

EXAMINING THE RELATIONSHIP BETWEEN MORAL REASONING AND CRITICAL THINKING IN TEACHER STUDY PROGRAMMES IN SLOVAKIA

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Abstract: Introduction: Since both components critical thinking and moral reasoning are considered to be major phenomena, the development of which is a priority of all world education policies, they are paid a lot of attention in foreign countries. However, foreign studies have only made a little mention of examining their relationship and integrity as well as until recently, each dimension has been examined separately in Slovakia and there is no piece of evidence showing the relationship between them. Based on this, we have formulated the following scientific problem: Is there a relationship between critical thinking and moral reasoning? Methods and respondents: The basic measurement tool of our research was the *Watson-Glaser Critical Thinking Appraisal* used to determine the level of critical thinking. The level of moral reasoning was investigated by Lind's *Moral Competence Test*. The examined sample consisted of the available selection of the 2nd and 3rd year teacher study programme students for lower and upper secondary education at the University of Prešov in Prešov (N = 241) and the testing itself was realized in the academic year 2020/2021. Results: Our research shows that the average value of the gross score in critical thinking of the teacher students is M = 43.26 (SD = 5.09) and the achieved average numeric value of moral judgment expressed by the C-score is M = 21.15 (SD = 12.88). Based on the Pearson Correlation results, we were discussing whether the calculated value of the correlation coefficient indicates the relationship between critical thinking and moral reasoning and whether there is a relationship between moral reasoning and individual cognitive components of critical thinking and the results of the research show interesting findings about the relationship between critical and moral reasoning of teacher students. Conclusion: The conclusions of the research lead us to redesign the undergraduate training of future teachers in the context of the World Economic Forum challenges and the support for minds of the future according to H. Gardner - critical, creative, disciplined, ethical and tolerant - as a critical and moral integrity.

Keywords: moral reasoning, critical thinking, relationship between both components and their integrity.

1 Introduction

The issue of critical thinking and moral judgment is very difficult. On the one hand, we have rationality as a set of rules of good reasoning and, on the other hand, morality as a set of rules of correct acting.

Critical thinking as one of the big topics is a relatively young and unexplored area in Slovak scientific field. Slovak experts began to focus on it just after the analyzes of OECD PISA international test measurements. This requirement mainly arose in 2003, when Slovakia participated in the international OECD PISA measurement for the first time. The results showed insufficient ability of 15-year-old Slovak students to think critically and think at the level of higher cognitive processes. This was followed by other unflattering findings from several groups in the educational environment, including teacher students and teachers in primary and secondary schools and universities. This prompted the efforts of many Slovak experts to delve deeper into the problem at the scientific level. Since recent years our country has embarked on a new era of education in the Slovak Republic, namely the integrity of critical thinking and character education. We are inspired by many effective Character Education Programmes from abroad. The Ministry of Education, Science, Research and Sports of the Slovak Republic has supported several grants in an effort to change mainly university teacher training. Our long-term goal is to change undergraduate teacher training with an orientation towards the quality of educational outcomes in the area of critical and moral thinking.

Until recently critical thinking and moral reasoning in Slovak professional field were dealt separately, although the connection between the two domains is implicitly indicated. The concept of

critical thinking is based on the original definition of the Delphi Report, which defines cognitive abilities and affective dispositions [1] and conceived standards of a good critical thinker with the necessary intellectual virtues [2].

From the point of view of moral reasoning, we rely on Lind's theory [3], who grasps Kohlberg and Habermas's definition and complements it with an element of conflict and dilemma (implicitly indicated by Kohlberg). We also find this integrity in Lajčiaková's [4] definition, who considers moral competence to be a kind of a bridge between moral attitudes or moral values on one hand and moral behavior on the other. It is the capability of an individual to reach moral judgments based on his or her internal principles and then to act in accordance with those judgments. This means that moral competence as a sign must be reflected not only in thinking but also acting. A morally competent person thus makes moral decisions and acts morally. Her or his thinking is reflected in her or his behavior. Lind suggests that moral competence includes, besides the ability to judge which action is correct in relation to a moral principle, the ability to solve dilemmas and conflicts between morally equal alternatives of action [3]. Kaliská, Kaliský and Čizmaríková [5] state that morally competent judgment means that both parties will try to resolve the conflict on the basis of general moral principles (e.g. the principle of justice, free expression, etc.) through thinking and discussion. Here we can see great space for the integrity of critical and moral reasoning, in which cognitive abilities, affective dispositions overlap with the virtues of a critically and morally responsible thinker.

The most concise integrating understanding of the critical and moral aspects can be registered with Paul [6]. Critical thinking understood as an individual skill separated from values, is often used to rationalize prejudice and interest. Moral integrity and responsible citizenship, only understood as a *good heart*, are themselves more likely to be manipulated by propaganda. Human mind, whether it is its conscious goodwill, is a subject of a strong, self-deceptive, unconscious egocentric mind. The full development of each characteristic – critical thinking, moral integrity and responsible citizenship - in its strong sense requires and develops other ones in a parallel strong sense. The three mentioned are only developed together in an atmosphere which encourages intellectual virtues: intellectual courage, intellectual empathy, intellectual goodwill or integrity, intellectual perseverance, intellectual justice and faith in reason. The intellectual and moral virtues themselves are interdependent.

At the theoretical level, we assume that the integrity of critical and moral thinking requires justification of the rationality of action by reference to the good or ethical principle by which this rationality tries to be achieved. At the empirical level will try to explain the relationship between critical thinking and moral reasoning based on the results of the research.

2 Methodology

The basic set of our research consisted of all students of bachelor's teacher study combinations of lower and upper secondary education. The first testing using the standardized WGCTA test (Watson and Glaser [7]) was attended by the 1st, 2nd and 3rd year students enrolled in full-time study. The testing took place in October of the academic year 2020/2021 during compulsory study subjects, where we assumed the compulsory participation of the student in the relevant subject N = 761 university students participated in this testing. The sample of n = 241 was an available selection of 2nd and 3rd year students who attended the seminars of the author of this study. During the seminars in October, they underwent further tests focusing on the components of critical thinking and moral reasoning. The testing was realized online in very demanding conditions. The

research involved male participants $n = 83$ (34.445) and female ones $n = 158$ (65.56%).

The critical thinking variable was measured by the *Watson-Glaser critical thinking test* (WGCTA; Watson and Glaser [7]), which consisted of five subtests: Judgment, Assumption Recognition, Deduction, Interpretation and Evaluation of Arguments. The partial score was 16 for each subtest and the gross score was 80 points for the whole test.

We measured the moral judgment variable by means of Lind's *The Moral Competence Test* (MCT; Lind, [8]). The standard version of MCT contains two stories - moral dilemmas. For each dilemma, the respondent has to consider twelve arguments. In the standard version, 24 arguments were evaluated. The dependent variable is represented by the judgment of the subject's behavior whose evaluation of arguments is on a scale from -4 to +4. The main value is the C-index, which measures the level of moral competence on a quantitative scale, and can take values from 1 to 100. The C-score must not be negative or higher than 100. The average C-score is usually somewhere between 0 and 40. Higher scores are possible but very rare.

3 Research results and discussion

First, we present the achieved average values of students in critical thinking and moral reasoning. In critical thinking the teacher students ($n = 241$) achieved an average value of $M = 43.26$ out of the total possible gross score of 80 points ($SD = 5.06$). In moral reasoning they achieved average score of C index expressed by $M = 21.15$ ($SD = 12.88$).

The basic objective of our research was to find out whether there is a relationship between critical thinking and moral considerations. Due to the confirmed normality of the data, we used the Pearson correlation coefficient to test the null hypotheses.

We have formulated this basic assumption:

H_0 The calculated value of the correlation coefficient does not indicate the relationship between critical thinking and moral reasoning. Thus, we claim that both variables are independent and that $r_p = 0$.

H_A The calculated value of the correlation coefficient indicates the relationship between critical thinking and moral reasoning ($r_p \neq 0$).

The results of testing the basic hypothesis are shown in Table 1.

Table 1. The relationship between critical thinking and moral reasoning

Correlation		Moral reasoning (C-index)	Critical thinking (WGCTA)
C-index	Pearson Correlation Coefficient	1	,885**
	Sig. (2-tailed)		0,000
	N	241	241
WGCTA HS celkom	Pearson Correlation	,885**	1
	Sig. (2-tailed)	0,000	
	N	241	241

Legenda: **. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed).

Pearson's correlation coefficient represents the value of $r_p = 0.885$ at the significance level $\alpha = 0.01$. We state that according to the approximate interpretation of the values of the correlation coefficient according to Chráska [9], this is a high positive dependence. We can state that the higher values achieved in critical thinking probably correspond to the higher values

achieved in moral reasoning. Due to the results of hypothesis testing showing that there is a high positive relationship between critical thinking and moral reasoning, we reject the null hypothesis H_0 and accept the alternative hypothesis H_A saying that the calculated value of the correlation coefficient indicates the relationship between critical thinking and moral reasoning ($r_p \neq 0$).

The calculated value of the correlation coefficient of the dependence of critical thinking and moral reasoning ($r_p = 0.885$) is so high that we can discuss a statistically significant relationship. The integrity of critical thinking and moral reasoning (one of the important components of character) is a new issue in Slovakia. So far, there has not been realized a single research in our conditions which could help us confront the obtained information. Our starting point therefore will be based on several foreign theories proving the integrity of critical and moral reasoning.

We start with the theory of Paul [10], who emphasizes the integrity of the cognitive and affective dimension, so that we can behave as critically morally responsible individuals. Paul states that character qualities, such as justice, work ethic, devotion, responsibility, dedication, etc. all define individuals and play a large part in responsible decision making in one's life. Critical thinking only as an instrument of rationality, separated from values, is used to rationalize one's own prejudices or egocentric tendencies. On the other hand, "having only a good heart" is prone to manipulate.

We assume that the intellectual standards used in the process of critical thinking also help to develop several kinds of virtues. Leaders in character education (particularly in the United States and the United Kingdom) distinguish four types of virtues: intellectual, moral, civic, and performance virtues. Integrating virtue is practical wisdom, which is considered meta-virtue (especially in the theory of ethics, virtues, MacIntyre [11]. Ruiseľová [12] states that the basis of our thinking is wisdom as disinterested contemplation that leads one to balance of the interests and promotes good life. In Ruiseľová theory of wisdom critical thinking and moral reasoning are integrated. Comparing it with the theory of Facioni [1], it is basically:

1. cognitive components: interpretation, analysis, evaluation, reasoning, explanation, self-regulation;
2. affective dispositions: curiosity, systematicity, analyticity, searching for the truth, open mind, self-confidence, cognitive maturity, which helps to develop;
3. intellectual virtues – humility, integrity, perseverance, courage, autonomy, faith in reason, etc.

The result of the integrity of critical thinking and moral judgment is the virtues of performance, in which the individual acts as a critically thinking and morally responsible person. Theoretical analysis has shown that there is a lot of researches abroad focused on critical thinking and moral reasoning. We find little information about their relationship. The second theory of the integrity of critical thinking and moral reasoning, we will rely on, is Lipman's theory [13]. He explains that effective moral education requires students to be actively involved in ethical research. Ethic examination in turn requires that students cultivate all aspects of their thinking. Cultivating higher-order thinking requires students to become critical, creative, and caring thinkers. Improving their critical thinking involves strengthening their logical and epistemological abilities as well as their evaluative abilities. Their creative thinking, including both discovery and invention, consists of all processes of inquiry, both artistic and scientific, and includes perception as a form of discovery. Careful thinking includes a wide range of types of thinking, including active thinking, affective thinking, and value thinking. It claims that only one discipline, which is philosophy, is able to support the normative application of a broad spectrum of modes of thinking. It is not a traditional academic philosophy of universities, but a philosophy-based narrative and discussion, which can be found in the approach known as the *Philosophy for Children* (P4C) programme. Lipman noted that children can

learn that ethical acts must have their reasons. He proposed ethics investigation method. Lipman stated that ethical reasoning is logically valid moral reasoning (reasoned above). These components in Slovakia are investigated by Pintes and Borisová [14].

Fasko [15] (1994, p. 3) also reflected on the problem of the relationship between critical and moral thinking and stated: "Given the assumption that students should develop critical thinking and behave ethically, it is necessary to make a decision whether and how these two abilities relate. When considering the importance of both abilities, researchers recommend that children should be taught to think critically about values."

Critical thinking cannot be taught without the values and virtues (intellectual and moral) which a critical thinker should have (Knapík, [16]; Lapko, [17]; Maturkanič et al. [18]; Ruisel, [12], etc.). Several authors state that the educational process should help learners to become moral individuals who have the ability of critical thinking and moral judgment (Knapík, [19]; Kučerková, [20]).

4 Conclusions

The research results show that there is a high positive relationship between critical thinking and moral reasoning. We did not find a research with the similar focus in Slovakia, so it is necessary to do further testing. The achieved average score in the critical thinking and moral judgment of Slovak university students indicates that the development of these capabilities is not given much attention in the educational process. We have been observing this fact since the first international OECD PISA measurements, in which our country participated in 2003. Although we have already spotted significant experiments and changes, it is still necessary to set up the educational process focused on learning outcomes in these capabilities. We suggest a few recommendations for practice:

- As part of the process of new accreditation of universities in Slovakia, the University of Prešov in Prešov has prepared new information sheets for study subjects aimed at supporting critical and moral judgment. It is necessary for all information sheets of undergraduate training in the whole field of teaching to go through this process.
- To apply the development of the five minds of the future according to H. Gardner - a critical, creative, disciplined, ethical and tolerant mind in teaching.
- To involve students more in moral decisions that require quality critical thinking - discussion, workshop, organization of colloquia, preparation of scientific events.
- To support the development of moral reflection, which helps to build a person's healthy self-confidence and removes elements of the Dunning-Kruger effect, i.e., not to overestimate their abilities.
- To stimulate those positive stimuli that support the altruistic nature and remove the deposit of egocentrism, which is the biggest obstacle of critical moral reasoning.
- To prepare professional development programmes to develop the necessary capabilities.
- To support research activities in Slovakia in this area; to deal with, e.g., the comparison of prosocial behavior or moral skills of students in relation to various variables (e.g., city/village) and thus deal with the impact of this behavior on academic results, etc.

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