LUBELSKI ROCZNIK PEDAGOGICZNY
T. XLIV, z. 1 – 2025

DOI: 10.17951/lrp.2025.44.1.43-64

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CRITICAL THINKING AS AN AREA OF DEVELOPMENT AND INDEPENDENT ACTION IN A SCHOOL TEAM*

Introduction: The changeability of the surrounding world influences modifications in education. The priority is to gain the competence of creative thinking and problem solving in teachers and their students as a vital pillar of contemporary educational development. The global world of the information era requires the acquisition of critical thinking competences, enabling the evaluation of information, its selection, and use in the school team and beyond.
Research Aim: Consideration of critical thinking use proposal to support teachers and students in making decisions to change the current paradigm of thinking, action and organization of the school team in contemporary dynamic reality.
Evidence-based Facts: The systemic method of analyzing literature in terms of critical thinking and the epistemological-cognitive vision of critical pedagogy and hermeneutics facilitated selection of sources focusing not only on theoretical solutions, but also on their applications which transform the current activity of educational partners, directing them to development and independent activity in a school team.
Conclusions: The analysis of the available literature and the reflections derived on this basis justify the authors' claim that both teachers and students should aim to improve their competences in the area of critical thinking, especially the ability to differentiate between facts and opinions. In contemporary fluid reality, both knowledge and its practical use have become a condition for the formation of a mature critical attitude towards others, but also towards the challenges faced by people in terms of thinking, acting and evaluating. The distinctive features of critical thinking determined on the basis of a systemic analysis were assigned to individual elements constituting a research structure, which can become a strategy for overcoming stagna-

* Suggested citation: Kabat, M., Johnsson, E. (2025). Critical Thinking as an Area of Development and Independent Action in a School Team. *Lubelski Rocznik Pedagogiczny*, *44*(1), 43–64. http://dx.doi.org/10.17951/lrp.2025.44.1.43-64

tion by combining theory with educational practice on the principles of teacher empowerment within the functioning of the school team.

Keywords: critical thinking, teacher, *empowerment*, school team, combining theory with practice, independence of thinking and action

Act like a thinker, think like a man of action.
Henri Bergson

INTRODUCTION

The changeability of the surrounding world, the fluidity of its structures, and the relativism are essential features of the present and constantly provoke questions pertaining to the place, role, and activity of the teacher in the reality thus described. The activity of a teacher in a 21st-century school is associated, among others, with the restoration of recognition of the ability to think critically as a significant component of their competence. Today, critical thinking is essential for the proper socio-axiological development of a person. Still, it is also an indispensable pillar of conscious and committed teacher's work within the educational institution and beyond. This activity can lead from group responsibility to individual responsibility and *vice versa*, from adaptation to the surrounding reality to its modification, from schematism and routine to creative activity and subjective treatment of others. The emerging polarity of the teacher's behavior is a sign of the times of the "age of speculation" (Beck, 2002, pp. 58–60) or, as Terlikowski (2016) writes, "globalization of risk" (pp. 153–166), based on freedom, autonomy, cognitive and existential independence as opposed to the preference for traditional thinking and simple solutions characteristic of the Polish ideological regression. Currently, critical thinking should be imprinted in the educational process and the teacher's activity. It is to be a remedy for the reproduction of knowledge acquired by students, for changing the relations of education partners, and for learning independence and maturity in the school team.

One effect of civilizational changes is the research published in 2021 by authors from the McKinsey & Company Institute on defining the skills needed by a person to function in the contemporary environment and the future. 18,000 respondents from 15 countries were surveyed. In the introduction to the report, Dondi and collaborators write that currently, digital technologies and AI (artificial intelligence) are starting to take over subsequent professional areas, which forces citizens to acquire valuable and desirable professional skills and adaptability. Of particular importance among the 56 essential skills is the area of critical thinking, which has been classified as a group of cognitive skills. In this area, the most important com-

petence is solving structured problems (structured problem solving), i.e. the ability to solve complex problems with non-obvious results. It is obtained by breaking down the problem into simpler parts and then using logical reasoning, based on drawing realistic conclusions based on facts, statements, or arguments that allow determining their strengths and weaknesses, leaving aside any prejudices (understanding biases). All these sequences aim to define the ability to recognize, when possible, irrelevant, pre-existing patterns influencing the thinking processes and to search for appropriate information recognized as the ability to identify them with the facts needed to draw a considered conclusion. The given method omits traditional, simple solutions and allows for the explanation of multidimensional issues occurring in education. They are illuminated from different points of view, opening the possibility of discourse within the framework of critical and hermeneutic pedagogy inclined to interpretation without top-down imposed standards.

RESEARCH AIM AND QUESTION

The aim of the research was an exploratory and inferential analysis of the literature, which has the characteristics of a systematic review. According to Orłowska et al. (2017), "a systematic review of the literature is a method of integrating scientific evidence, in which explicit methods of identification, selection, critical evaluation and analysis of data from significant studies qualified for the review are used" (p. 350). It is a compilation of selected literature, formalizing a new whole. This method allows for "finding, selecting and evaluating all available scientific evidence in a given area of search, minimizing content bias and obtaining objective and convincing information" (Matera & Czapska, 2014). It includes the following research steps:

Research planning: preliminary literature search including formulation of the research question, selection of inclusion and exclusion criteria, outline of the strategy for exploration and revision of the necessary data.

Research implementation: reconnaissance of existing publications addressing the issues of critical thinking, autonomy, independence of individual and team functioning, empowerment: selection and selection of studies, quality assessment, extraction and synthesis of data, results, and conclusions presented in an accessible form.

The impulse initiating the research steps was the model of de Graaff and Kolmos (2009) consisting of five parts, which shows the procedure starting from narrow goals of subject teaching in an educational institution, up to the open landscape of knowledge sought and acquired by students, which is necessary for analyzing and solving problems. The way of solving a specific issue falls within one of the five parts of the model, which are differentiated and open the possibility of combining multiple learning practices based on projects or research structure (p. 6). All mod-

els are proof of the fact that critical thinking is necessary to solve educational tasks and problems. Moreover, problems trigger participants' desire to reach for their knowledge, experience, and interests, which are revealed in practical and research activity. By adapting the described model to the needs of the proposed analyses, the following areas were identified:

Firstly: The nature of the complex term of critical thinking was recognized, and the most representative explanations from foreign and domestic literature were taken into account, combining with critical and hermeneutic pedagogy. Together, they create an epistemological and cognitive horizon that, although it uses contradictory assumptions, provides the opportunity for reasonable and careful reflection on educational reality. It encourages prudent decision-making about the person and the world by each participant in the educational process. The aforementioned hermeneutic perspective is not burdened with top-down standards of norms and patterns of conduct, allowing for the presentation of the multiplicity of interpretations and points of view of the analyzed concept.

Secondly: The need to refer to the forgotten meaning of the selected issue arose from the observation of the lack of coherence between the use of knowledge and the potential of the teacher and students in contact with the realities of the contemporary world, as well as the insufficient building of team community, development of independence and responsibility for the work undertaken. It is a way out of the impasse of ambivalent educational needs and expectations and seemingly implemented changes. The argument that instead of seeing the negative aspects of critical thinking dominant in the traditional cognitive approach, constructive and objective criticism was adopted as an appropriate feature of a democratic society seems convincing.

Thirdly: The perspectives selected for consideration are of exceptional importance for the teacher and his/her students operating in the dynamic conditions of a democratic society, which rationally organizes the understanding of the relationships between facts or concepts learned in a given subject of education. During the conducted reconnaissance of information, the existence of "thinking about thinking" was noticed, which includes recognizing, analyzing, and then correcting the errors made by the teacher in the predominantly subjective reasoning and preparation of specific teaching material. The use of critical thinking can be a key to development. It can also strengthen the quality of the teacher's and students' work and gain a new dimension conducive to the development of autonomous thinking and the ability to learn freely.

Fourthly: A research problem was formulated, which determined the scope of the teacher's understanding and state of knowledge about critical thinking and what premises guide it in order to familiarize students with the properties of critical thinking and action in a school team. To what extent will the steps occurring in the scientific process open up perspectives for the use of critical thinking in a school team, in order to allow for independent work?

Fifthly: The authors reviewed the Google Scholar database and focused on texts recognizing the essential properties of the research problem, owing to which they selected publications in terms of the title of the text, keywords, style and direction of data interpretation, allowing for obtaining the basic material for analysis (Matera & Czapska, 2014, p. 39). Regardless of this, inclusion/exclusion criteria were selected, which were publication dates in the second half of the 20th century and the first two decades of the 21st century, concerning works in the field of pedagogy/pedeutology, with a rather interdisciplinary, theoretical, and research-based approach.

EVIDENCE-BASED REVIEW: CRITICAL THINKING AND ITS MEANING

The words "critical", "criticism", and "criticism" come from the Greek word *kritikos*, which means the ability to make judgments, notice differences, and make decisions. As Nęcka et al. (2020) write, "critical thinking is a type of realistic thinking, focused on a specific goal, which is evaluation. (...). The goal of critical thinking is a reliable and realistic assessment of important aspects of human intellectual activity" (pp. 428–429). In the already classic definition, Ennis (1985) emphasizes that critical thinking includes practical aspects of higher-order thinking: "deciding what to believe or do is an enterprise based on higher-order thinking, and the most practical activity related to higher-order thinking focuses on deciding what to believe or do" (p. 47) in a school team in an approach based on the empowerment theory. In turn, Cottrell (2017) from the University of East London provides an informal code of a critical thinker who deciphers the arguments and conclusions of others, being able to read between the lines and presenting a specific and own point of view (pp. 8–10). Glaser (1942) adds that critical thinking involves developing an "attitude expressed in a willingness to consider thoughtfully the problems and objects that fall within the scope of experience, encompassing knowledge of logical methods of reasoning (…) and revising any belief or other supposed form of knowledge in the light of the evidence supporting it to further conclusions to which it leads" (pp. 409–410). Będkowski (2019) notes, on the other hand, that critical thinking "generally means a certain form of practical logic, aimed at the analysis of everyday argumentation and a wide range of skills and attitudes developed thanks to it" (p. 170). It is a cognitive activity that, for a teacher, is integrated with specific reasoning and analysis of information needed to perform a chosen profession. It is goal-oriented, especially when it concerns solving school and extracurricular tasks and problems, formulating conclusions, and making appropriate decisions. Logical reasoning that considers complex phenomena or educational situations that require the assessment of rational facts and justification without giving credence to other people's words or beliefs is particularly valuable. As Czaja-Chudyba (2020, p.

13) or Pacheco and Herrera (2021, p. 5) state, impartial judgments are important, they are highly useful for the teacher to correct students' knowledge and develop self-control and self-correction. The teacher should first learn to use the skills of self-control and self-correction himself in order to be able to educate others later, as Nawolska and Żądło-Treder (2017, p. 175) rightly mention.

An interesting example supporting the implementation of critical thinking in a school team was proposed by researchers from the Australian Council for Educational Research: Heard and colleagues. In 2020, they published a publication entitled *Critical Thinking: Skill Development Framework*, which showed that critical thinking should be operationally defined and well-documented to avoid complications in teaching and assessment. The teacher's efforts in this area are aimed at developing critical thinking in students. Today's students belong to a generation that expects from the teacher and the educational institution significant freedom in individual development, respect, a certain amount of responsibility, and demonstration of substantive activity. Expectations do not always go hand in hand with the competencies acquired by the students. Hence, the teacher and school could support the preparation of young people to acquire knowledge and skills so that they can cope with the flood of information, its interpretation, selection, processing, and application in various conditions. A fundamental role in this is played by critical thinking and the intervention technique being created, which is an assessment tool adapted to the nature of the class and the potential of its members. The framework characterizing critical thinking proposed by the authors of the publication refers to cognitive processes that are ultimately goal-oriented and goal-driven. Regardless of whether the goal is to solve a problem, support a theory or statement, conduct an experiment, formulate an argument, present an interpretation, undertake criticism, understand a topic, or decide on a course of action, this presented approach assumes that critical thinking is not simply reflective thinking, but critical evaluation and development of conclusions are required here (Johnson, 2000). Therefore, in the didactic and educational process, the teacher must pay attention not only to individual activities involving learning and selecting appropriate information to implement the topic but also to its summary with an assessment of the usefulness of the acquired knowledge and skills in the everyday functioning of students.

Australian researchers drew their pragmatism from the thoughts of Dewey and his work entitled *How We Think: Revisiting the Relationship of Reflective Thinking to the Educational Process* (1933) and McPeck and the publication entitled *Critical Thinking and Education* (1981), where both authors referred to the category of reflectivity or to the definition of Lipman (1988) emphasizing the evaluative nature of critical thinking, assuming that the result of critical thinking is a critical judgment because it is: "1) based on criteria, 2) self-correcting, and 3) sensitive to context" (p. 40). Australians share the findings of the above-mentioned researchers

and indicate that all cognitive skills related to critical thinking are metacognitive in nature and place them in three categories:

- metastrategic (e.g. selecting and monitoring the strategies or procedures used),
- metacognitive (e.g. asking "What do I know and how do I know it?")
- epistemological (e.g. wondering "How does someone know something?") (Heard et al., 2020, p. 2).

The indicated areas and categories, which are related to critical thinking, are undoubtedly related to the need to develop the ability to use the knowledge resources we have and make balanced assessments of the information we use, which authorizes us to build conscious views that translate into civic actions in a democratic world. A similar strategy was proposed over two thousand years ago by Socrates, who encouraged multifaceted reflection and asking questions in order to reach actual actions determined by mobile people involved in education. DiYanni (2016) from New York University writes about similar initiatives in his book *Critical and Creative Thinking* in which he indicates two essential competencies that make up critical thinking: evaluation, concerning the management of one's thinking, and motivation for it, using inductive and deductive reasoning (2016, pp. 17–52). In turn, Thomas and Lok (2015, pp. 93–105) in a study on teaching critical thinking, citing many studies by, among others, Dewey, Glaser, or Facione from Santa Clara University, determined the value of basic skills related to critical thinking. These are, in order, interpretation, analysis, evaluation, inference, explanation, and self-regulation. According to the above-mentioned authors, not only are the skills strictly related to critical thinking important, but so is the disposition that conditions it. Based on the literature, the aforementioned researchers indicated that the appropriate disposition may or may not be conducive to critical thinking. It consists of three subsets of dispositions that condition it: an attitude of openness, honesty, and intellectual virtue, which includes seeking truth, curiosity, and habits of mind related to cultural prejudices and dichotomous (black and white) thinking. The combination of distinguished skills and the appropriate disposition determines critical thinking (Ennis, 2015, pp. 31–47).

The academic textbook devoted to critical thinking by Bassham et al. (2011) contains a short subchapter on the essence of critical thinking in classroom education conditions. According to the researchers, the most important skills that participants gain during education concern "understanding the arguments and beliefs of others, critically evaluating these arguments and beliefs, developing and defending one's own, well-founded arguments and beliefs" (p. 7).

The presented English-language works on the issue of critical thinking adopt a thoughtful and expressive interpretation worthy of use in school practice by the teacher. He definitely uses this category of thinking too rarely, referring instead to psychological or sociological threads. This results from the ideological impasse and

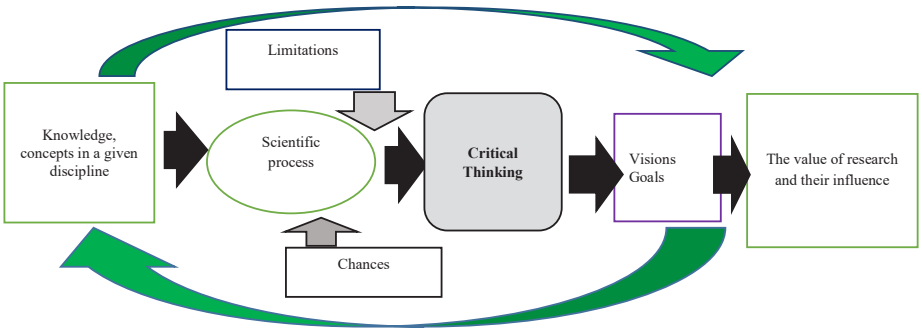
the lack of Polish publications aimed at popularizing critical thinking in the education process. It was not until the 1990s that the philosophical trend and the text by Kwieciński (1991) filled the gap. Another work explaining the value of critical issues is the concept of Witkowski (2016), promoting the acquisition of a new competence referring to the acquisition by a person of "(...) an appropriate dose of criticism in a rational approach to the world" (p. 71). Kwiatkowska (1997) expressed a similar trend, writing that "although in the postulated sense, there is agreement on criticality in education, there is a lack of both theoretical analyses (...) and practical applications" (p. 135). The discourse undertaken at that time refers to reflection on postmodern trends occurring in pedeutology rather than to interest in the potential of critical thinking and developing this skill (Mizerek, 1999).

The current acceleration of educational dynamics creates space for restoring the importance of critical thinking in the context of expanding the pedagogical field of activity and teacher involvement. It should be emphasized that the existing rich achievements in this area constitute a complex interdisciplinary conglomerate combining philosophical, psychological, and educational views, as well as results resulting from informal logic and argumentation theory. This multi-element complex reveals the diversity of approaches, which was aptly expressed by Cuban (1984). He wrote: "Defining thinking, reasoning, critical thought, and problem-solving are troublesome for both theoreticians and practitioners" (p. 676). Therefore, critical thinking can be defined as: a cognitive process (Halpern, 1998; Kuhn, 1999), as an intellectual normative practice (Bailin et al., 1999, pp. 285–302), as the goal of education (Halpern, 1998), as an ideal of education (Siegel, 1988; Paul & Elder, 2007), as another fashion in the educational world (Paul & Elder, 2007; McPeck, 1981), as a school and university subject (McPeck, 1981, p. 8; Cuban, 1984), as a permanently inscribed in education activating critical reflection (Szkudlarek, 1999, pp. 122–123), as a remedy for problems resulting from the teacher–student relationship (Czaja-Chudyba, 2020). The terms and their meanings mentioned can be applied to teachers and students who are educated at different levels of the educational ladder. However, decades of ideological collapse and teacher domination have contributed to students giving up on seeking knowledge, marginalizing the creation of a good atmosphere during the teaching and learning process, neglecting the individual development of skills and attitudes, effectively eliminating their involvement and curiosity about knowledge. In today's conditions of modern education, teachers must overcome the regression of their profession and focus on the personal needs and interests of each student. Next, they should build an atmosphere of cooperation and teach social competencies in order to develop the intellectual area and prepare students to accept various information and evaluate it critically. As a result, not only does a mental switch to a different course of action occur, but modernized principles are also implemented into the already developed style of work. In addition, there is a new obligation to mediate with students, even

selected content of classes from the subject being taught (Szmidt, 2009), which was absent in traditional education.

Not only should the functioning of a teacher at school and within a teaching team be based on the determinants of critical thinking, but the research desire to learn and possibly change reality should also be used. This process may be accompanied by critical reflection connected with the choice of area and subject matter both in the didactic process and in the verifications undertaken. Practicing science situated in this way means not only selecting and forming problems but also finding a solution. This requires reflection and skillful application of a specific analysis, but also such critical thinking, the use of which will affect the final effect of the teacher's and student's actions in the educational environment, which is undertaken, among others, by the model developed by de Graaff and Kolmos (2009). The properties of the problems formed will depend on the subject of research and the researcher's activity. The key to the undertaken activity will be the development of an attitude that considers thoughtfully the problems that revise the knowledge held. This will allow for the creation of foundations for the team members to undertake activities, distinguished by their individual critical thinking strategy and possessed talents, enabling cooperation of the developed procedure covering both verification and falsification of statements. The result of such an approach will be the autonomy of the activities undertaken by the participants of the educational process and the disclosure of a kind of scientific professionalism captured in the form of the structure designed below, arranging a specific system visible in Figure 1.

Figure 1.
Design of factors in the system structure and the scientific process



Source: Authors' own study.

In the presented figure, the central axis of the selected components is knowledge, concepts characteristic of a given discipline, the scientific process itself, un-

dertaken activities connected with the occurrence of critical thinking, which affects the vision of the implementation of the teaching process, set strategic goals requiring the re-launch of critical thinking leading to obtaining valuable results, affecting the knowledge possessed, created concepts and theoretical solutions adapted to teaching practice. The second axis, which intersects with the main one, marked with black arrows, is the limitation and opportunity of the scientific process as a common element. It consists of activities such as:

- consciously defining the gaps in the scope of solving the problem;
- creating an initial set of solutions to the given task, problem and taking into account critical thinking;
- performing scientific operations enabling efficient solutions to the problem;
- writing a report on scientific and didactic activities containing a presentation of the achieved results together with the justification of internal verification or their falsification;
- achieving the assumed goals, including a specific vision in a given time and space;
- confirming the value of scientific activity in the research field as a result of internal and external falsification and critical thinking in the scope of admitting the obtained research results and their implementation into the cumulative knowledge in the teaching process.

In the traditional approach to education, the teacher used critical thinking to a small extent because it was obligatory to discipline the students, focus on the content presented by the teacher, and a rote-encyclopedic course of work. The perceived fragmentation of information in the didactic process without searching for various pieces of information, without making a critical selection and assessment of them, contributed to drawing attention to different ways of reaching one's reflections, making mistakes, and applying a different perspective on issues related to the acquisition of information, for which the principles of critical thinking can be used. It requires expression, spontaneity, and the teacher's involvement in the teaching process. In order to popularize them, we propose the implementation of the assumptions of the empowerment concept in contemporary education.

Empowerment is the idea that educational activities serve to make someone "strong", "capable of something" (Gove, 1999; Siegall & Gardner, 2000). It is also understood as permission (Koźmiński & Latusek-Jurczak, 2004, p. 144), subjectification (Moczydłowska, 2013, pp. 15–23), empowerment (Gulczyńska & Granosik, 2014), validation (Olejniczak, 2013) and preparation for the implementation of tasks by team members in a changed environment in which independent ideas, use of possessed knowledge, motivation to undertake multiple tasks and challenges are valued (Blanchard, 2007, pp. 75–85; Zeffane et al., 2012, pp. 113–125). The beneficial use of the aspect of the teacher's power and his potential can be

a concrete impulse to stimulate team members to achieve masterful effects. This requires specific changes in the teacher's educational activity so that the independence (Wilkinson, 1998) of the educational partners becomes evident.

The use of empowerment in the educational process can transform the previously adopted didactic strategy, which would be a way of verifying and/or falsifying the solutions provided by the participants of the school team, in which critical thinking was used. This would be a different perspective, showing an alternative strategy of teaching and thinking to prepare for responsible functioning in today's world. Critically thinking participants of the educational process would use various available sources of knowledge, taking into account its limitations as well as the chances of obtaining an optimal solution to the problem under consideration using system analysis. Its constitutive features are:

> holism – considering the phenomenon as a whole, structuralism, complexity – revealing mutual relations, contextuality – treating the phenomenon as a part of a higher-order object, teleologism – orientation towards the goal as a desired state, functionalism – considering phenomena, problems in their dynamics, efficiency – focusing on the effectiveness of actions, synergism – the ability to self-organize, controllability – the ability to self-control. (Lipman et al., 2008, p. 128; Sienkiewicz, 1994)

The elements listed above meet the need to research the basis of systemic penetration, where every analysis of any object, also in the didactic process, is based on breaking it down into parts or assembling it into a whole. An analogous situation occurs in critical thinking, in which the aim is not to indicate errors but to apply logical reasoning containing steps similar to those present in scientific research. They concern the following principles: "Precision of defining the boundaries and interior of the system, invariability of the distinction between the system and its environment during the research, completeness, i.e., the existence of division into subsystems, the principle of separation, the principle of functionality – i.e., the division of the system into subsystems" (Sienkiewicz, 1994, p. 44; Ajdukiewicz, 2006, pp. 206–225).

The presented principles introduce the ordering of issues or problems considered by the teacher. Some require a unique approach, decision-making, and taking into account critical thinking in order to consider available variants of planned steps of the procedure and achieve the goal. Namely, it concerns the calculation of the value of the effects of the teaching and learning process, as well as the implementation of research that leads to specific results. This is possible thanks to respecting the norms and rules of cooperation that shape the habit of independent thinking and improvement of the undertaken activity. It is worth using the tips of Quad here:

1. Use expert opinions effectively.
2. Pay attention to choosing the right goal.

3. Constantly check the "sensitivity" of the methods used.
4. Develop variants and conduct their comparative evaluation.
5. Use an interdisciplinary team.
6. In significant problems, do not rely on analogy to individual tasks.
7. Attach more importance to partial answers to important issues than to full explanations of unimportant problems.
8. Consider costs as an important factor when choosing a solution option.
9. Consider that the person who makes decisions can compensate for the incompleteness of the analysis to a certain extent.
10. Assume as a guiding principle that a new concept has much greater value than thousands of conducted evaluations. (in Sienkiewicz, 1994, p. 45)

The desiderata given by the author are based on the nature of heuristics, which provides a set of guidelines for effective problem-solving. The advantages include:

> introducing objectivity to the scientific process, which is rather subjective, taking into account a broader context for research, leaving addressing uncertainty and risk factors, focusing on the effects of action, revealing unforeseen consequences, forcing team members to solve the problem and to uniformly and systematically evaluate and rationally compare system variants. (Dobrowolski, 2021, p. 173; Findeisen, 1985, p. 45)

The recommendations are not without flaws. The following can be mentioned:

> Focusing on "tangible" factors, i.e. those that can be quantified, and ignoring or underestimating the importance of other factors that cannot be expressed quantitatively; failing to take into account certain "subtle" values that are important for many activities; artificially separating facts from value assessments; frequently overestimating efficiency-related goals, etc. (Dobrowolski, 2021, pp. 169–187; Findeisen, 1985, p. 47)

In the approximate advantages and disadvantages of system analysis, it is impossible not to notice certain dangers and abuses in the form of, for example, the teacher's creation of a façade of "expertise", within which the actions taken are supported in advance or their absence is noticed in the school environment. There may be ignorance of the teacher's responsibility and the social consequences of managing a school team. Therefore, at each stage of the analysis, critical thinking is worth using to prevent the adverse effects of the decisions and actions taken. Additionally, the teacher should support himself with alternative thinking, i.e. the ability always to notice different variants of solutions; anticipatory thinking, i.e. the ability to predict further effects of proposed solutions to problems or tasks; probabilistic and possibilistic thinking, i.e. the ability to analyze objects in terms of uncertainty and risk and their possibilities in terms of educational structural

and organizational changes; thinking in terms of civilizational and technological changes. The distinguished types of thinking indicate the transformations of the teacher's activity in the teaching process, who has moved in his professional path from traditional understanding and planning of activities to the attitude of homo scientific (Kaufman, 2004), which is difficult, but possible to develop and achieve in the new educational situation.

In Polish literature, Kozielecki's concept of problem-solving has been referred to for a long time. He believed that it can be used when a person has difficulties in achieving a goal concerning cognitive orientation, making a decision, and using it in action. The author combined solving orientation, decision-making, and executive problems with the goals. The resulting division of problems, as the author himself pointed out, has "formal deficiencies and is not separable, but thanks to this, it is possible to understand the activity of modern man better" (Kozielecki, 1969, p. 21; Corejowa & Borkowski, 2004, pp. 32–35). In each type of problem, an important role is played by the thinking process that allows for the perception, discovery, and awareness of the knowledge needed to solve it. Mazur (1987), the creator of the systemic concept of problems to be solved, reached identical conclusions. He believed that problems can be divided into cognitive ones, containing their thoughtful classification and explication of relationships, including learning the answer, problems-decisions concerning the search for an answer to the set goal, its optimization, and implementation. To solve them, a systemic method is necessary, which holistically strives to provide a solution, defining changes in them. Various difficulties are visible here, resulting from the fact that the human teacher and students perform the functions of a postulator, optimizer, and implementer (Mazur, 1987, pp. 21–29). The recalled ways of solving problems in Polish education constituted a relaxation of the rigid rules of teacher and student behavior because they gave a spark of hope for the existence of different possibilities of thinking and acting.

It should be added that in the past, traditional schools, science, and teachers were primarily concerned with cognitive problems. Today, in the era of rapid transformation and progress, such an approach is insufficient. In view of this, the process of creative problem-solving developed by Szmidt and Bonar in the volume entitled *Żywioły. Lekcje twórczości: twórcze rozwiązywanie problemów (TRP) w praktyce* (1998) becomes critical. It took into account the teacher's area of activity, school culture, awareness of being a citizen, education and the labor market, and the culture of free time. The driving force behind the creation of this program was a new educational strategy focused on creative problem-solving, teamwork, and gaining new competencies and skills in the pursuit of self-fulfillment and self-improvement not only in the school environment but also outside it. In these areas of educational partnership functioning, multiple properties are becoming desirable, which was also noticed by the authors of the *Future of Jobs*

report. It was developed during the World Economic Forum in Davos in 2016. It highlighted the following dispositions: 1. "The ability to solve complex problems, 2. Critical thinking, 3. Creativity, 4. People management, 5. Cooperation with others, 6. Emotional intelligence, 7. The ability to evaluate and make decisions; 8. Service orientation, 9. Negotiation skills, and 10. Cognitive flexibility" (Zahidi et al., 2023, pp. 29–33).

The above dispositions are part of the soft skills that work well in the complex and dynamic current environment, in which such features as initiative, communication skills, inventiveness, teamwork, and time management are gaining recognition. The above set of capabilities should not be underestimated in the education process. The distinguished personal features are advantageous during the independent acquisition of knowledge and individual shaping of one's development, in line with the assumptions of Lifelong Learning. Therefore, today, it is postulated that the "traditional model of school, understood as a treasury and (often the only) source of knowledge" should be abandoned (Fudala, 2013, p. 88). Hence, the teacher should be obliged to use the achievements of cognitive psychology, neurology and theories explaining the essence and mechanisms of learning of each person. In this case, help and support can be provided, among others, by the pedagogy of creativity, which provides tools to support the development of thinking by teaching the use of creative heuristics that prepare young people to process information, identify facts, and construct their judgments based on reliable knowledge. Nevertheless, creative heuristics can be a reasonable basis for undertaking solutions to problems that appear in small and large teams of people. They are an excellent basis for reflection on their functioning in the school space. There are tasks set that should be the basis for preparing the teacher and students for action in a broadly understood competitive and multidimensional society and education. Developing individual potential, creativity, and independence of action is a *sine qua non* condition for acquiring the ability to think critically.

EVIDENCE-BASED REVIEW: SCHOOL TEAM AS AN AREA OF DEVELOPMENT OF CRITICAL AND INDEPENDENT ACTION

One of the environments for acquiring critical thinking competencies is a team operating within a school. Teams are both formal and informal in nature. They are characterized by a small number of people who support other members with their professional, decision-making, and interpersonal skills and are united by common goals and tasks while maintaining a high level of community involvement and responsibility (Stankiewicz, 2011, p. 229). A team is also "a set of people who have a common, specific goal of action and mutually complementary skills" (Kmiotek, 2012, p. 162). Thanks to a team, better results of undertaken activities are obtained

due to the synergy effect it combines cooperation with sharing duties and knowledge (Kożusznik, 2007, p. 104).

The presented definitions of a team may also apply to a school team, which is understood as a system of mutual connections between the actors of the didactic and educational process, but also as a network of information exchange, confrontation of one's views with those who have different ones, as well as a field of negotiation of meanings, in which critical thinking seems to be a key skill. It is also a context for self-development and growth in many areas, including competencies and abilities, as well as the personality or identity of the members constituting the team. Belonging to one of the teams operating at school does not exclude belonging to others established to achieve different goals.

The Minister of National Education, in the Act of 21 May 2001, speaks of "a team whose task is, in particular, to establish a set of curricula for a given class and to modify it as needed" and of "the duties of the school principal, who may create educational teams, subject teams or other problem-task teams" and "the work of the team (…) is directed by the chairman appointed by the school principal" (Rozporządzenie Ministra Edukacji Narodowej z dnia 21 maja 2001 r.). The cited regulation includes the acceptance of principles and rules concerning the scope of the teams' activities while leaving them autonomy so that they can independently specify various issues concerning the implementation of tasks or the work schedule. Legal requirements also include supervision over teams and specifying the method of conducting external evaluation (Rozporządzenie Ministra Edukacji Narodowej z dnia 7 października 2009 r.)

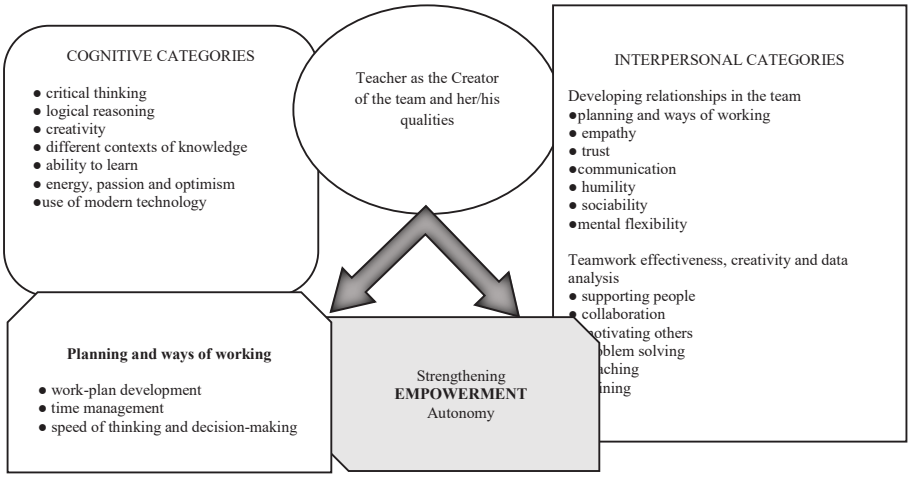
Building a team at school or in other institutions by unprepared leaders, managers or teachers may cause them to make many mistakes:

1. Use a team for work that is better done by individuals.
2. Call the performing unit a team but really manage members as individuals.
3. Fall off the authority balance beam.
4. Dismantle existing organizational structures so that teams will be fully "empowered" to accomplish the work.
5. Specify challenging team objectives, but skimp on organizational supports.
6. Assume that members already have all the skills they need to work well as a team. (Hackman, 2002, pp. 245–267)

At the beginning of creating a school team, it is worth considering several issues, e.g. what the organizational shape of the team should be, what the atmosphere should be like in it, how to mobilize team members to show initiative, how to diagnose the characteristics of people, especially those who are closed or overly excitable, what type of communication and information exchange to develop in the team, how to differentiate functions, division of tasks and responsibility, how to estimate the results and individual and group effort, how to maintain commit-

ment and further build the team's community and analyze the adjustment of all activities to the potential of team members, their development, independence in accordance with the developed norms of undertaken activities. The teacher acts as the originator of the school team, in which, in addition to using the principles of empowerment, the personal characteristics of the participants will be accepted, which were pointed out by a group of researchers working under the auspices of McKinsey. This is illustrated in Figure 2.

Figure 2.
Author's interpretation of selected personal dimensions of team members



Source: Authors' own study based on (Dondi et al., 2021, pp. 4–5).

The factors indicated by McKinsey researchers describe four important components of empowerment, which constitute an unconventional and creative path of educational activity (Brzeziński, 2009), in which exceptional value is attributed to personal components, as well as the context of their occurrence. Both dimensions have a positive impact on the increase in the influence of the teacher as the creator and leader of the team. Individual traits of participants are appreciated, identifying with the team, within which they meaningfully carry out tasks, exercise personal control, plan their development, showing actual involvement in activity related to the information and decision-making sphere, giving a sense of satisfaction from work done. In this way, the expectations of the young generation intertwine with learning and the development of independence, which is supported by modern technology (AI) serving all entities involved in educational processes. Young people, during their educational path, want to experience respect and be treated with respect (Fordham, 1993; Frączek, 2018).

However, during this path, they do not always experience positive situations. Often, both employees and the authorities of the institution do not pay attention to:

> The ability of the existing school structure to self-organize, reduce the levels of the hierarchy of employees, increase the diversity of tasks and challenges undertaken, increase substantive support for the teacher, create solutions enabling a change of roles, create an organizational culture based on the cult of knowledge, learning and sharing knowledge. (Czubaszewicz & Gajewski, 2018)

The main stimulator of the team's activity are external changes in the environment contributing to the selection of educational tasks and their modification. The fulfillment of these recommendations in the school organization will be possible thanks to teacher empowerment and critical thinking. This will enable more efficient task performance in the didactic and educational process and will contribute to more conscious participation in school activities. Furthermore, the teacher, as Winiarek (2019) writes, "will start to notice, appreciate and change his role towards being a moderator, gaining authority and the status of a guide, mentor in the eyes of students" (p. 7).

SUMMARY AND CONCLUSIONS

A systemic analysis of the literature revealed a diverse meaning and explanation of critical thinking, which is an interdisciplinary category. Its exemplification was subject to modifications in the selected time interval. It was noticed that in Polish literature, there was no translation of the achievements of the leading representatives of the theory and vision of critical thinking, which consequently affected the lack of reliable knowledge of the teacher and its practical use. Only the political changes in Poland reduced the distance between the two important issues, critical thinking. Deficiencies in this sphere of the teacher's professional activity left their mark on his weak liberation from the limitations of shared views and prejudices about the negative valuation of critical thinking. Therefore, understanding the essence of critical thinking and its proper role by the teacher in education can support the responsible building of a well-functioning school team, as well as the self-knowledge and professional identity of its participants. The theoretical and practical considerations made on the subject of critical thinking can contribute to the formation of such an attitude and features as those studied by scientists from the McKinsey group. Having the features indicated there can contribute to the activation of critical-analytical abilities and judgments, leading to more prudent use of available sources of information and the collection of such knowledge, facts, or solutions that can be used or rejected in the light of available evidence and logical reasoning. Ancient philosophers have already encouraged multi-aspect reflection

in order to see the actual dimension of information and the purpose of the teacher's actions in the school team. Currently, the teacher and the educational institution try to take into account the expectations of the young generation, which wants to be treated kindly and fairly. This is especially difficult when destructive attitudes that are socially unacceptable appear. Despite everything, there is room to initiate teacher activity combined with the implementation of critical thinking and to oppose many barriers and unacceptable attitudes. Learning to correctly see one's advantages and disadvantages and respect the rules is laborious and requires revising the beliefs of the teacher and students to learn the specifics and attributes of critical thinking. It is a continuous process that spreads over time, similar to the stages appearing in the structure of scientific research, and can be arranged in a school team that functions on the principle of empowerment. It is possible to combine theoretical reflection with practical activities stimulating participants in educational processes to develop a predisposition and attitude to critical judgment. It will support the development of various activities and the elimination of destructive behaviors. The given proposal fills the gap in the area of the topic being undertaken to a certain extent. It prepares education partners for the interdisciplinary implementation of theory in practice, understanding the concept of critical thinking, and creating a school team in a dynamically changing world, but it also requires the teacher to devote time, wise argumentation, skeptical observation of the surrounding reality and assessment of progress not only of students, but also one's own within the educational system, constituting an important punch line and conclusion of the considerations made. Beck agreed with this thesis, writing that "everything begins with thoughts, which lead to feelings, which in turn lead to actions and results".

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KRYTYCZNE MYŚLENIE JAKO OBSZAR ROZWOJU I SAMODZIELNEGO DZIAŁANIA W SZKOLNYM ZESPOLE

Wprowadzenie: Zmienność otaczającego świata oddziałuje na modyfikacje edukacji. Priorytetową sprawą staje się zyskanie kompetencji kreatywnego namysłu i rozwiązywania problemów u nauczyciela i jego uczniów jako istotnego filaru współczesnego oświatowego rozwoju. Globalny świat ery informacyjnej wymaga nabycia kompetencji krytycznego myślenia, umożliwiającego wartościowanie informacji, ich selekcję i wykorzystanie w zespole szkolnym i poza nim.
Cel badań: Uwzględnienie propozycji wykorzystania myślenia krytycznego jako wsparcia nauczyciela i uczniów w podjęciu decyzji zmiany dotychczasowego paradygmatu myślenia, działania i organizacji szkolnego zespołu we współczesnej dynamicznej rzeczywistości.
Stan wiedzy: Systemowa metoda analizy literatury pod kątem krytycznego myślenia i wizji epistemologiczno-poznawczej pedagogiki krytycznej i hermeneutyki umożliwiła wyselekcjonowanie źródeł koncertujących się nie tylko na teoretycznych rozwiązaniach, ale i na takich ich zastosowaniach, które przeobrażają, dotychczasową aktywność partnerów kształcenia ukierunkowując ich na rozwój i samodzielną aktywność w szkolnym zespole.
Podsumowanie: Dokonana analiza literatury i wywiedzione na tej podstawie refleksje uprawomocniają autorki do twierdzenia, iż zarówno nauczyciel, jak i uczniowie powinni podnieść swoje kompetencje w obszarze krytycznego myślenia, zwłaszcza umiejętności różnicowania faktów i opinii. Zarówno wiedza, jak i jej praktyczne wykorzystanie stają się w dzisiejszej płynnej rzeczywistości warunkiem formowania się dojrzałej krytycznej postawy wobec innych, ale też wobec wyzwań stawianych człowiekowi w zakresie myślenia, działania oraz wartościowania. Ustalone na podstawie systemowej analizy cechy dystynktywne krytycznego myślenia przyporządkowano do poszczególnych elementów składających się na strukturę badawczą, która może stać się strategią wychodzenia ze stagnacji poprzez łączenie teorii z praktyką edukacyjną na zasadach nauczycielskiego *empowermentu* w ramach funkcjonowania szkolnego zespołu.

Słowa kluczowe: myślenie krytyczne, nauczyciel, *empowerment*, szkolny zespół, łączenie teorii i praktyki, samodzielność myślenia i działania