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ПСИХОЛОГО-ПЕДАГОГИЧЕСКОЕ СОПРОВОЖДЕНИЕ ПРОЦЕССА ВОСПИТАНИЯ И ОБУЧЕНИЯ В ОРГАНИЗАЦИЯХ ОБРАЗОВАНИЯ

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THE DEVELOPMENT OF CRITICAL THINKING AMONG FUTURE EDUCATIONAL-PSYCHOLOGISTS IN THE ERA OF GLOBALIZATION

With globalization, changing international economic conditions, especially with the advent of the knowledge economy, and the importance of lifelong learning, the nature and functions of knowledge are gradually changing. This has created changing requirements for 21st century learners' skill sets, such as the ability to think critically and creatively, the ability to learn independently and collaboratively, the ability to learn formally and informally, as well as the ability to both compete and collaborate, etc. The 21st century is a century of very rapid and continuous development around the world, which has a very dynamic and cyclical impact on societies around the world. Development leads to production, and production leads to further development. For this reason, the importance and influence of the ability to «think differently» is gradually increasing in all societies. Critical thinking plays an important role in this process. The purpose of this trial experimental study was to evaluate and determine the critical thinking skills of future educational psychologists. The testing study was conducted with the participation of 90 students at the faculties of pedagogy and psychology of 2 Kazakhstani and Lithuanian universities. The starting point in assessing the critical thinking of the studied students was testing using the self-translated questionnaire «Critical Thinking Skills of Prospective Teachers» (Kavenuke et al., 2020) before and after the

experimental phase of the study. The questionnaire contains 9 statements evaluated on a seven-point Likert scale.

Keywords: critical thinking, educational psychologist, globalization, experiment, higher education, criticism, process, skills.

Introduction

The word «criticism» is used to denote judgment, discrimination and evaluation of the general meaning. In other words, it can be described as evaluating a topic or commenting on a subject. There are many definitions of critical thinking. However, it is usually defined as the ability to comment and evaluate things [1;88].

The definitions given to the concept of «critical thinking» can be seen mainly in the works of foreign scientists. American scientist D. Klooster-considering critical thinking as a kind of social thinking, identifies four of its leading components. Critical thinking, in his opinion, consists in the desire to ask questions and determine, to give convincing arguments [2;5].

D. Klooster describes critical thinking as follows:

– the ability to think independently, i.e. the presence of a personal character in the process of thinking

– any information is not the last initial stage of critical thinking. Because without information there is no reason to think.

– critical thinking begins with asking questions, identifying problems.

In the process of solving such problems, the student begins to really think deeply.

– critical thinking requires the involvement of arguments, arguments, facts, statistical data, experimental results.

– it is of a social nature. Any thought is tempered when it is shared with others. Therefore, critical thinking allows you to exchange opinions.

Many people associate the importance of critical thinking in education with the American philosopher of the early twentieth century, John Dewey. But Dewey didn't use the term «critical thinking» very widely. Instead , in his book «How we Think» he argued the importance of what he called «reflexive thinking».:

...[when] the basis for a belief is deliberately sought and its adequacy to support the belief is checked. This process is called reflexive thinking; only it has a truly educational value…

Active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it leads is reflective thinking.

However, there is one passage from «How We Think» where Dewey explicitly uses the term «critical thinking»:

The essence of critical thinking is suspended judgment; and the essence of this suspension is research in order to determine the nature of the problem before attempting to solve it. This, more than anything else, turns a simple conclusion into a proven conclusion, the proposed conclusions into proof [3;16].

Critical thinking is a way of thinking in which a person combines, analyzes and evaluates information. The insufficiency of a simple formal education to obtain an increasingly expanding fund of knowledge has led to the fact that people have a need to independently obtain information, coping with problems on their own. The need for the ability to think critically to meet these latter requirements has provoked a broader discussion of this concept. Critical thinking consists of various elements and rules and is required to develop new ideas or different points of view. When we analyze these features, Glazer suggests that critical thinking consists of three factors [4;24]:

1 Solve problems visionarily and on the basis of thinking.

2 Have information about reasoning methods and be able to ask questions using reasoning.

3 Be able to apply these methods in your daily life.

According to Demirel, there are 5 rules of critical thinking:

1 Consistency: Contradictions in thoughts should be eliminated in the process of critical thinking.

2 Combination: A person who thinks critically should study all aspects of thinking and establish connections between them.

3 Applicability: A person should combine his thoughts with what he has learned and practice it on a model.

4 Sufficiency: A critical thinker should base his understanding of experiences and their consequences on realistic grounds.

5 Communication: A person who thinks critically should clearly and effectively express his thoughts [5;133].

People think critically when trying to solve a problem, evaluate an argument, make a decision about a belief, or make a decision in general. To achieve these goals, critical thinking evaluates not only the products and results of thinking, that is, beliefs, choices, conclusions, hypotheses, etc., but also the processes that gave rise to them, that is, the reasoning that led to such conclusions, and the nature of the decision-making process leading to this alternative. Thus, critical thinking is a higher-order process and, as such, is not automatic, requiring self-determination, reflection, effort, self-control and metacognition. In other words, it is a conscious and deliberate process involving the interpretation and evaluation of information or experience.

The following excerpt from Peter A. Facione's book Critical Thinking: Asserting Expert Consensus for the Purposes of Evaluating Education and Learning is quoted from a report written for the American Philosophical Association:

We understand critical thinking as a purposeful, self-regulating judgment, the result of which is interpretation, analysis, evaluation and inference, as well as an explanation of the evidentiary, conceptual, methodological, criteria or contextual considerations on which this judgment is based. Thus, critical thinking is a liberating force in education and a powerful resource in a person's personal and civic life. Although critical thinking is not synonymous with good thinking, it is a pervasive and self-healing human phenomenon. The ideal critical thinker is usually inquisitive, well-informed, trusting reason, open-minded, flexible, impartial in evaluation, honest in front of personal biases, prudent in making judgments, ready for revision, clear in questions, orderly in complex issues, diligent in finding relevant information, reasonable in choosing criteria, focused in investigation and persistent in search for results that are as accurate as the subject and circumstances of the investigation allow. Thus, the education of good critical thinkers means working towards this ideal. It combines the development of computer tomography skills with the education of those inclinations that constantly give useful ideas and which are the basis of a rational and democratic society [6;24].

Critical thinking refers to a type of thinking characterized by the fact that it is an alternative to the usual way of thinking; It would be a process related to system 2, in the nomenclature of the theorists of the dual reasoning process [7;378]. This process primarily does not function on the basis of acquired automatisms, but instead represents a reflexive and purposeful way of thinking in which individuals activate their cognitive resources (memory, attention) and exercise metacognitive control (monitoring and evaluation) over the application of rules and logical principles that govern reasoning, or over the usual biases that lead to errors in this reasoning (for example, misconceptions). Thus, this type of thinking would be an alternative to the usual process, which works on the basis of associations between concepts, representations, etc., and which works in parallel, performing several operations simultaneously, which are activated automatically by stimuli and without the control of the will. This leads to the fact that the process becomes much faster and less costly in cognitive terms [8;1070]. All of the above is consistent with the fact that critical thinking is usually perceived as costly in terms of time, energy, concentration and effort [9;689].

A critical thinker does not necessarily have a negative attitude in the everyday sense, constantly criticizing someone or something. Instead, he or she can be considered insightful: a critical thinker asks key questions, evaluates the evidence of ideas, causes of problems both logically and objectively, and expresses ideas

and conclusions clearly and accurately. And last (but not least): a critical thinker can apply these habits of mind to more than one area of life or knowledge.

The question of how best to teach critical thinking remains a matter of debate. One question is whether critical skills should be embedded in existing courses or taught through separate, stand-alone units or courses. The first approach has the potential advantage of integrating critical thinking into all student curricula. But this risks weakening students' understanding of critical thinking and its use simply because critical thinking takes a different form in each learning context. Its details and appearance vary depending on the courses and teachers. An independent approach has the opposite qualities: it has more chances to be understood clearly and coherently, but at the expense of hiding how it is related to other courses, tasks and activities. Unfortunately, studies comparing different strategies for teaching critical thinking do not solve this question. The study simply suggests that either infusion or stand-alone approaches can work as long as they are implemented thoroughly and teachers are committed to the value of critical thinking [10;141].

Determining the critical thinking skills of future educational psychologists is quite important for determining the areas and abilities that need to be emphasized during their training. Ensuring that future educational psychologists acquire the necessary critical thinking skills is likely to have a significant positive impact on their training. For this reason, it is important to identify and use effective means to evaluate this thinking skill. In this context, the purpose of this study was to determine the critical thinking skills of future educational psychologists before and after the experiment.

After a brief discussion of critical thinking and its relation to education, we outline competencies, correlate them with the fundamental concepts of critical thinking, and then provide rubrics for evaluation. In the appendix, we provide a brief overview of the theory underlying competencies.

It is important to note that only when teachers understand the basics of critical thinking, they can effectively teach for this. This fact should become clearer as you work through the competencies. Before attempting to develop any particular competence or set of competencies, we recommend that teachers take the time to master the relevant concepts of critical thinking that we refer to for each competence.

The simple truth is that teachers are able to develop critical thinking only to the extent that they themselves think critically. This may be the single most significant obstacle to students achieving critical thinking skills. In order for a teacher to help students become deep thinkers, they themselves must think deeply. In order for teachers to help students develop intellectual humility, they themselves must develop intellectual humility. In order for teachers to cultivate a

reasonable, rational, multi-logical worldview, they themselves must develop such a worldview. In short, teaching critical thinking involves a clear understanding of critical thinking in the mind of the teacher.

Unfortunately, we cannot assume that teachers have a clear understanding of critical thinking. Indeed, research shows that the opposite is true. The available evidence suggests that critical thinking is rarely systematically encouraged in academic programs at any level. The institutions that are most effectively able to use critical thinking skills are those run by leaders who understand critical thinking themselves and who support an effective long-term program for developing critical thinking among staff.

Based on the above material, we concluded that students who think critically strive for a clear understanding of the concepts and ideas that shape their reasoning and the reasoning of others. They understand the powerful role of concepts in human thinking, that it is through concepts that people define and shape their experience. They understand that people often use distorted concepts, concepts that deny fundamental agreed definitions and understandings. They recognize that people often distort concepts in order to maintain a certain point of view, position, or control or manipulate the thinking of others. They regularly and routinely evaluate the concepts they use, using the concepts justifiably. Similarly, they regularly and routinely evaluate concepts used by others.

Materials and methods

As a result of exploratory factor analysis using the selection of the main components, it was revealed that the optimal number of factors for the questionnaire is 3, which is consistent with the structure of the original tool. The promax rotation method found that the three-factor structure explains 35.13 % of the total variance. By means of confirmatory factor analysis, the three-factor structure of the questionnaire was confirmed: all items were characterized by acceptable loads on the relevant factors (0.352 - 0.624), the model fitness indices were generally satisfactory ($\chi 2$ (24) = 34.620 (P = 0.074); RMSEA = 0.070 (0.0 - 0.119); CFI = 0.896; TLI = 0.843; SRMR = 0.065), which together indicates the structural validity of the construct and the compliance of the theoretical three-factor model with empirical data. The total coefficient α (0.713 (0.615 - 0.794)), the half-split coefficient (0.766 (0.643 - 0.846)) and the average of correlated points (0.22) indicate the internal consistency of the questionnaire.

Results and discussions

The results of the survey conducted before the start of the experimental exposure are presented in Table 1.

The contents of the questionnaire are set out below.

Consistency

1 I fairly evaluate both my own opinion and the opinions of other people

2 When I solve a problem, I usually organize the data sources to solve this problem

3 I believe in my reasoning related to the conclusion to solve the problem

Self-confidence

4 I think I can handle any difficult problem

5 I am willing to solve a difficult problem

6 I usually solve complex problems using criteria set by myself

Skepticism

7 When I am asked a question, I think twice before giving an answer

8 I usually have reasonable evidence in any decision I make

9 I think that any opinion should have a reliable reason to insist

Table 1 – Descriptive statistics for the scales of the questionnaire «Critical Thinking Skills of Prospective Teachers» before the experiment

Facrors	ө (σ)	
	Control group (n = 45)	Experimental group (n = 45)
Consistency	4,70 (0,80)	4,73 (0,90)
Case 1	4,58 (0,75)	4,73 (0,96)
Case 2	4,71 (0,76)	4,56 (0,81)
Case 3	4,80 (0,89)	4,89 (0,91)
Self-confidence	4,66 (0,92)	4,66 (0,87)
Case 1	4,64 (0,77)	4,71 (1,01)
Case 2	4,62 (0,83)	4,78 (0,82)
Case 3	4,71 (1,14)	4,49 (0,73)
Skepticism	4,75 (0,98)	4,83 (1,0)
Case 1	4,78 (0,95)	4,71 (0,92)
Case 2	4,47 (0,84)	4,64 (0,96)
Case 3	5,00 (1,09)	5,13 (1,08)

The intergroup differences for each of the factors are shown in Figure 2.

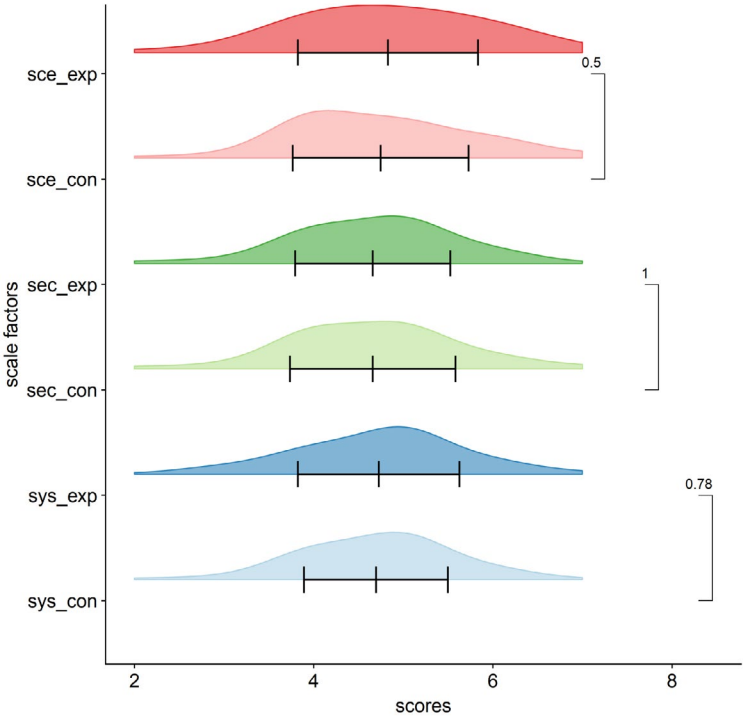

Figure 2 – Values according to the scales of the questionnaire «Critical Thinking

Skills of Prospective Teachers» before the experiment. The curved area displays the density of the numerical data distribution. The black segment displays the mean (center marker) and standard deviation (side markers). Above the square brackets are the P values (a two-sample t-test).

Thus, prior to the experiment, there were no statistically significant differences in critical thinking between the study groups.

Results and discussion

Confirmatory factor analysis of the results of the post-experimental survey confirmed the adequacy of the three-dimensional structure of the questionnaire: all items had sufficient loads on the relevant factors, which is shown in the diagram of the a posteriori model of the questionnaire structure (Figure 3).

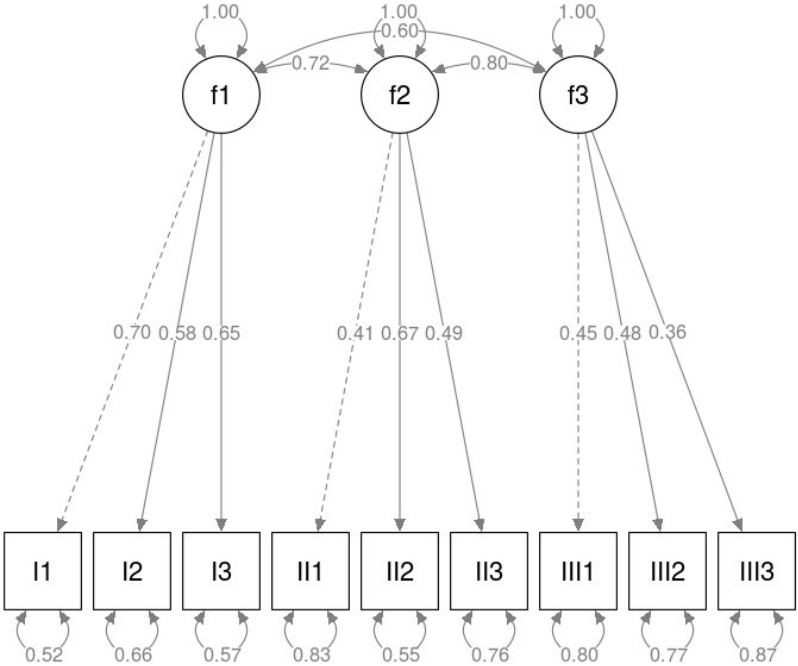

Figure 3 – A posteriori model of the structure of the questionnaire «Critical Thinking Skills of Prospective Teachers». Factor loads of points (squares) on factors (circles) are displayed in the center of the arrows

The model's fitness indices were extremely satisfactory ($\chi 2$ (24) = 16.763 (P = 0.859); RMSEA = 0.000 (0.000 – 0.047); CFI = 1,000; TLI = 1.122; SRMR = 0.046), which proves the structural validity of the construct and the correspondence of the theoretical three-factor model to empirical data. The total coefficient α (0.706 (0.605 – 0.789)), the half-split coefficient (0.717 (0.569 – 0.814)) and the average correlated points (0.22) indicate the internal consistency of the questionnaire. The results of the survey conducted at the end of the experimental exposure are presented in Table 2.

Table 2 – Descriptive statistics for the scales of the questionnaire «Critical Thinking Skills of Prospective Teachers» after the experiment

Factors	ө (σ)	
	Control group (n = 45)	Experimental group (n = 45)
Consistency	5,01 (0,83)	5,29 (0,76)

Case 1	4,80 (0,94)	5,16 (0,71)
Case 2	5,18 (0,81)	5,44 (0,78)
Case 3	5,04 (0,71)	5,27 (0,78)
Self-confidence	4,71 (0,85)	4,80 (0,77)
Case 1	4,73 (0,72)	4,84 (0,90)
Case 2	4,69 (0,79)	4,78 (0,74)
Case 3	4,71 (1,01)	4,78 (0,67)
Skepticism	4,83 (0,96)	4,90 (1,01)
Case 1	4,84 (0,88)	4,87 (0,97)
Case 2	4,56 (0,84)	4,67 (0,95)
Case 3	5,09 (1,08)	5,18 (1,05)

The intergroup differences for each of the factors are shown in Figure 4.

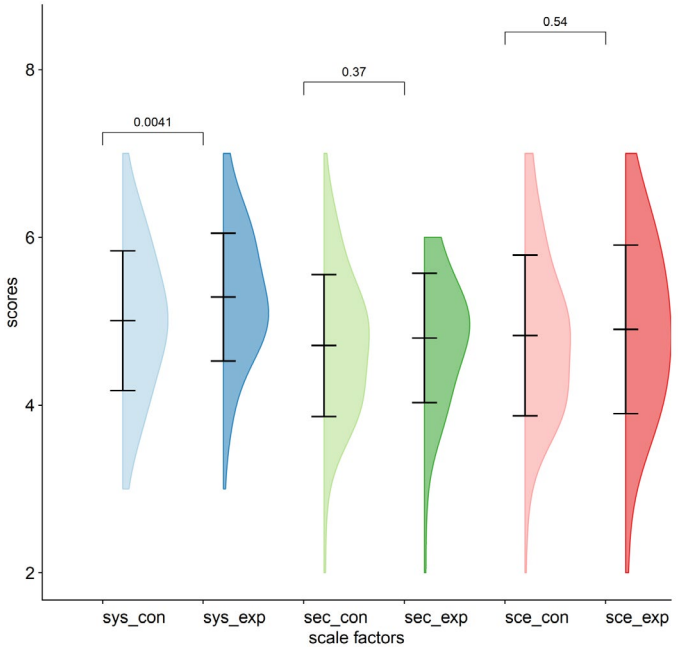

Figure 4 – Values according to the scales of the questionnaire «Critical Thinking Skills of Prospective Teachers» after the experiment. The curved area displays the density of the numerical data distribution. The black segment displays the mean (center marker) and standard deviation (side markers). Above the square brackets are the P values (a two-sample t-test)

Conclusions

Thus, the participants of the group for which a special course was conducted assessed the level of their critical thinking statistically significantly higher ($P < 0.01$) on a systematic scale than the respondents in the control group. According to the other scales, there were no statistically significant differences between the study groups.

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ЖАһАНДАНУ ЖАҒДАЙЫНДА БОЛАШАҚ ПЕДАГОГ-ПСИХОЛОГТАРДЫҢ СЫНИ ОЙЛАУЫН ДАМЫТУ

Жаһанданумен, халықаралық экономикалық жағдайдың өзгеруімен, әсіресе білім экономикасының пайда болуымен және өмір бойы оқытудың маңыздылығымен білімнің табиғаты мен функциялары біртіндеп өзгеріп отырады. Бұл 21 ғасыр оқушыларының сыни және шығармашылық ойлау қабілеті, тәуелсіз және бірлескен оқу қабілеті, ресми және бейресми түрде оқу қабілеті, Бәсекелестік және ынтымақтастық қабілеті және т.б. сияқты дағдылар жиынтығына өзгеретін талаптарды тудырды. 21 ғасыр – бүкіл әлемдегі қоғамдарға өте динамикалық және циклдік әсер ететін өте жылдам және үздіксіз даму ғасыры. Даму өндіріске, ал өндіріс одан әрі дамуға әкеледі. Осы себепті «басқаша ойлау» қабілетінің маңыздылығы мен әсері барлық қоғамдарда біртіндеп артып келеді. Бұл процесте сыни ойлау маңызды рөл атқарады. Бұл зерттеудің мақсаты болашақ педагог-психологтардың сыни ойлау дағдыларын бағалау және анықтау болып табылады. Зерттеу 2 қазақстандық ЖОО-ның Педагогика және психология факультеттерінде 90 білім алушының қатысуымен жүргізілді. Зерттеуге қатысқан сыни ойлауын бағалаудың бастапқы нүктесі «Critical Thinking Skills of Prospective Teachers» (Kavenuke et al., 2020) зерттеудің эксперименттік кезеңі басталғанға дейін және одан кейін. Сауалнамада Лайкерттің жеті балдық шкаласы бойынша бағаланатын 9 мәлімдеме бар.

Кілтті сөздер: Сыни ойлау, педагог-психолог, жаһандану, эксперимент, жоғары білім,үрдіс,дағды.

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РАЗВИТИЕ КРИТИЧЕСКОГО МЫШЛЕНИЯ У БУДУЩИХ ПЕДАГОГОВ-ПСИХОЛОГОВ В УСЛОВИЯХ ГЛОБАЛИЗАЦИИ

С глобализацией, изменением международных экономических условии, особенно с появлением экономики знаний, и значением

обучения на протяжении всей жизни, природа и функции знаний постепенно меняются. Это создало меняющиеся требования к наборам навыков учащихся 21 века, таким как способность к критическому и творческому мышлению, способность к самостоятельному и совместному обучению, способность учиться формально и неформально, а также способность как к конкуренции, так и к сотрудничеству и т.д. 21-й век – это век очень быстрого и непрерывного развития во всем мире, которое оказывает очень динамичное и циклическое влияние на общества во всём мире. Развитие ведёт к производству, а производство ведёт к дальнейшему развитию. По этой причине важность и влияние способности «мыслить по-другому» постепенно возрастают во всех обществах. Важнейшую роль в этом процессе отведена критическому мышлению. Целью этого исследования было оценить и определить навыки критического мышления будущих педагогов-психологов. Исследование было проведено с участием 90 обучающихся на факультетах педагогики и психологии 2 казахстанских ВУЗов. Отправной точкой в оценке критического мышления исследуемых студентов стало тестирование по самостоятельно переведённому опроснику «Critical Thinking Skills of Prospective Teachers» (Kavenuke et al., 2020) до начала экспериментальной фазы исследования и после. Опросник содержит 9 утверждений, оцениваемых по семибалльной шкале Лайкерта.

Ключевые слова: критическое мышление, педагог-психолог, глобализация, эксперимент, высшее образование, процесс, навык.

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