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CRITICAL THINKING OF SOCIAL WORK STUDENTS IN THE CONTEXT OF THE DIMENSIONS OF CREATIVITY AND APPLICATION

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Summary. Critical thinking is one of the basic skills for learning in the twenty-first century. It is developed through practical application, in which creativity is also important. The paper focuses on connecting critical thinking with such dimensions as creativity and application. The aim of the quantitative research was to find out how respondents use critical thinking in the process of studying social work. The research sample consisted of 150 respondents – students studying in the field of social work at universities in Slovakia, of which 44 were men and 106 were women aged at bachelor's, master's and doctoral levels of study. The questions of the self-constructed questionnaire were directed to 6 areas, while the paper presents partial results from two of the areas studied, namely: creativity and application. A verbal, 5-point scaling was applied to evaluate opinions. The obtained and presented questionnaire research data declared the opinions of respondents, who expressed a relatively high level of critical thinking in the researched areas of creativity (Ø 1.6) and application (Ø 1.6).

Keywords: application, creativity, critical thinking, practice, social work, theory.

1. A Theoretical Introduction to the Issue of Critical Thinking in the Context of Creativity and Application

Critical thinking is one of the fundamental skills for learning in the twenty-first century. This skill represents a complex set of thought operations that begin with information activating curiosity, a natural human trait wherein the acquisition of information is the starting point, not the goal of critical thinking (Smatana, Balážová et al., 2021). Critical thinking is often understood as a multifaceted cognitive process involving skills such as analysis, evaluation, inference, and reflection. The key to the creative side of critical thinking (truly enhanced thinking) is the restructuring of thought as a result of its analysis and effective evaluation (Paul, Elder, 2005, p. 7). Experts from Iowa (Iowa Department of Education, 1989, pp. 7–9) classified critical thinking, along with creative thinking and content/foundational thinking, among the domains of thought that support and interact with the comprehensive process of thinking. Critical and creative thinking differ from content/foundational thinking in that they process and transform information. Critical thinking meaningfully reorganizes knowledge acquired through foundational thinking. Creative thinking then proceeds even further, using the received and reorganized knowledge to create new knowledge. Complex thinking is characterized as multi-step, strategic, and goal-oriented processes.

Typically, the process of critical thinking is, according to Steele, Meredith, and Temple (Steele, Meredith, and Temple, 1998, p. 28), goal-oriented, but can also be creatively improvisational, as creativity and ingenuity are important in generating new thoughts, procedures, and ideas. This process involves the creative integration of thoughts and information.

Creative thinking is the ability to generate new ideas, alternatives, and novel solutions. In education, this ability manifests as: flexibility of thought, a divergent approach to a problem (multiple solutions), the capacity for improvisation, originality, and intuition (Novotná, Jurčíková, 2012).

Critical thinking is an activity that develops through practical application (Gavora, 1995, p. 7), and thus the ability to argue also develops as a student uses it in problem-solving. Several authors (Peng, Deng, 2017; Myca, Huijser, 2011) state that critical thinking should be at the core of curriculum reform based on key competencies in education, because students with critical thinking skills can not only understand the meaning of knowledge but also effectively solve practical problems in real life, even after the knowledge has been forgotten. In most professions, critical thinking is applied in daily activities that are not routine but require a degree of decision-making, autonomy, and responsibility (Walterová, 2017).

Critical thinking ranks among the key competencies for students in the field of social work because it enables them to effectively solve complex social problems and adapt to the dynamic environment of the practice (Píšová et al., 2008; Facione, 2015). For social work students, critical thinking is not just a passive processing of information but an active process of analysis, evaluation, and creative transformation of acquired knowledge (Paul, Elder, 2005).

The dimension of creativity in critical thinking is particularly significant, as social work often requires creative approaches to solving the individual and group problems of clients (Novotná, Jurčíková, 2012; Steele, Meredith, Temple, 1998). Creative thinking includes the ability to diversify solutions, improvise in unexpected situations, and integrate multiple perspectives in decision-making (Vygotsky, 1978; Brookfield, 2012).

The application of critical thinking in the context of social work means that students not only understand theoretical concepts but are also able to translate them into practical interventions and decisions that have a real impact on clients and the community (Robinson-Zanartu, Doerr, Portman, 2014; Peng, Deng, 2017). This process includes the interpretation of complex situations, the evaluation of alternative options, and the selective use of available resources, all while applying a reflective and ethical perspective (Ennis, 2011; Halpern, 2014).

According to Gavora (1997) and Smatana, Balážová et al. (2021), critical thinking is developed through problem-oriented learning, discussions, and simulations of real social situations, which allows social work students to systematically connect understanding, creative problem-solving, and the application of knowledge. The anchoring of these abilities supports the creation of mental models that enable flexible adaptation and creative innovation in professional practice (Bruner, 1996; Vygotsky, 1978; Zelina, 2018).

Research shows that social work students who regularly develop critical thinking are capable of generating innovative solutions, making independent decisions, and adapting interventions to the specific needs of clients (Myca, Huijser, 2011; Walterová, 2017). Thus, critical thinking with its dimension of creativity and application becomes not just an academic skill, but also a prerequisite for professional competence and effective social work practice.

2. Methodology

The aim of the research, of which partial results are presented here, was to determine the opinions of respondents (students in the field of social work) on the application of critical thinking during their social work studies, in their school education, as well as in their professional practice, in the context of dimensions such as creativity and application.

To determine their opinions, a self-constructed questionnaire was created, which contained:

– identification questions focusing on gender, year of study, and attended university

– questions directed into six areas, with the results from two areas, namely creativity and application, being presented in this paper.

In the area of critical thinking and creativity, the following statements were established:

1. The same content (the same information) can be expressed in different ways.

2. My opinions are formed based on various interrelated sources of information that I receive in school during lectures.

3. My opinions are formed based on various interrelated sources of information that I receive during my professional practice.

4. My opinions are formed based on various interrelated sources of information that I receive in school during lectures and also during my professional practice.

5. I like to search for new meanings in texts that I already know.

6. I like to combine (connect) information from different sources.

In the area of critical thinking and application, the following statements were established:

1. During conversations in my professional practice, I provide many different examples related to the topic of the conversation.

2. I try to use / apply the information I learn in lectures / seminars during my professional practice.

3. I try to use / apply the information I learn in lectures / seminars in everyday life.

4. I try to use / apply the information I learn during my professional practice in everyday life.

5. I willingly share all new information that I have acquired during my studies.

6. In a discussion, I try to use practical examples to justify my position.

For the evaluation of opinions, a verbal rating scale was used, where the scale had 5 levels (Table 1).

Table 1

Rating Scale

1	2	3	4	5
I totally agree	I partially agree	I don't have a strong opinion	I partially disagree	I completely disagree
Positive connotations			**Negative connotations**	

The source is own

In evaluating the selections for the individual statements, the choice of alternatives 1–2 was considered a positive response, and the choice of alternatives 4 and 5 was considered a negative response.

The results are presented for each area and its individual statements in absolute and relative terms. Likewise, for the comparison of individual statements, an average of their preference was calculated.

Within the scope of the research, two research questions were established:

Research Question 1: How important is critical thinking in the context of creativity for respondents studying in the field of social work?

Research Question 2: How important is critical thinking in the context of application for respondents studying in the field of social work?

To characterize the research sample, data obtained from quantitative research were used from the perspective of sociodemographic characteristics, namely gender (male / female) and level of study (Bachelor's, Master's, and Doctoral) in the field of social work.

Within the univariate analysis, the acquired data are presented in absolute terms (N), relative terms (%), and as an average (ø). When calculating percentages, rounding was performed to one decimal place, which could result in sums deviating from 99.8–100.2.

3. Partial Research Results

The partial results present the acquired data in two researched dimensions, namely creativity and application. The presented data were collected from respondents – social work students at the Bachelor's, Master's, and Doctoral levels of study. Each dimension is analyzed by means of six statements, which the respondents rated on a five-point scale. In the following text, the results for both dimensions are presented and interpreted sequentially, with attention given to the overall evaluation as well as the comparison of individual statements.

Critical thinking and creativity

Table 2 presents the results of statements in the field of critical thinking and creativity for six statements in total.

Table 2

Critical thinking and creativity – overall

Critical thinking and creativity – overall (statements)	**N / %**	*Range*					*Together*	*Diameter Ø*
		I totally agree	*I partially agree*	*I don't have a strong opinion*	*I partially disagree*	*I completely disagree*		
1	N	104	40	5	1	0	150	**1.4**
	%	69.3	26.7	3.3	0.7	0.0	100.0	
2	N	73	60	14	3	0	150	**1.6**
	%	48.7	40.0	9.3	2.0	0.0	100.0	
3	N	66	67	14	3	0	150	**1.7**
	%	44.0	44.7	9.3	2.0	0.0	100.0	
4	N	82	49	14	5	0	150	**1.6**
	%	54.7	32.7	9.3	3.3	0.0	100.0	
5	N	65	54	23	6	2	150	**1.8**
	%	43.3	36.0	15.3	4.0	1.3	99.9	
6	N	81	52	11	6	0	150	**1.6**
	%	54.0	34.7	7.3	4.0	0.0	100.0	
	Overall diameter (Ø)							**1.6**

Source: own processing

Critical Thinking and Creativity

The results for the first researched dimension, Critical Thinking and Creativity, are summarized in Table 2. The table presents the data for each of the six statements in both absolute (N) and relative (%) terms, along with the calculated average (ø). A strong overall level of agreement was observed, with the average scores for all statements ranging between 1.4 and 1.8. This range corresponds to the verbal anchors "I completely agree" and "I rather agree" on the rating scale.

Table 3

Critical thinking and creativity – by gender

Critical thinking and creativity – by gender (statements)	*Sex*	*N / %*	*Range*					*Together*	*Diameter Ø*
			I totally agree	*I partially agree*	*I don't have a strong opinion*	*I partially disagree*	*I completely disagree*		
1	Men	N	28	13	3	0	0	44	**1.4**
		%	63.6	29.5	6.8	0.0	0.0	99.9	
	Women	N	76	27	2	1	0	106	**1.3**
		%	71.7	25.5	1.9	0.9	0.0	100.0	
2	Men	N	22	19	3	0	0	44	**1.6**
		%	50.0	43.2	6.8	0.0	0.0	100.0	
	Women	N	51	41	11	3	0	106	**1.7**
		%	48.1	38.7	10.4	2.8	0.0	100.0	
3	Men	N	17	25	2	0	0	44	**1.7**
		%	38.6	56.8	4.5	0.0	0.0	99.9	
	Women	N	49	42	12	3	0	106	**1.7**
		%	46.2	39.6	11.3	2.8	0,0	99.9	
4	Men	N	24	15	4	1	0	44	**1.6**
		%	54.5	34.1	9.1	2.3	0.0	100.0	
	Women	N	58	34	10	4	0	106	**1.6**
		%	54.7	32.1	9.4	3.8	0	100.0	
5	Men	N	15	20	7	1	1	44	**1.9**
		%	34.1	45.5	15.9	2.3	2.3	100.1	
	Women	N	50	34	16	5	1	106	**1.8**
		%	47.2	32.1	15.1	4.7	0.9	100.0	
6	Men	N	22	17	2	3	0	44	**1.7**
		%	50.0	38.6	4.5	6.8	0,0	99.9	
	Women	N	59	35	9	3	0	106	**1.6**
		%	55.7	33.0	8.5	2.8	0.0	100.0	

Source: own processing

The highest level of agreement (ø = 1.4) was recorded for statement 1: "The same content (the same information) can be expressed in different ways". Conversely, the lowest, though still strong, agreement (ø = 1.8) was for statement 5: "I like to search for new meanings in texts that I already know". Table 3 presents the results of statements in the field of critical thinking and creativity for six statements according to the gender of respondents.

The data obtained in the area *of „Critical thinking and creativity"* from the point of view of gender and average values in individual statements ranged from 1.3 to 1.9, while no significant difference was reported between men and women (the difference in averages in individual statements between the sexes was max. 0.1).

Table 4 presents the results of statements in the field of critical thinking and creativity for six statements according to the level of study.

Table 4

Critical Thinking and Creativity – by Degree (Bc., Mgr., PhD.)

Critical thinking and creativity – according to the level of study (statements)	*Degree*	*N / %*	*Range*					*Together*	*Diameter Ø*
			I totally agree	*I partially agree*	*I don't have a strong opinion*	*I partially disagree*	*I completely disagree*		
1	Bc.	N	65	26	2	0	0	93	**1.3**
		%	69.9	28.0	2.2	0	0	100.1	
	Msc.	N	32	12	3	1	0	48	**1.4**
		%	66.7	25.0	6.3	2.1	0	100.1	
	Phd.	N	7	2	0	0	0	9	**1.2**
		%	77.8	22.2	0	0	0	100	
2	Bc.	N	48	34	9	2	0	93	**1.6**
		%	51.6	36.6	9.7	2.2	0	100.1	
	Msc.	N	20	22	5	1	0	48	**1.7**
		%	41.7	45.8	10.4	2.1	0	100	
	Phd.	N	5	4	0	0	0	9	**1.4**
		%	55.6	44.4	0	0	0	100	
3	Bc.	N	40	40	11	2	0	93	**1.7**
		%	43.0	43.0	11.8	2.2	0	100	
	Msc.	N	20	24	3	1	0	48	**1.7**
		%	41.7	50.0	6.3	2.1	0	100.1	
	Phd.	N	6	3	0	0	0	9	**1.3**
		%	66.7	33.3	0	0	0	100	
4	Bc.	N	47	32	10	4	0	93	**1.7**
		%	50.5	34.4	10.8	4.3	0	100	
	Msc.	N	27	16	4	1	0	48	**1.6**
		%	56.3	33.3	8.3	2.1	0	100	
	Phd.	N	8	1	0	0	0	9	**1.6**
		%	88.9	11.1	0	0	0	100	
5	Bc.	N	46	28	13	4	2	93	**1.8**
		%	49.5	30.1	14.0	4.3	2.2	100.1	
	Msc.	N	14	23	9	2	0	48	**2.0**
		%	29.2	47.9	18.8	4.2	0	100.1	
	Phd.	N	5	3	1	0	0	9	**1.6**
		%	55.6	33.3	11.1	0	0	100	
6	Bc.	N	51	30	7	5	0	93	**1.6**
		%	54.8	32.3	7.5	5.4	0	100	
	Msc.	N	22	21	4	1	0	48	**1.7**
		%	45.8	43.8	8.3	2.1	0	100	
	Phd.	N	8	1	0	0	0	9	**1.1**
		%	88.9	11.1	0	0	0	100	

Source: own processing

The achieved average values for individual statements in the area *of „Critical Thinking and Creativity"* from the point of view of the level of study ranged from 1.1 to 2.0 (on the scale I completely agree – Partially agree). From the point of view of individual statements, the biggest difference was noted between the master's and doctoral level of study in the sixth statement – „I like to combine (combine) information from different sources" (difference 0.6 – Mgr. Ø 1.7, PhD. Ø 1.1). The overall mean within the level of study ranged from 1.4 to 1.7 (Bc.=1.6; Mgr.=1.7; PhD.=1.4).

Critical thinking and application

Table 5 presents the results of statements in the field of critical thinking and application for six statements in total.

Table 5

Critical thinking and application – overall

Critical Thinking and Applying – Overall (Statements)	**N / %**	*Range*					*Together*	*Diameter Ø*
		I totally agree	*I partially agree*	*I don't have a strong opinion*	*I partially disagree*	*I completely disagree*		
1	N	50	71	21	4	4	150	**1.9**
	%	33.3	47.3	14.0	2.7	2.7	100.0	
2	N	84	52	11	1	2	150	1.6
	%	56.0	34.7	7.3	0.7	1.3	100.0	
3	N	78	57	11	4	0	150	**1,6**
	%	52.0	38.0	7.3	2.7	0,0	100.0	
4	N	72	61	13	4	0	150	**1.7**
	%	48.0	40.7	8.7	2.7	0.0	100.1	
5	N	92	42	14	0	2	150	**1.5**
	%	61.3	28.0	9.3	0.0	1.3	99.9	
6	N	87	51	6	5	1	150	**1.5**
	%	58.0	34.0	4.0	3.3	0.7	100.0	
	Overall diameter (Ø)							1.6

Source: own processing

Data from the area of *„Critical Thinking and Application"* – in total, they are presented in Table 5, where we present absolute, relative values, but also averages for individual statements, which ranged from 1.5 to 1.9 (fully agree – partially agree), while the highest agreement (Ø = 1.5) was recorded for statement 5 „I willingly share all new information that I have acquired/gained during my studies". and for statement 6 „I try to use practical examples in the discussion, to justify my position" and the lowest agreement (Ø = 1.9) was to the statement 1. „During the conversation at professional internships, I give many different examples that relate to the topic of the conversation".

Table 6 presents the results of statements in the field of critical thinking and application for six statements according to the gender of respondents.

Table 6

Critical thinking and application – by gender

Critical thinking and application – by gender (statements)	*Sex*	*N / %*	*Range*					*Together*	**Diameter *Ø***
			I totally agree	*I partially agree*	*I don't have a strong opinion*	*I partially disagree*	*I completely disagree*		
1	Men	N	16	19	8	0	1	44	**1.9**
		%	36.4	43.2	18.2	0.0	2.3	100.1	
	Women	N	34	52	13	4	3	106	**2.0**
		%	32.1	49.1	12.3	3.8	2.8	100.1	
2	Men	N	23	15	5	0	1	44	**1.7**
		%	52.3	34.1	11.4	0.0	2.3	100.1	
	Women	N	61	37	6	1	1	106	**1.5**
		%	57.5	34.9	5.7	0.9	0.9	99.9	

Table 6 (continuance)

3	Men	N	20	19	3	2	0	44	**1.7**
		%	45.5	43.2	6.8	4.5	0.0	100.0	
	Women	N	58	38	8	2	0	106	**1.6**
		%	54.7	35.8	7.5	1.9	0.0	99.9	
4	Men	N	15	23	4	2	0	44	**1.8**
		%	34.1	52.3	9.1	4.5	0,0	100.0	
	Women	N	57	38	9	2	0	106	**1,6**
		%	53.8	35.8	8.5	1.9	0.0	100.0	
5	Men	N	26	12	5	0	1	44	**1.6**
		%	59.1	27.3	11.4	0.0	2.3	100.1	
	Women	N	66	30	9	0	1	106	**1.5**
		%	62.3	28.3	8.5	0.0	0.9	100.0	
6	Men	N	27	16	0	0	1	44	**1.5**
		%	61.4	36.4	0.0	0.0	2.3	100.1	
	Women	N	60	35	6	5	0	106	**1.6**
		%	56.6	33.0	5.7	4.7	0.0	100.0	

Source: own processing

The data obtained in the area of *„Critical Thinking and Application"* from the point of view of gender in terms of average values in individual statements ranged from 1.5 to 2.0, while no significant difference was reported between men and women (the difference in averages in individual statements between the sexes was max. 0.2).

This highest difference was recorded in two statements: the second statement „I try to use / apply the information I learn during lectures / exercises during the implementation of professional practice", while the average value of Ø was 1.5 for women and the average value of Ø was 1.7 for men. There was a similar difference in the fourth statement „I try to use / apply the information I learn during my professional practice in everyday life"", while the average value of Ø was 1.6 for women and the average value of Ø was 1.8 for men.

Table 7 presents the results of statements in the field of critical thinking and application for six statements according to the level of study.

Table 7

Critical Thinking and Application – by Degree (Bc., Mgr., PhD.)

Critical thinking and application – according to the level of study (statements)	***Degree***	***N / %***	***Range***					***Together***	***Diameter Ø***
			I totally agree	***I partially agree***	***I don't have a strong opinion***	***I partially disagree***	***I completely disagree***		
1	Bc.	N	27	45	17	1	3	93	**2.0**
		%	29.0	48.4	18.3	1.1	3.2	100	
	Msc.	N	20	22	3	2	1	48	**1.8**
		%	41.7	45.8	6.3	4.2	2.1	100.1	
	Phd.	N	3	4	1	1	0	9	**2.0**
		%	33.3	44.4	11.1	11.1	0	100	
2	Bc.	N	47	34	10	0	2	93	**1.7**
		%	50.5	36.6	10.8	0	2.2	100.1	
	Msc.	N	30	16	1	1	0	48	**1.4**
		%	62.5	33.3	2.1	2.1	0	100	
	Phd.	N	7	2	0	0	0	9	**1.2**
		%	77,8	22,2	0	0	0	100	
3	Bc.	N	44	36	9	4	0	93	**1.7**
		%	47.3	38.7	9.7	4.3	0	100	
	Msc.	N	28	18	2	0	0	48	**1.5**
		%	58.3	37.5	4.2	0	0	100	
	Phd.	N	6	3	0	0	0	9	**1.3**
		%	66,7	33,3	0	0	0	100	

Table 7 (continuance)

4	Bc.	N	40	39	10	4	0	93	**1.8**
		%	43.0	41.9	10.8	4.3	0	100	
	Msc.	N	27	18	3	0	0	48	**1.5**
		%	56.2	37.5	6.3	0	0	100	
	Phd.	N	5	4	0	0	0	9	**1.4**
		%	55,6	44,4	0	0	0	100	
5	Bc.	N	53	26	12	0	2	93	**1.6**
		%	57.0	28.0	12.9	0	2.2	100.1	
	Msc.	N	30	16	2	0	0	48	**1.4**
		%	62.5	33.3	4.2	0	0	100	
	Phd.	N	9	0	0	0	0	9	**1.0**
		%	100.0	0	0	0	0	100	
6	Bc.	N	51	33	4	4	1	93	**1.6**
		%	54.8	35.5	4.3	4.3	1.1	100	
	Msc.	N	29	16	2	1	0	48	**1.5**
		%	60.4	33.3	4.2	2.1	0	100	
	Phd.	N	7	2	0	0	0	9	**1.2**
		%	77.8	22.2	0	0	0	100	

Source: own processing

The achieved average values for individual statements in the area *of „Critical Thinking and Application"* from the point of view of the level of study ranged from 1.2 to 2.0 (they ranged on a scale of Strongly Agree – Partially Agree). From the point of view of individual statements, the biggest difference was noted between the bachelor's and doctoral level of study in the fifth statement – „I willingly share all the new information I have gained during my studies" (difference 0.6 – Bc. Ø 1.6 , PhD. Ø 1.0).

4. Discussion and conclusion

Thinking critically also means letting creativity and applying what you have learned take off. Creative creative thinking is a way to discover the new, a way to bring new horizons, without which a person would not move forward,

In *the area of creativity,* the average value was 1.6 overall (on a scale between the phrase „I strongly agree" and „I partially agree"). From the point of view of gender, there was only a small difference in the average value between men and women (men Ø 1.7, women Ø 1.6). Also from the point of view of the degree of study in the field of creativity, differences were noted (Bc. degree Ø 1.6; Mgr. degree Ø 1.7; PhD. degree Ø 1.4).

In *the area of application,* the average value was a total of 1.6 (on a scale between the phrase „I fully agree" and „I partially agree"). In terms of gender, the difference between men and women was 0.1 (men Ø 1.7; women Ø 1.6). Also from the point of view of the level of study in the field of application, differences were noted (Bc. degree Ø 1.7; Mgr. degree Ø 1.5; PhD. degree Ø 1.4).

Nowadays, critical thinking is a necessity. It is a skill that needs to be developed in students on a daily basis. Critical thinking is not about criticizing, but about looking at a problem from multiple perspectives. It is about a thorough analysis of the phenomenon under study, about thinking about how the problem can be solved, about looking for arguments that would support subsequent decisions, which should be creative and not ossified. Last but not least, decisions need to be applied. Students can learn the matter, but it is essential that they do not accept it without any consideration. It is necessary for them to verify the facts, compare them with other facts and look for a way to creatively apply what they have learned in practice.

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