

THE ROLE OF CRITICAL THINKING IN FORMING STUDENTS' RESEARCH COMPETENCE

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Abstract. This article will define the role of the critical thinking strategy in the development of students' research competencies. The study reports that research-oriented learning refers to the type of learning that improves students' critical thinking and enhances student engagement. Conclusions are presented based on the outcomes of both shortened and complete practical lessons. It is noted that students with critical thinking develop the ability to correctly select and analyze information from various sources and give them a critical assessment. The definition of information literacy as a form of critical thinking is given. The purpose and objectives of the study are explained. The ideas of various scientists who have studied the skills of critical thinking and conducting research are compared, on the basis of which conclusions are drawn. For the formation of research competence, some forms of training and pedagogical methods are proposed. For the development of critical thinking and research skills, an analysis is carried out based on samples of shortened and full lessons on the discipline "Constructive teaching methodology". At 2 different stages, the lesson plan is discussed, the criteria for success, success / failure of the lesson are identified, and a reflective analysis is carried out. The results obtained mean that the ability of students to think critically is important for understanding, analyzing and evaluating information by students.

Keywords: critical thinking, student, research competence, information literacy, research work, group work, shortened lesson, full lesson sample

Basis provisions

Science and technology are currently progressing at an extremely fast pace. Students have to understand science and technology to critically evaluate the impact and positive effects of technological advancement on the natural and social environments in society. Actions focused on providing excellent instruction to students cannot be separated from the educational process. One such initiative was to reorganize the Department of Education's curriculum around scientific endeavors that might be carried out with the scientific method. The technique incorporates observation, questions, actions, reasoning, and interaction. Students are those who actively seek, process, produce, and apply knowledge. Students should be able to develop knowledge during the learning process. One of the fundamental talents required in the modern era is the ability to think critically [1].

Introduction

Critical thinking is widely recognized as a key skill in education, enabling students to think critically, analyze information, and make informed decisions. In recent years, more attention has been paid to developing students' research competence, including the ability to collect, evaluate, and synthesize information from a scientific perspective. However, despite the importance of critical thinking and research competence in education, there is a significant gap in research regarding the specific role of critical thinking in building students' research competence.

Existing research focuses on critical thinking as a general cognitive skill without specifically examining its relationship to research competence. To fill this gap, more research is needed to explore how critical thinking skills such as analysis, assessment, and problem-solving affect students' ability to conduct research effectively. In addition, the study of learning strategies and approaches that promote critical thinking in the context of research competencies enhances students' research skills and academic achievement.

Many scholars debate the importance of critical thinking in education. However, their works did not specifically study the influence of critical thinking on students' research competence [2].

Critical thinking is an integrated learning experience comprising the examination of knowledge, the pursuit of truth, and the transformation of incorrect information into creative thoughts. Furthermore, critical thinking is a meta-cognitive procedure encompassing multiple skills like analyzing, synthesizing, evaluating, and effectively summarizing viewpoints or solutions to address a problem [3]. In light of the above perspectives, it can be deduced that critical thinking is the capacity to scrutinize, appraise, and substantiate incorrect information.

Participating in research attempts can considerably improve critical thinking; hence research-based activities are important in cultivating critical thinking. Students' critical thinking skills improve when they are exposed to research-based disciplines like science. The authors admit that many teachers use the lecture method in teaching physics does not contribute to the mastery of physical concepts [4]. As a result, learners lacked problem-solving skills and were unable to apply what they had learned. This viewpoint affects not just physics teachers, but also professors who teach philology and language teaching strategies. Afterward, meaningful learning, regarded as the polar opposite of the lecture technique, can potentially boost students' overall understanding. Using an active learning strategy can improve students' motivation. The learning model should be integrated appropriately to improve students' critical thinking skills. According to this problem, the learning model is considered to be research based learning model with a science, environment, technology, and society approach.

The purpose of the study is to determine the role of critical thinking in the formation of students' research competence.

To achieve the goal of the research, the following tasks were implemented:

- to review and analyze the domestic and foreign literature that deals with the concepts of critical thinking and research competence;
- to analyze the results of teaching forms and methods used in practical classes.

Research based learning with a science, environment, technology, and society approach is expected to help students solve problems and improve “higher-level thinking skills, one of which is critical thinking. Research scientists have concluded: Research based learning is a multi-faceted form of learning that refers to different types of learning, such as using simple research methods that conduct all student learning outcomes through experimentation and field research” [5].

Research based learning allows students to formulate problems, consider theories, build hypotheses, collect data, analyze data, and draw conclusions about the results obtained. Research is the activity of identifying, developing, and verifying the reliability of knowledge and summarizing the obtained results [6], [7].

“Information literacy is a form of critical thinking: often these terms are used interchangeably. But an information literate person specifically uses critical thinking to combat our informative being.” “Critical thinking in higher education can be stimulated and reinforced through specific course structures and tasks that require the use of library resources. The main task of the academic library is to support the institution's educational program. Wills reports that “Researchers observed that most students were satisfied with their ability to evaluate information on the Internet, although if they could judge, they most likely looked at the information superficially.” Students think that any resources relevant to the topic can be used in their research [8].

The teacher's responsibility is to establish a thinking model that views the future with its causes and implications and urges learners to always think critically when addressing challenges.

Many scholars have examined the contributions of educators in enhancing students' critical thinking abilities, the implementation of critical teaching methods to stimulate students' learning [9], as well as the cultivation of communication and reflective skills [10].

Daily classroom assignments and exams are usually used to develop students' critical thinking skills. If teachers can engage students in everyday work using appropriate teaching methods, students will improve their critical thinking skills. In other words, what students do in courses is more important than how instructors teach courses. In his research on attracting students to higher education, A. Astin found tasks such as conducting a presentation, and working with critical articles, and suggested that the level of critical thinking of students increases when using such tasks [11].

R. Ennis, emphasizing the multifaceted nature of critical thinking, presents a structure of critical thinking aptitudes and abilities. Although his work recognizes the importance of critical thinking in education, it does not specifically address its relationship with students' research competence [12].

D. Halpern offers an introduction to critical thinking, exploring its applications in various fields. However, the author does not specifically study the impact of critical thinking on research competence [13]. The author concentrates on scientific thinking and its growth, which has a direct connection to research capability.

However, the author's extensive study does not directly address the function of critical thinking in developing students' research skills.

L.M. Iskakova in her work noted M.E. Nurgalieva's opinion that "Thinking activity, research work is recognized at the highest stage of increasing the intellectual potential of students. Therefore, it is better to use the possibilities of other forms of education to increase the intellectual potential of students. However, opportunities of this objective type can be realized only if students' educational and research activities are properly organized in classes. Being the highest level of students' logical thinking activity, study, and scientific research work affects the formation and development of logical thinking activity in them, expressed the opinion that the future specialist is a full self-expression during his studies at higher educational institutions" [14].

Critical thinking involves a variety of skills such as analysis, evaluation and synthesis. Analysis is a critical thinking skill used to detect, examine and identify the propositions within an argument and the role they play. Evaluation is used in assessing propositions and the conclusions they infer with respect to their reliability, relevance, logical strength and the potential for omissions, bias and imbalance in the argument; thus, deciding the overall strength or weakness of the argument. Synthesis includes the collection of reliable, relevant and logical evidence based on the previous analysis and evaluation of existing evidence for the purpose of drawing a reasonable conclusion. In order for critical thinking to develop to an optimal level, related metacognitive processes may be needed to support both critical thinking skill development and the successful application of critical thinking to real-world problems [15]. Here it is understood that research proficiency could be improved by means of skills mentioned above.

Materials and methods

The target of this study was to improve students' critical thinking skills in the formation of their research competence during a 15-week "Constructive teaching methodology". The relevance of the course was to improve students' research skills through working in teams.

The most relevant teaching forms and pedagogical methods were proposed for the formation of research competence during the lessons of constructive teaching methodology. For example, individual work, group work, brainstorming, etc. It was effective to use the methods such as "Visiting groups", "Journalist and people", "Hot chair" in education to form students' cognitive skills, develop their ability to think critically and their research competence. In improving critical thinking, group work was considered to be an effective form of teaching.

Plans of practical lessons on the subject of constructive teaching methodology have been developed. For each lesson, students were given methodological instructions for completing tasks. At the end of the lesson, a reflective report was made based on the results shown by the students.

The study consisted of 2 stages.

15 practical lessons and 5 students' independent work with a teacher were held without changing the instructions for completing the task.

“Teacher's attitude in combining students' critical thinking and research competence classes were held on the topics “Successful teaching and a competent teacher”, “Metacognition skills”, “Group work goals”, “The importance of classroom dialogue”, “Analysis and clarification of pedagogic methods aimed at overcoming barriers to learning, including age-specific problems”, “Pedagogical strategy of ICT”, “Cognitive development and age characteristics. Reading. Attention. Memory. Speaking; Thinking. Opinion; “Creativity”, “Discovering the talents and talents of students”, “Development of critical thinking through dialogue”, “Assessment for learning and evaluation of learning”.

The instructor worked out lesson plans for each topic. For the purpose of developing research competence, the most used form of teaching was group work.

In the 1st stage of the research, the group work task was given various information related to the topics in the syllabus, students worked in groups with pieces of information, conducted a research conversation in the group, found the main ideas given in the information, and formulated open-ended questions based on the information. Methodical instructions for completing the tasks were not given to students for each lesson. At the end of the lesson, there was no reflective report on whether the instructions were clear/not clear based on the results shown by the learners.

In the 2nd stage of the research, the students defended presentations on the given topic and answered open-ended questions.

For each lesson, students were given methodological instructions for completing tasks. At the end of the lesson, based on the results of the students, a reflective report was made on whether the instructions were clear/not clear.

Next the researchers offered the models of shortened lessons.

1st shortened lesson model:

“Teaching critical thinking and giving an understanding of critical thinking” was the topic of the lesson. To develop and increase the understanding of critical thinking by receiving, understanding, evaluating and analyzing information with a conscious mind was the purpose of the lesson. Within the framework of this module, I conducted classes on the subject “Methodology of constructive teaching” among the specialties “Kazakh language and literature”, and “Foreign language: two foreign languages” at the university. 15 minutes were given for group work with handout material, 3 minutes was enough for defending for each group. Students learned how to critically analyze and evaluate, make decisions and conclusions based on evidence and gather relevant information. Students worked in groups of 4. Task instructions included taking notes of main ideas, making a glossary with keywords, putting open-ended questions, and time management. The type of method used during the lesson was the “Journalist and people” method and it took 15 minutes to cope with the task. Each group prepared 5 open-ended questions on the discussed issues. After preparation, 1 student from each group visited other groups, got familiar with the questions, returned, and told the group members about the questions, 1 student from each group went to the blackboard to answer the questions. When working without instructions, there were shortcomings such as inefficient use of time, scattered

thoughts, and incorrect formulation of open-ended questions. When working through the manual, students used time efficiently and were able to convey ideas clearly, and open-ended questions were formulated at a competent level.

2nd shortened lesson model:

The topic was “Study of the article on the given topics using ICT”. The purpose was to improve students' critical thinking skills. The lesson had 2 steps. In the first step working in 2 large groups was organized. The task of group 1 was filling in the tables using different websites. The task of 2nd group was filling in the tables without the help of aids.

Table 1 - Focus on the functions of education, discover its meaning

The task of didactics	The combination of theoretical knowledge and practical experience is an objective of didactics. Education success relies heavily on the integration of theory and practice.	Joint activities of the teacher and students. Students used mostly the googlescholar.com website
Teaching is	Teaching involves an agent, an end goal, and two sets of factors: those beyond the agent's control (e.g., class size, student characteristics, and physical facilities) and those under the agent's control (e.g., teaching techniques and strategies).	Scientific justification of educational content, teaching methods and teaching organization
Learning process	To encourage kids to actively engage in learning and build critical thinking and problem-solving skills, it's important to ask 'How do we do it?' How can we encourage students to take responsibility for their own learning and become more self-aware about how and what they learn?	Activities to stimulate students' scientific knowledge, business, skills, development of creative abilities

Table 2 - Focus on the functions of education, discover its meaning

Knowledge	Knowledge is an idea, like gravity. You can't see it, but you can watch its effects. Knowledge, unlike financial and capital assets, is often overlooked by individuals and organizations due to its intangible nature.	Signs	Representational. Example: “ <i>Pets are not allowed</i> ”; “ <i>Painted</i> ”
			Computational
			Completeness
			Half of a realistic picture
Pictures of impossible worlds			
Managing	Managing integrates people, procedures, and technology to improve information	Educational and managing	Educational administration involves a wide range of administrative, strategic, and pedagogical tasks designed to

	utilization and sharing inside a company.		improve learning outcomes and institutional effectiveness. Educational managers collaborate with various stakeholders, including teachers, students, parents, and policymakers, to develop and implement policies that enhance educational quality and equity. They oversee curriculum development, assessment strategies, and instructional methodologies, ensuring coherence and relevance in the educational experience. Educational managers drive innovation and transformation within educational institutions. They use data and research findings to discover emerging trends and best practices, which drives continuous improvement projects.
Skill	1.Critical thinking skills. 2.The process of searching, synthesising, and disseminating information. 3.Creativity and innovation skills. 4.Collaborative skills. 5.Communication skills.	Types	Problem-solving, complexity management, higher-order thinking, good reasoning, and project planning/management. Collecting and analyzing data. To create new ideas, products and processes. Negotiation, collecting knowledge, project teams. Successfully and meaningfully conveying information and ideas to diverse audiences through various media

According to success criteria, the students learned to critically analyze, argue, and gather relevant information. When working without the use of ICT, deficiencies were encountered in filling out the table. The main disadvantage was not being able to use additional information. The success point was being able to use time efficiently. When working through the manual, students used their time efficiently, filled out the table correctly, and there were no mistakes. The success point was the correct use of the ability to use additional information. The main disadvantage was the inefficient use of time when working with various kinds of information on the website.

15 lessons were held, and reflection was made, which means the discussion was held. Effective conducting of research had some effect on the improvement of students' critical thinking and research competence. Full lesson example is given using the table.

Table 3 - Full lesson plan on the subject “Constructive teaching methodology”

Study Group	K-19-1
Specialty	Kazakh language and literature
Type of lesson	Practical
Topic	Cognitive development and age characteristics. Reading. Attention. Memory. Speaking. Thinking. Opinion. Creativity
General purpose	Development and stabilization of students' cognitive development, learning ability, attention, speaking skills, critical thinking, justification and creative intellectual abilities.
Educational results	Depending on age, students' cognitive development, learning ability, attention, speaking skills, thinking, reasoning and creative intellectual abilities have achieved development and stabilization based on various methods and positions.
Key ideas	Teaching teachers to form “own goals” taking into account the age characteristics and educational levels of students. Actively participating in the learning process, determining what they know, what they can do, what they are interested in, what they like, what they want to do.
<i>Step 1</i> <i>Task 1.</i>	Formation of episodic memory-8 minutes Inspirational video “You can do this”. Memorize the plot and refresh the thinking. Students see and tell their thoughts about the plot.
<i>Task 2</i> <i>Working in teams</i>	To create opportunities and make students feel responsible by taking into account the peculiarities of their behavior according to their age-15 minutes Combining students into groups using the “apple, pear, cherry, and banana” method. Tasks are given to 4 groups. They defend it through an oral presentation. 1. Approaches to the learning process in terms of age characteristics 2. Attention and memory in terms of age characteristics 3. Speech and thinking in terms of age characteristics of students 4. Moral reasoning
<i>Task 3</i>	<i>Merge the group into 2 groups by numbering</i> Group work based on critical thinking. Formation of episodic memory Identify positive and negative factors from the film. The 1-st episode of the film “Bir Toksan” is recommended for watching. Group members identify social, physical, personal factors of the student and make a table, one person from each group defends- <i>10 minutes</i>
<i>Task 4</i>	“Journalist and people” method - 10 minutes Each group prepares 5 open-ended questions on the discussed issues. After preparation, 1 student from each group visits other groups, gets familiar with the questions, returns and tells the group members about the questions, 1 student from each group goes to the blackboard to answer the questions (hot chair).
<i>Feedback</i>	KWL scheme- 5 minutes
<i>Success criteria:</i>	Students learned to analyze the material and prove their ideas.
<i>Reflection:</i>	<i>Disadvantage:</i> not being able to formulate open-ended questions competently. <i>Success point:</i> being able to use time efficiently.

Conclusion	3 minutes

When working through the manual, students used time efficiently, performed tasks correctly, and had shortcomings in working with open-ended questions.

Results and discussion

The study focused on identifying effective teaching forms and pedagogical methods to cultivate research competence in students within the context of constructive teaching methodology. The selected teaching forms and methods included individual work, group work, and brainstorming, visiting groups, hot seat, journalist and people, among others. The study findings revealed that certain methods, namely the “Visiting groups”, “Journalist and people”, “Hot chair” were particularly effective in fostering students' cognitive skills, critical thinking abilities, and research competence. Group work also emerged as a valuable form of teaching for enhancing critical thinking.

Teaching Methods for Research Competence Development

The study emphasized the significance of employing diverse teaching methods to nurture research competence. In the initial phase of the research, group work was chosen as the primary teaching form. During these sessions, students were tasked with processing various information related to the syllabus topics, working collaboratively in groups, engaging in research discussions, extracting key ideas from the provided information, and formulating open-ended questions based on the material. Notably, no methodological instructions were given to students during this stage, and there was no reflective report assessing the clarity of instructions or the quality of the students' work.

In the second stage of the research, students were required to defend projects related to the assigned topics and respond to open-ended questions. This phase involved the provision of methodological instructions for each lesson, followed by reflective reports to evaluate the clarity and effectiveness of these instructions.

The results from this two-stage approach revealed that when students worked without specific instructions, several issues emerged, including inefficient use of time, disorganized thoughts, and poorly formulated open-ended questions. Conversely, when students followed methodological instructions, they exhibited improved time management, clarity in conveying ideas, and a higher level of competence in formulating open-ended questions.

Shortened Lesson Models

Two shortened lesson models were developed to further explore the effectiveness of teaching critical thinking and research competence. These models aimed to enhance students' critical thinking skills through the utilization of different teaching approaches.

In the first shortened lesson model, students engaged in group work and utilized the “Journalist and People” method to develop open-ended questions related

to the discussed issues. The reflective analysis indicated that working without instructions led to inefficiencies, scattered thoughts, and poorly formulated questions. In contrast, following methodological instructions resulted in efficient time management, clear communication of ideas, and competent open-ended question formulation.

The second shortened lesson model centered on the use of information and communication technology (ICT) to study articles on specific topics. While working without ICT, students encountered difficulties in filling out tables and utilizing additional information effectively. However, when provided with methodological instructions, students improved their time management, correctly completed the tasks, and demonstrated better use of supplementary information.

Full Lesson Example

A comprehensive lesson plan was developed, focusing on cognitive development, age characteristics, reading, attention, memory, speaking, thinking, opinion, and creativity. This lesson incorporated various teaching methods, including inspirational videos, group activities, critical thinking exercises, and collaborative discussions. The feedback collected through a KWL scheme and a concluding discussion highlighted that students learned to analyze materials critically and effectively present their ideas.

Conclusion

Students' research in science, environment, technology, and society has a significant impact on improving problem-solving and higher-order thinking skills. A student with information literacy, as a person with developed critical thinking skills, can work with various data, find problematic situations, and find ways to solve them.

Through critical thinking strategies, learners work with a variety of sources, resulting in students' research competence.

In the “Methodology of Constructive Teaching” lesson, students learn to freely express their critical views, understand information, grasp the main ideas, and express the main idea. In addition, they learn to search for different information related to the topic on various websites and analyze and evaluate them.

The study revealed that the use of methodological instructions significantly enhanced the effectiveness of teaching methods, leading to improvements in critical thinking and research competence among students. Furthermore, the integration of diverse teaching forms, such as group work and collaborative discussions, played a crucial role in achieving these educational outcomes. These findings underscore the importance of clear and structured instructional approaches in fostering essential cognitive skills and research competence in students, which are fundamental for their overall academic and intellectual development.

Based on the findings and discussions presented in this study, several recommendations can be made to enhance the development of research competence and critical thinking skills in students using constructive teaching methodology:

Incorporate Methodological Instructions: It is crucial to provide clear and comprehensive methodological instructions for each lesson. These instructions should

guide students in understanding the objectives of the lesson, the tasks to be performed, and the expected outcomes. This structured approach can help students work more efficiently and effectively.

Utilize Diverse Teaching Forms: Continue to employ a variety of teaching forms and pedagogical methods, including group work, brainstorming, and collaborative discussions. These diverse approaches engage students in different ways, catering to various learning styles and fostering a well-rounded skill set.

Integrate Technology Thoughtfully: When utilizing information and communication technology (ICT) in lessons, ensure that students are well-prepared and guided in using the technology effectively. Provide clear instructions and support to minimize technological barriers and maximize the benefits of ICT for critical thinking and research competence development.

Promote Reflective Practices: Encourage students to engage in reflective practices after each lesson. Reflective reports can help students assess their own understanding, identify areas of improvement, and provide feedback to educators on the clarity of instructions and the effectiveness of teaching methods.

Implement Shortened Lesson Models: Incorporate shortened lesson models, such as the ones presented in this study, to reinforce specific skills or concepts. These models can serve as focused interventions to enhance critical thinking and research competence in targeted areas.

Facilitate Collaborative Learning: Continue to emphasize group work and collaborative activities that require students to work together, share ideas, and engage in meaningful discussions. Collaborative learning promotes critical thinking, problem-solving, and the exchange of diverse perspectives.

Assess Student Progress: Implement regular assessments and evaluations to gauge student progress in critical thinking and research competence. Use both formative and summative assessments to measure growth over time and identify areas where additional support may be required.

Encourage Student Ownership: Promote student agency and ownership of their learning process. Encourage students to set their own goals, actively participate in class, and take responsibility for their academic development.

By implementing these recommendations, educators can create a more conducive learning environment that empowers students to develop essential critical thinking skills and research competence, preparing them for success in both academic and real-world contexts.

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СЫН ТҮРҒЫСЫНАН ОЙЛАУДЫҢ СТУДЕНТТЕРДІҢ ЗЕРТТЕУШІЛІК ҚҰЗЫРЕТТІЛІГІН ҚАЛЫПТАСТЫРУДАҒЫ РӨЛІ

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Аңдатпа. Аталмыш мақалада сыни тұрғысынан ойлау стратегиясының білім алушылардың зерттеушілік құзыреттілігін дамытудағы рөлі айқындалады. Зерттеуде ғылыми зерттеуге бағытталған оқытудың студенттердің сыни тұрғыдан ойлау қабілетін жетілдіріп,

студенттердің белсенділігін арттыратын оқыту түріне жататыны туралы баяндалады. Қорытындылар қысқартылған және толық практикалық сабақтардың нәтижелері бойынша ұсынылған. Сыни ойлау қабілеті бар білім алушылардың әртүрлі дереккөздердегі ақпаратты дұрыс таңдап, талдап, оларға сыни тұрғыдан баға беру біліктілігі дамитыны жөнінде айтылады. Сыни тұрғыдан ойлау қабілетінің бір түрі ретінде ақпараттық сауаттылықтың анықтамасы беріледі. Зерттеудің мақсаты мен міндеттері түсіндіріледі. Сыни ойлау дағдысы мен зерттеуді жүргізу туралы зерттеген түрлі ғалымдардың идеялары салыстырылып, соның негізінде қорытынды жасалады. Зерттеушілік құзыреттілікті қалыптастыру үшін кейбір оқыту формалары мен педагогикалық әдістер ұсынылады. Сыни ойлау және зерттеу дағдыларын дамыту үшін «Конструктивтік оқыту әдістемесі» сабағы бойынша ықшамдалған сабақ үлгілері бойынша талдау жасалады. 2 түрлі кезең бойынша сабақ жоспары талқыланып, сабақтың табыс критерийі, сәтті/сәтсіз тұстары айқындалып, рефлексиялық талдау жасалады. Алынған нәтижелер студенттердің сыни тұрғыдан ойлау қабілеті білім алушылардың ақпаратты түсініп, талдап, оған баға беруде маңызды екенін білдіреді.

Тірек сөздер: сын тұрғысынан ойлау, студент, зерттеушілік құзыреттілік, ақпараттық сауаттылық, ғылыми-зерттеушілік жұмыс, топтық жұмыс, ықшам сабақ, толық сабақ жоспары

РОЛЬ КРИТИЧЕСКОГО МЫШЛЕНИЯ В ФОРМИРОВАНИИ ИССЛЕДОВАТЕЛЬСКОЙ КОМПЕТЕНТНОСТИ СТУДЕНТОВ

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Аннотация. В данной статье будет определена роль стратегии критического мышления в развитии исследовательских компетенций обучающихся. В исследовании сообщается, что обучение, ориентированное на научные исследования, относится к типу обучения, которое улучшает критическое мышление студентов и повышает вовлеченность студентов. Выводы представлены по результатам как сокращенных, так и полных практических занятий. Отмечается, что у обучающихся с критическим мышлением развивается умение правильно выбирать и анализировать информацию из различных источников и давать им критическую оценку. Дается определение информационной грамотности как формы критического мышления. Объясняются цель и задачи исследования. Сравниваются идеи различных ученых, изучавших навыки критического мышления и проведения исследований, на основе которых делаются выводы. Для формирования исследовательской компетентности предлагаются некоторые формы обучения и педагогические методы. Для развития критического мышления и исследовательских навыков проводится анализ по укороченным образцам уроков по дисциплине «методика конструктивного обучения». По 2 различным этапам обсуждается план урока, выявляются критерии успешности, успешности/неудачи урока, проводится рефлексивный анализ. Полученные результаты означают, что способность учащихся к критическому мышлению важна для понимания, анализа и оценки информации учащимися.

Ключевые слова: критическое мышление, студент, исследовательская компетентность, информационная грамотность, научно-исследовательская работа, групповая работа, сокращенный урок, полный образец урока

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