Critical thinking should be purposefully developed in the primary stage of education as the evaluation is a very important ability which enables us to make decisions effectively in the newly emerged life situations. The ability to decide is conditioned by critical thinking which facilitates adequate reactions in specific situations and in concord with oneself.

**Key words:** axiology of personality, critical thinking, values, creative – humanistic education

**Introduction**

Traditional school is significant that the teacher prefers his own valuation in the face of the critical thinking of the students. In this case only one thing remains to student– to accept values and valuation that teacher discusses rather.

By the theory of C.R. Rogers the acceptance of external valuation may cause ignorance of private evaluation. The base of traditional access consists on teacher’s valuation as the highest authority. In the access of creative and humanistic education, the teacher regulates the discussion. He does not decide what students may like or not. Otherwise probably happen phenomenon called “boomerang effect”. It occurs when the teacher’s statements are refused inwardly by students. It causes strengthening complaint behavior. The target of creative and humanistic education is to build progressive,
valuable orientation and to develop the ability in accordance with ourselves to become authentic personality.¹

M. Zelina² describes concisely the meaning of axiology: “Humanistic orientation places axiology in education intentionally and programmatically as a condition of progressive education that human is leaded to accept system of evaluation by own experience.”

The axiology is science which deals with values. From axiology is derived axiologization as an upbringing to values and critical thinking. M. Zelinová³ is talking about critical orientation of students. The task is to teach students to orientate themselves in values, to know judge them and to decide correctly. Ultimately it is a way to have a life by own progressive values. It is necessary to underline that critical thinking is focused on intellectual plane. Axiologization is about the style of the life.

The level of developing critical thinking of students

The axiology is described as a respect to human being, the highest value in the interaction among people, in conversation or in non-verbal communication. M. Zelinová⁴ explains impacts of critical orientation and abilities of self-regulations on individual’s personal life. If human being has positive critical value orientation he or she acts according to the self-regulations and accepted values.

By M. Zelinová⁵ developing of critical valuation connects with axiologization of human. Axiologization of personality contains three fields in conception of creative and humanistic education:

- Developing abilities of students how to value surrounding phenomena, facts, processes and self-valuation.
- Perception and acceptance the values, forming critical orientation of students.
- Teacher’s and educator’s valuation – processes of imitations, identifications and forming in values and their impacts on students.

In our opinion, it is very important to include all three fields of axiologization of personality. It is necessary that teacher realizes how to value the students and incurred situations.

¹ M. Zelinová, Hry pro rozvoj emocí a komunikace. Koncepce a model tvořivě-humanistické výchovy, Praha 2007, s. 139.
² M. Zelina, Stratégie a metódy rozvoja osobnosti dietáta, Bratislava 1996, s. 169.
³ M. Zelinová, Výchova človeka pre nové milénium. Teória a prax tvořivô-humanistickej výchovy, Prešov 2004, s. 166.
⁴ Ibidem.
⁵ Ibidem, s. 125.
Critical thinking as a highest cognitive function

A pedagogue should value the student sensitively and with respect on student’s personality. The pedagogue should not become student’s pattern in the way that student tries to value qualitatively given phenomenon as well as the pedagogue would value the same phenomenon. Each student has to learn how to become full-integrated human being. He or she does not have to be scared of refusing and not to deny themselves. In other words, it is not important that the student shares the same ideas as the teacher. Important is to learn how to create own ideas based on the process of own critical thinking.

The current life shows that evaluation is it’s every day part. We value our goals, activities, suitable and unsuitable conditions, results of our effort etc. The human being is deciding constantly. Every decision should be preceded by its own assessment of the situation. M. Zelina⁶ clarifies the term “valuation” as a result of valuation. L.P. Doblajev understands valuation as a “measurement of object’s properties and their meanings that he admits emotionally and cognitive ways of evaluation.”

By S. Kučerová at the moment of valuation we examine how the things are useful for us to satisfy our needs. The valuation is connection or renunciation of the value, meaning, value of some phenomenon, its introduction to the relationship of human needs and interests.⁷

To encourage student’s critical thinking we have to give them opportunity to value. M. Zelinová⁸ says about two ways how to engage students into the process of critical thinking:

Good way how to improve relationships in the group and to develop critical thinking is the self-valuating of the child and valuation among the children. It is the valuation of behavior, creatures of children and things around them.

It is necessary to teach the students systematically how to value. Z. Kolář and A. Vališová⁹ show the fact that that there is so-called hidden evaluation which is manifested when the student evaluates himself without prompting and intervention of the teacher. The student thus “in private” values the teacher, classmates, but also himself. Evaluators and those who are valued are essentially participants of the teaching process. Not only teacher assesses students but also students evaluate their teachers. Positive assessed are

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⁶ M. Zelina, Strategie a metódy rozvoja osobnosti diteťa, s. 171.
⁷ S. Kučerová, Úvod do pedagogické antropologie a axiologie, Brno 1990, s. 49.
⁸ M. Zelinová, Výchovu človeka pre nové milénium, s. 24.
teachers who understand the issues and are able to work with students in an interesting way. It is natural that students value to each other. It is important to note that the assessment is usually very subjective. People are often evaluated by themselves, according to their ideas, experiences, needs, values and aspirations. V. Božík says that the evaluation should be as specific as possible because it is the valuation of a person who defines him and his own individuality.\textsuperscript{10} Z. Kolář and A. Vališová\textsuperscript{11} derive high intensity of valuation from so-called Bloom’s cognitive targets where is the ability to make critical evaluation (evaluate situations, activities, phenomena, personalities, ...) most ratings hierarchy of cognitive targets. Development of critical thinking of student has a positive effect on his ability to learn and think on his own. R. Fisher created a model of “learning to think.” There are methods that the teacher should use to lead the student to think and learn independently. This model includes the following methods: asking questions, planning, discussing, mental mapping, divergent thinking, cooperative learning, tutoring, valuation, creation of learning communities. M. Zelina\textsuperscript{12} says that development of critical thinking has 4 stages:

1) \textit{Reflexive valuation} – a global valuation especially in pre-school age where the target is to assess what is good - bad, nice - ugly, right - wrong.

2) \textit{Evaluation based on criteria} – Consideration of the phenomenon and to answer the question “why?”. Evaluation criteria can be subjective or objective (logical, mathematical, statistical).

3) \textit{Evaluation based on criteria and determination of the criteria’s importance} – the students have to assign points to a phenomenon on a scale from 0 to 10 in a given criteria.

4) \textit{Valuation connected to a discussion} – argumentation in a constructive quarrel M. Zelinová\textsuperscript{13} mentions in general the evaluation may involve three basic areas:
   - \textit{Cognitive evaluation} – valuation of the correctness or incorrectness of task solution
   - \textit{Aesthetic evaluation} – statement if something is pretty or ugly
   - \textit{Ethical evaluation} – a definition of goodness and evil, e.g. the evaluation of the behavior of children on a walk, the cinema, the rendering of the costs of good and evil in fairy tales and everyday life.

\textsuperscript{10} V. Božík, \textit{Hodnotenie a hodnoty}, Nitra 2004, s. 250.

\textsuperscript{11} Z. Kolář, A. Vališová, \textit{Analýza vyučování}.

\textsuperscript{12} M. Zelina, \textit{Stratégie a metódy rozvoja osobnosti dieťa}. 

\textsuperscript{13} M. Zelinová, \textit{Výchova človeka pre nové milénium}, s. 24.
We are inclined to the idea of M. Zelina\textsuperscript{14} which recommends that while teaching the teachers develop all three types of valuation in every subject, in every action where they have the opportunity.

State School Inspectorate (SSI) deals with determining of the level of development of student’s critical thinking in the educational process within its activities. SSI publishes individual findings in the report of the status and level of education at schools and school facilities in the Slovak Republic. SSI observed the level of development of the student’s critical thinking within the process of civil and social competence developing. It was in the last evaluation period – school year 2011/2012. School inspectors found that this process was casual on the classes and it often did not correspond with educational targets. The students had a little opportunity to present their own opinions and attitudes. Prioritizing frontal activity of the lesson was reflected in the inability of students to work in a group, in ignorance of the rules of teamwork and the unwillingness of some individuals to work together. This unsatisfactory situation confirms the establishment that the development of key competences of students in primary education reached only average level (64\%). By analyzing previous school years we found out that the situation was similar in the school years 2009/2010 and 2010/2011 too.

Selection of research findings focused on developing of student’s critical thinking at the elementary education level

Methodology of the research

The main objective of the research was to determine how the teachers develop deliberately the student’s critical thinking on the elementary education level.

Partial targets are the concretization of the main target and they focus on the following sub-problems:

1. Methods and approaches of the teacher which are applied on deliberate developing of student’s critical thinking.
2. Time limit and the frequency of deliberate developing of student’s critical thinking.
3. Subjects where teachers deliberately develop students’ critical thinking.
4. Suitability of the methodic process in developing of student’s critical thinking.

Because of the respect to the topic we focus just on some of the partial founds.

\textsuperscript{14} M. Zelina, \textit{Stratégie a metódy rozvoja osobnosti dieťa}, s. 174.
Statistical methods for processing obtained data

Data collection was made by non-standardized questionnaire. Readability and clarity of the questionnaire’s items was verified before the survey started through pre-research. 10 respondents attended the questionnaire. Of the 160 distributed questionnaires 100 were returned completed. In order to maintain objectivity and accuracy of the obtained data, we decided for an anonymous questionnaire. It contains a set of targeted questions which were presented to the respondents in written form. 13 items deal solely with the issue of the development of critical thinking of students at the elementary education level. The questionnaire contains open and closed questions with possibilities to choose one or more alternatives. Respondents can choose from the alternatives and then justify their choice in semi-closed questions. We included issues and scenarios of the educational process. For processing and evaluation of the results of descriptive research problem were used following quantitative and qualitative methods:
- Finding out the quantity.
- Categorical units and questionnaire items.
- Comparative qualitative analysis of the data.

The research sample

The respondents were teachers that teach on elementary level of primary schools. We oriented on the schools from regions of Trenčín, Trnava, Nitra. The research sample formed 100 teachers, 98 women and 2 men. Average age of the teachers was 46 years, the youngest one was 25 years old and the oldest one was 61 years old. We examined the average length of service in the education sector, the shorter service lasted 3 years and the longest lasted 40 years. Participants of the survey were teachers of all grades at the elementary education level. 5 teachers taught at zero grade, 23 at first grade, 24 at second grade, 25 at third grade ad 23 at fourth grade.

The selected survey results

We focus on some interesting assignments which reflect the current state and level of teacher’s knowledge dealing with critical thinking of students.

Item 1: Do you think that you have enough information about critical thinking and ways of its development?
Developing Critical Thinking of Students on Elementary Education Level

Fig. 1. Information about the critical thinking and the ways of its development

Quantitative analysis of item 1

We assigned respondent’s opinion in closed question: “Do you think you have enough information about critical thinking and the ways of its development?” They could choose between 3 options: a) yes, I do; b) no, I do not; c) I cannot express. The answers are shown in graph 1. Most of the respondents answered they do not have enough information about critical thinking and its development. 38% of the respondents chose the answer c) from all respondents. 32% chose the answer b). 30% of respondents chose answer a). They think they have enough information about the issue.

In our opinion it is necessary to pay more attention to this issue within the preparation of the future teachers. The solution is to increase the awareness of the teachers by publishing in the school libraries. Also we propose that this issue should be a part of curriculum of teacher’s education.

Item 2: How often do you develop different areas of the student’s critical thinking?

Fig. 2. Critical thinking development area
Qualitative analysis of item 2

In this closed item we assigned the frequency development of ethical valuation, aesthetic valuation and rational valuation. The respondents had to choose between 7 options: a) each lesson; b) every day; c) once in a week; d) once in a month; e) once in a year; f) never; g) other. If somebody chose the option g) he had to write his own frequency development of critical thinking. We evaluated these frequencies within new categories.

First area development of critical thinking is ethical valuation (Fig. 2). 55% of respondents develop this area every day. 25% of respondents develop it on every class. Much less respondents chose the rest of options with less frequency. Only 12% of teachers develop this area of valuation once in a week. 5% of teachers develop this area once in a year, it is insufficient. 3% of respondents chose the option g). They develop their ethical thinking alternate days. Nobody chose the options d) and f).

On this base we can say that the ethical valuation is developed enough. 80% of respondents develop ethical valuation every day at least. Some of them develop it on every class. Only 5% of teachers develop it insufficiently, it means once in a year.

The second area of development is aesthetic valuation (Fig. 2). We found that 42% of the respondents develop it every day. 22% develops it on each lesson and 20% develops it once in a week. 6% of respondents develop it with insufficient frequency where 3% of them chose the answer “once in a month” and 3% chose the answer “once in a year”. Nobody chose the option “never”. 10% of respondents chose the option “other”. They develop the aesthetic valuation twice in a week at least.

In our opinion, the aesthetic valuation is developed enough. 64% of respondents develop this area of students every single day. The part of them chose the answer “every hour”. 3% of respondents chose the answer “once in a month” and other 3% chose the option “once in a year”. It is insufficient.

The last basic area of development of critical thinking is rational valuation (graph 2). 60% of respondents develop it every day, 22% develops it every class. 5% develops it insufficiently, where 3% supports the answer once in a month and 2% once in a year. 8% chose the option “other”. They develop rational thinking almost every day.

82% of the respondents develop rational evaluation, 80% develops ethical valuation and 64% develops aesthetic valuation with frequency once in a day at least. From given values we can see that the rational valuation has the most frequency of development, ethic valuation has a little bit less frequency and the aesthetic valuation has the least frequency.
In our opinion, probably there still exists the opinion that school mainly develops cognitive functions and after that the school educates. The differences between given values are not significant. Because of this we can say that humanization of education has its place in modern school and also the development of non-cognitive functions.

**Item 3:** Assign the activities which you apply in the development of student’s critical thinking.

![Activities to develop critical thinking of students](image)

**Table 1**

<table>
<thead>
<tr>
<th>The activity</th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical reading</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Solution of conflict in the class</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Moralism</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Determination of advantages and disadvantages</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Valuation of classmate</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Valuation of artistic text</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Valuation of illustration</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Valuation of hero’s moralism</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Self-valuation of student</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>I cannot express</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td><strong>Suma</strong></td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
Qualitative analysis of item 3

In this open item we investigate if respondents know to put the activity which is suitable for developing the critical thinking of the students. The majority (79%) put the activity and 21% of respondents could not put the concrete activity (Fig. 3).

We put given activities into the table 1. The majority of respondents (20%) assigned the student’s self-valuation activity. The respondents were evaluating their written texts, creation, behavior, etc. 12% of respondents assigned the valuation of classmate. They focused on behavior, effort and performance. 11% of respondents assigned the activity of determination of advantages and disadvantages of a phenomenon. For example the behavior of pets, friendships at a distance, to have the best notes, etc. 11% of respondents assigned the activity of the conflict in the class. The students had to name existing problem and to find suitable solutions. 9% of respondents determined the valuation of illustrations and 5% determined the valuation of moralism of the hero (in literature, in movie, in theatre performance). The same number of respondents (5%) assigned critical reading of the text where they were finding out the answers on teacher’s questions or writing down the notes. The students had to distinguish the most important and less important information. 3% of respondents indicated the moralism and the same number of them (3%) reported valuation of artistic text. The students had to determinate whether they like the work or not and say the reasons why. A minority of respondents (21%) could not indicate the activity to develop student’s critical thinking.

Suggestions and recommendations for practice

In accordance to creative and humanistic education, we recommend that teachers on elementary level of education may develop critical thinking of students in all areas (ethical, aesthetical and rational valuation) connecting with all subjects in all grades. The students are motivated if the teacher uses various methods of developing the critical thinking of students. By the results from the research we recommend to teachers to not prefer rational valuation in face of the others.

It is very important to care about the right methodical process of student’s critical thinking. The most basic principle is that teacher should evaluate the phenomenon or the student after student’s opinion. First stu-
Dev.
dent should evaluate his or her opinion and after that can do it the teacher.
Then it is appropriate to start a discussion about the parts of evaluation. It is
very important to mention that self-valuation of the student after his or her
examination does not influence his or her note from examination. Self-
valuation is a way how to know better ourselves. It helps to teacher how to
understand the student too. The intention is that the student has to learn
how to sense his or her abilities and performances. On this base the student
has to make a desired correction.
To develop critical thinking effectively, it is very important to make and
keep suitable environment in the class and in the school too. It should be
favorable to the student and it should accept the student as a unique and
unrepeatable human being (Rogers, Freiberg, 1998). Students should feel
that they can express freely without fear from teacher’s refusing. The base to
make this favorable environment is three Roger’s conditions: empathy (empa-
thy understanding), congruence, unconditional acceptance (acceptation) (Rogers,
1995). These have to be the base of every relationship, not just in the rela-
tionship between teacher and student.

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