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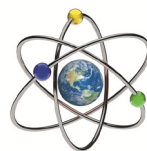
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- 13.00.00 Pedagogika fanlari
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- 13.00.02 Ta'lim va tarbiya nazariyasi va metodikasi (sohalar bo'yicha)
- 13.00.03 Maxsus pedagogika
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- 13.00.05 Kasb-hunar ta'limi nazariyasi va metodikasi
- 13.00.06 Elektron ta'lim nazariyasi va metodikasi (ta'lim sohaları va bosqichlari bo'yicha)
- 13.00.07 Ta'limda menejment
- 13.00.08 Maktabgacha ta'lim va tarbiya nazariyasi va metodikasi
- 13.00.09 Ijtimoiy pedagogika
- 07.00.00 Tarix fanlari
- 19.00.00 Psixologiya fanlari
- 01.00.00 Fizika-matematika fanlari
- 02.00.00 Kimyo fanlari
- 03.00.00 Biologiya fanlari
- 09.00.00 Falsafa fanlari
- 10.00.00 Filologiya fanlari
- 11.00.00 Geografiya fanlari

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DEVELOPMENT OF ADOLESCENT THINKING AND ITS PSYCHODIAGNOSTICS AND PSYCHOCORRECTION

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Abstract: This article examines the theoretical and practical foundations of the psychodiagnostics and psychocorrection of students' thinking processes. The study analyzes the developmental characteristics of abstract thinking, metacognitive abilities, and critical thinking during adolescence. Psychodiagnostic methods for assessing students' systemic, logical, and creative thinking are classified.

Based on the findings of an experimental study, the effectiveness of the psychocorrectional program "Social Thinking and Me" is evaluated. The study also substantiates the pedagogical and psychological conditions necessary for fostering independent and critical thinking and highlights the role of innovative educational approaches in enhancing students' cognitive development. The findings have substantial practical significance for practicing psychologists, educators, and school professionals.

Key words: thinking processes, psychodiagnostics, psychocorrection, adolescence, systemic thinking, logical thinking, creative thinking, critical thinking, metacognition, independent thinking, cognitive development, psychocorrectional program, educational psychology.

Annotatsiya: Mazkur maqolada o'quvchilarning tafakkur jarayonlarini psixodiagnostika qilish va psixokorreksiya qilishning nazariy hamda amaliy asoslari yoritilgan. Tadqiqotda o'smirlik davrida abstrakt tafakkur, metakognitiv qobiliyatlar va tanqidiy fikrlashning rivojlanish xususiyatlari tahlil qilingan. O'quvchilarda tizimli, mantiqiy va ijodiy tafakkurni aniqlashga xizmat qiluvchi psixodiagnostik metodlar tasniflangan.

Eksperimental tadqiqot natijalari asosida, xususan, "Ijtimoiy tafakkur va men" psixokorreksion dasturining samaradorligi baholangan. Shuningdek, mustaqil va tanqidiy fikrlashni rivojlantirishga xizmat qiluvchi pedagogik hamda psixologik shart-sharoitlar, innovatsion ta'lim yondashuvlarining ta'siri ilmiy asoslangan. Tadqiqot natijalari amaliyotchi psixologlar, pedagoglar va umumiy o'rta ta'lim muassasalari mutaxassislari faoliyatida foydalanish uchun muhim amaliy ahamiyatga ega.

Kalit so'zlar: tafakkur jarayonlari, psixodiagnostika, psixokorreksiya, o'smirlik davri, tizimli tafakkur, mantiqiy tafakkur, ijodiy tafakkur, tanqidiy fikrlash, metakognitsiya, mustaqil fikrlash, kognitiv rivojlanish, psixokorreksion dastur, pedagogik psixologiya.

Аннотация: В статье раскрываются теоретические и практические основы психодиагностики и психокоррекции мыслительных процессов учащихся. Исследуются особенности развития абстрактного мышления, метакогнитивных способностей и навыков критического мышления в подростковом возрасте. Представлена классификация психодиагностических методов, предназначенных для оценки системного, логического и творческого мышления учащихся.

На основе результатов экспериментального исследования проанализирована эффективность психокоррекционной программы "Социальное мышление и Я". Обоснованы педагогические и психологические условия развития самостоятельного и критического мышления, а также влияние инновационных образовательных подходов на совершенствование мыслительной деятельности учащихся. Полученные результаты имеют практическую значимость для практических психологов, педагогов и специалистов общеобразовательных организаций.

Ключевые слова: мыслительные процессы, психодиагностика, психокоррекция, подростковый возраст, системное мышление, логическое мышление, творческое мышление, критическое мышление, метакогниция, самостоятельное мышление, когнитивное развитие, психокоррекционная программа, педагогическая психология.



INTRODUCTION

Features of the development of adolescent thinking in the educational process

This article describes the distinctive features of adolescent thinking development, emphasizing the main components of this cognitive maturation process, as well as the various factors that significantly influence the evolution of adolescent thought within educational settings. Adolescent thinking is characterized by an increased capacity for abstract reasoning and metacognition, which allows students to engage with complex concepts and develop critical thinking skills (Ikhtiyor KU qizi et al., 2025). Furthermore, numerous external and internal factors, such as peer relationships, teacher-student interactions, and familial support, play essential roles in shaping how adolescents navigate and understand their educational experiences (F Fekih-Romdhane et al., 2023). These influences highlight the dynamic interplay between cognitive development and educational practice, underscoring the importance of fostering an environment that nurtures effective thinking skills among adolescents.

LITERATURE REVIEW

Pedagogical and psychological features of developing independent thinking in students

The development of independent thinking in students is one of the key goals of modern education, as it fosters critical thinking and innovative problem-solving skills essential for success in the 21st century (Ikhtiyor KU qizi et al., 2025). This article explores the pedagogical and psychological aspects involved in this process, highlighting the importance of nurturing an environment that encourages students to question, analyze, and reflect on their knowledge.

Effective pedagogical strategies, combined with an understanding of psychological principles, can significantly enhance students' capacity to think independently, thereby equipping them with the necessary skills to navigate complex real-world challenges (Wu J et al., 2023).

Fostering independent thinking among students

The importance of critical thinking, problem-solving skills, and decision-making is essential in fostering students' intellectual development (Ikhtiyor KU qizi et al., 2025). The article meticulously examines the role of teachers, the learning environments they create, and the teaching methods they employ in cultivating independent thinking among students. Furthermore, it delves into psychological factors, such as motivation, self-confidence, and cognitive development, that significantly influence students' capacity to think independently (Wu J et al., 2023). In conclusion, the article provides practical recommendations for educators aimed at encouraging and supporting students in their journey to become independent thinkers.

Social thinking and me: effectiveness for a middle school student

This project explored the effects of the Social Thinking and Me intervention curriculum with an eighth-grade male student diagnosed with autism spectrum disorder, attention deficit hyperactivity disorder, oppositional defiant disorder, obsessive-compulsive disorder, and anger aggression.

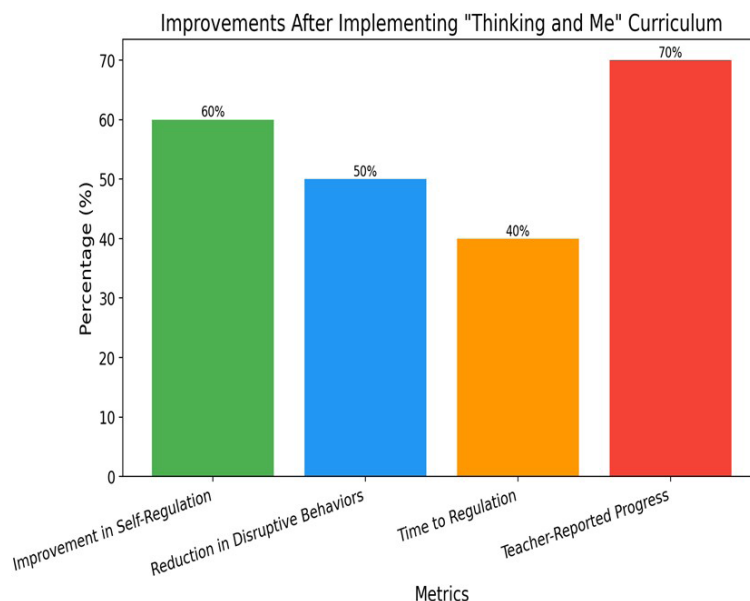
The student exhibited disruptive behaviors, including stomping, growling, and refusal, which significantly interfered with the learning environment and academic performance (Ikhtiyor KU qizi et al., 2025). By employing the Social Thinking and Me curriculum, the student was not only taught specific strategies to manage his behaviors but also provided with tools to better understand and relate to his peers, thereby contributing to a more positive educational experience.

RESEARCH METHODOLOGY

Thinking and Me curriculum

The "Thinking and Me" curriculum focuses on essential skills such as self-regulation, self-awareness, social problem-solving, and empathetic communication, delivering the intervention through one-on-one sessions over the course of nine weeks, complemented by additional classroom support. The primary objective for the student was to enhance the application of social thinking strategies, particularly during moments of frustration.

To evaluate progress, both teacher and student-reported Direct Behavior Ratings (DBR) were utilized. Although the DBR data exhibited considerable variability and the specific goals set for the student were not fully met, noteworthy improvements were observed. Qualitative feedback from teachers suggested a significant reduction in the frequency, intensity, and duration of disruptive behaviors, alongside faster regulation times, corroborating findings from previous studies that highlight the effectiveness of integrated interventions in fostering positive behavioral changes (Wu J et al., 2023), (F Fekih-Romdhane et al., 2023).



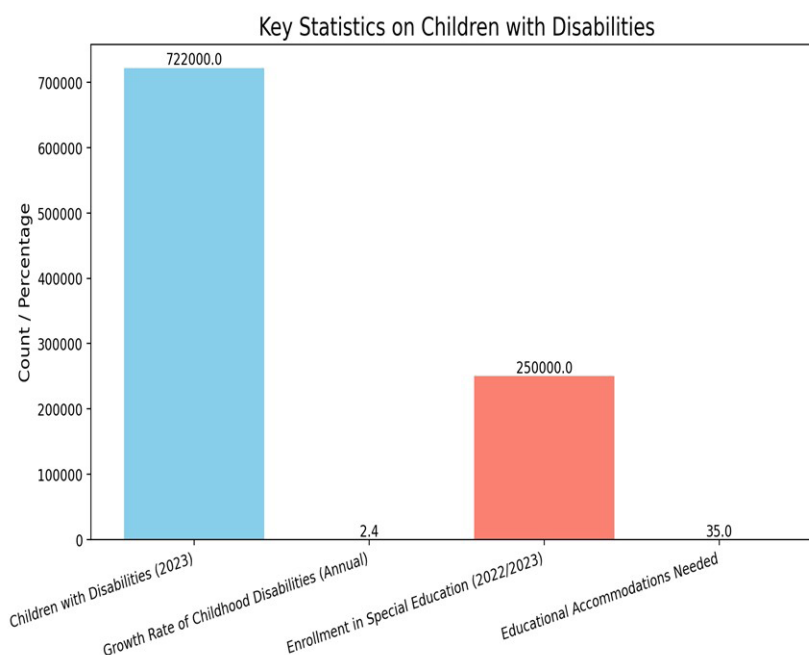
This bar chart illustrates the improvements observed in various metrics after implementing the "Thinking and Me" curriculum.

Differentiating critical thinking activities for middle school learners with diverse needs

This article explores effective strategies for differentiating critical thinking activities for middle school learners with diverse needs. It emphasizes the importance of recognizing students' unique learning profiles, including their strengths, challenges, interests, and cultural backgrounds (Bekmurzayevna IM, 2025).

The article provides practical strategies, such as scaffolding, flexible grouping, and the integration of technology, to ensure that all learners can engage in critical thinking tasks meaningfully. Additionally, it highlights the role of formative assessment and teacher collaboration in designing inclusive and engaging activities. The goal is to foster an environment where all students can develop higher-order thinking skills, regardless of their learning differences.

Psychological and pedagogical technologies for the development of thinking in younger students with mental retardation



This chart displays key statistics on children with disabilities in 2023.



Educators are tasked with developing and implementing programs utilizing psychological and pedagogical technologies specifically designed to foster thinking in younger students with mental retardation. This article presents an integrated approach that employs such psychological and pedagogical technologies to enhance the thinking processes of younger students with mental retardation, positively influencing the development of their cognitive operations. The practical significance of this study lies in the expansion and deepening of empirical research concerning the thinking of younger students with mental retardation, resulting in new qualitative and quantitative data that can be utilized by psychologists.

Moreover, a psychological program aimed at correcting the thinking processes of younger students with mental retardation can be recommended to psychologists, teachers, and other professionals working with this demographic, aligning with findings that suggest interventions addressing cognitive development can mitigate aggressive behaviors resulting from negative experiences, such as bullying (F Fekih-Romdhane et al., 2023).

Diagnostic support for the development of logical thinking of primary school students

The current State Standard of General School Education of the Kyrgyz Republic establishes the primary goal of primary school as the formation of educational universal actions, which is crucial for fostering critical thinking skills in students. This educational framework aims to equip children with the necessary cognitive tools to navigate their learning environments effectively.

Research emphasizes the importance of developing logical thinking as a foundational aspect of educational universal actions, as it influences both academic achievement and personal development (Bekmurzayevna IM, 2025). Moreover, the integration of innovative pedagogical approaches within this framework can significantly enhance students' logical reasoning capabilities by engaging them in meaningful problem-solving activities (Wattad G et al., 2023). As such, creating a robust curriculum that supports the development of logical thinking is essential for achieving the overarching objectives of education in the Kyrgyz Republic's primary schools.

Diagnostic support for developing logical thinking in primary education

Cognitive aspects, particularly logical reasoning, encompass essential skills such as analysis, synthesis, comparison, generalization, and abstraction. Enhancing students' abilities in these areas is crucial for developing logical thinking, which significantly relies on diagnostics and diagnostic support. This research aimed to identify and substantiate diagnostic tools for fostering logical thinking in primary school students and to evaluate their effectiveness.

The study utilized methodological approaches grounded in competence-based and activity-based frameworks, employing various methods of scientific inquiry, including theoretical analysis of psychological and pedagogical literature, empirical techniques such as experiments, observations, measurements, comparisons, and descriptions, and mathematical methods for statistical processing of experimental data.

A pedagogical experiment was carried out to assess the benefits of diagnostic methods in evaluating individual logical operations and overall logical thinking during an exploratory phase. This involved measuring the level of development of logical universal learning activities among primary students at state-funded School No. 8 and the private institution Bright in Bishkek. From the statistical analysis of the experiment's findings, it was concluded that primary school students demonstrated diverse initial levels of logical thinking, with many falling short of the requirements set forth by the educational State Standard.

The method developed by F. Carter and K. Russell, alongside the corresponding diagnostic tools, proved to be the most effective for conducting the ascertaining experiment. Furthermore, for the formative (developmental) experiment, diagnostic methods focused on individual logical operations were deemed preferable due to their effectiveness in integrating logical training sessions with monitoring elements during lessons, ultimately underscoring the importance of structured diagnostic support in developing logical thinking in primary education (Baker B, 2025), (Bekmurzayevna IM, 2025).

ANALYSIS AND RESULTS

Effects of innovative teaching approaches

Critical and analytical thinking skills were assessed through a researcher-developed standardized test, with the data analyzed using paired and independent sample t-tests, along with effect size calculations. The results indicated that the experimental group exhibited statistically significant improvements in both critical and analytical thinking, boasting very large effect sizes, while the control group showed no meaningful gains.

These findings underscore the efficacy of Project-Based Learning (PBL) in enhancing higher-order cognitive skills within middle school mathematics education, suggesting its potential as a viable pedagogical strategy for fostering problem-solving, logical reasoning, and collaborative learning in authentic contexts (Allahyani M et al., 2025), (Wu J et al., 2023).

Formation of critical thinking in junior schoolchildren through problem-based tasks

The development of critical thinking is an essential component of modern education, as it equips students with the skills necessary for effective problem-solving and informed decision-making in a complex world (Bekmurzayevna IM, 2025). This study aimed to identify the impact of problem-based tasks on developing critical thinking in primary school students. The research employed rigorous methodologies, including Watson-Glaser testing, the Cornell critical thinking test (level X), ANOVA, and correlation analysis, to assess improvements in critical thinking skills (Akram A et al., 2024).

The results indicated a significant enhancement in the experimental group, with noteworthy increases in key categories: "Identifying Facts" saw an average score rise from 3.5 to 5.5, "Interpreting Data" improved from 4.0 to 6.0, and "Drawing Conclusions" escalated from 3.0 to 5.0. Additionally, in the "Situation Analysis" category, scores increased from 3.2 to 5.3, and in "Hypothesis Formulation," from 2.8 to 4.7. The final composite score for the experimental group rose from 12.3 to 16.5, whereas the control group exhibited only a marginal improvement (from 11.8 to 12.0), thereby confirming the efficacy of problem-based tasks in fostering critical thinking skills.

The practical significance of these findings underscores the applicability and value of incorporating problem-based tasks to enhance students' critical skills. Furthermore, prospects for future research include investigating the long-term effects of such methods and exploring the influence of socio-economic factors on their effectiveness.

Critical thinking development in elementary students

Model	N-Gain Score
Problem-Based Learning	0.703
Conventional Learning	0.417

Impact of discovery learning on critical thinking skills

This study aims to elucidate the impact of the Discovery Learning model on the critical thinking skills of junior high school students in the eighth grade. Utilizing a quantitative approach, specifically a quasi-experiment, the investigation was conducted in class 8 of Public Middle School 2 Candi Sidoarjo, involving both an experimental group and a control group.

The results of the data analysis and discussion reveal that teacher activities in social studies learning meet the criteria for engagement and effectiveness in both the experimental and control classes. Moreover, the findings indicate that student activities aimed at enhancing critical thinking skills in the experimental group are notably superior to those in the control class. At a significance level of 5% (0.05), a significant influence or difference in student responses is evident, with a p-value of 0.000.

Therefore, we can conclude that the Discovery Learning model significantly enhances students' critical thinking skills regarding the geographical conditions of the ASEAN countries through the use of atlases, compared to traditional instructional models (Sri Handayani et al., 2024). This aligns with existing literature that emphasizes the efficacy of active learning strategies in promoting critical thinking and problem-solving abilities in educational settings (Bekmurzayevna IM, 2025).

Impact of discovery learning on critical thinking skills

Study	Impact on critical thinking
YouTube-assisted discovery learning	Significant improvement
Culture-based discovery learning	Higher performance than conventional
Integrating discovery-based learning in PBL	Significant improvements observed
STEM education	Positive influence through collaborative approaches
Discovery learning model for high school	Effective for critical thinking enhancement

Development of cognitive processes in students as an important factor of intellect formation

In this article, it is highlighted that in the intellectual formation of elementary school students, the ability to generate multiple ideas concurrently, identify various solutions to a single problem, and maintain concentrated thoughts on an object are all harmoniously expressed, with the priority of attention concentration proven to have a significant effect on cognitive development (Ikhtiyor KU qizi et al., 2025).



Enhancing logical thinking in school students. strategies, challenges, and future directions

Logical thinking is essential for decision-making, problem-solving, and academic achievement, serving as a crucial skill in navigating complex information and social interactions in the 21st century (Baker B, 2025). This article examines the many characteristics of logical thinking in school-age students, addressing both theoretical foundations and barriers to its development.

Key limitations include cognitive biases, environmental influences, and inadequate curricular support (Bekmurzayevna IM, 2025). Furthermore, it explores age-appropriate teaching strategies, emphasizing the importance of adaptability in pedagogical approaches and their global implementation. The discussion encompasses the pivotal role of educational policy in promoting logical thinking across diverse educational systems.

Additionally, the article suggests a comprehensive framework for integrating logical thinking into national curricula, which aligns with current educational needs and standards. It also identifies critical areas for future research, emphasizing that the development of logical thinking in education is essential to effectively prepare students for modern challenges and opportunities.

Cognitive dynamics of primary school students in interactive psycho-pedagogical

CONCLUSION

In the context of the digital transformation of education and the transition to interactive forms of learning, the development of the cognitive functions of primary school students is critically important. This article presents the concept of cognitive dynamics as a deliberate pedagogical process aimed at enhancing thinking through the integration of interactive cases and cognitive activity maps.

A method for constructing such maps that reflect changes in key cognitive functions-namely attention, memory, speech, logic, imagination, and metacognition-is proposed (Glenn D Walters et al., 2024). The article provides examples and outlines map schemes, as well as classifying their types and methods of analysis. The emphasis is placed on the Kazakhstani educational context, highlighting the capabilities of platforms such as Kundelik and BilimLand, alongside emerging technologies like augmented reality (AR) (Ikhtiyor KU qizi et al., 2025). The cognitive activity map serves as a crucial bridge between learning and thinking, enabling educators to monitor and guide the individual cognitive growth of students.

The Impact of corrective feedback on test anxiety in elementary school pupils

In the experiment, the level of test anxiety among Grade 5 pupils, measured in terms of cognitive responses, off-task behaviors, and automatic reactions, was notably low after they received written and verbal corrective feedback regarding their tests and quizzes. In contrast, the level of test anxiety in these pupils following the traditional method of checking tests and quizzes was characterized as below average.

These findings align with existing research indicating that effective feedback mechanisms, such as those provided through corrective feedback, significantly reduce anxiety in academic settings (Budianto AA, 2024; Chen Z, 2024). Therefore, the conclusion drawn from the study emphasizes that both written and verbal corrective feedback serve as effective strategies for mitigating test anxiety in elementary school pupils, ultimately fostering a more conducive learning environment.

Psychological ways of development in education

To address the formulated tasks effectively, we employed several theoretical methods, including a categorical method that facilitates the classification of various thinking styles and their relevance to soft skills development. This approach aligns with recent studies suggesting that enhancing psychological constructs, such as resilience and adaptability, plays a vital role in students' educational success (F Fekih-Romdhane et al., 2023). By integrating these methods, we aim to provide a comprehensive framework that educators can utilize to nurture soft skills within diverse learning environments, ultimately promoting holistic student development.

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- 13.00.00 Pedagogika fanlari
 - 13.00.01 Pedagogika nazariyasi. Pedagogik ta'limotlar tarixi
 - 13.00.02 Ta'lim va tarbiya nazariyasi va metodikasi (sohalar bo'yicha)
 - 13.00.03 Maxsus pedagogika
 - 13.00.04 Jismoniy tarbiya va sport mashg'ulotlari nazariyasi va metodikasi
 - 13.00.05 Kasb-hunar ta'limi nazariyasi va metodikasi
 - 13.00.06 Elektron ta'lim nazariyasi va metodikasi (ta'lim sohaları va bosqichlari bo'yicha)
 - 13.00.07 Ta'limda menejment
 - 13.00.08 Maktabgacha ta'lim va tarbiya nazariyasi va metodikasi
 - 13.00.09 Ijtimoiy pedagogika
 - 07.00.00 Tarix fanlari
 - 19.00.00 Psixologiya fanlari
 - 01.00.00 Fizika-matematika fanlari
 - 02.00.00 Kimyo fanlari
 - 03.00.00 Biologiya fanlari
 - 09.00.00 Falsafa fanlari
 - 10.00.00 Filologiya fanlari
 - 11.00.00 Geografiya fanlari



AKTABGACHA VA AKTAB TA'LIMI

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