MODERN TRENDS IN THE SCIENCE, EDUCATION AND BUSINESS Monograph

Book · June 2024

DOI: 10.54055/GLVJ9614

30 authors, including:

Dimitrina Kamenova
Varna University of Management
11 PUBLICATIONS **19** CITATIONS
SEE PROFILE

Yuliia Romanovska
Ukrainian-American Concordia University, Kyiv, Ukraine
20 PUBLICATIONS **37** CITATIONS
SEE PROFILE

Oleksandra Romanovska
8 PUBLICATIONS **3** CITATIONS
SEE PROFILE

Vesselina Dimitrova
Varna University of Management
5 PUBLICATIONS **2** CITATIONS
SEE PROFILE

Varna University of Management

MODERN TRENDS IN THE SCIENCE, EDUCATION AND BUSINESS

Monograph

VARNA – 2024

UDC 001+37+33]:001.895(02)
M 74
DOI: 10.54055/GLVJ9614

Recommended for publication by the Publishing Center of Varna University of Management (Minutes №1 of June 15, 2024)

MODERN TRENDS IN THE SCIENCE, EDUCATION AND BUSINESS: Monograph / Eds. Svitlana Arkhypova, Dimitrina Kamenova. Varna: Varna University of Management, 2024. 222 p.

The monograph is aimed at analyzing current trends in the development of science, education and business in the context of globalization and integration processes. The conceptual foundations, theoretical approaches and models of innovation in higher education and science are analyzed; informatization of education, science and business; global trends in education development; organic connection of education, science, culture, philosophy, art and literature; integration of education, science and production; use of social networks in business; use of artificial intelligence; growing interest in self-development and professional development; social communications, etc.

For lecturers of higher educational institutions, students, graduates, scientists.

UDC 001+37+33]:001.895(02)

ISBN - 978-954-635-041-1

CONTENT

PREFACE

The development of science, education and business in today's environment is a rapid, constant and continuous process. It is natural that some models replace others. What was considered unattainable yesterday is commonplace today.

Current trends in the development of science, education, and business are linked to globalization and integration processes. A quarter-century of experience of the 21st century civilization identifies a set of trends according to which it should develop in the future that it should follow in the future.

A trend is a kind of bundle of practical experience accumulated and tested in different countries of the world. Focusing on modern trends brings science, education and business to the European and global level.

The leading trends in the field of science are: the growing popularity of open access to scientific publications and data; cooperation between states and industries; cooperation between different fields of science; solving scientific problems using artificial intelligence, etc.

The pace of development and modernization of education is rapidly accelerating. The main trends in education in successful countries include: priority development of education in the strategy of modern state-building; ensuring quality education throughout life; learning outside formal educational institutions, growing interest in self-development and professional development; human-centeredness, development of education as an open democratic system, equal access to quality education; digitization of education; modernization of content and educational technologies; innovative development of education; total digitalization of educational processes and tools; active use of artificial intelligence that programs robots that will help people get education; organic connection between science and education, education and culture; global mobility of students; priority of diverse knowledge in the modern education system; inclusive education; practical orientation of education (dual education), etc.

The main trends in politics are the transition to democracy; in the system of social communications - to tolerance; in the general organization of life - to the model of an open society and sustainable human development, etc.

The economy and business are no exception. The leading trends in economic and business development are the globalization of markets; adaptation of businesses to global realities; changes in strategies; and attention to responsible attitudes towards society and the environment. Companies are increasingly paying attention to sustainability and implementing environmentally friendly practices. Businesses are actively implementing digital technologies to optimize processes and improve customer experience. Soon, the well-known business processes will be replaced by

radically new, innovative methods of development and management: a smart interface, improved network technologies, and server computing.

The monograph examines certain trends that emerge as the main guidelines for the development of science, education and business in accordance with the challenges of the times. These trends require joint efforts to achieve sustainable development. A reasonable combination of traditions and innovations is the "magic key" that opens the door to the future and ensures the development of modern society.

Focusing on the substantiation of the main trends in science, education and business in the modern global space determined the structure of the monograph.

Svitlana Arkhypova, Dimitrina KAMENOVA
June 15, 2024

UDC 37.062:378.147.88

DOI: 10.54055/URBV7841

INNOVATIVE APPROACHES TO THE FORMATION OF CRITICAL THINKING OF FUTURE SPECIALISTS IN THE SOCIO-ECONOMIC SPHERE

Nataliia TYMOSHENKO,
PhD in Pedagogy,
Senior Lecturer at the Department of Philosophy
of the National Technical University of Ukraine
«Igor Sikorsky Kyiv Polytechnic Institute»,
head of the educational centre
ICF «BneiAzriel Jewish Hesed»
ORCID ID: 0000-0003-0572-8642
tim.nata.e@gmail.com

Larysa KALCHENKO,
Doctor of Pedagogical Sciences, associate professor,
Professor of the Department of Philosophy, Faculty of Sociology and Law
National Technical University of Ukraine
«Igor Sikorsky Kyiv Polytechnic Institute»
https://orcid.org/0000-0002-7763-5851
larysakalchenko@gmail.com

Abstract. The article analyses the problem of critical thinking, substantiates the essence and innovative approaches to the formation of critical thinking in students studying in sociological specialties. An overview of modern technologies and methods, which are the result of long-term educational practice, is presented, which allow to effectively form and develop critical thinking skills of future and current specialists in social sciences, whose main goal is to effectively solve complex problems and social challenges of modern society.

Key words. *innovative approaches, critical thinking, critical thinking formation, socioeconomic sphere, social work, information technologies, interactive teaching methods, active teaching methods.*

Problem statement. In today's rapidly changing world, education is becoming a key factor in success and competitiveness. This is especially true in the field of socioeconomic and social work, where critical thinking and innovation play a crucial

role and influence the development and reform processes of society, the quality of social assistance to different categories of clients. Modern challenges and problems faced by specialists in socioeconomic require not only traditional knowledge, but also in-depth analysis, creativity and the ability to think innovatively.

In the context of forming critical thinking of future socio-economic specialists, it is important to consider innovative approaches aimed at stimulating their analytical and critical thinking. Innovation in the educational process is becoming a key point that allows students not only to absorb information, but also to develop skills of analysis, synthesis and evaluation of the knowledge gained. Critical thinking is a key competence that allows students to analyses information, evaluate, solve problems and make informed decisions in conditions of instability and uncertainty. This is especially important for future socio-economic professionals who need to develop this competence. After all, critical thinking is the ability to think analytically, question statements and look at situations from different angles; it is the ability to collect and analyses information to come to a conclusion. And it's not just a useful soft skill that will help you look more convincing in different situations. It’s a tool that improves your ability to make data-driven decisions and gives you a methodology for solving complex problems, because critical thinkers are comfortable with ambiguity and are willing to challenge their hypotheses to reach the best conclusions. Critical thinking is also highly valued in the workplace: for example, according to a recent AACU report, 93% of employers found this skill to be more important than a candidate's bachelor's degree (Critical thinking, 2023). This raises the urgent problem of developing critical thinking among future socio-economic professionals, which is becoming a key task of the modern educational system.

The purpose of the article is to analyses and substantiates effective innovative approaches to the formation of critical thinking in students studying in socio-economic specialties, to review modern technologies and methods that allow for the effective formation of critical thinking. In analyzing them, we will focus on how these innovative approaches can be integrated into the educational process of professional training of specialists in socio-economic specialties in order to improve the quality of education and train qualified personnel capable of effectively solving the complex problems of modern society.

Analysis of recent research and publications. The study of critical thinking as a social phenomenon has been paid attention to by various groups of scholars and practitioners of the twentieth and twenty-first centuries. Thus, the term ‘critical thinking’ has been actively used in philosophical and psychological and pedagogical terminology since the second half of the twentieth century, but scholars interpret it in different ways. Ukrainian scientists are actively researching the topic of critical thinking among various groups of people, including students, teachers, and

professionals, in various problem areas: *studying methods of teaching critical thinking* - some studies are aimed at assessing the effectiveness of various teaching methods and techniques aimed at developing critical thinking in students and pupils; *developing pedagogical programmers and materials*, which involves the creation of specialized curricula that promote the active development of critical thinking in students and pupils; *research on the impact of socio-cultural factors* reveals the influence of the socio-cultural environment on the formation of critical thinking, in particular, taking into account the historical context and cultural characteristics of Ukraine; adaptation of foreign approaches involves the study and implementation of foreign approaches and methods to the conditions of national education and cultural realities; *existing experimental* studies concern the implementation of the results of research and experimental work to test the effectiveness of various methods of teaching and training critical thinking. This phenomenon has been studied by such scholars as: J. Bruner, M. Weinstein, L. Vygotsky, D. Dewey, D. Klooster, A. Crawford, M. Lipman, D. McInster, D. Martins, S. Matthews, R. Paul, E. Polat, J. Piaget, J. Steele, D. Halpern and others. Among domestic scholars, this issue has been studied by I. Bondarchuk, T. Voropai, N. Kravchenko, R. Matonina, O. Naumkina, S. Parfilova, O. Pometun, S. Terno, O. Tyaglo, L. Terletska, O. Chuba and others. These studies contribute to the understanding of the processes of critical thinking formation and are devoted to the development of effective pedagogical strategies aimed at its development among Ukrainian youth and professionals.

Main material. In describing the content of our research, we should note that in the modern information age, when the amount of knowledge is growing exponentially, the importance of critical thinking is becoming more important than ever. Socio-economic professionals must be able to analyses complex social phenomena, understand their causes and consequences, and distinguish objective data from manipulation and disinformation. Critical thinking helps them to make informed decisions, taking into account various aspects of modern social and economic life.

However, traditional teaching methods often do not take into account the needs of the modern labor market and the rapid pace of change in society. Therefore, there is a need for innovative approaches aimed at enhancing critical thinking and developing creative abilities in future socio-economic professionals.

Before considering innovative approaches to the formation of critical thinking of future specialists in the socio-economic sphere, it is worth considering the term ‘critical thinking’. Moreover, scholars interpret this concept in different ways. Critical thinking is by no means synonymous with the concept of ‘criticism’. In their book ‘Competences at Work’, authors L. Spencer and S. Spencer (Spencer, & Spencer, 2009) refer to critical thinking as a cognitive competence. In their opinion, the assessment of this competence is based on two criteria: the complexity of thinking

processes and their originality, from applying basic rules to creating new theories that explain complex situations. According to philosophers, critical thinking is interpreted as the ability to think logically and argue, as well as to discuss analytically and express one's own opinion correctly. Teachers consider this concept as a conscious control over the course of intellectual practice, in the course of which work, thoughts, hypotheses and ways of proving them are evaluated. The analysis of scientific sources has made it possible to determine that scientists consider critical thinking as one of the types of thinking and define it as an important characteristic of a modern personality, complex.

If we talk about the development of critical thinking in Ukraine as an educational innovation, the interest in it appeared at the end of the XX century. For example, in 1996, a Ukrainian Scientist O. Tyaglo (Tyaglo, 2008) emphasized the importance and significance of developing critical thinking in the information society. Today, critical thinking means a reasonable consideration of a variety of approaches to make informed judgments and decisions. We need critical thinking in order to be competent (it is the possession of knowledge and the ability to find it, separate it from unnecessary information, and translate it into personal experience). Critical thinking can be interpreted as a process that involves analyzing, evaluating and synthesizing information in order to achieve understanding, solve problems and make informed decisions. According to scientists O. Pometun, L. Pylypchatina, I. Sushchenko and I. Baranova, critical thinking does not mean negative judgments or criticism, but a rational consideration of a variety of approaches in order to make informed judgments and decisions (Pometun, 2010). It is also a feature of perceiving the situation globally, the ability to identify causes and look for alternatives, and the ability to generate or change one's own position based on arguments and facts, to apply the results correctly to problems and make informed decisions.

The Ukrainian researcher V. Nadurak emphasizes that critical thinking is a skill that involves the ability to analyses the thinking process for its compliance with the criteria of rationality. He also emphasizes that the ability to think critically involves the acquisition of knowledge about the standards of correct thinking (normative component). This component of critical thinking includes knowledge about the standards of correct thinking and includes principles, rules, laws of logic, which have been associated with correct thinking for centuries. The next component is descriptive, which is the ability to analyses the thought process for its compliance with the criteria of rationality and how we actually think. The third component - prescriptive - involves the ability and knowledge of how to make the transition from habitual thinking to correct thinking (Nadurak, 2022).

Paying attention to foreign studies of the 21st century, Julia Martins notes that «… critical thinking isn’t something you can take a class to learn. Rather, this skill

consists of a variety of interpersonal and analytical skills». The researcher singles out the eight most important critical thinking skills (Mishchenko, 2018):

1. Analytical thinking: Part of critical thinking is evaluating data from multiple sources in order to come to the best conclusions. Analytical thinking allows people to reject bias and strive to gather and consume information to come to the best conclusion.
2. Open-mindedness: This critical thinking skill helps you analyze and process information to come to an unbiased conclusion. Part of the critical thinking process is letting your personal biases go and coming to a conclusion based on all of the information.
3. Problem solving: Because critical thinking emphasizes coming to the best conclusion based on all of the available information, it's a key part of problem solving. When used correctly, critical thinking helps you solve any problem – from a workplace challenge to difficulties in everyday life.
4. Self-regulation: Self-regulation refers to the ability to regulate your thoughts and set aside any personal biases to come to the best conclusion. In order to be an effective critical thinker, you need to question the information you have and the decisions you favor – only then can you come to the best conclusion.
5. Observation: Observation skills help critical thinkers look for things beyond face value. To be a critical thinker you need to embrace multiple points of view, and you can use observation skills to identify potential problems.
6. Interpretation: Not all data is made equal – and critical thinkers know this. In addition to gathering information, it's important to evaluate which information is important and relevant to your situation. That way, you can draw the best conclusions from the data you've collected.
7. Evaluation: When you attempt to answer a hard question, there is rarely an obvious answer. Even though critical thinking emphasizes putting your biases aside, you need to be able to confidently make a decision based on the data you have available.
8. Communication: Once a decision has been made, you also need to share this decision with other stakeholders. Effective workplace communication includes presenting evidence and supporting your conclusion – especially if there are a variety of different possible solutions.

Among the key features of critical thinking, scholars (V. Bolotov, M. Weinstein, T. Voropay, N. Kravchenko, M. Lipman, E. Polat, J. Steele, O. Tyaglo, D. Halpern and others) define the following: the ability to identify and analyses different situations that arise in real life; to propose options for solving problems, to compare, evaluate, identify the disadvantages and advantages of each of them, choosing the best one; to make independent decisions and predict their consequences; the ability to collect information from various sources; analyses it for reliability, accuracy, usefulness for solving the

problem; clearly and thoughtfully express their own thoughts, argue their point of view, paying attention to others and taking it into account; recognize contradictory data, judgments, arguments, identify and correct errors in other people's reasoning and recognize them in their own (Kharchenko, 2023).

In our opinion, the main components of critical thinking can also include: synthesis - the ability to combine and organize different ideas, experiences and knowledge to form new mental concepts or solutions; evaluation - the ability to critically assess evidence, arguments and beliefs to determine their credibility, significance and relevance; interpretation - the ability to understand and interpret information, including the identification of hidden meanings, intentions and context; criticism - the ability to analyses and evaluate the quality of arguments, make informed decisions and express critical opinions; creativity - the ability to generate new ideas, approaches and solutions by abstracting from conventional patterns of thinking; self-control - the ability to control one's thoughts, emotions and beliefs, and to regulate one's reactions and behavior according to circumstances and context; flexibility - the ability to adapt one's thinking and approaches to different situations, using different approaches and strategies depending on needs and conditions.

Important characteristics of critical thinking are freedom and independence (the ability to express an idea independently of others). Also, information for critical thinking is a starting point, not the end point for development (a huge amount of material needs to be processed to give birth to an informed opinion). It all starts with posing questions and problems to be solved (the first step to teaching future social science professionals critical thinking is to help them see the infinite number of questions around them). This also includes the use of persuasive argumentation (when a person finds their own solution and supports it with reasonable evidence). And, of course, it is a social process (any opinion is tested and honed when we share it with others; when we argue, discuss, argue and exchange opinions with others, we deepen our position).

Critical thinking is characterized by awareness and self-improvement. In total, there are 7 main principles of critical thinking: awareness (it means being aware of your thoughts, beliefs, assumptions and motives. Awareness helps to avoid unreasonable or automatic reactions), independence (the ability to think independently of conventional wisdom or the opinions of others. Independence includes critical evaluation of information and the formation of one's own points of view), reflexivity (self-analysis) (the ability to analyses one's own thoughts, feelings, actions and motives. Reflexivity helps to understand why we think or react in a certain way), purposefulness (the ability to think in order to achieve specific goals or results. Purposefulness requires awareness and planning of actions to achieve a specific goal), validity (the ability to support one's thoughts, statements and decisions with evidence,

arguments or logic. Reasonableness requires critical thinking and the ability to analyses information), controllability (the ability to manage one's thoughts, emotions and reactions. Controllability helps to avoid being subject to emotions or impulses that may interfere with objective thinking), self-organization (the ability to organize one's thoughts, information and thought processes to achieve a specific goal or solve a problem. Self-organization helps to manage complex tasks and ensures the efficiency of thinking). These principles are also confirmed by researcher O. Chuba, who identifies the following characteristics and principles of critical thinking: independence and individuality; information as a starting point, not the end point of critical thinking. According to the author, critical thinking always begins with the formulation and awareness of a problem. Critical thinking strives for convincing arguments and is, above all, social thinking (Chuba, 2013).

Daniel Kahneman, a renowned psychologist and Nobel Prize winner in economics, developed the concept of two systems of thinking in the human psyche (Kahneman, 2017):

- System 1 (a fast and automatic way of thinking that allows us to react quickly to situations and make decisions without conscious analysis. This system is based on intuition, previous experience and emotions. It is used in everyday situations when you need to quickly determine a response or react to stimuli);

- system 2 (analytical way of thinking that requires more time, effort and concentration. It includes conscious analysis and consideration of various aspects of a problem or situation. System 2 is used for complex tasks where you need to carefully weigh all the arguments and possible consequences before making a decision).

These two systems of thought work together in our psyche, sometimes interacting and sometimes in conflict with each other. Kahneman and his colleagues use this concept to explain various aspects of human decision-making and behavior. They are both necessary, but it is important to engage each at the appropriate time.

There are also three tools for developing critical thinking: a magnifying glass is a presumption of falsity. Everything you hear, read, or even see should be questioned; a mirror is needed to remember that we see the world through our own reflection. Study cognitive distortions and do not let them trap you; scales are needed to take the side of the opponent. This method is good for teamwork, particularly in companies (Wheelman, 2022).

So, a person who can think critically is able to ask specific questions and highlight the main thing. Of course, they can identify relevant information and recognize biased judgments. They are able to separate facts from subjective opinions, false information from true information, and identify cause and effect relationships in order to find different solutions. It also includes the ability to predict consequences, find and present different arguments, and draw conclusions and test them in practice. To do this, you

need to develop critical thinking skills. These skills involve mastering a special toolkit, i.e. a set of different procedures that help overcome cognitive biases. And, accordingly, in a situation where there is a possibility of falling victim to a certain bias, a person will use an appropriate method that will allow them to avoid this cognitive trap.

Due to the rapid pace of technological development and globalization of the modern world, the educational process is constantly undergoing transformations. In particular, in the field of socio-economics, where complex social, economic and political problems arise, it is important to develop critical thinking in future professionals - the ability to analyses, evaluate and draw reasonable conclusions. It is through critical thinking that the goal for which activities are carried out is formulated. We agree with the researcher O. Chuba, who emphasizes that one of the most important features of critical thinking is that it promotes the analysis and construction of reasoning, the acquisition of knowledge at the meta-level, regardless of the professional field of activity. It explores the following questions: 'how?', 'when?' and 'why?', and draws certain conclusions in the general context of the study. All this gives rise to the special status of critical thinking in the modern system of higher education (Chuba, 2013). In our opinion, it is the development of critical thinking skills in future social work and socio-economic specialists that is extremely important, as they often analyses various social problems of society, groups, and individuals.

Given the above, there are several ways that can be used in the educational process that will help students develop critical thinking skills faster:

- *Using a multidisciplinary approach.* The combination of different disciplines allows students to gain a broader overview of the problems of the socio-economic sphere and develop the ability to analyses and synthesize information from different sources. And this development of critical thinking skills is facilitated by combining the study of sociology, economics, political science, statistics and other relevant disciplines. This will help students to look at problems from different perspectives, develop a deeper understanding of complex socio-economic systems, and promote critical thinking through analyzing problems from different perspectives and applying different methods of analysis;

- *Ccritical analysis of scientific and methodological sources.* Students should be encouraged to analyses academic articles, studies, documents and data from global sources. They should be able to identify the advantages and disadvantages of research methods, analyses conclusions and distinguish facts from assumptions;

- *Participation in debates and discussions.* It is worth organizing debates and group discussions on current socio-economic issues. This will allow students to practice argumentation, critical analysis of positions and the development of their own opinions;

- *Practical cases.* When studying academic disciplines, it is advisable to use practical cases from real life so that students can apply their knowledge in specific situations. This will contribute to the development of analytical and decision-making skills;

- *Development of empathy and social awareness.* Emphasizing the importance of understanding social problems, challenges and needs of different groups of people. Developing empathy helps students to better understand the complexities and causes of social inequalities;

- *Stimulating independent research.* Independent research assignments force students to explore certain topics and issues in more depth, while developing their analytical and critical thinking skills;

- *Teaching critical writing.* Teaching students to express their thoughts critically and logically through writing essays, analytical reports and research papers.

From our point of view, these approaches will contribute to the effective development of critical thinking in future specialists in the socio-economic sphere and social work, preparing them to work effectively on complex social and economic problems, because critical thinking skills give them the ability not to get confused in an information-saturated environment and not to be manipulated. Critical thinking is also important in negotiations and helps you to argue your point of view.

In our opinion, the development of critical thinking is relevant in times of intense social change, when it is impossible to act without constantly adapting to new political, economic or other circumstances, without effectively solving problems, many of which are unpredictable. In this sense, the vital need to develop critical thinking for the educational system is obvious (Kharchenko, 2023), as an activity aimed at researching problems and situations on the basis of independent choice, evaluation and determination of the degree of usefulness of information, taking into account individual needs and goals. In the process of developing critical thinking, it is important to develop skills such as analyzing evidence, evaluating arguments, identifying associations and drawing conclusions.

This is the only way to promote the development of highly professional personnel in line with the requirements of the global information society and to move further towards building a socially responsible society and democracy.

Understanding the modern challenges facing education in training competitive specialists in the field of sociologic and social work, let's pay attention to the necessary methodological tools for the formation of critical thinking of an individual. Yes, based on the opinion of J. Martins, it can be noted that critical thinking – is a skill that you can build by following these seven steps. The seven steps to critical thinking help you ensure you’re approaching a problem from the right angle, considering every

alternative, and at an unbiased conclusion using a decision matrix that predicts (Mishchenko, 2018):

1. Identify the problem

Before you put those critical thinking skills to work, you first need to identify the problem you're solving. This step includes taking a look at the problem from a few different perspectives and asking questions like:

- What's happening?
- Why is this happening?
- What assumptions am I making?
- At first glance, how do I think we can solve this problem?

A big part of developing your critical thinking skills is learning how to come to unbiased conclusions. In order to do that, you first need to acknowledge the biases that you currently have. Does someone on your team think they know the answer? Are you making assumptions that aren't necessarily true? Identifying these details helps you later on in the process.

2. Research

At this point, you likely have a general idea of the problem – but in order to come up with the best solution, you need to dig deeper.

During the research process, collect information relating to the problem, including data, statistics, historical project information, team input, and more. Make sure you gather information from a variety of sources, especially if those sources go against your personal ideas about what the problem is or how to solve it.

Gathering varied information is essential for your ability to apply the critical thinking process. If you don't get enough information, your ability to make a final decision will be skewed. Remember that critical thinking is about helping you identify the objective best conclusion. You aren't going with your gut – you're doing research to find the best option

3. Determine data relevance

Just as it's important to gather a variety of information, it is also important to determine how relevant the different information sources are. After all, just because there is data doesn't mean it's relevant.

Once you've gathered all of the information sift through the noise and identify what information is relevant and what information isn't. Synthesizing all of this information and establishing significance helps you weigh different data sources and come to the best conclusion later on in the critical thinking process.

To determine data relevance, ask yourself:

- How reliable is this information?
- How significant is this information?
- Is this information outdated? Is it specialized in a specific field?

4. Ask questions

One of the most useful parts of the critical thinking process is coming to a decision without bias. In order to do so, you need to take a step back from the process and challenge the assumptions you're making.

We all have bias – and that isn't necessarily a bad thing. Unconscious biases (also known as cognitive biases) often serve as mental shortcuts to simplify problem solving and aid decision making. But even when biases aren't inherently bad, you must be aware of your biases in order to put them aside when necessary.

Before coming to a solution, ask yourself:

- Am I making any assumptions about this information?
- Are there additional variables I haven't considered?
- Have I evaluated the information from every perspective?
- Are there any viewpoints I missed?

Read: 19 unconscious biases to overcome and help promote inclusivity

5. Identify the best solution

Finally, you're ready to come to a conclusion. To identify the best solution, draw connections between causes and effects. Use the facts you've gathered to evaluate the most objective conclusion.

Keep in mind that there may be more than one solution. Often, the problems you're facing are complex and intricate. The critical thinking process doesn't necessarily lead to a cut-and-dry solution – instead, the process helps you understand the different variables at play so you can make an informed decision.

6. Present your solution

Communication is a key skill for critical thinkers. It isn't enough to think for yourself – you also need to share your conclusion with other project stakeholders. If there are multiple solutions, present them all. There may be a case where you implement one solution, then test to see if it works before implementing another solution.

7. Analyze your decision

The seven-step critical thinking process yields a result – and you then need to put that solution into place. After you've implemented your decision, evaluate whether or not it was effective. Did it solve the initial problem? What lessons – whether positive or negative – can you learn from this experience to improve your critical thinking for next time?

It is worth noting that teaching students critical thinking in the long term requires a restructuring of the content and technologies of learning and teaching. Since critical thinking is social in nature, the best ways to organize students' activities to develop it are group and collective forms and methods (Chuba, 2013).

The formation of the foundations of critical thinking is based on four main principles: 1) making and challenging assumptions; 2) checking factual accuracy and logical consistency; 3) considering the context; 4) exploring alternatives.

When choosing the techniques and intellectual methods for developing critical thinking, O. Chuba, based on the research of D. Shakirova, suggests using the following methods: studying the basics of formal logic, the concepts of 'criticality of mind', 'self-criticism', and the experience of their application in life; teaching special techniques of critical analysis: making clusters, syncretism, mixed logical chains, etc;discussion of mistakes in solving tasks and problems through discussions, disputes; reviewing speeches, defending their versions of laboratory work, educational presentations, mini-projects; discussion of scientific articles in journals, critical reviews of Internet information, comparative analysis of theories/models in a particular professional field; writing essays, analytical reviews, abstracts with further search for their own and others' illogic's, errors of reasoning; solving logical problems using the operations of criticism and self-criticism; formation of intellectual minds(Chuba, 2013).

One of the most important trends and ways to develop critical thinking is to move from traditional teaching to active learning methods. The use of interactive and practical teaching methods, such as problem-based learning, discussion techniques, project activities, role-playing and group discussions, allows students to actively engage in the learning process and develop critical thinking through independent problem solving and proves to be an effective tool for developing critical thinking.

For example, the use of the problem-based learning method involves setting specific situations or tasks for students that require analysis, finding solutions and correcting mistakes. Problem-Based Learning is a teaching method in which real-life complex problems are used as an educational tool. Problem-based learning encourages the application of critical thinking and problem-solving skills in a limited amount of time and provides authentic experiences that promote active learning, help systematize knowledge and naturally integrate learning into real life. The advantage of the PBL methodology over traditional approaches is that it allows students to focus on real-life communication (Rudnitska, 2023).

This method stimulates students to work actively on the material, promotes the development of their critical thinking and problem-solving.

Another innovative approach is the use of electronic technologies in the educational process. The use of open online resources, webinars, video lectures and interactive platforms allows students to access a wide range of information, develop critical analysis skills and create opportunities to study the material at home and engage in discussions and problem-solving in a virtual environment. In addition, the use of computer games and simulations allows for the modelling of complex situations where

students can analyses information, make decisions and assess their consequences. The use of web forums, virtual discussions and interactive exercises helps students learn to think critically through interaction with other participants in the learning process.

Information technology offers endless opportunities to stimulate analytical thinking and critical analysis.

One example of an innovative approach is the use of virtual reality (VR) and augmented reality (AR) in the educational process, which opens up new opportunities for learning and cognition.

For example, VR creates an immersive environment that completely separates the user from the real world and transfers him or her to another virtual reality. For educational purposes, VR can be used to create simulations of real or simulated scenarios. VR can also be used to simulate real-life professional situations where students need to learn how to make decisions or respond to certain events.

Augmented Reality (AR) adds virtual objects or information to the user's real environment, usually using a smartphone camera or special devices. In education, AR can be used to create interactive learning materials that add context or additional information to real-world objects.

With VR and AR, students can enter simulated environments where they can analyses real-life situations, make decisions, and support their arguments with data. This encourages students to actively engage with the learning material and develop their critical thinking skills and can make learning more engaging, effective and accessible, allowing students to explore and learn a variety of concepts and subjects in an innovative way.

In addition, the use of interactive web-based platforms and mobile applications is also an effective way to engage students in the learning process and stimulate their critical thinking. These tools can include interactive assignments, tests, discussion forums and other tools that allow students to actively engage with the material and the teacher, as well as exchange opinions and ideas with their fellow students.

The use of innovative technologies in the formation of critical thinking of future socio-economic specialists contributes to improving the quality of the educational process and training competitive personnel capable of functioning effectively in the modern information society. According to O. Chuba, the peculiarity of the development of critical thinking as a learning task is determined by the orientation of logical means of analysis to practical applications in specific educational topics and educational activities. Particular importance is attached to taking into account the subjective, personal factor when conducting different levels of analysis (Chuba, 2013).

The development of critical thinking in future socio-economic professionals also requires an interdisciplinary approach. Integrating knowledge from different fields, such as social work, economics, sociology, political science and psychology, allows

students to gain a deeper understanding of the complex problems of modern society and develop critical thinking in the context of various aspects of socio-economic life and apply it in practice.

For example, the use of project-based learning methods in cooperation with businesses and NGOs can help students not only learn theoretical knowledge but also gain practical experience in solving real-world problems. Involvement of practitioners in the educational process allows students to gain practical experience, develop critical thinking skills in real-life situations and improve their analytical skills. Working with real-life cases, participating in simulation exercises and internships in companies helps students learn how to analyses complex situations and make informed decisions. It is also important to encourage students to critically discuss and analyses current events that have an impact on socio-economic development and the situation in a society undergoing transformational changes.

To develop critical thinking in future specialists in the socio-economic sphere, many techniques and tools are also used to develop various components of critical thinking. After all, teaching critical thinking in the socio-economic field is important for the development of students' analytical and problem-solving skills.

Here are some techniques that can be used to develop critical thinking skills:

- *Socratic questioning:* applying the Socratic method by asking students questions that encourage them to consider issues from different perspectives and analyses their own assumptions and arguments. The Socratic method of questions is a teaching approach based on open-ended questioning and problem-solving. This method is aimed at stimulating critical thinking and developing analytical skills by asking questions that encourage students to find answers and argue their views on their own.

The main principles of the Socratic method of questions are:

- *Provoking reflection:* questions are aimed at stimulating reflection on a particular problem or concept. They should make students think deeper and analyses their thoughts;

- *Stimulating dialogue:* students have the opportunity to discuss issues and exchange opinions, which contributes to the development of critical thinking and broadening of the worldview;

- *Reflecting gaps in understanding:* Asking questions can help to identify gaps in understanding of a particular topic or issue, which stimulates further research and improvement of knowledge;

- *Developing independence:* students learn to solve problems and find answers independently through logical thinking and argumentation;

- *Stimulating critical thinking:* questions are aimed at revealing different points of view and analyzing arguments, which develops students' critical thinking and ability to express their views reasonably;

- *Reinforcing questions:* questions can be consistently reinforced, allowing students to systematically explore issues at a deeper level.

According to the Ukrainian Researcher I. Zayarna, the Socratic method is a method of eliminating (excluding) hypotheses, where the initiative of one of the parties is aimed at restraining the interlocutor who imagines himself to be an expert. This method focuses on self-knowledge, on identifying and clarifying what remains hidden and unclear. The Socratic method enables students to find answers to questions and solve problems on their own. Students learn not only to analyses the problem, but also to express their thoughts on its solution in writing, thus learning to think, preparing themselves for the future realities of the profession (Zayarna, 2017).

Thus, we believe that the use of the Socratic question method in teaching contributes to the active involvement of students in the educational process, the development of their critical thinking and the expansion of knowledge through independent search for answers.

- The *«Six Hats» technique* was developed by Edward de Bono (Bono, 2000) and is used to develop critical thinking and analyses problems from different perspectives. The participant, wearing a certain hat, thinks in the way the color of this hat requires. This allows you to learn to think about the same thing from different perspectives and, as a result, have a complete picture. This is a simple, practical way to divide the process of understanding a problem into 6 stages. Each 'hat' represents a certain aspect of thought that encourages you to consider the problem from a certain perspective. Let us briefly describe how each of these 'hats' can be used in the development of critical thinking (Bono, 2000):

- *White hat (facts):* students investigate a problem based on facts and objective data. They collect all available information about the problem and analyses it without expressing their own opinions or judgments;

- *Red hat (emotions):* students analyses the problem from an emotional perspective. They express their own feelings, reactions and intuitions about the problem without having to analyses the logic or validity of these emotions;

- *Black hat (negative):* students examine the negative aspects of the problem, pointing out the risks, disadvantages and drawbacks. They analyses the possible negative consequences and the reasons that could lead to negative outcomes;

- *Yellow hat (positive):* students look at the positive aspects of the problem, looking for advantages, opportunities and benefits. They analyses the possible positive outcomes and benefits of solving the problem;

- *Green hat (creativity):* student's express creative ideas and possible solutions to the problem. They look for alternative approaches and out-of-the-box solutions that may be useful in solving the problem;

- *Blue hat (process leadership):* students lead the discussion, evaluation and decision-making process. They guide the discussion, set objectives, control time and organize the group's efforts to achieve a collective goal.

In our opinion, the use of the Six Hats technique in the educational process allows students to consider a problem from different perspectives, while developing their analytical, critical and creative skills. Each 'hat' gives them the opportunity to study the problem from a new perspective, which contributes to a more complete understanding of the problem and the justification of the solution.

- The *«five whys» technique* (Scholtes, 2018) is a method of questioning that promotes a deeper understanding of the cause and effect relationships in a problem or situation. To deal with any problem, you need to find its root cause. Sometimes we think it is obvious, but in most cases, there is a whole series of events behind any trouble that are not related to each other at all. It is the «5 Whys» technique that makes it possible to understand any problem, find its root and resolve it quickly. The basic idea is to ask «why» five times in succession to get to the root causes of the problem. Here's how this technique can be used:

- The *First «why»:* begins with the question «Why did this problem arise? » or «Why did this situation arise? » and allows you to understand the surface cause, i.e. formulate the problem for which you need to find a solution;

- *Second «why»:* the question «Why did this happen? » should be asked to find out what factors or conditions led to the first cause and to identify options for answering the question;

- *The third «why»:* we continue to ask «Why did these factors occur? » or «Why did these conditions occur? » to determine the root causes. The answers to this question are recorded at the third level of detail;

- *Fourth «why»:* the follow-up question «Why is this so? » will help to understand the reasons underlying the third reason. If more detail is possible, the questioning cycle is repeated;

- *The fifth «why»* is to identify the root cause: ask «Why does this matter? » or «Why are these reasons important? » to find out the deeper relationships and consequences of the problem. If further elaboration of the causes becomes impossible, review all the identified causes and identify the key ones.

- The «Bloom's Daisy» technique as a technique for developing critical thinking is a tool that helps to systematize and organize thoughts in order to analyses and solve a problem or consider aspects of a particular situation. The technology of this technique was developed based on the pedagogical principle of the taxonomy (from the Greek for order and law) of the American psychologist Benjamin Bloom and his six levels of learning objectives in the cognitive sphere: knowledge - understanding - application - analysis - synthesis - evaluation (Mishchenko, 2018). It is based on the idea that the

central topic (or problem) is presented in the Centre, and different aspects, issues or ideas are seen as petals emanating from the Centre, like a daisy.

The «Bloom's Daisy» technique is seen as a variant of developing a dialectical map (or mind map), where the key theme is placed in the middle and branches out from it, representing different aspects or subthemes. Here are some of the steps that can be taken when using the «Bloom's Daisy» technique (Mishchenko, 2018).

This technique can be used in the educational process to develop the critical thinking of future socio-economic professionals. It helps them to look at problems from a deeper perspective, analyses cause and effects, and develop analytical skills. It also promotes creative thinking and the search for alternative solutions.

- *Central theme:* write the keyword or phrase that represents the central theme in the Centre;

- *Petals:* draw lines from the central theme to represent the petals of a daisy and write on each petal a sub-topic or aspect related to the central theme;

- *Detail:* for each sub-topic, consider additional aspects (causes, consequences, alternatives, etc.) and place these ideas on the appropriate petals;

- *Analyze:* analyses the relationships between the subtopics and aspects, consider possible solutions to the problem or approaches to the situation;

- *Finding a solution:* use the information from the analysis to develop strategies to solve the problem or approach the situation;

- *Additional steps:* depending on the needs, additional elements can be added, such as examples, quotes, additional research, etc.

- *Simple/factual (to test memory):* What is...? Where...? When...?

- *Clarifying:* Do you think that...? Did you say that...? Do you see it that way...?

- *Explanatory:* Why...? What is meant by...? What is the main idea of...?

- *Creative, where there is an element of prediction/assumption:* What if...? How could we improve...? Suggest an alternative...

- *Evaluative*: How is one thing different from another? How valuable is...? How would you define/argue for...? What judgment can you make about...?

- *Practical, which should highlight the connection between theory and life:* where does this apply in everyday life? How can it be used in practice (Mishchenko, 2018)?

The «Bloom's Daisy» technique helps to systematize complex ideas and stimulates critical thinking by analyzing different aspects of a topic or problem. It can also be used for group work, when each participant can add their thoughts and ideas to the unfolded daisy.

After the first reading of the information presented, the teacher can ask students the following questions to better understand and find solutions to the problem:

There are many other techniques that can be used to help develop critical thinking in future social science professionals. Here are some of them: the *technique of written*

notes (asking students to formulate their thoughts, arguments and conclusions from the material they read or answers to questions in writing. This helps them to organize their thoughts and analyses information); *philosophy café* (organize meetings of students to discuss complex social, ethical or political issues, stimulating reasoned debate and expressive opinions); *critical open discussion analysis* (CODA) technique (used to stimulate in-depth analysis of predefined discussion topics);*critical reading techniques* (teach students to analyses a text from a critical perspective by asking questions of the author, evaluating evidence and considering possible alternatives); *problem-based learning* (students are presented with real or simulated problems to solve, which encourages them to think critically and find solutions); *active listening and communication* (encourage active listening and sharing by asking students about their understanding of and opinions on the material);*note-taking* (ask students to keep notes or mind maps during readings, discussions or lectures where they can record their thoughts, questions and conclusions);*synetic cards* (to invite students to create synetic cards that combine different aspects of a topic or problem and stimulate coherent thinking).

Thus, the proposed techniques can be effective tools for developing critical thinking among students in the socio-economic sphere and other fields, which are necessary for successful work in professional activities.

For the successful implementation of innovative approaches to the formation of critical thinking of future social work and socio-economic professionals, several key aspects should be taken into account:

- *First,* it is important to choose the appropriate methodological apparatus that would meet the characteristics of the educational institution, as well as the needs and interests of students;

- *Secondly,* it is necessary to actively involve students in open discussions, group discussions and collective projects, which contributes to the development of their critical thinking and cooperation;

- *Third,* it is important to provide students with opportunities to apply the acquired knowledge and skills in practical situations through work on real cases, internships and professional practice.

It is also worth paying attention to: *adaptability of curricula*: they should be flexible and adapted to the needs and characteristics of socio-economic students, taking into account the diversity in the levels of training, style of thinking and individual characteristics of students; *interactivity and practical orientation*: programmers should provide opportunities for active participation of students in the learning process, including discussions, group work, problem solving and project activities. This helps to improve their understanding and application of critical thinking in real-life situations; *multimedia approach*: the use of various learning resources, such as videos,

interactive simulations, web resources and gaming technologies, can stimulate students' interest and facilitate their immersion in the learning process; *development of critical thinking in the context of specific subjects*: it is important to embed critical thinking skills in the context of socio-economic subjects so that students can see their value and application in real professional situations; *assessment and feedback*: curricula should include effective assessment methods that promote critical thinking, such as case studies, essays, debates, etc. It is important to provide students with feedback and opportunities for self-monitoring and self-reflection; *teacher training*: teachers must have sufficient skills and knowledge to teach critical thinking effectively. Therefore, it is important to provide them with training and support in this area through trainings, seminars and other forms of professional development.

In general, the successful implementation of innovative approaches to the formation of critical thinking requires a comprehensive approach that takes into account the needs of students, the specifics of the subjects and the quality of the teaching staff.

Conclusions. Innovative approaches to the formation of critical thinking of future socio-economic specialists play a key role in the training of highly qualified personnel capable of effectively analyzing complex situations, making informed decisions and addressing the challenges of the modern world. Therefore, it is the formation of critical thinking among future specialists in the socio-economic sphere and social work that is an important task that requires the introduction of innovations in the educational process. The use of active learning methods, interactive technologies, principles of interdisciplinary and cooperation with practitioners allows to effectively develop critical thinking skills in students preparing to work in the modern socio-economic environment. All of the above allows us to assert that innovative approaches are aimed at creating a stimulating and developing educational environment where students can actively form their own critical thinking and develop analytical skills. It is also important to combine traditional teaching methods with modern electronic technologies, behavioral techniques, and integrated and interdisciplinary approaches, which, in our opinion, will help train qualified professionals who can effectively respond to challenges and changes in the socio-economic sphere. The introduction of these approaches into the educational process will allow students to develop their own critical thinking as a key competence necessary for successful functioning in modern society and the labor market.

REFERENCES:

Bono, Edward De. (2000) Six Thinking Hats Paperback. Penguin Canada; 2nd edition.

Conversky, A.E. (2020). Critical thinking. Textbook for students of higher educational institutions of all specialties. K.: Centre for Educational Literature [in Ukrainian]

Critical thinking - why it is one of the most important skills in the career of a digital specialist (2023) Genius Space blog. URL: https://genius.space/lab/kritichne-mislennya-chomu-tse-odna-z-najvazhlivishih-navichok-v-kar-yeri-digital-fahivtsya[in Ukrainian]

Chuba, O. (2013.) Formation of critical thinking as a psychological and pedagogical problem of our time. Pedagogy and psychology of professional education. № 3. P. 202-208. URL: http://nbuv.gov.ua/UJRN/Pippo_2013_3_24. [in Ukrainian]

Development of critical thinking. Methodological technique 'Bloom's Daisy'. URL: https://sites.google.com/site/physicsinformatics/fizika/rozvitokkriticnogomislennametodicnijprijommetodicnijprijomromaskabluma.[in Ukrainian]

Kharchenko, N. V. (2023). Critical thinking as a characteristic of the modern adolescent personality. URL: https://lib.iitta.gov.ua/707706/1/25.pdf. [in Ukrainian]

Kahneman, Daniel. (2017) Thinking Fast and Slow. Trans. Translated by M. Yakovlev. Kyiv: Nash Format Publishing House [in Ukrainian]

Martins, Julia (2024) How to build your critical thinking skills in 7 steps (with examples). URL: https://asana.com/ru/resources/critical-thinking-skills

Nadurak, V. (2022)/ Critical Thinking: Concept and Practice Philosophy of Education. Philosophy of Education.Vol.28 (2). P.129-147 DOI: https://doi.org/10.31874/2309-1606-2022-28-2-7 [in Ukrainian]

Pometun, O. I., Pylypchatina L. M., Sushchenko I. M., &Baranova I. O. (2010). Fundamentals of critical thinking: a textbook for students of 10 (11) grades of secondary schools. Ternopil: Bogdan[in Ukrainian]

Rudnytska, K.V. (2023). Features of the use of the problem-based learning method in foreign language classes. The 11th International scientific and practical conference 'Scientific research in the modern world'. August 24-26. P. 239-242. URL: http://repositsc.nuczu.edu.ua.[in Ukrainian]

Spencer, L.& Spencer, S. (2009). Competences at work. Models of maximum performance. K.: Hippo Publishing House [in Ukrainian]

Scholtes, Peter S. (2018) The Leader's Handbook. McGraw-Hill Companies. New York-San Francisco-Washington-D.C. Auckland-Bogotá Caracas-Lisbon-London-Madrid-Mexico City-Milan-Montreal-New Delhi-San Juan-Singapore-Sydney-Tokyo-Toronto. URL:

http://dspace.vnbrims.org:13000/jspui/bitstream/123456789/2281/1/Leaders%20Handbook.pdf
Tyaglo, O. V. (2008). Critical thinking. Kharkov: Osnova Publishing Group. [in Ukrainian]

Wheelman, A. M. (2022). Critical thinking as a pedagogical phenomenon: a bibliographic review URL: https://library.sspu.edu.ua/wp-content/uploads/2022/12/oglyad-krytychne-myslennya.pdf. [in Ukrainian]

Zayarna, I. S. (2017). Peculiarities of applying the Socratic method in teaching English argumentative writing to law students. Ars Linguodidacticae. Issue 1. pp. 44-48. URL: http://nbuv.gov.ua/UJRN/artlin_2017_1_9.[in Ukrainian]

ISBN - 978-954-635-041-1

Recommended for publication by the Publishing

Center of Varna University of Management

(Minutes №1 of June 15, 2024)

Format 60x84/16.Typeface Times

Conditional printed sheets 15.23.

ADDRESS FOR CORRESPONDENCE

13A, Oborishte Str., 9000, Varna,

Bulgaria