to the functional characteristics of their nervous system, particularly the level of cognitive activation and emotional engagement. This is reflected in the following abilities:

✓ the capacity to overcome difficulties encountered during the process of expressing one's thoughts;

✓ persistence and determination in achieving set learning goals;

✓ the ability to maintain intensity and productivity in learning activities, even when performing tasks that may not be intrinsically engaging over an extended period;

✓ the demonstration of productive behavior and firm opinions across diverse educational contexts;

✓ the tendency toward independence during communication and discussion;

✓ the ability to reveal previously unexplored or undeveloped personal capacities in new learning situations.

In designing a pedagogical system aimed at developing critical thinking skills among primary school students, it is necessary to seek answers to several key questions:

Under what pedagogical and psychological conditions can critical thinking be effectively formed in primary school learners?

What requirements and criteria should be applied to the critical thinking abilities of primary school students?

What technological and methodological features characterize the process of developing critical thinking skills at the primary education level?

The systematic and continuous development of critical thinking skills among students during both classroom instruction and extracurricular educational activities – particularly in subjects such as Reading, Natural Sciences, and Mother Tongue – has been shown to yield positive and sustainable learning outcomes. When such activities are organized within a clearly defined pedagogical framework, they contribute to the consistent formation of analytical and reflective thinking.

The process of fostering critical thinking skills can also be illustrated through examples drawn from the Reading and Mother Tongue lessons. In particular, the following didactic tasks implemented in Grade 3 Mother Tongue classes help reinforce students' subject-related knowledge, enrich their vocabulary, and promote the gradual development of critical thinking competencies.

Example 1.

Among the five given words, four share a common characteristic, while one does not belong to this group. Identify and mark the word that does not fit. Write the number of the selected word on the answer sheet and choose only one option.

a) teapot, b) cup, c) chair, d) rolling pin, e) spoon.

The first, second, fourth, and fifth words refer to kitchen utensils, whereas the third word belongs to the category of furniture. Therefore, the extra word is chair.

a) to walk, b) to jump, c) to dance, d) to sit, e) to run.

In this case, four words describe physical movement, while to sit indicates a state of inactivity. Hence, it is the word that does not correspond to the shared characteristic.

Example 2.

From the given pairs of words, identify and write the concept that best expresses their common characteristic. Among all possible shared features, the most accurate and specific one related directly to both objects should be selected.

Fir tree – pine tree: Possible answers include trees, evergreen plants, and coniferous trees.

The most precise answer is coniferous trees.

Rain – hail: Possible answers include atmospheric phenomena, weather conditions, and precipitation.

The most appropriate answer is precipitation.

Organizing mother tongue lessons in primary school using such cognitively oriented tasks allows students to systematize their acquired knowledge and skills in a coherent manner. This approach contributes to the improvement of the instructional process and enhances its overall effectiveness.

Moreover, the creation of problem-based situations within students' thinking activities fosters curiosity, mental agility, independence, interest in learning, and a desire for creative engagement. As a result, learners develop not only subject-specific competencies but also essential cognitive qualities that support lifelong learning and intellectual growth.

Empirical Findings of the Study. In our view, the effective development of critical thinking skills among primary school students largely depends on the purposeful use of problem-based learning methods. The formation of critical thinking competencies requires the creation of authentic pedagogical situations that introduce learners to new ideas and intellectual challenges.

Such situations stimulate cognitive engagement and encourage learners to question, analyze, and reflect on information rather than passively accept it. This process is systematically designed on the basis of various educational and instructional theories and concepts and is subsequently implemented within formal educational institutions.

In fostering students' critical thinking skills, it is essential to develop both their objective cognitive abilities and emotional–reflective capacities. Achieving this goal necessitates the design and application of a structured set of didactic tasks, the development of specialized instructional methodologies, and the implementation of effective mechanisms of pedagogical influence tailored to learners' developmental characteristics.

Based on the considerations outlined above, the following conclusions can be drawn:

There is a clear and growing need for systematic and purpose-oriented efforts aimed at developing critical thinking skills among students, particularly at the primary education level.

Critical thinking represents a set of pedagogical strategies capable of transforming the psychological climate of the learning environment, turning classroom instruction into a collaborative space for creativity and inquiry.

Within such an environment, students learn to think independently by actively engaging in research-oriented activities, exploring diverse sources of information, and drawing reasoned conclusions based on evidence.

For primary school students, it is necessary to create favorable conditions for creativity, including the tolerant acceptance of diverse ideas and opinions expressed by learners, the encouragement of active participation in the learning process, and the cultivation of students' confidence in their own creative and intellectual potential. Moreover, students' creative initiative should be consistently supported through motivation and reinforcement, while well-structured mechanisms of pedagogical influence must be developed to sustain and enhance their cognitive and creative engagement.

Based on the conclusions of the study, the following practical recommendations can be proposed: Although critical thinking can be defined and interpreted in various ways, there is a general consensus that its core component lies in the desire to achieve meaningful and satisfactory outcomes. This objective can be attained through rational reasoning, reflective judgment, and purposeful engagement in outcome-oriented learning activities. Students should be encouraged to build self-confidence, recognize the value of their own ideas and viewpoints, actively participate in the learning process, attentively consider alternative perspectives, and develop well-reasoned judgments. In order to effectively foster critical thinking among learners, teachers should prioritize instructional practices that promote diversity of opinions, learner engagement, intellectual risk-taking, respect for ideas, recognition of the intrinsic value of students' thoughts, constructive exchange of viewpoints, and the use of thought-provoking questions that stimulate analytical and critical reasoning during classroom instruction.

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