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The Relevance of Critical Thinking from the Perspective of Professional Training

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Abstract: In today's complex world, influenced by information bombardment and rapid technological development, professional training cannot remain limited to the idea of passing knowledge. There is a need to shift the students' view towards the true spirit of research, which targets the scientific thought on certain social phenomena, and to form critical thinking skills to produce effective individuals in the current labour market, who not only receive information, but go further and analyze problems in the workplace, presenting solutions to identified problems and applying these solutions in concrete situations. For this reason, critical thinking is considered a top skill, being highly appreciated by the business world and organizations. But to think critically is a capacity that does not develop by itself, it must be practiced and encouraged in a correct learning environment. Critical thinking has become one of the most important educational goals, which must be achieved by the different educational institutions through all the programs studied by students in the different educational cycles, but also by students in the university environment. Starting from this, this article analyses the types of specific actions which target the introduction of the abilities of critical thinking in the training activities in Romania, and in society in its entirety, by identifying the setbacks encountered, and the limits of such an endeavour.

Keywords: *Thinking, critical thinking, education, socio-constructivism, professional training.*

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1. Introduction

Nowadays, the world is becoming more and more complex and, as a result, the problems we face are becoming more and more complicated. In order to adapt to our world today, the solutions of the past no longer work, and therefore we must develop our mental capacities based on the development of thinking and, above all, critical thinking, considered as a center of interest by many researchers.

According to Lipman (2006), "critical thinking is a group of strategies, images and mental operations used by the individual to solve problems, make decisions or learn new ideas. This is practical thinking, and not just an operation that seeks only understanding in a given context, generating a product also being possible through this (word-action-act). This thinking requires the use of knowledge to achieve an acceptable change, which is represented at least by the proclamation of a judgment and the possibility of applying this judgment" (p. 26).

Critical thinking transforms the process of acquiring knowledge, from an inert process to a mental exercise, which results in a better improvement of the content of knowledge and a deeper understanding of this content. This type of thinking provides the individual with correct and acceptable explanations of the topics discussed, as well as an observation of ideas, which makes them much more thorough and correct. In the end, this type of thinking helps individuals make decisions in their daily lives (Apostu, 2016), preventing them from making emotional decisions and adopting radical opinions (Lavoie, 2011).

Despite the importance of critical thinking, educators have pointed out that education, in cognitive terms, focuses only on lower cognitive levels, such as memorization, and is not interested in higher levels such as thinking. Norris and Ennis (1989) noted that thinking skills in general and reasoning in particular are not widely spread among students at different school levels. Also, the results of numerous studies have demonstrated the low level of university students who use thinking skills in general and, above all, critical thinking skills. Among these studies, there is the study by Hirose (1992) that confirmed the inferiority of students in the university environment, Hirose mentioning the existence of a general dissatisfaction towards new employees coming from universities, who have inferior critical thinking skills necessary to process information. He explained that this is due to the traditional method of teaching applied in universities and which is not suitable for the modern working environment that requires advanced thinking and problem-solving skills. As such, the administrations of these universities and their

professors recognize the need to form critical thinking skills and to review curricula and teaching strategies to produce effective individuals in the current labour market, who not only receive information, but go further and analyze problems in the workplace, presenting solutions to identified problems and applying these solutions in concrete situations.

Astleitner (2002) states that the lower level of students is attributed to the fact that critical thinking involves properties and skills that are distinguished by an advanced level of mental operations that are not suitable for traditional teaching strategies applied in schools at different levels of education, as well as in universities. In his view, critical thinking involves superior thinking skills, including the students' ability to interpret, analyze, and evaluate. Therefore, there is serious consideration to make a radical change in the education system, to move from traditional systems to educational systems based on the development of thinking skills, which give the student full freedom to use reasoning skills at a higher level, such as: problem solving, decision-making, evaluation and inference of knowledge, connecting them to each other (Fennimore & Tinzmann, 1990).

Critical thinking is considered a facet of reasoning, which attracted the interest of many educators and psychologists in the second half of the XX-th century. Critical thinking is based on a truth that states that the student is the axis of the educational process, the school aims to form a flexible, open and free mentality by developing methods and tools for the use of the brain and logic. Critical thinking is not limited to criticizing the external aspect of objects but goes much further to the point of thorough criticism of manifestations, trying to find the links between inputs and results, but also to encourage questions about the stakes and problems which the one learning encounters. Given that today's world is constantly changing and that there is a constant flow of data, certain key competences, including critical thinking, are needed to adequately respond to today's challenges (Franco & Almeida, 2015).

To think critically is a capacity that does not develop by itself, it must be practiced and encouraged in a correct learning environment. Critical thinking has become one of the most important educational goals, which must be achieved by the different educational institutions through all the programs studied by students in the different educational cycles, but also by students in the university environment. In the specialized literature there are mentioned pedagogical methods/techniques useful for both pupils and students, and which contribute to the development of critical thinking. For these reasons, in the Western world there is a massive trend towards the field of critical thinking, especially towards training for critical thinking,

while in Romania the subject is still very little exploited. Therefore, the Romanian education needs a profound reform, which involves replacing traditional methods with new ones, based on practicing active learning. This need derives from the fact that, in formal education, students are not sufficiently guided when evaluating, processing and reflecting critically on information. Therefore, we must be interested in developing critical thinking skills in this challenging world to help our students to be able to cope with these complications.

2. Types of actions needed to develop critical thinking skills in training activities

Thinking will play a decisive role in the educational process. Critical thinking is seen as an essential feature for achieving progress and success in the XXI-st century, being considered one of the important educational challenges, since the ultimate goal of vocational training is to develop critical thinking in the student so that he becomes a critical thinker who has an open mindset and an independent personality, able to analyze the information he receives, in a precise and subjective manner, to make decisions and distinguish between good and evil, to judge things logically and to evaluate situations. As a result, the student becomes able to solve the problems he faces, both he and the society in which he lives. This change involves rethinking the perspectives on instructional paradigms, the integrated approach to the curriculum, reforming policies at the level of the curricula and integrating the practices of critical thinking into teaching and learning strategies.

2.1. Rethinking the instructional paradigm from the perspective of training for critical thinking

Given the large amount of information that is being circulated today, school should mean something more than the transmission and appropriation of knowledge. It requires the orientation of students towards the true spirit of research aimed at forming attitudes, values, behaviors and, above all, the formation of a thinking style based on logic, on the ability to use the information accumulated at the right time and in the right way. One of the things that our education system overlooks, in relation to the experience of real life, is how we prepare students to receive the information they will be bombarded with throughout their lives. In the new EU agenda for higher education (European Commission, 2017), attention is being drawn to the fact that too many higher education graduates do not have the

range of transversal skills (problem solving, communication, etc.) that they need to survive in a constantly changing world.

To form these transversal skills, so necessary in real life, a rethinking of the principles on which the training process is based is needed. According to the latest reviews of the specialized literature, the effectiveness of the educational act is determined, first of all, by the quality of the instructional paradigm that underpins it. Thus, the teaching-learning process is best based on the social-constructivist paradigm, according to which the student must be correctly and constantly assisted by the teacher in building his own baggage of knowledge and skills. A student-centered teaching-learning process starts from the idea that the subject's own experience is the foundation of learning (Sălăvăstru, 2007). On the one hand, the student learns through direct, interactive involvement and participation, not just from the teacher. On the other hand, the teacher places the student at the center of learning experiences that favor thinking, independent action, active participation in the process of building knowledge. In this way, transversal thinking, parallel thinking, critical thinking is encouraged, and learning is considered an opening to new possibilities, there isn't only one correct solution, but several possible and temporary ones (Siebert, 2001).

For these reasons, critical thinking must become an integral part of education, being necessary to disseminate it in school practice, given that any genuine education should include the formation of critical thinking because it aims to favor the development of the student's autonomy of thought (Reboul, 1984). Thinking skills will not develop spontaneously as a consequence of the student acquiring a volume of knowledge. There is a need for learning programs for thinking, so that the acquisition of thinking skills to be done right within the curriculum, by setting distinct goals in this respect (Sălăvăstru, 2007).

2.2. Integrated curriculum approach and critical thinking

There are diverging views on the manners in which critical thinking should be addressed in the school curriculum: designing a holistic approach encompassing all subjects, or through a separate course on critical thinking. In the literature, both trends are defended. Supporter of a generalist approach to critical thinking, Ennis (1987, 1993) considers critical thinking as a set of cognitive skills that are learnable, regardless of content. In contrast, McPeck (1981, 1990), which may be associated with the disciplinary current, believes that critical thinking may vary depending on the field or discipline in question: depending on the context, the method of mobilizing critical thinking may not be appropriate. For Baillargeon (2016),

one should be really careful not to perceive critical thinking as a generic skill or a transversal competence, which could be easily transferable. The teaching of critical thinking would, from this perspective, be fundamentally disciplinary.

Despite these seemingly divergent views, more recent works reconcile these two tendencies, believing that there are indeed transversal skills in critical thinking, while admitting that mastering a discipline or good knowledge of a context can have an influence on critical thinking. Even though most critical thinking skills can be mobilized in a wide range of contexts, critical thinking requires both "thought and knowledge" (Butlet & Halpern, 2020, p. 153). While the lack of knowledge is one of the reasons why critical thinking skills are difficult to transfer from one field to another, the specific practice of these skills contributes to their transfer. Butler and Halpern (2020) give the example of the ability not to confuse cause and correlation: they suggest that through practice and training, students can learn to remobilize this skill in various contexts, such as reading a newspaper article.

Taking into account these considerations, we consider that critical thinking should be incorporated in all subjects, at the level of the entire school curriculum. In particular, critical thinking should be implemented as a matter of priority in the context of the subject specific to each discipline, where the content is correlated with specific knowledge. However, as a discipline, critical thinking can be considered an educational tool that contributes to the formation of skills and dispositions that allow the student to show discernment. Although there are studies that show that the discipline itself does not produce results that could not have appeared by chance, we believe that it can be extremely useful in training a reflective student, with the ability to think correctly and, implicitly, to operate usefully and harmoniously with information.

2.3. Reforming the curricula/university curriculum – a condition of the development of critical thinking

Nowadays, school programs do not emphasize the possibility of teaching the student how to think, being limited especially in the design of the way in which to think. As such, teaching practices are not sufficiently correlated with the designed school curriculum. To ensure greater visibility of critical thinking and turn it into a student skill, curricula should contain clearer instructions. First of all, critical thinking is considered a fundamental set of competences that must be formed: observation, interpretation, analysis and synthesis, induction and inference, explanation, choice between

several options, logic in reasoning, concretization from abstract concepts. Second, critical thinking is not a very clearly defined notion. Even in the specialized literature there is no consensus on the definition of critical thinking: is it a cognitive capacity or a set of skills and attitudes?

The first definitions of critical thinking that have prevailed in the academic world have emphasized the cognitive component, whether critical thinking was considered a skill, an assembly of skills or even a mental process (Baron & Sternberg, 1987; Ennis, 1964; McPeck, 1981). For Ennis (1964), the critical thinker should demonstrate a mastery of judgment that can be identified around nine factors. Among them, we mention in particular the judgment by the bias of the statement that comes from a premise, an observation based on trust or a valid hypothesis. In his taxonomy on cognitive and affective fields, Orlandi (1971) suggests that critical thinking is one of the components of abilities in the cognitive field.

More recent definitions insist on the motivation of the individual to engage or not in an active reflection that produces creative thinking. In fact, one of the most recent versions of Ennis' model (1998) presents critical thinking as a set of skills and attitudes or dispositions (in the specialized literature, the two terms are used in an interchangeable manner). This conception is part of the emergence of a more holistic understanding (Ku, 2009) of thought. For Perkins and Ricthhart (2004), good thinking means both "to respond in terms of attitudes, motivations, commitments and habits of mind, as well as and in terms of cognitive capacities" (p. 352). Although a critical thinker has the ability to use cognitive skills, in addition, he must recognize the importance and necessity of critical thinking skills and dispositions. Critical thinking is not just a set of cognitive skills and strategies: it is also a willingness to use these skills and strategies. To resume the formula of Butler and Halpern (2020), we could hardly consider an intelligent person as a good critical thinker, capable of making well-informed decisions, if this person fails to use the chosen skills at the right time. In other words, the components relating to cognition and attitudes together determine the actual thinking performance of the individual (Ennis, 1987; Halpern, 1998). Today, critical thinking is understood as a set of reflection skills, attitudes and knowledge (Halpern & Sternberg, 2020).

With these debates as a theoretical support, we believe that pedagogues should be concerned with including critical thinking to a greater extent in school curricula. Also, in a first phase, an explicit reference to the definition and characteristics of critical thinking should be inserted into these curricula. Students achieve optimal results in terms of critical thinking when they have a series of clear instructions on the skills, attitudes and

knowledge that this entails. In higher education, this means that critical thinking receives support from the university curriculum, but it must be integrated in an organized manner in all study programs.

According to the social-constructivist paradigm, the didactic principles of all study programs must be student-centered and based on active learning, so that the student gradually acquires the responsibility of his own learning process. In addition, most study programs should define the guiding role of the teacher in the learning process of students. However, in some academic environments, teacher-centered orientation persists, based on the transmission of content in the form of traditional courses, with little consideration for the input, feedback and discussions with students.

2.4. Integrating critical thinking practices into teaching and learning strategies

One of the challenges of the XXI-st century is that critical thinking is becoming increasingly necessary in our globalized, pluralistic society, often flooded with information, and in the conditions of new trades focused on innovation. Moreover, critical thinking is considered a top skill, being highly appreciated by the business world and organizations (Dumitru, 2017). Although it is a generally accepted fact that improving the critical thinking of students is an important objective of education, their ability to put it into practice is lacking, being underestimated that critical thinking can only be developed with considerable practice and sustained effort (Halpern, 2014).

In this sense, the role of the teacher is decisive, since he must be prepared to develop strategies and implement teaching practices that promote in a permanent and intentional way, the skills and dispositions of critical thinking among in their students. However, in order to promote them among students, the teacher must differentiate between the skills and dispositions of critical thinking. Hamby (2015) believes that teachers should educate their students to be critical thinkers, independent of their level of intelligence. In this regard, they need to develop the skills of critical thinking (analysis, evaluation, argumentation, reflection, reasoning, self-regulation, etc.) through the curriculum, and the dispositions of critical thinking (openness to mind, open spirit, willingness to be objective in discussions etc.) through active learning strategies and the intense involvement of students throughout the process. Unfortunately, there is a tendency of teachers to overestimate the skills of critical thinking at the cognitive level and to underestimate the importance of critical thinking dispositions (Dumitru, 2017), neglecting their teaching and modeling in the classroom.

Because acquiring the dispositions of critical thinking requires them to be practiced for a long period of time (Saiz & Rivas, 2017), teachers should integrate the specific practices of critical thinking into their teaching strategies. More specifically, the integration of critical thinking into the subject of thematic courses involves students during the training process through self-study and dialogue, using authentic situations and practicing the evaluation of information from multiple sources (e.g. scientific texts, internet information, newspaper articles, etc.), practicing reasoning skills, the ability to make decisions or look at things from multiple perspectives. Recent research on critical thinking and learning shows that students' appropriation of some thinking capacities that are not connected to the problems of real life, can facilitate their solving of some tests, but make them powerless to use those skills in entirely new situations. Learning is effective when students experience different thought patterns, specific to different disciplines, then have the opportunity to apply them in other contexts (Barnett, 2015) and finally understand their purpose for their own lives.

To improve the effectiveness of critical thinking teaching and learning practices, teachers must clearly identify and define the critical thinking competences to be developed (Saiz & Rivas, 2017) and to monitor their implementation throughout the educational process. If the principles of critical thinking are not explicitly mentioned to students, there is a risk that they will not be aware of the importance of the skills they should acquire from the moment they engage in solving the topic. In this context, the teacher's role is to facilitate, guide and monitor learning for students, based on their pedagogical skills. That is why teachers' preparation, availability and critical thinking experience is an essential factor in promoting critical thinking skills and dispositions (Abrami et al., 2015).

2.5. Inclusion of critical thinking in teacher training programs

The idea that thinking must be taught and learned is taking shape more and more, so that students can obtain skills and experiences through activities based on problems in the real world. One of the obstacles is that many higher education teachers have benefited from too little or no pedagogical training, and systematic investments in the continuous professional development of teachers remain an exception (European Commission, 2017).

In addition, even if teachers put into practice general approaches to critical thinking (e.g., information processing, knowledge generation, problem solving, creativity and creative thinking, project-based learning, group debates), the need for additional support is still felt, materialized in

the form of teacher improvement activities in this field (e.g. workshops on this topic, critical thinking courses, ethical dimension and pedagogical reactivity, exchanges of good practices). Therefore, the various difficulties faced by teachers, such as the lack of experience and training on this competence, show the need to prepare teachers in the sphere of teaching critical thinking. Given the importance of critical thinking for the professional future of students, teachers should be able to develop and strengthen it throughout the school curriculum.

Bringing critical thinking into teacher training programs and teacher training is a mandatory requirement, in order to be able, in turn, to train students to think critically, to be prepared to solve the problems in the multitude of everyday situations both at individual and societal level. Given that an open mind is an essential disposition for a good critical thinker (Facione, 1990), but also to promote critical thinking, it is necessary to train teachers and participate in courses / workshops that debate this topic.

This need for teacher training is justified by the fact that critical thinking develops through various contents, is infuses and trained by specific methods at any course. Therefore, the ability to offer students the conditions for a critical, provocative and impartial way of thinking belongs directly to teachers. The teacher must learn cognitive skills and train them to then teach them to the students. He must "infiltrate" critical thinking skills in all aspects of preparation of courses and learn to apply, together with students, models of effective thinking strategies. We notice that critical thinking skills are possessed by each of us, to a greater or lesser extent. In addition, they need to be developed and strengthened. This is not achieved by forcing students to read scientific papers on critical thinking, but through exercises – analyzing and arguing, making mistakes and correcting them. For this reason, the teacher must be able to identify the most effective strategies and interventions to promote critical thinking (Paul, 2005). However, the introduction of activities involving critical thinking procedures in some study disciplines is not without some difficulties, such as the low availability of the teacher to change his teaching practice or to individually monitor cognitive activities and to correct one's reasoning or results.

3. Limits and challenges in the development of critical thinking skills

Given the importance of critical thinking in education and, implicitly, in vocational training, it must be developed and strengthened in all areas of knowledge, but also in the process of applying in everyday life the knowledge gained. Although the skills of critical thinking are highly valued

by the business world and organizations, the literature shows that there are certain challenges and limits that teachers currently face in teaching critical thinking. By identifying and raising awareness of barriers, but also by looking for how to overcome them, pedagogical methods and techniques useful for both teachers and students can be developed, thus contributing to the improvement of their training and learning skills.

One of the difficulties faced by teachers in this process relates to the lack of institutional support (Ennis, 2018), given that the university curriculum does not provide for the improvement of critical thinking skills. Schendel (2016) believes that higher education institutions should be more involved in continuously supporting teachers in their professional development, including the teaching of critical thinking.

Another cause that could explain the difficulty of developing critical thinking skills in higher education institutions is the persistence in higher education institutions of an educational culture based on short-term memorization and the focus on obtaining high grades (DiCarlo, 2009), which explains the difficulty of changing and encouraging the habits and dispositions of students for active learning approaches.

Fraker (1995) identified possible causes that would explain the difficulty of developing and implementing critical thinking skills in higher education institutions. These include the fact that students do not show an increased interest in learning, being especially interested in socializing; the fact that the themes given to students are not useful for their daily lives; the fact that students are not encouraged to reflect and express their view points for personal development; or the fact that students show disinterest in the thematic content of some disciplines.

Aliakbari and Sadeghdaghighi (2013) showed that one of the barriers in the development of critical thinking skills is related to the characteristics, attitudes and expectations of students. From this perspective, the authors mention several possible causes: low motivation for teaching, overestimation of the importance of grades and undervaluation of the importance of skills formation, disinterest in active learning, preference for activities and tasks that do not require complex answers, and lack of ability to cope with difficult thinking. The lack of prior preparation of students and the disinterest in the subject of thematic courses are other reasons that could explain the difficulty of developing critical thinking skills in academic contexts.

The development of active learning strategies, in particular targeting critical thinking skills, requires increased time and work on the part of teachers, whether they have to prepare activities, assess student performance

or provide timely feedback. Therefore, the lack of teacher training for the development and research of critical thinking within the programs/curriculum (Franco & Almeida, 2015) is another barrier to the implementation of critical thinking in the professional training of students. Due to its complexity, the assessment of critical thinking requires time and effort on the part of teachers and researchers, since it requires the development of specific assessment tools.

Due to existing barriers, such as lack of time, the workload of teachers, student motivation and the assessment of learning, in the academic world, competences and critical thinking provisions are not promoted and implemented at a broad level (Aliakbari & Sadeghdaghighi, 2011). Schendel (2016) believes that teachers should improve their teaching strategies and be open to innovation and change in order to harness the potential for developing critical thinking skills among students. The skills and dispositions of critical thinking need a long time to be developed and strengthened, so it is crucial to be practiced throughout the academic journey.

4. Conclusions

Training students to adopt a critical mind is specific to university education. In addition, the ability to develop a critical analysis of facts and discourses is part of basic knowledge in the academic environment. The practice of active learning and critical thinking will be useful to students in today's complex world, influenced by an information overload, globalization and rapid technological development. Teaching and training students for this world implies the need for profound changes, as well as in teaching practices and learning styles and in the curricula of study programs.

The formation of the critical spirit is also related to our ability to train in plural frames of reference, but also, within each discipline, in research perspectives that allow the questioning of what is considered to be self-evident. This is our responsibility as academics, while also being a requirement of students, society and business.

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