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FORMATION OF CRITICAL THINKING OF PRIMARY SCHOOL STUDENTS IN THE CONTEXT OF THE NEW UKRAINIAN SCHOOL

Summary

The article is devoted to the process of forming critical thinking of primary school students. The modern requirements of the state legislation on the formation of critical thinking of Ukrainians in general and primary school students in particular are analysed. The concept of 'critical thinking' in the scientific context is characterised. The structure of critical thinking is presented, namely: activity, intellectual-procedural and emotional components. A research programme is developed and a pedagogical experiment is conducted to determine the level of critical thinking of primary school students.

Based on the study of modern philosophical, psychological, pedagogical, cultural studies of scientists, as well as the requirements of the NUS concept, the State Standard of Primary Education and other legislative documents, the following criteria for the formation of critical thinking of primary schoolchildren were identified and characterised: cognitive, analytical and personal components.

In accordance with the criteria of critical thinking of junior schoolchildren, low, medium and high levels of its formation have been identified.

The results of the analysis of the ascertaining stage of the experiment showed that the critical thinking of primary school students by all criteria was insufficiently formed. Therefore, the experimental programme 'Habit of Thinking' was developed and implemented, the

objectives of which were to develop critical thinking skills in primary school students, and the results showed the effectiveness of the experimental work.
Keywords: critical thinking; formation of critical thinking of primary school students; structure of critical thinking; criteria and indicators of the level of critical thinking

Introduction

The main goal of modern education is to educate a responsible personality capable of self-education and self-development, who can use the acquired knowledge and skills for creative problem-solving, critical thinking, processing of various information, and who strives to change their lives and the life of their country. Critical thinking is one of the fashionable trends in education today.

According to the Law of Ukraine 'On Education', critical and systemic thinking is defined as a skill common to all key competences required by every modern person for successful life (Article 12, paragraph 1). The Resolution of the Cabinet of Ministers of Ukraine 'On Approval of the National Qualifications Framework', the Concept of Education Development in Ukraine for the period 2015-2025 (2014). In 2016, the International Economic Forum in Davos listed critical thinking as one of the 'core skills' necessary for a person to successfully compete in the labour market and advance in their career.

The Concept of the New Ukrainian School clearly states the need to develop critical thinking as a cross-cutting skill that is developed through all subjects and is the basis for the formation of student competences. This idea is also reflected in the State Standard of Primary Education, which includes the acquisition of critical thinking skills in the learning outcomes of students in all educational areas [1]. The ability to think critically is an important skill for a modern person who is constantly in communication and other relationships with different individuals, visits different countries, changes occupation and place of work. Therefore, the development of critical thinking is of great importance in the modern world.

In the context of the New Ukrainian School, the task of finding effective pedagogical technologies for the efficient and effective formation of critical thinking, which is one of the main elements of preparing students for life in the modern social environment, is becoming urgent. The issue of high quality organisation of thinking mobility, an innovative approach to activities in the changing conditions of our time, is particularly acute.

Formation of critical thinking of pupils in the classroom should be carried out using effective pedagogical means that would help to activate the cognitive interest of children and

their motivation to work. These undoubtedly include modern teaching technologies, which should correspond to the age, interests and needs of primary school students, encouraging them to learn new knowledge.

Purpose, subject and research methods

The purpose of the study is to theoretically analyse the problem of critical thinking and organise experimental research work on the formation of critical thinking in primary school students and analyse its results.

The subject of the study: critical thinking of primary school pupils.

Research methods: analysis and synthesis, generalisation of theoretical data, questionnaires, quantitative and qualitative analysis of diagnostics.

Research results

Today, in the theory and practice of primary school education, the problems of developing students' critical thinking are particularly acute. Educating a thinking, independent, creative personality is a social demand of society. The technology of critical thinking development was developed in the USA at the end of the twentieth century by scientists such as K. Meredith, J. Steele, C. Temple and others. In the domestic context, there is also a lot of experience that has been highlighted in the works of O. Korzhuyev, M. Krasovytskyi, T. Oliynyk, V. Popkov, O. Pometun, Y. Stezhko, I. Sushchenko, L. Terletska, O. Tyagla, N. Tsioma, S. Voropai, K. Korsak, M. Sheremet and others.

The founder of the US Institute for Critical Thinking, Matthew Lipman, believes that critical thinking is ‘skilful responsible thinking that allows a person to formulate reliable, valid judgements because it is: a) based on certain criteria; b) self-correcting; c) derived from a specific context[2, p. 74]. N. Tsioma defines critical thinking as an intellectual process of applying, analysing, synthesising, conceptualising and evaluating information gathered through observation, experience, reflection, reasoning and communication [9]. N. Navolokova notes that critical thinking is skilful responsible thinking that allows a person to formulate reliable and valid judgements [3]. The authors of the concept of the basics of critical thinking (V. Dyukov, L. Pylypchatina, O. Pometun, I. Sushchenko) define critical thinking as a person's ability to analyse information, events and facts and critically evaluate them, form their own position on a particular issue and defend it, justify it, and find new ideas. This is a type of

thinking characterised by balance, logic and purposefulness, the use of special cognitive skills that increase the likelihood of the result of mental activity [5]. A well-known Ukrainian researcher in the field of critical thinking, O. Tyaglo, called critical thinking 'the most modern logic' and proposed a variant of its formulation in which it is considered as a modern type of logical activity aimed at systematically improving the process and results of thinking based on their critical analysis, understanding and evaluation [8]. Oksana Shkvyr formulated a definition of this definition: it is scientific thinking aimed at making a person's own decision through the use of intellectual and communication techniques [10].

Critical thinking plays a special role in the light of the ideas of the New Ukrainian School, which clearly states the need to develop critical thinking as a cross-cutting skill that is developed through all subjects and is the basis for the formation of student competencies.

Critical thinking is defined here as thinking that enables a person to: see problems, ask questions; analyse, synthesise, and evaluate information from any source; hypothesise and evaluate alternatives; and make conscious choices, make decisions, and justify them. Critical thinking of primary school students is independent, analytical, logical and social thinking aimed at optimal problem solving and development of students' own solutions. It involves the use of intellectual and communication techniques. The work of primary school teachers should be aimed at teaching students to think, express and prove their own opinions, and build constructive relationships with other children. The development of critical thinking in primary school children helps to prepare a new generation of children who are able to reason.

The development of critical thinking is the development of the ability to be aware of these and other influences and to overcome or take into account limitations. When making important decisions, a critical thinker asks himself or herself the following questions: why am I making this decision? What exactly influenced me? What are the other options? The teacher discusses their decisions with the children, asking them such questions and gradually teaching them to ask themselves such questions. This helps to build awareness and broad thinking, which makes a person more profound and independent [4].

According to the Concept of the New Ukrainian School, in order to develop critical thinking in younger students, teachers need to:

-allocate time and provide opportunities for the application of critical thinking;

-allow students to think freely;

-accept a variety of ideas and opinions;

-promote the active involvement of students in the learning process;

-provide students with a risk-free environment free from ridicule;

-express faith in the ability of each student to make critical judgements;

-value students' critical thinking.

The tasks of the technology of critical thinking development in primary school include:

1. Formation of cognitive interest in primary school students and understanding of the purpose of studying this topic.
2. Development of intrinsic motivation for purposeful learning.
3. Stimulating the cognitive activity of students.
4. Encouraging students to compare the information received with their personal experience and to form analytical support on its basis.
5. Development of critical thinking.

In order to think critically, students need to: develop self-confidence and an understanding of the value of their own thoughts and ideas; participate actively in the learning process; respect diverse opinions; be prepared to express and challenge judgements [2, c. 75].

Thus, in our opinion, critical thinking is an organised mental activity that promotes the development of the ability to analyse facts, develop and systematise ideas, defend opinions, make comparisons, draw logical conclusions, evaluate arguments and solve problems.

Based on the study of scientific and pedagogical literature, the following features of critical thinking of junior schoolchildren can be identified: independence, analytical, logical, and social.

Independence. Thinking becomes critical only if it is individual. Most primary school students have received pre-school education, are constantly acquiring new knowledge at school, from Internet resources, and have some life experience. Therefore, primary school students are able to solve a particular problem on their own, based on the information they have. Critical thinking does not have to be original. Pupils can accept another person's idea or belief and thereby agree with it.

Analytical skills. Critical thinking involves the selection of information based on the use of intellectual techniques. The teacher should teach students to analyse, compare, summarise and evaluate information in order to formulate their own opinions (arguments) and make an independent decision.

Logicality. Students' arguments and conclusions should meet the main features of logical thinking (clarity, consistency, consistency, evidence). Under such conditions, a student can build a correct reasoning and solve a certain problem.

Sociality. Critical thinking is social. Every thought is verified and deepened if it is discussed with others. As a result, the student's own position is clarified and deepened. Therefore, students should prove the truth of their opinions during communication.

As the German teacher A. Dysterweg said: ‘An ordinary teacher presents the truth, but a good teacher teaches you to find it’. With these words, I would like to emphasise the importance of teachers' compliance with the conditions for the development of critical thinking.

From the point of view of psychologist L. Terletska, critical thinking is thinking that has the following characteristics:

- depth (insightful thinking) - the ability to penetrate to the core, to see the unclear where others find everything quite clear and understandable;
- consistency - the ability to follow logical rules, not to contradict oneself, to justify conclusions;
- independence - the ability to ask questions and find new approaches to solving them;
- flexibility - the ability to change the way of solving a problem, find new ways, be free from a template;
- speed - the ability to quickly cope with cognitive tasks;
- strategic - consistent hypothesising, identifying features (scanning and focusing) when solving problems [6].

A critical thinker is characterised by:

1. The ability to perceive the opinions of others critically.
2. Competence.
3. Indifference in the perception of events.
4. Independence of thought.
5. Curiosity.
6. Ability to engage in dialogue and discussion.

In their research, scholars pay considerable attention to the structure of critical thinking. S. Terno distinguishes between the content and operational blocks in critical thinking [7]. O. Shkvyr - problem formulation, information search, clear argumentation and acceptance рішення [10]. N. Tsioma believes that critical thinking is structurally divided into substantive and operational [9]. The analysis of the above-mentioned studies allows us to distinguish the following structural components of critical thinking: activity, intellectual-procedural and emotional components.

While working with the technology for developing critical thinking, we realised that it is almost impossible to teach students to think critically from the first lesson. Critical thinking is formed gradually, it is the result of daily hard work of the teacher and the student, from lesson to lesson, year after year.

It is impossible to identify a clear algorithm of teacher's actions in developing students' critical thinking. But we can highlight certain conditions, the creation of which can encourage and stimulate students to think critically, namely*:*

1. *Time.* Students should have enough time to collect information on a given problem and process it. It should be taken into account that work on the formation of critical thinking can be conducted not only during the lesson, but also before and after it.

2. *Waiting for an idea.* Students must realize that they are expected to express their thoughts and ideas in any form. Ideas should be diverse.

3. *Communion.* Children should have the opportunity to exchange ideas, which will allow them to see their significance and their contribution to the solution of the problem.

4. *Valuing the opinions of others.* Students should realize that in order to find the optimal solution, it is important to listen to all the opinions of interested people in order to be able to formulate their own opinion.

5. *Belief in the power of students.* Schoolchildren should know that they can express any opinion, think outside the box. The teacher's task: to create an environment free from jokes and mockery.

6. *Active position.* Children should enjoy learning and take an active position in it. This will stimulate them to think outside the box and critically.

Critical thinking skills are an increasingly important element of primary education, but teaching them can often be a challenge for primary school teachers. Critical thinking goes beyond memorisation, encouraging young learners to connect the dots between concepts, solve problems, think creatively and apply knowledge in new ways. Despite the myths that critical thinking skills are only applicable to subjects such as science and maths, the reality is that these skills - which are based on evaluating and applying knowledge - are vital not only for success in all subject areas, but also in everyday life.

This raises the question of using methods of teaching critical thinking in primary school. There is no generally accepted list of methods for developing critical thinking, nor is there a generally accepted classification of these methods. A significant number of methods came to the Ukrainian pedagogical space in the second half of the 1990s and early 2000s with the Reading and Writing for Critical Thinking programme, while others have gradually spread

through foreign expert experience. There are those that closely overlap with the concept of 'interactive method', because their application requires interactive interaction of students. There are methods whose authorship is even difficult to establish today. However, this is not an obstacle to their effective use in teaching practice. The methods of teaching critical thinking include self-assessment and self-evaluation sheets; logbook; elimination of 'superfluous', logical chains; prediction tree; 'K-W-D' table ('Know - Want to know - Learned'); take a stand; true and false statements; cluster; 'Basket of ideas'; brainstorming; unfinished sentences; discussion of the issue in a general circle; in one word; key words; plus or minus interesting; assumptions based on the proposed key words (terms); comparison table; Fishbone; work in pairs; work in small groups; question daisy; synchronicity; 'Do you believe that... '; reading with stops; reading with marking the text; six 'why? '; 'Six hats' [4, p. 31].

The experimental study was carried out in compliance with a number of requirements, including: the requirement of the duration of the experiment (its duration in time and the correction of the organisation and reproduction of the results of the experiment).

Let us describe the purpose, programme, methods, stages and conditions of the experimental work. The main task of the experimental work was outlined in the aim and objectives of our study. We have taken into account the fact that the effectiveness of any pedagogical system (in our case, the system of forming critical thinking of primary school pupils) depends on its properties taken in the complex. These properties determine the relationship between the result obtained and the action of social laws in relation to this pedagogical system.

Our pedagogical research included: a scientific and methodological analysis of the problem of forming critical thinking in primary school pupils; pedagogical definition of the goals of the educational process related to the formation of knowledge, skills and personal qualities that influence the formation of critical thinking; organisation of experimental research (the ascertaining and formative stages of the experiment); implementation of the experimental programme 'Habit of Thinking'; conducting a control section based on the results of the experimental work, identifying general trends in the formation of critical thinking of primary school students; generalising the data of the formative stage of the experiment to assess the effectiveness of the final result - increasing the level of critical thinking of primary school students.

In order to determine the level of critical thinking of primary school students, students of the Institute of Pedagogy of the Zhytomyr Ivan Franko State University, speciality 'Primary Education', conducted an experimental study in general secondary education institutions of

Zhytomyr during their practical training. It was attended by 30 pupils of the 3rd grade aged 9 years. The children who took part in the study were chosen randomly, that is, they have different levels of academic achievement, intellectual activity, independence, initiative, and different cognitive interests. Thus, we can state that the test results are reliable and reflect the real picture of the level of development of children's critical thinking among pupils of a particular class. The diagnostics to determine the level of critical thinking development was carried out according to the following criteria: cognitive, analytical and personal.

At the ascertaining stage of the experiment, surveys, questionnaires, analysis of creative works, and testing were used to determine the level of civic competence of primary school students.

In accordance with the criteria, low, medium and high levels of critical thinking of primary school pupils were identified. It is noted that the concept of 'level' expresses the dialectical nature of the development process, contributes to the knowledge of the process of forming critical thinking of primary school pupils in the diversity of its properties, connections and relationships.

After analysing the results of the study of the level of development of critical thinking of junior pupils among 3rd grade students, it was determined that 33% have a low level of critical thinking; 48% - an average level; 19% - a high level. Thus, the study made it possible to practically confirm the existence of three levels of critical thinking of primary schoolchildren. Summarising the data obtained, it was concluded that the development of critical thinking of primary school children is insufficient.

In order to improve the level of critical thinking in primary school students, we have developed and tested the author's experimental programme 'Habit of Thinking'.

'The Habit of Thinking' is an experimental programme designed to implement organisational and pedagogical conditions, namely: taking into account the age characteristics and individual level of critical thinking of each student; combining interactive technologies in the classroom and in extracurricular activities; using interactive technologies and exercises that will activate students' needs to think critically.

The aim of the 'The Habit of Thinking' programme is to improve the development of critical thinking in primary school students.

Objectives of the 'The Habit of Thinking' programme:

- develop critical and creative thinking;
- develop group work skills;
- to develop confidence in their abilities and capabilities.

Our programme includes work with 3rd grade students during lessons and in everyday life.

The structure of the Habit of Thinking programme includes various forms, methods, and techniques of work using interactive technologies. The programme included the use of interactive exercises in mathematics lessons: ‘Teaching - I learn’; “Press” method, “Incomplete sentences”, “Assumption tree”, “Bloom's cube”.

In the ‘I Explore the World’ lessons: ‘Expectations’, ‘Associative Bush’, ‘We Know - We Learned’, ‘Fishbowl’, group projects on the following topics: ‘Circles on the Water...’, ‘Amazing Transformations, or What is Cheese?’, ‘Why are there so many holes in bread?’.

Interactive exercises are used in literary reading lessons: ‘Bloom's Daisy’, discussion “My point of view”, interactive technology “6 hats”, competition “My fairy tale will come to life”.

In Ukrainian language lessons: interactive exercises such as ‘Expectations’, ‘Brainstorming’, ‘Observation’, ‘Carousel’, etc.

At the final stage, the level of critical thinking in children was diagnosed by cognitive, analytical and personal criteria.

After the formative stage of the experimental work, the number of low-level pupils decreased by 19% and the number of high-level pupils increased by 24%. These results demonstrate the effectiveness of the experimental work.

Conclusions

The theoretical analysis of the peculiarities of the development of critical thinking in primary schoolchildren indicates that this process is an integral part of personality development. Critical thinking is manifested in the student's ability to independently evaluate environmental phenomena, reality, information, scientific knowledge, opinions and statements of other people, as well as the ability to distinguish between positive and negative aspects.

The analysis of scientific sources has led to the conclusion that today there is a certain theoretical and practical experience in the development of critical thinking in primary school students. In modern pedagogy, there are many different interpretations of the concept of ‘critical thinking’. In our study, the term ‘critical thinking’ is understood as a system of judgements that promotes the development of the ability to analyse facts, develop and systematise ideas, defend opinions, make comparisons, draw logical conclusions, evaluate arguments and solve problems.

It is important to note that learning to think critically is a complex process that requires a lot of time and effort. It is not a simple task that can be completed at a certain stage and forgotten afterwards. There is no specific set of techniques or practical steps that can be

followed to learn critical thinking. However, there are a number of conditions that the teacher should create in the classroom, as well as some tips that students should follow in order to successfully engage in the process of critical thinking.

The following criteria for the formation of critical thinking of primary school students were identified and characterised: cognitive, analytical and personal, as well as the levels of its formation.

The results of the analysis of the ascertaining stage of the experiment showed that the critical thinking of primary school students by all criteria is insufficiently formed. Therefore, the author's experimental programme ‘Habit of Thinking’ was developed and implemented. After the formative stage of the experimental work, the number of low-level pupils decreased by 19% and the number of high-level pupils with critical thinking skills of primary school pupils increased by 24%. These results demonstrate the effectiveness of the experimental work.

Thus, our study does not fully exhaust all aspects of this problem. In particular, further development is needed to harmonise the content of critical thinking formation in junior schoolchildren in wartime, which is the prospect of our further research.

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