

## OBSTACLES AND MISGIVINGS OF FUTURE TEACHERS ABOUT DEVELOPING CRITICAL THINKING IN PRIMARY-SCHOOL CHILDREN

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**ABSTRACT:** *A high professional level is one of the fundamental quality parameters in the process of education. Therefore, the pregradual education of future teachers should be transformed in terms of both the changing requirements on education and the changing role of the teacher. The paper discusses basic principles of critical thinking required from future primary school teachers as a key for the introduction and implementation of progressive changes in the school system. Furthermore, the paper comments on the results of a questionnaire-based survey in the academic year 2020/2021. Its main purpose was to identify the misgivings of the 1st year MA students concerning the development of critical thinking in primary school pupils in three areas: the development of an inclusive education environment and a positive social climate in a classroom; education planning and design; and asking questions.*

**KEY WORDS:** *critical thinking, pregradual education, development of an inclusive education environment and a positive social climate; education planning and design, asking questions*

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## **INTRODUCTION**

Critical thinking is a complex, multi-dimensional, and multi-level intellectual process of a logical, consistent, and systematic analysis of information aimed at finding an optimal and original solution. In other words, it is an insightful, systematic, independent, flexible, fast and strategic cognitive activity. People without the ability of critical thinking tend to be influenced by various ideologies. They are not able to assess the relationships and the context and find it difficult to tolerate different views. Such people pose a danger to democracy. Destructive behaviour and political fundamentalism also result from the so-called tunnel perspective restricted to a narrow area of the reality, without the capacity to perceive it as a whole. Furthermore, violence and fundamentalism can be the consequence of an inadequate education system characterized by insufficient motivation to critical thinking (Lebeer, 2006, p. 29).

A cultivated critical thinker raises crucial questions and problems and formulates them clearly and transparently; collects and evaluates relevant information and interprets it effectively using abstract ideas. In addition, such a person can draw well-founded conclusions and propose solutions by appropriate criteria and standards, and is open-minded with regard to alternative systems of thinking. A critical thinker recognizes and evaluates their principles and consequences, and communicates with other people in seeking solutions to complex problems. Critical thinking is self-disciplined, self-controlled, and self-regulating thinking (Paul – Elder, 2008).

The development of critical thinking is conditioned by the development of the following abilities (Kneedler 1985, p. 25):

- The ability to determine, define, and specify a problem, i.e. to identify solutions as well as moot points, to identify the main text idea, to identify similarities and differences between two or more subjects and/or objects in a particular time sequence, to separate important from unimportant information, and to formulate relevant questions guiding a person to a better comprehension of the situation.
- The ability to assess information related to a specific problem, i.e., the ability to distinguish facts, opinions, and well-founded judgments, to apply quality assessment criteria, to evaluate statements for their consistency, to determine unexpressed presuppositions, to recognize

stereotypes and value systems, to identify one's bias, emotional factors, propaganda, and various ideologies.

- The ability to draw conclusions, i.e., to determine the appropriateness and adequacy of the conclusion-underlying data, and to predict probable consequences of an accepted solution.

## **THEORETICAL FRAMEWORK**

### **Insufficient development of critical thinking at primary and secondary schools**

Critical thinking is an intellectually controlled process of an active evaluation of information acquired by observation and through experiences. International measurements (PISA 2003 - 2018 and PIIAC 2015) indicate that higher cognitive functions, mainly independent, evaluative and critical thinking are not sufficiently cultivated at schools (see e.g., Kostúrková, 2013, 2016 a, 2016 b, 2017a, 2017b, 2019; Petrasová, 2008, 2018, 2019a, 2021; Petrasová et al., 2019b, Novotná – Petrasová, 2021, etc.). This shortcoming is reflected in undergraduates' achievements at universities.

Almost half (47.9 %) of university teachers who took part in the *That makes sense* survey<sup>1</sup> ([www.todarozum.sk](http://www.todarozum.sk)) are of the view that secondary school graduates take up their university study without the skill of critical thinking. More than half of the respondents (55.9 %) maintain that these students are not able to understand things in their (interdisciplinary) relationships. Secondary school students who took part in the survey were even more pessimistic with regard to the development of critical thinking at secondary schools. A positive answer to this question was provided by only one-fifth of the respondents (21.8 %).

The survey data suggest that secondary schools are not able to respond appropriately to the needs of adolescents by a systematic development of knowledge, abilities, and skills required for their future education, labour market as well as life in civic society. The view of university teachers of the quality-level of present undergraduates is strongly influenced by the situation

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<sup>1</sup> The document *Analysis of the state of the art in the school system in Slovakia* is the description of the present-day situation and the identification of the most striking problems of the education system, their reasons and consequences. The analysis is based on an extensive qualitative and quantitative survey implemented in 2017-2019. Thanks to the sample size and the comprehensive approach this is a unique survey in Slovakia.

in the university education system that did not undergo the desired transformation at the time when universities started to open themselves to a broader population. The quality of university education will not be determined by the quality of the incoming students in the next few years; a crucial factor will be the ability of adaptation to the new conditions. It will be necessary to both provide a high-quality education and to cope with the growing heterogeneity of students.

While it is generally accepted that critical thinking of students is an important education objective this skill does not meet the required level either at primary or secondary schools. School curricula usually lay emphasis on “what to think” rather than on “how to learn thinking”. The desired change is conditioned by a substantial change in teaching paradigms, public investments, and reformation of the education policy.

***Critical thinking as a precondition of the education development, innovation, and change***

Cognitive abilities do not only determine the salary of an employee but also economical growth in general. This is especially true of advanced countries where innovations are the main driving force of growth. The cognitive abilities of the adult population are positively related to economical growth. The social benefit of education is namely much higher than the private one. Low educated people in Slovakia face a higher risk of unemployment compared to the EU countries. The influence of education on the unemployment risk is much higher in Slovakia. On the other hand, the labour market suffers from a serious shortage of qualified labour force. Any decrease in the average cognitive abilities negatively affects the overall unemployment and economical growth.

In addition, innovations depend on the import and application of advanced technologies. This is preconditioned by availability of a highly qualified labour force. The education level of workers is as important as that of top scientists. Insufficient cognitive abilities will have negative consequences (dennikn.sk).

Any progress requires an objective and rational approach! However, it is not easy to express and justify one’s opinion or to call an established view in doubt. This is understandable. The working hierarchy and obedience can restrict or impede the employees’ critical standpoints to the decisions of their managers or employers. In any case, critical thinking is an indispensable part

of the decision-making process irrespective of an employee's position in the hierarchy.

Critical thinking is a precious ability especially of those who make strategic decisions and assume the top managerial position. It is related to the ability to formulate questions for oneself, to take a detached view, and to make far-reaching decisions based on their critical evaluation. The capacity not to insist on one's views, to disagree with the other team members, and to modify one's thinking perspective is crucial at a certain level of hierarchy that discourages employees from manifesting an opposing viewpoint! Critical thinking is also important for those who are in charge of the problem-solving and search for innovations. In other words, critical thinking is useful for many jobs and spheres ([www.welcometothejungle.com](http://www.welcometothejungle.com)).

Critical thinking is a complex phenomenon covering various abilities related to the cultivation of rational life and education. Critical thinking functions as a system of intellectual operations seeking arguments **and tolerating counter-arguments**. A good thinker does not necessarily reject them and is willing to accept them. It is the ability to evaluate carefully what can be and what cannot be trusted, what should be assigned its importance, and what should be strictly refused. This results in logical judgments. Critical thinking is not a simple process; rather, it is a systematic intellectual activity. School is the place requiring high-quality analytical thinking and competence from the managers and their subordinates to adequately assess alternative views, options, and well-founded standpoints aimed at the identification of the ways and procedures of effective development of all participants of the education process.

The questionnaire-based survey *That makes sense* (2018) asked human resource experts about the importance of analytical thinking in selecting job applicants. Analytical thinking that underlies critical thinking was considered by 78% of the respondents as fairly important up to crucial. One-fifth (20.4 %) of the respondents considered it to be less important. None of the human resource experts considered it to be unimportant. More than a fifth (22.4 %) of the human resource experts are of the view that university graduates do not meet this requirement. Most of the respondents (59.95 %) believe that university graduates meet this requirement only partly.

The survey results suggest that the development of critical thinking at universities does not belong – according to the opinion of the student-respondents – to the priority aspect of their study. Only one-third (33.9 %) of them identified the ability of critical thinking as a competence that is developed in their study. The survey results indicate that this ability is developed – if at all – at the MA level (37.5 %) rather than at the BA level (31.9 %). According to the survey, critical thinking is developed at public universities (35.1 %). more than at private ones (27.3 %). The concept of critical thinking and its development were discussed through individual and group interviews with university teachers and undergraduates. Both groups of respondents agreed on the definition of critical thinking. Critical thinking is understood by them as an ability to acquire, evaluate, and sort out information, to confront one's views and beliefs with new facts, and/or to modify one's view based on new facts. The students perceived the development of critical thinking as an important aspect of university education, especially in terms of the current flood of information coming from various sources and the need to evaluate it critically.

60% of future teachers and students of other pedagogical sciences and 58.3% of the respondents attending humanities and social sciences considered discussion as one of the most frequently employed methods. Apart from developing the ability of critical thinking, the discussion-based teaching method can contribute to the development of argumentation, this being another ability required for a successful job career of university graduates. In addition to the discussion, critical thinking can also be supported by some other education methods, such as problem-solving and knowledge application through real-life examples.

Graduates from teacher-oriented study programs are expected to establish the conditions necessary for the development of critical thinking in their pupils. The reasons for the negative assessment of cross-disciplinary study by future teachers (*That makes sense*, 2018) can reflect the specific nature of their education in Slovakia. Teacher-oriented study programs should establish the conditions for future teachers to transform their expertise to didactics of individual school subjects through their knowledge of pedagogy and psychology. Unfortunately, the expertise in one subject is usually developed without any connection to didactics and other subjects taught at primary and secondary schools.

The data from the *That makes sense* survey suggest that student-respondents do not believe that the development of critical thinking and contextual interdisciplinary learning is paid relevant attention at Slovak universities. Critical thinking and the ability to comprehend phenomena in complexity play a key role in the period of the Internet, alternative facts, and information wars. The importance of the ability of critical evaluation and of a comprehensive analysis taking into consideration various factors will increase in the future. Critical thinking at universities can be supported by tuition forms and strategies that stimulate critical thinking as well as by introducing interdisciplinary approaches. The advantages of such an approach have been confirmed in several countries.

### **Failure to respond to teachers' problems and to interpersonal relationships**

School has still been perceived as an institution focused on providing information. Both teachers and students are expected to give a perfect performance. Nevertheless, a school should offer much more than knowledge – values, character, mental resistance. The school climate has been paid little attention to. A tired, frustrated and exhausted teacher cannot comply with teaching expectations, cannot educate, establish and maintain good relationships with students, parents, and colleagues, and establish a safe environment for the development of critical thinking.

Kornélia Ďuríková, a school psychologist, asked over 1700 teachers a question of mental health. The survey results were surprising – teachers emphasized stress and exhaustion and considered changing their job. Ďuríková maintains that stress and frustration at schools result from the failure to respond to interpersonal relationships; instead, they are ignored, frequently for a long period. Ďuríková concludes that “*[a] high level of teachers' dissatisfaction suggests that something is wrong at schools and it should be paid attention. I don't think that society pays attention to the way teachers handle and experience this difficult period. As if they were not allowed to be exhausted and tired. The general view is that teachers must know everything – to be IT experts and to offer creative online classes. They are overwhelmed with duties but the results are expected immediately*” (Gdovinová, 2021).

It is primarily teachers at higher degrees of primary school (29%), at secondary school (27 %), and in the first years of primary school ZŠ (23%) who

consider leaving their job. The main reasons comprise constant changes in the education system, mental exhaustion, work overload, lack of the balance between work and private life, excessive bureaucracy, low salary, and low recognition and respect. Teachers identified several serious symptoms. **Half of them suffer from insomnia and one-fifth of them from anxiety. 30% of teachers struggle with the problem of concentration.** Importantly, these data are based on self-diagnosis and the teachers' feelings. The anxiety conditions were not diagnosed by experts. However, if these symptoms are not paid relevant attention they can grow into serious mental problems.

Ďuríková (ibid.) maintains that the pandemic highlighted the problems that have been present in our education system for a long time. Half of the teachers do not feel safe if they are expected to speak about their mental problems at school. A quarter of teachers believe that the school climate negatively affects their mental health. As many as 34% of teachers do not trust anybody in their school environment. Their colleagues are identified as the main stress factor. In addition, disclosing one's feelings might be viewed as a weakness. All in all, it was pointed out that emotional problems are not a topic for the school environment. The above-mentioned percentages indicate hidden problems that are simply ignored.

There is no panacea to solve the existing problems. The situation requires a long-distance run. The education system needs a systematic support and school managers should be educated in interpersonal relationships. It is important to draw attention to these topics and to discuss the ways of establishing positive relationships. Each school needs a school psychologist – an expert capable to work with both children and teachers.

### **Insufficient research into the future teachers' ability of critical thinking**

Little attention has been paid to the critical thinking ability of future teachers. We found only one attempt undertaken in Slovakia to verify the program of the development of critical thinking in future teachers. The study deals with asking questions as an important aspect of the development of critical thinking. The experiment was focused on selected school subjects in three cohorts (check cohort – n = 21; experimental cohort 1 – n = 21; experimental cohort 2 – n = 20) during the period of 13 weeks. It was found out that the technique



of asking questions can be developed by students' activity and systematic work (Kosturková, 2017).

Little attention paid to the explicit measurement of the critical thinking ability may be due to what Bartos & Banks (2015) label as an osmosis model of how students learn critical thinking. It is postulated that students acquire the critical thinking elements in the course of their study and absorb them like a cell absorbs water. It is, however, not obvious how much time is actually devoted to critical thinking and to what extent the education is oriented at this issue.

Since teachers prepare for their future vocation at universities they are supposed to develop their potential through intellectual work that is similar to scientific knowledge acquisition in the field of pedagogical thinking. Since the development and transformation of students' professional thinking and acting are not possible without extensive empirical experiences and their reflection, the pregradual teacher training should be viewed from a specific perspective and in a specific context. Practical teaching classes establish the necessary conditions for gaining professional experiences and opportunities for reflecting on one's teaching activities and for developing one's pedagogical views. If a student does not develop the ability of critical reflection gets bogged down in unverified judgments, interpretations, and expectations. Becoming a good and effective thinker is preconditioned by insights into our own minds and understanding our strengths and weaknesses.

## **METHOD**

### **Questionnaire survey objectives**

The questionnaire survey was aimed at the identification and analysis of students' misgivings related to their practical teaching in three areas:

- Development of an inclusive education environment and positive social climate in the classroom
- Education planning and designing.
- Asking questions.

### **Sample of respondents**

The sample of respondents included university undergraduates attending the 1<sup>st</sup> year of MA study program *Primary school teachers* at the Pedagogical faculty, Prešov university in Prešov (n65).

### Survey implementation and data collection

The data were collected using our questionnaire within an optional course *Critical thinking development strategies*. The data were obtained online in April and May, the academic year of 2020/2021. The quantitative method was based on explicitly defined categories and subcategories. The following quantification procedures were employed: the degree of misgivings at an interval scale (frequency, arithmetic mean) and the frequency of occurrence of verbal comments on analytic subcategories (frequency).

### Questionnaire

The questionnaire of the misgivings about and obstacles to the application of critical thinking in practical teaching consists of three areas and seven subareas (22 quality indicators). Based on the misgiving intensity, the respondents were asked to evaluate each indicator at the interval scale from 1 to 5 where 1 means no misgivings and 5 means serious misgivings.

#### Misgiving intensity:

No misgivings	1	2	3	4	5	Serious misgivings
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For each area, the respondents were asked to comment on those indicators that were assigned the serious misgiving value. At the end of the questionnaire, they could comment on the need for the development of critical thinking in primary school pupils.

## RESULTS AND DISCUSSION

Table 1 gives a quantitative analysis of the findings for the individual areas. The resulting assessment is based on a five-degree misgiving intensity scale.

**Table 1. Misgiving intensity results at the interval scale 1 – 5 in areas A, B, and C (frequency, arithmetic mean)**

IO	Area A		Area B		Area C		Area ABC	
	N	%	N	%	N	%	N	%
1 – 3	38	58,5	41	64,1	33	50,8	112	57,4

4 – 5	27	41,5	24	36,9	32	49,2	83	42,6
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Source: the author's questionnaire

Legend

IO – Misgiving intensity at the interval scale

Area A – Development of an inclusive education environment and a positive social climate

Area B – Education planning and designing

Area C– Asking questions

N – Number of respondents

% – percentage

### **AREA A – DEVELOPMENT OF AN INCLUSIVE EDUCATION ENVIRONMENT AND A POSITIVE SOCIAL CLIMATE**

The first questionnaire area examined the respondents' misgivings concerning the development of a safe and stimulating inclusive education environment that respects the individuality of pupils. We realize that this requirement does not have to be adequately understood by undergraduates of the last but one year of study. Nevertheless, we believe that MA students should be able to (A1) *stimulate critical thinking and discussion*, (A2) *provide pupils a risk-free environment*, and (A3) *provide and make use of a material background for education*.

The most common misgivings (n65) in *Area A: Development of an inclusive education environment and a positive social climate* (the figure in the parentheses gives the number of comments on misgivings concerning a particular indicator) were as follows:

- The ability to reveal the discrimination and intolerance among pupils and the ability to find an effective response aimed at their elimination (43);
- The ability to respond to disturbing behaviour and to eliminate it as much as possible (40);
- The ability to instigate interaction and to support positive relationships among pupils, and between pupils and the teacher in the atmosphere of trust, tolerance, and mutual respect (31);
- The ability to use teaching aids that reflect the diversity of pupils in a classroom and their families, and to introduce real-life materials into the education process (14).

- *“I am worried whether I will be able to integrate a pupil rejected by the class-mates or my integrating activities will only have a temporary effect. If I am not able to keep attention of my pupils it will be reflected in their disturbing behaviour which I will not be able to respond to. I am concerned about my ability to create a positive climate in a classroom with open-minded pupils who respect one another and tolerate various views.”* (student 26)
- *“I will find it difficult to gain respect from my pupils. I will not be able to be strict enough and therefore will not be able to respond promptly to disturbing behaviour and eliminate it. However, I believe that I will be able to establish a safe environment and eliminate any discrimination in the classroom.”* (student 35)
- *“As a beginning teacher I will do my best to be sensitive to the needs of every pupil and to establish a risk-free and positive environment. Certainly, I am aware of the fact that this process cannot exclusively rely on the diagnosis of pupils; what is also needed is enhancing the education process by innovative and activating methods and strategies aimed at the development of the potential of each pupil. This will make it possible to develop a community of pupils on the principle of mutual respect.”* (student 47)
- *“I am not sure whether I will be able to communicate in a way comprehensible to all pupils. We acquired some theoretical knowledge at the university, however, practical classes look usually different. Some pupils will understand me, others will not. In addition, the theoretical knowledge acquired during our study does not have to be necessarily sufficient for responding to possible discrimination and intolerance among pupils. I will try to persuade pupils to listen to one another and to use meaningful arguments instead of quarrels.”* (student 57)

Inclusive education cannot be reduced to desegregation or mechanical integration of various groups of pupils. It encompasses a wide range of strategies, processes, and activities within education programs. The purpose and the objectives of education are identical for all pupils. All of them should be provided conditions that will enable them to reach the objectives.

## **AREA B – EDUCATION PLANNING AND DESIGNING**

In *area B: Education planning and designing*, students expressed their misgivings whether during their classroom teaching course, their classroom teaching plans and designs will stimulate all pupils to active learning and critical thinking. They realize that the planning, designing, and implementing of education strategies must be based on extensive knowledge of the education reality. The content of knowledge (including controversial topics) should be related to the strategies and procedures (both individual and group ones) that will enable pupils to understand the process of acquisition, verification, argumentation, and the use of the knowledge in solving problems of any sort. Area B was used to find out whether the respondents are able (B1) to *apply the strategies of active learning and critical thinking*, and (B2) to *integrate pupils into the education planning and designing*.

The most frequent misgivings (n65) in *Area B Education planning and designing* (the figure in the parentheses gives the number of comments on misgivings concerning a particular indicator) were as follows:

- Individualization and differentiation of classes according to the needs of pupils: workload, strategies, and methods, organization, and resources (38);
- Planning and designing the education process in the context of active learning and critical thinking (25);
- The ability to reflect on the real learning process and to evaluate it in terms of the planned and designed process (20);
- A systematic design of classes with regard to the curriculum objectives (22).

Innate abilities and genetic features influence pupils' achievements in the environment in which they grow up. The education concentrated on average pupils may cause problems. One of the obstacles preventing students from achieving better education results is their failure to individualize and differentiate the classes following the need of pupils: workload, strategies and methods, organization, and resources.

- “I am worried about the planning and designing of classes. It is a very important part of the education process and should, therefore, be carefully considered to meet all the requirements specified in various

official education documents. A teacher must take into consideration the diverse needs of pupils and modify the classes accordingly. Classes are interesting for pupils if a teacher employs various methods, forms of classes, and didactic aids. I am worried about my ability to select the right and entertaining method corresponding with the pursued objective. I wish to avoid stereotypes due to relying exclusively on proven methods and procedures.” (student 11)

- “Teachers should not concentrate on the ‘teacher-centered classroom’; instead, they should focus on the ‘student-centered classroom’. This valuable aspect of education is absent at universities. Based on my experience, while teachers explain, present, and demonstrate, students remain a passive participant in the education process.” (student 55)
- “These considerations bring me to the conclusion of the importance of the feedback that comprises not only reflection on the tuition process but also discussion with pupils, an analysis of their views of the school as well as discussion with colleagues about the education methods and cooperation in seeking the best possible solutions and inspiration, and acceptance of constructive criticism. These feedback properties can facilitate my preparation and stimulation of pupils to self-reflection and self-control. On the other hand, my practical teaching at various schools taught me that the traditional school does not provide space for the differentiation and individualization of the education process according to the needs of pupils due to the pressure ‘from the top’ and the necessity to adhere to curricula. Primary school teachers point out that if they try to differentiate, to introduce new teaching strategies, and to ‘slow down’ they are not able to keep to the plans. Thus, while being aware of the desired changes I am afraid I will not be able to implement them.” (student 57)

Importantly, students emphasize the significance of critical thinking in primary school pupils. They aptly note that the development of critical thinking cannot be restricted to one specific school subject. Critical thinking is important because it enables pupils to think correctly and solve problems more effectively and appropriately.

- “People learn all through their life. A child starts to communicate from birth by body movements and gestures. This evolves into curiosity,

thinking, and the ability to ask and answer questions. The natural curiosity must be promoted at school. Critical thinking enables pupils to take a stand to various views, ideas, topics. In addition, it develops the ability to think, to understand various concepts and to examine the world independently.” (student 11)

- “Critical thinking should be an inherent part of all school subjects because a critically thinking person is capable of deeper insights and of more effective and better acquisition of knowledge, sometimes beyond what is specified by standards. Rather than the maximum amount of knowledge, the primary goal of a teacher should be the ability of pupils to think of the acquired knowledge and to project it onto their life in the future.” (student 32)
- “While the development of critical thinking in pupils is an important part of the education process many teachers, in my view, ignore it and do not pay it sufficient attention. The present-day mass media pressure affects both children and adults. Many people accept mass media information uncritically. A similar situation may exist at school if a teacher does not provide pupils a sufficient space for their self-realization and for asking questions. As a result, pupils accept what they are told by a teacher without thinking, without making their own opinion, and without any standpoint to a given issue, and therefore, they are not able to see things from a different perspective. It is, therefore, important to teach pupils to critically think and to express and defend their views, to distinguish between the true and false information, to perceive things from various viewpoints, to evaluate various topics objectively, and to discuss them on the basis of relevant information. Firm foundations built up at an early age are an important condition for a pupil not to get lost in life.” (student 62)

The results show that the respondents realize the importance of critical thinking for primary school pupils. They believe that critical thinking provides intellectual impulses that facilitate the process of learning. They are of the view that it is necessary to establish a safe environment for their self-realization and self-expression. They point out that the ability of pupils to present their own views is proof of critical thinking. However, students should realize that the information differs. An opinion of a particular issue does not necessarily comply with the facts.

A comparison of one's standpoint with other arguments, standpoints, and opinions is an indispensable part of critical thinking. This can only be achieved in interaction with other people. Sometimes it is difficult to admit one's own mistake or to change one's view. **It is, however, one of the ways of cultivating one's critical thinking.** Defending a view that is not supported with facts cannot bring any positive effects. The objectivity should overcome the subjectivity. A view is subjective and therefore it is important to cultivate it in confrontation with other views. All this under the condition of tolerance (everybody has the right to their own opinion). When the view is certain (true) it changes from a subjective view to an objective one.

The present period produces an enormous amount of nonsense and rubbish. Therefore, one more step is required: to assist pupils in seeking the 'truth' by constructive discussion – to analyze various views according to the principles of clarity, accuracy, relevance, logic, and justice. Students should realize that while a particular issue can be viewed from various perspectives any discussion of various views and attitudes should avoid insults (*Petrasová, 2021*).

### **AREA C– ASKING QUESTIONS**

In *area C Asking questions*, the respondents expressed their misgivings about their ability to ask meaningful questions that instigate the development of higher cognitive functions in pupils and enable them to reveal relationships, to understand the discussed topics, to arrive at one's opinion, and to formulate one's standpoint. Area C examined the respondents' ability (C1) to *master the strategy of asking and formulating questions* (C2) to *encourage pupils in formulating and asking their questions*.

The most frequent misgivings (n65) in *Area C Asking questions* (the figure in the parentheses gives the number of comments on misgivings concerning a particular indicator) were as follows:

- The ability to contribute to a change of the interaction pattern and to establish a climate in which pupils formulate and ask questions based on higher cognitive functions (51);
- The ability to ask questions that will guide pupils to their own judgments according to their own criteria and/or standards in terms of accuracy, effectivity, economy, and purposefulness (30);



- The ability to encourage pupils to ask their schoolmates as well as their teachers questions (24);
- The ability to ask questions that develop higher cognitive functions and to encourage pupils to express their ideas, views, and standpoints (15).

Communication in the process of education is labeled as pedagogical communication. It has certain specific features. Pedagogical communication is defined as a specific form of social communication. As a basic education device and an indispensable part of education, it is implemented as a sequence of communication activities, situations, and acts between the education process participants. Questions belong to the fundamental means of pedagogical communication.

The technique of asking questions is one of the fundamental competences of primary school teachers. Questions fulfill the function of an impulse, they encourage thinking, school activity, and expression of one's standpoint. They satiate the curiosity of a critical thinker that motivates pupils to ask questions about a variety of phenomena and situations they saw, read about, heard, and/or are related somehow to their personal experiences. As a result, pupils get acquainted with a particular topic, come up with new ideas, see the facts in a new light, and strengthen their communication skills. In Walsh's view (1997), asking critical questions enables pupils to predict results and come up with alternative solutions to problems.

Questions are a driving force in the process of thinking. They trigger various sorts of cognitive processes. Therefore, students should be familiar with all their types. An answer is a stimulus for formulating new and new questions. Socrates maintains that through questions, a man learns and tries to arrive at the criterion of truth. What you want to say should enter three gates: the gate of truth, the gate of good, and the gate of utility. If it is not true, good or useful keep it for yourself. ([www.eduworld.sk](http://www.eduworld.sk)).

- “The issue of asking questions should be targeted at higher levels, i.e., the focus should be on divergent questions rather than convergent ones. The reason stems from the objective of the comprehensive development of a personality that is conditioned by evaluative and creative thinking. As a future teacher I must be aware of the importance and the demanding nature of divergent questions and the related tasks.” (student 32)

- „My misgivings concern the formulation of clear, brief, and reasonable questions. I am worried about my ability to formulate a simple open question that develops higher cognitive functions in pupils. I am worried that due to the “lack of time”, so common at schools, the pupils will not have sufficient space for considering their answer. As a result, they will not be guided to the development of critical thinking. Questions can incite pupils to express their views in an effective way because each person has the right to express their views. Pupils should be motivated to ask their schoolmates and teachers questions of higher cognitive functions. This questionnaire made me strongly realize that the teacher’s job implies hard and responsible work.” (student 43)

It should be noted that each type of question reflects a way of thinking at a particular level and, therefore, contributes to better understanding. Teachers should be aware of the fact that their questions initiate a discussion. Pupils should be encouraged to participate in it. Teachers should approach quiet pupils by name to avoid a situation in which more assertive pupils answer each question. Many a pupil does not answer questions in a relaxed way because the questions are mostly convergent (only one correct answer). If teachers reduce the number of these questions and, instead, ask questions that stimulate critical thinking pupils will be willing to participate in a discussion, to express their views, and to listen to what is said by others (Novotná – Petrasová, 2021).

## **RESULTS AND DISCUSSION**

The main objective of the questionnaire survey was to identify and analyze the misgivings of the 1<sup>st</sup> year MA students and the obstacles to the development of critical thinking in the process of education in three areas. The sum of scales 1-3 (interval scales of 1-5 where 1 means no misgivings, and 5 means strong misgivings) represented in Table 1 suggests that the highest level of the respondents’ misgivings concerned the area of *Education planning and designing* (64,1%). The sum of scales 4 – 5 reveals the highest level of misgivings for the area *Asking questions* (49,2%).

All in all, the respondents’ most serious misgivings are as follows:

- The ability to contribute to the change of the interaction pattern and to establish an atmosphere in which pupils formulate and ask questions of higher cognitive functions (n51);
- The ability to identify elements of discrimination and intolerance among pupils (n43);
- The ability to respond to disturbing behavior and to eliminate its manifestations as much as possible (n40).

The ability to identify elements of discrimination and intolerance among pupils means understanding the principles of inclusion and inclusive education. It is a long-term process requiring much effort, enforcing a new way of thinking, and financial support from the government. Furthermore, it requires a complete change in people's attitudes and a new culture in education institutions open to dialogue, multidisciplinary cooperation, and self-reflection. We should therefore consider changes in the pregradual education of future primary school teachers for the sake of a balanced education environment for the whole period of compulsory school attendance. The power of inclusive education consists in its capacity to change a school to a place respecting the diversity of pupils' needs.

## **CONCLUSION**

Education systems have changed in many countries for the sake of making future teachers true professionals capable of working in the particular school system without problems after graduating from a university. University teachers should do their best to ensure that our undergraduates become thinkers with relevant expertise. The Slovak education system needs a comprehensive vision and an action plan guiding the school system towards inclusive education. Successful implementation of this objective is preconditioned by a reform and the upgrading of the thinking of all education process participants. A future progressive system cannot be achieved with an outdated way of thinking.

How can we develop critical thinking skills in pedagogical faculty undergraduates? Cognitive sciences teach us that the processes of thinking are interwoven with the content of thinking. If students are constantly reminded to view each problem "from various perspectives" they will learn to do so; if, however, they know little of a particular problem they cannot think of it from various perspectives. Even if students are taught how to think our advice will

probably come to naught without the fundamental knowledge. Similarly, it makes no sense to learn facts without providing students an opportunity to test them by reflecting on them in a qualified empirical way.

Given the fact that critical thinking is of a social nature this type of thinking does not occur without interaction with other people; consequently, critical thinking requires reflection followed by communication. Authors of an education policy should guarantee high-quality reflection-based practical teaching through an extensive network of training schools and experienced supervising teachers. Support should go to laboratory schools: experimental schools with a special curriculum status, related to a university. These schools should provide space for probing activities of teachers and undergraduates and serve as a laboratory of pedagogical innovations developed in close cooperation between the laboratory school teachers and university teachers.

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