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# USING MEDIA RESOURCES IN EDUCATION TO DEVELOP UNIVERSITY STUDENTS' CRITICAL THINKING SKILLS

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**Abstract**

This article explores the use of media resources in education to develop critical thinking (CT) skills. In the modern job market, being competitive requires a range of competencies, including "soft skills," one of which is critical thinking. We discuss the connection between media education and critical thinking, identifying effective strategies for developing students' CT skills by incorporating media resources into university education. While numerous studies have focused on methods for fostering critical thinking, the development of structured, individualized tasks – such as task cards with varying levels of complexity for working with media resources – has been insufficiently explored. Therefore, we propose a series of strategies for critically analyzing scientific articles, digital materials, and media content (video and audio materials), which includes structured, multi-level tasks aimed at developing critical thinking skills among university students. Through these strategies, students learn to analyze and evaluate information, including data from media sources. In our study, we identified critical thinking skills such as analysis, synthesis, causal reasoning, argumentation, and evaluation. We applied L. Starkey's Critical Thinking Test, adapted for a Russian-speaking audience, to assess the level of CT development among students. The study involved n=218 students from psychology and pedagogy-related courses. For statistical analysis of the data, we used the Cramér-Welch criterion, which revealed statistically significant differences between the control and experimental groups. Thus, the use of the proposed media resource strategies not only promotes the development of critical thinking skills but also enhances media literacy among university students.

**Keywords:** critical thinking, critical thinking skills, media resources, media education, media literacy, professional education.

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*Introduction*

In today's world, with the vast flow of information, the ability to think critically has become particularly important for students. They must be able to analyze, interpret, and evaluate information, form their own systematic judgments based on the alignment of scientific facts, norms, standards, and universal human values, as well as develop a critical attitude toward themselves and the surrounding reality. Secondly, critical thinking skills enable students in vocational education to make well-founded decisions based on data and fact analysis, which is especially crucial in the rapidly changing labor market. Thirdly, future professional activities often involve solving multi-level problems, and well-developed critical thinking will aid in finding innovative and effective solutions, among many other benefits. As a result, there is a growing need to create favorable conditions for the development of critical thinking skills in students during their professional training. In our case, this involves identifying effective and productive strategies, methods, and educational technologies. We propose the use of media resources in education, which can significantly contribute to the development of students' critical thinking, as well as enhance media literacy and media competence within the framework of media education theory.

The development of critical thinking in media education theory was most comprehensively developed by L. Masterman (1995, 1997, etc.). Masterman argues that successful media education is driven by several factors: the educator must have a clear understanding of the learning objectives, facilitate effective discussions about these objectives with students, considering their interests, priorities, and motivations; and conduct systematic evaluations and analysis of the lesson's goals. According to A. Fedorov (2003), media education is a process of personal development through and based on the resources of mass communication. Critical thinking concerning the media system is a complex, reflective thinking process that includes stages such as associative perception, analysis, and evaluation of the mechanisms by which media function in society.

In our research, the work of L. Andersson (2021) is particularly relevant. Andersson discusses the importance of media education as a crucial component in fostering critical thinking among students. He emphasizes the need for effective educational strategies aimed at teaching students to recognize media biases and combat misinformation. Andersson highlights that media education helps students not only analyze but also synthesize information, making them more informed and responsible citizens.

Tommasi et al. (2022) explore the NERDVET project, which focuses on developing critical thinking and media literacy among students in vocational education. A key aspect of their study is the application of "self-nudging," a strategy that enables students to manage their cognitive behaviors and make better-informed decisions, especially when interacting with media. The authors illustrate how these tools



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encourage students to not just consume information but to approach it critically, identifying inconsistencies and formulating logical conclusions.

Schmaltz and Lilienfeld (2023) propose an approach to critical thinking development through scientific reasoning. They stress that the skills of a scientist—such as hypothesis testing, skepticism, and the ability to analyze evidence – are fundamental to fostering critical thinking.

These works together provide a comprehensive understanding of how media literacy and scientific methods contribute to developing students' critical thinking skills.

In our research, critical thinking is understood as evaluative-reflective thinking, which allows the subject to determine the reliability and validity of information through analysis, synthesis, and evaluation. It enables individuals to form their own views, develop concepts and beliefs, and make well-founded decisions based on existing knowledge (facts).

Recognizing the importance of critical thinking for students, we turn to the necessary cognitive skills and abilities required for effectively processing information. The foundation of critical thinking includes reasoning, analysis, synthesis, and evaluation (Facione, 2013). R. Ennis identifies 12 key skills that indicate the presence of critical thinking in an individual. These skills relate not only to intellectual abilities but also to certain personal characteristics, such as the ability to demonstrate tolerance for other viewpoints (Ennis, 1982).

In the context of our research, we identified the following critical thinking skills: the ability to analyze and synthesize, identify cause-and-effect relationships, present well-reasoned arguments, and engage in self-assessment and self-correction (Bunt, B., & Gouws, G. 2020; Cáceres, M., Nussbaum, M., & Ortiz, J. 2020; Lu, K., Yang, H. H., Shi, Y., & Wang, X., 2021).

Despite numerous substantial studies on critical thinking, the issue of developing and fostering critical thinking in the context of vocational education is considered some what resolved in both pedagogical and psychological sciences. However, research in this area continues to face significant challenges (Lunenburg, 2011; Brookfield, 2012; Choy and Pou, 2012; Seibu, 2012; Dekker, T. J. 2020).

While research on methods designed to enhance students' critical (reflective) thinking is abundant, the contribution of individualized assignments for analyzing media content in the study of psychological disciplines remains underexplored. Therefore, this study aims to improve our understanding of whether classroom activities can enhance students' critical thinking abilities, complementing the existing body of literature on this subject.

*The purpose and hypothesis of the research*

Thus, this cross-sectional study sought to determine whether there are significant differences in critical thinking between students whose courses were supplemented with a series of individualized tasks involving media resources in education and those who



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followed a non-remodeled curriculum. The working hypothesis is that the use of a series of individual assignments for analyzing media resources in education will significantly enhance students' critical thinking skills.

*Materials and Methods*

The study was conducted at L.N. Gumilyov Eurasian National University and Zhubanov University during the 2023-2024 academic year among third-year students enrolled in the 6B01101 "Pedagogy and Psychology" educational program. A total of n=218 students participated in the research on the subject of "Social Psychology." The control group consisted of 110 students, while the experimental group included 108 students.

To assess the impact of the intervention on students' critical thinking, the Starkey Critical Thinking Test, adapted from the original English version for Russian-speaking participants, was administered to both groups as a pretest and posttest (Lutsenko, 2014).

During the learning process, students complete a series of individual, multi-level tasks. Here is an example:

Multi-level Practical Task:

You are required to read A.L. Tertel's work, "Abilities: How Are Abilities Formed?", which presents evidence on two perspectives. On the one hand, the work argues that abilities are innate, and on the other hand, it provides evidence supporting the view that abilities are socially acquired (see Table 1).

Table 1 – Multi-Level Task Card (Work on a Research Article)

| Level of Difficulty | Task | Score | Reporting Format |
|---|---|---|---|
| First Level (Easy) | Based on the provided material, classify the author's arguments as strong, moderate, weak, or unsound. | 50-60% | Table |
| Second Level (Medium) | Based on your position, try to create counterarguments for the opposing point of view. | 70-80% | Review |
| Third Level (Difficult) | Write a short, well-argued essay of 250 to 300 words, based on your stance on "The Nature of Abilities." | 90-100% | Essay |

The second set of tasks relates to the critical analysis of written resources, such as articles, excerpts from scholarly works, and other internet materials. This work was conducted according to Table 2.

Table 2 – Critical Analysis of a Research Article

| First Level (Easy) | Second Level (Medium) | Third Level (Difficult) |
|---|---|---|



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| | | |
|---|---|---|
| Objective. What is the main objective of the article? | Author's Perspective on Solving the Problem or Question. | Conclusions and Interpretations. Evaluate the article using your own arguments and evidence, identifying its strengths and weaknesses. |
| Problem. What is the primary problem that needs to be addressed? | What arguments, facts, and evidence does the author provide to support their point of view? | Implications. Provide your suggestions for improving the work. |
| Author's Assumptions. What ideas, concepts, or principles does the author rely on or reference? Which motivation theories does the author base their work on? | | |

Another series of tasks is related to video materials. Students fill in Table 3.

Table 3 – Media Resource Work Strategy

| № | Questions | Answers |
|---|---|---|
| 1 | Video Title and Author | Brian Little - Who Are You Really? The Mystery of Personality https://www.youtube.com/watch?v=JUrei_9aVl8 |
| 2 | The Problem Presented by the Author | |
| 3 | Main Idea and Essence of the Presentation | |
| 4 | Analysis of Arguments, Facts, and Evidence | |
| 5 | Proposed Solution to the Problem by the Author | |
| 6 | Evaluation of "For and Against", Persuasiveness, and Feasibility | |

Our work with media resources was organized as follows:
1. Independent work by the student on the given task
2. Pair discussion
3. Group discussion
4. Group evaluation, peer evaluation, and instructor' evaluation


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As a result, an interactive learning environment was created in the classroom, stimulating students' cognitive activity.

*Research results and analysis*

For data measured on a ratio scale, the Cramer-Welch test (Table 4) is an appropriate method to test the hypothesis regarding the equivalence of characteristics between two groups.

$$T_{эмп} = \frac{\sqrt{M \cdot N}\,|\,\overline{x} - \overline{y}\,|}{\sqrt{M \cdot D_x + N \cdot D_y}}$$

Where M is the number of students in the experimental group (EG);
N is the number of students in the control group (CG);
x and y are the sample means;
Dx and Dy are the variances of the EG and CG, respectively.

For each indicator, we compare the data in the control and experimental groups before the start of the experiment. We calculate the Welch's t-test (also known as the Welch's correction or Welch's t-test) criterion and compare it with the critical value of T = 1.96. The empirical value of this criterion is calculated based on the sample sizes M = 108 and N = 110, the sample means x = 75 and y = 72, and the sample variances Dx = 121 and Dy = 119.

Table 4 – Welch's Criterion (Cramér-Welch Criterion)

| Stages | Empirical Values of the Welch's Criterion (T_emp) | | | | | Results | Coefficient |
|---|---|---|---|---|---|---|---|
| | Analy-sis | Synt-hesis | Establishing the causal relationships | Argumenta-tion | Evalua-tion | | |
| Before the experiment | 1,86 | 0,13 | 1,85 | 0,04 | 0,49 | < | *1,96* |
| After the experiment | 5,41 | 2,42 | 3,53 | 2,08 | 5,08 | > | *1,96* |

Regarding the first indicator, "analysis," the value of T_emp = 1.86 < 1.96. As shown in the table, before the experimental work, the criterion for all critical thinking indicators in the control and experimental groups was below the critical value of 1.96. Similarly, we compare the characteristics of the control and experimental groups before and after the experiment according to other indicators (synthesis, PSS, argumentation, evaluations). The computed empirical values (T_emp) before the experiment for synthesis, establishing the causal relationships, argumentation, and evaluations were: 0.13; 1.85; 0.04; 0.49, all of which are below the critical value. Therefore, the level of


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critical thinking development in both the control and experimental groups before the experiment was statistically insignificant.

Results for the critical thinking indicators of the control and experimental groups after the experiment showed that the value for the "analysis" indicator was T_emp = 5.41 > 1.96. We then compared the characteristics of the control and experimental groups at the end of the experiment. The empirical values for these indicators were: 2.42; 3.53; 2.08; 5.08, all of which are greater than the critical value of 1.96. Consequently, the significance of the differences between the characteristics of the control and experimental groups after the experiment is 95%. These results also demonstrate the effectiveness of the proposed model for teaching critical thinking to university students.

*Conclusion*

The use of media resources in education offers the following advantages:

– Media resources provide a vast amount of content from various sources, such as audio and video materials, e-books, scientific articles, lectures by scholars, and much more. Working with these resources, students learn to analyze, structure, assess the objectivity and reliability of the presented information. This develops their critical thinking skills and the ability to distinguish facts from opinions.

– Media resources often present different viewpoints on the same topic. Students can compare and contrast these perspectives, identify potential contradictions, and examine the issue from various angles. This helps develop argumentation skills and the ability to justify their thoughts.

– While working with media resources, students learn to formulate their thoughts and arguments based on the information they have gathered. They develop the ability to logically structure their statements, analyze the arguments of others, and identify weaknesses in their reasoning.

– Working with media resources, students may encounter tasks that require solving specific problems or making decisions based on the analysis of presented data. This promotes the development of their logical thinking and decision-making abilities.

– The use of media resources allows students to become more media literate, which includes the ability to understand how information is created and disseminated, as well as the methods used to influence the audience. This helps develop critical thinking regarding media messages and their potential manipulative nature.

In conclusion, media resources not only enrich the learning process but also actively develop critical thinking skills, which is an essential element in preparing students to analyze information in real-life situations and make well-grounded decisions.



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**ЖОО білім алушыларының сыни ойлау қабілеттерін дамыту үшін оқытуда медиаресурстарды қолдану**

**Аңдатпа.** Бұл мақалада сыни тұрғыдан ойлау (СО) дағдыларын дамыту үшін оқытуда медиа ресурстарды пайдалану мәселесі қарастырылады. Қазіргі еңбек нарығында бәсекеге қабілетті болу үшін бірқатар құзыреттіліктерге, соның ішінде білім алушылардың сыни ойлауын қамтитын «soft skills» шеңберінде болуы қажет. Университеттік білім беру жүйесіне медиа ресурстарды енгізу арқылы студенттердің сыни ойлауын дамытудың тиімді стратегияларын анықтай отырып, медиа білім мен сыни ойлаудың байланысы талқыланады. Көптеген зерттеулер студенттердің сыни ойлауын қалыптастыру және дамыту әдістері мен құралдарына арналған, алайда құрылымдық жеке тапсырмаларды әзірлеу - медиа ресурстармен, медиаконтентпен жұмыс істеудің күрделілік деңгейіне сәйкес тапсырмалар карталарын, нәтижелері бойынша зерттеулер жеткілікті зерделенбеген. Осыған орай, университет студенттерінің сыни ойлау дағдыларын дамытуға бағытталған құрылымдық көп деңгейлі тапсырмаларды қамтитын ғылыми мақалаларды, цифрлық материалдарды, медиа ресурстарды (бейне-аудио материалдар) сыни талдау стратегияларының топтамасы ұсынылады. Сыни тұрғыдан ойлауды дамытудың осы стратегияларын қолдану барысында студенттер ақпараттарды, соның ішінде медиа-ресурстардағы деректерді талдау мен бағалауды үйренеді. Зерттеу барысында сыни тұрғыдан ойлаудың келесі дағдылары анықталады: талдау, синтез, себеп-салдар байланысын орнату, дәлелдеу және бағалау. Орыстілді аудиторияға бейімделген Л. Старкидің сыни тұрғыдан ойлау тестін білім алушылардың сыни тұрғыдан ойлауының даму деңгейін бағалау үшін пайдаланылды. Психологиялық-педагогикалық цикл пәндерін оқу барысында зерттеуге n=218 студент қатысты. Алынған мәліметтерді математикалық талдау үшін бақылау және эксперименттік топтар арасындағы айырмашылықтардың статистикалық маңыздылығын анықтаған Крамер-Уэлч тесті қолданылды. Осылайша, медиа ресурстармен жұмыс істеудің ұсынылған стратегияларын пайдалану студенттердің сыни ойлау қабілетін дамытуға, сонымен қатар университетте студенттердің медиа сауаттылығын қалыптастыруға да ықпал етеді.

**Кілт сөздер**: сыни ойлау, сыни тұрғыдан ойлау дағдылары, медиа ресурстар, медиа білім, медиа сауаттылық, кәсіби білім.

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**Использование медиаресурсов в обучении для развития умений критического мышления обучающихся в ВУЗе**

**Аннотация**. В данной статье изучается вопрос использования медиаресурсов в обучении для развития умений критического мышления (КМ). В современном рынке труда, чтобы быть конкурентоспособным необходимо обладать рядом компетенций в то числе из области «soft skills», которое включает критическое мышление обучающихся. Мы обсуждаем связь медиаобразования с критическим мышлением, определяя эффективные стратегии развития критического мышления обучающихся через внедрения медиаресурсов в обучение в вузе. Множество исследований посвящено методам и способам формирования и развития критического мышления обучающихся, однако разработки структурированных индивидуальных заданий - карточки заданий по уровню сложности для работы с медиаресурсами, медиакотнентом, по результатам нашего исследования изучалось недостаточно. В связи с этим, мы предлагаем серию стратегий критического анализа научных статей, цифровых материалов, медиаресурсов (видео-аудио материалы), которая включает структурированные разноуровневые задания, нацеленные на развитие умений критического мышления обучающихся вузов. В процессе применения данных стратегий развития критического мышления, обучающиеся учатся анализировать и оценивать информацию, включая данные из медиаресурсов. В нашем исследовании мы выделили следующие умения критического мышления такие как анализ, синтез, установление причинно-следственных связей, аргументация и оценка. Мы применяли тест критического мышления Л. Старки, адаптированный для русскоязычной аудитории, для оценки уровня сформированности критического мышления обучающихся. В исследовании участвовали n=218 обучающихся, при изучении дисциплин психолого-педагогического цикла. Для математического анализа полученных данных, мы использовали критерий Крамера-Уэлча, который выявил статистическую значимость различий между контрольной и экспериментальной группах. Таким образом, использование предложенных стратегий работы с медиаресурсами также будет способствовать развитию умений критического мышления среди обучающихся, а также формировать медиаграмотность обучающихся в вузе.

**Ключевые слова**: критическое мышление, умения критического мышления, медиаресурсы, медиаобразование, медиаграмотность, профессиональное образование.


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