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FORMATION OF A PROFESSIONAL ENVIRONMENT FOR THE DEVELOPMENT OF TEACHERS' CRITICAL THINKING

The peculiarities of the formation of a professional environment for the development of teachers' critical thinking have been investigated in the article. The essence of the concept "critical thinking" has been revealed based on the analysis of psychological and pedagogical literature. Principles and functions of critical thinking have been considered, and the conditions for the professional development of teachers' critical thinking have been specified. The factors that most effectively influence the formation of critical thinking have been identified, including interactive teaching methods, professional environment, reflective practices, mentorship, professional cooperation, and self-education. These factors contribute to the development of teachers' critical thinking and form a positive environment for improving the quality of education.

Based on the empirical research conducted using the methods of critical thinking assessment, such as the California Critical Thinking Skills Test, Watson-Glaser Critical Thinking Appraisal, Reflective Judgment Model, it has been found that the teachers have well-developed skills of information analysis and the ability to assess the reliability and logic of arguments. The study conducted according to the Reflective Judgment Model has demonstrated that educators can analyze information, assess its reliability, and take into account different points of view. Teachers also demonstrate flexibility, the ability to adapt to change, make decisions under uncertainty, and use creative approaches to problem-solving that highlight their creative potential in teaching and upbringing.

It has been found that there are many obstacles to the development of critical thinking, such as the lack of internal motivation for self-development, organizational limitations, fear of innovations in professional activities, insufficient qualification of teachers in methods of developing critical thinking.

Methodological recommendations for the development of teachers' critical thinking have been proposed. They include using problem-based learning methods, a method of cases, brainstorming; interactive techniques (web quests; digital platforms, such as Padlet, Kahoot and Edmodo; participation in pedagogical training courses and workshops; using tools for self-assessment and critical thinking).

Keywords*: critical thinking; teacher's professional environment; components of critical thinking; factors for developing critical thinking; methodological recommendations.*

Fig. 1. Ref. 10.

FORMATION OF A PROFESSIONAL ENVIRONMENT FOR THE DEVELOPMENT OF TEACHERS' CRITICAL THINKING

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ФОРМУВАННЯ ПРОФЕСІЙНОГО СЕРЕДОВИЩА ДЛЯ РОЗВИТКУ КРИТИЧНОГО МИСЛЕННЯ ВЧИТЕЛІВ

У статті досліджено особливості формування професійного середовища для розвитку критичного мислення вчителів. Розкрито сутність поняття "критичне мислення" на підставі опрацювання психолого-педагогічної літератури. Розглянуто принципи та функції критичного мислення, а також перелічено умови для професійного розвитку критичного мислення вчителів. Визначено чинники, які найефективніше впливають на формування критичного мислення. За допомогою емпіричного дослідження, в основі якого лежали методики оцінки критичного мислення California Critical Thinking Skills Test, Watson-Glaser Critical Thinking Appraisal, Reflective Judgment Model, виявлено поточний рівень критичного мислення у вчителів, визначено основні чинники, що впливають на його розвиток. Запропоновано методичні рекомендації щодо розвитку критичного мислення педагогів.

Ключові слова: критичне мислення; професійне середовище вчителя; складові критичного мислення; чинники розвитку критичного мислення; методичні рекомендації.

Introduction. Creating a favourable professional environment for developing critical thinking among teachers is a key element in improving the quality of education. Teachers with well-developed critical thinking can analyze information more effectively, make informed decisions, and improve their pedagogical practices, ultimately improving the quality of education. For this purpose, they need skills that will help them implement teaching strategies that focus on developing critical thinking. The professional environment should provide them with opportunities to learn and improve these skills.

Analysis of the latest relevant research and publications. The problem of critical thinking of the individual has been the object of scientific interest of a significant number of researchers, including: A. Bairamov, S. Veksler, H. Lipkina, L. Rybak, V. Synelnykov, Yu. Stezhko. The studies of American researchers (Ch. Templ, D. Styl, K. Meredyt, D. Ohl, etc.) are valuable in the scientific dimension. At the same time, it is worth noting that theoretical and empirical research on the study of the features of a professional environment for the development of teachers' critical thinking is presented superficially.

The aim of the article is to theoretically analyze and empirically investigate the features of a professional environment for the development of teachers' critical thinking.

Results of the research. Critical thinking is an important component of the intellectual development of an individual in a modern educational environment. Its formation in a pedagogical context is considered necessary for preparing teachers who can conduct in-depth analysis, make informed decisions, and creatively approach the solution of professional tasks. Critical thinking, as a psychological and pedagogical phenomenon, integrates cognitive, emotional and motivational components, which enables a person not only to assimilate information but also to analyze it and realize its importance in practical activities. The ability to think critically encourages the subjects of education to conduct scientific analysis on a methodological basis, to demonstrate professionalism and professional competence [3].

Critical thinking is a process of careful and considered analysis that includes formulating a problem, searching for information, making informed decisions, analyzing, and defending one's position. It involves the ability to identify problems, independently process and analyze information, logically construct reasoning, and select convincing arguments. Critical thinking also requires flexibility, openness to other opinions, and adherence to principles in defending one's own position [7, 111].

According to Pometun O., critical thinking can be characterized as a person's ability to realize his/ her position on a certain issue, create new ideas, analyze events and critically evaluate them. Critical thinking is aimed at creating strategies for solving life and educational problems, identifying and evaluating alternatives and priorities, their feasibility, as well as checking the plausibility of facts, phenomena, and events. This process is based on the ability to assess the value of information and process it using effective thinking methods. It also includes analyzing information, taking into account sources, experience, observations, logical reasoning and collected data [4, 3].

O. Tiahlo defines critical thinking as a modern form of logical activity that consists in the systematic improvement of the process and results of thinking through critical analysis, understanding and evaluation. He believes that critical thinking can be considered an algorithm, a sequence of intellectual actions that contribute to achieving a certain goal. The algorithm con-

sists of four stages: analysis, understanding, evaluation and criticism. Each stage is implemented through critical questions and reasoned answers. The analysis covers questions about the problem, conclusions and structure of an argument. Understanding focuses on inferences, concepts and value assumptions. Evaluation involves formulating conclusions about the logic and feasibility of an argument. Criticism consists in identifying logical errors and searching for truth to strengthen reasoning [5, 28].

Critical thinking is defined as an organized intellectual process that involves the analysis, application, synthesis, and evaluation of information obtained through observation, experience, reflection, and communication. It is the basis for forming beliefs and actions, including elements of logic, such as reasoned judgments and logical conclusions. From a philosophical perspective, critical thinking reflects objective reality and recognizes the essential connections between phenomena. According to Halpern, critical thinking is also a rational and purposeful process that contributes to problem-solving and decision-making [5, 9].

Among the main functions of critical thinking is that it is aimed at solving complex practical tasks, such as problem-solving and decision-making, by objectively analyzing information. The main features of critical thinking include the formulation of reasoned conclusions, considered decision-making, and a focus on results [5, 5].

Critical thinking is characterized by several key aspects:

- Independence – personal thinking is important, as everyone must form their own thoughts and beliefs.

- Formulation of a problem – a process of critical thinking begins with defining a problem, which encourages analysis and finding solutions.

- Decision-making – the final stage is the adoption of the optimal solution to solve the problem.

- Clear reasoning – a person with critical thinking should justify his/her decisions, considering the possibility of multiple options.

- Socialization – the importance of exchanging ideas in a social environment, which contributes to the formation and justification of one's own positions [6, 214].

The main goal of developing teachers' critical thinking is to implement teaching methods that contribute to the formation of students' critical thinking and their independent learning. This includes using effective methods of working with additional information sources, developing cognitive, personal and self-educational competencies, and stimulating the desire for independent learning and self-improvement [1, 14].

The main principles of critical thinking include identifying assumptions, checking facts, analyzing the context, and considering alternatives. To develop teachers' critical thinking, it is important to use the pedagogical potential, the axiological principle, and the principle of emotional intelligence, which contributes to the formation of intellectual, practical, and emotional-personal components necessary for successful educational activities and student development [1, 14].

Creating conditions for the professional development of teachers' critical thinking is an important process that includes various factors contributing to the formation of analytical and reflective skills. In today's educational environment, which is constantly changing, favourable conditions are key to teachers' effective work and the achievement of high results in students' education. Teachers should have access to various information resources, such as electronic libraries, specialized journals and online courses, which allows them to update their knowledge and get acquainted with new approaches to developing critical thinking. Online learning platforms and webinars are also important; they provide access to the necessary resources for professional development.

Electronic resources help teachers implement modern active learning methods that promote the development of students' critical thinking, such as project-based methods, problem-based learning, and case methods. V. Hrebeniuk notes that without access to the latest scientific knowledge, teachers may lag behind current trends, which negatively affects their effectiveness and limits the development of students' critical thinking. Therefore, access to electronic resources is important for teachers' professional development [2, 110].

An empirical study was conducted to identify the current level of teachers' critical thinking and determine the main factors influencing its development. Fifty (50) secondary school teachers participated in this study.

During the research, such techniques were applied as **California Critical Thinking Skills Test, Watson-Glaser Critical Thinking Appraisal,** and **Reflective Judgment Model,** which helped to determine the level of the development of critical thinking among teachers. **California Critical Thinking Skills Test** is designed to assess basic critical thinking skills in students and adults [9]. **Reflective Judgment Model** determines levels of critical thinking development [10].

The results of studies conducted using the California Critical Thinking Skills Test indicate a high level of teachers' critical thinking skills. Analyzing the data, it can be noted that teachers demonstrated professional skills in analyzing information, the ability to assess the reliability and logic of arguments, and the ability to draw reasoned conclusions and clearly explain their thoughts.

A study conducted using the Reflective Judgment Model showed that most teachers have average or above-average levels of critical thinking. They are able to analyze information, assess its reliability, and con-

sider different points of view, which indicates their ability to navigate complex situations. Teachers also demonstrate flexibility, the ability to adapt to change and make decisions under uncertainty, and use creative approaches to problem-solving, which highlights their creative potential in teaching and upbringing.
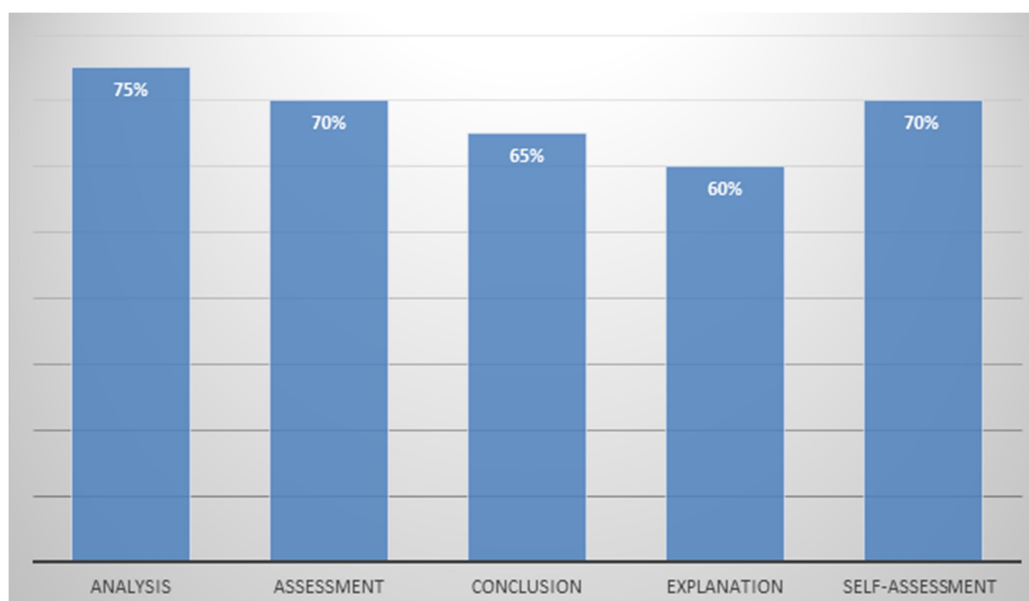

Fig. 1. Results of the study based on the California Critical Thinking Skills Test

An analysis of studies conducted among teachers on critical thinking assessment methods showed that, in general, teachers have an above-average level of this skill. The California Critical Thinking Skills Test revealed the ability of teachers to analyze and evaluate information, while the Watson-Glaser Critical Thinking Appraisal indicated strengths in interpretation but less effective results in analysis and argumentation. The Reflective Judgment Model demonstrated an average to above-average level of critical thinking, especially in controversial situations. A survey of teachers indicated their high self-esteem and willingness to use various methods to develop critical thinking.

To increase teachers' critical thinking, **methodological recommendations** have been developed that will contribute to their personal growth in professional activities.

1. Using methods and approaches to develop teachers' critical thinking. The case study method involves the analysis of real or simulated situations that contain complex educational or management aspects. It promotes the development of critical thinking, as it requires evaluating problems from different perspectives, considering alternative solutions, and predicting consequences. Working with cases also strengthens collective interaction and the exchange of ideas. Brainstorming is a method of collective generation of ideas that allows participants to freely express suggestions without criticism, promoting creativity. After that, the ideas are analyzed for feasibility and effectiveness. Self-reflection is an important tool for developing criti-

cal thinking, which involves analyzing actions and decisions. Teachers evaluate their professional steps, identify strengths and weaknesses, and analyze the success of approaches in education.

2. Interactive technologies as a means of developing critical thinking. Modern interactive technologies, particularly web quests, contribute to the development of teachers' critical thinking through interactivity and involvement. Web quests involve searching, analyzing and using information from the Internet, which allows teachers to work in conditions close to real ones. They require analyzing a large amount of data, assessing the reliability of sources and formulating substantiated conclusions. When performing web quests, teachers develop strategic planning, justify their decisions and discuss the results with colleagues, contributing to the formation of shared experience and new approaches to solving problems. Modern digital platforms, such as Padlet, Kahoot and Edmodo, significantly contribute to the formation of an interactive learning environment that develops critical thinking.

3. Practical recommendations for implementing the methods in professional activities. Teachers are encouraged to implement problem-based learning methods that activate students to solve real or simulated problems. This contributes to the development of analytical thinking, as students must justify their decisions, weigh alternatives and consider the consequences. An important aspect is the provision of constructive feedback, which helps students evaluate their decisions, develop self-control and improve thinking skills. Feed-

back should be specific and development-oriented, allowing students to realize mistakes and improve their approaches.

4. Pedagogical training courses and workshops as platforms for developing critical thinking. Pedagogical training courses and workshops are important tools for developing teachers' critical thinking, as they contribute to the exchange of experience, improvement of analytical skills and finding solutions in real situations. Participants analyze real or simulated cases related to pedagogical practice, which helps to identify problems and find optimal solutions, and also promotes reflection and evaluation of their own professional approaches.

5. Using tools for self-assessment and critical thinking. Teachers who want to improve their critical thinking should learn to independently assess their professional development and make informed decisions to improve their working methods. With this aim, it is helpful to use self-assessment tools, particularly reflective journals, which facilitate the analysis of one's actions and decisions after lessons. It is important not only to record events but also to ask oneself questions about successes and shortcomings, which helps teachers become more self-aware and identify ways for further development. SWOT analysis is an effective tool for teachers to evaluate their own activities. It helps to identify strengths and weaknesses, opportunities for development and threats that may affect professional growth.

The "5 Whys?" method and self-check cards are useful tools for teachers that promote in-depth analysis and evaluation of their own activities. The first method allows to identify the reasons for certain events or decisions through consistent "why" questions, which develops analytical thinking. Self-check cards, in turn, provide a simple way to regularly evaluate pedagogical activities using criteria and rating scales, which helps teachers reflect on their achievements.

Conclusion. The development of teachers' critical thinking skills is a key factor for improving the effectiveness of the educational process and adapting to changes. It allows teachers to analyze information, make reasoned decisions according to modern educational requirements, and initiate changes in teaching methods. In addition, critical thinking contributes to self-reflection, which helps teachers evaluate and improve their professional strategies.

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