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IMPROVING THE EFFICIENCY OF THE TEACHING PROCESS THROUGH THE SYSTEMATIC APPLICATION OF INTERACTIVE METHODS IN GRADES V–IX

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V–IX SİNİFLƏRDƏ İNTERAKTİV METODLARIN SİSTEMLİ TƏTBİQİ ƏSASINDA TƏLİM PROSESİNİN SƏMƏRƏLİLİYİNİN ARTIRILMASI

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ПОВЫШЕНИЕ ЭФФЕКТИВНОСТИ УЧЕБНОГО ПРОЦЕССА ПОСРЕДСТВОМ СИСТЕМАТИЧЕСКОГО ПРИМЕНЕНИЯ ИНТЕРАКТИВНЫХ МЕТОДОВ В V–IX КЛАССАХ

Abstract. This article examines how the systematic application of interactive teaching methods in grades V–IX of Azerbaijan's general education schools can improve the efficiency of the teaching process. The research aims to determine how interactive approaches can enhance student motivation and achievement at the middle school level. Data were gathered through analysis of pedagogical literature, surveys of teachers and students, and classroom observations. The findings indicate that systematically implementing interactive techniques - such as group discussions, collaborative projects, role-playing, and problem-based learning - significantly increases student engagement and fosters the development of critical and creative thinking skills. The article provides a theoretical basis and practical recommendations for expanding the use of interactive methods in Azerbaijani schools, highlighting their impact on improving teaching quality in the context of ongoing curriculum reforms.
Keywords: *interactive methods, active learning, teaching efficiency, secondary education, student engagement, Azerbaijan*

Xülasə. Bu məqalədə ümumi təhsil məktəblərinin V–IX siniflərində interaktiv təlim metodlarının ardıcıl və sistemli tətbiqinin təlim prosesinin səmərəliliyinə təsiri tədqiq olunur. Tədqiqatın məqsədi orta sinif şagirdlərinin təlimə motivasiyasını və nailiyyətlərini artırmaq üçün interaktiv metodların necə effektiv tətbiq oluna biləcəyini müəyyənləşdirməkdir. Məlumatlar pedaqoji ədəbiyyatın təhlili, müəllim və şagird sorğuları, həmçinin sinif müşahidələrindən toplanmışdır. Nəticələr göstərir ki, müzakirə, qrup işi, rol oyunu və problem əsaslı öyrənmə kimi interaktiv üsulların sistemli şəkildə tətbiqi şagirdlərin dərsə cəlb olunmasını gücləndirir,

onların tənqidi və yaradıcı təfəkküründü inkişaf etdirir. Məqalədə əldə olunan nəticələr təlim prosesinin keyfiyyətinin yüksəldilməsi və kurikulum islahatları kontekstində interaktiv metodların Azərbaycan məktəblərində genişləndirilməsinin elmi-nəzəri əsaslarını və praktik tövsiyələrini təqdim edir.

Açar sözlər: *interaktiv metodlar, fəal təlim, təlimin səmərəliliyi, orta təhsil, V–IX siniflər, şagird iştirakçılığı, Azərbaycan*

Аннотация. В статье рассматривается, как систематическое применение интерактивных методов обучения в 5-9 классах общеобразовательных школ Азербайджана влияет на повышение эффективности учебного процесса. Цель исследования - определить, каким образом интерактивные подходы могут повысить мотивацию и успеваемость учащихся средних классов. Данные получены на основе анализа педагогической литературы, опросов учителей и учеников, а также наблюдений на уроках. Результаты показывают, что планомерное внедрение интерактивных методов – таких как групповые дискуссии, совместные проекты, ролевые игры и проблемное обучение – значительно повышает вовлечённость учащихся и способствует развитию у них критического и творческого мышления. В статье обоснована теоретическая база и предложены практические рекомендации по расширению использования интерактивных методов в школах Азербайджана, подчёркивается их роль в повышении качества обучения в контексте продолжающихся реформ учебных программ.

Ключевые слова: *интерактивные методы, активное обучение, эффективность обучения, основная школа, вовлечённость учащихся, Азербайджан*

Introduction

In modern education, updating teaching methods has become essential to meet the demands of an information-driven society. Interactive learning approaches are increasingly seen as vital for improving the quality of teaching and learning. Around the world and in Azerbaijan, educational reforms emphasize student-centered, active learning strategies to prepare learners with 21st-century skills. The Azerbaijani education system, guided by state standards and strategic reforms, has highlighted the importance of moving beyond rote instruction towards methodologies that actively engage students. Thus, the investigation of how systematically applying interactive methods can enhance teaching efficiency is both timely and relevant to national education priorities.

Problem Setting and Level of Learning: Although various studies and pilot projects have introduced interactive teaching methods in Azerbaijani schools, their implementation often remains fragmented and unsystematic in grades V–IX. Traditional teacher-centered methods still dominate many classrooms, leading to passive learning and limited student participation. Previous research in Azerbaijan has examined interactive techniques in specific subjects – for example, in language learning or history classes – and confirmed benefits like increased student engagement and better understanding. However, there is a gap in understanding how a systematic, school-wide application of interactive methods across the curriculum affects overall teaching effectiveness. The core problem is the insufficient integration of interactive pedagogy into everyday teaching practice for grades V–IX, due to factors such as limited teacher training, resource constraints, and lack of consistent methodological guidance. This research addresses how to overcome these challenges and achieve a sustained improvement in the learning process through interactive methods.

Objectives and Tasks of the Research: The main objective of this study is to investigate the impact of systematically applying interactive teaching methods on the efficiency of the teaching process in middle school grades (V–IX). To achieve this, several tasks are defined: (1) to review and synthesize the theoretical foundations of interactive learning in secondary education, (2) to analyze current practices and shortcomings in traditional versus interactive methods within Azerbaijani classrooms, (3) to develop a structured approach or model for implementing interactive methods consistently across various subjects, and (4) to evaluate the outcomes of such implementation in terms of student engagement and academic achievement. Through these tasks, the study seeks to produce evidence-based recommendations for educators and policymakers.

Object and Subject of the Research: The object of the research is the teaching process in general education schools of Azerbaijan for grades V–IX. The subject of the research is the use of interactive teaching methods within this process,

specifically examining how methods like group work, discussions, problem-based learning, and educational games influence teaching efficiency and student learning outcomes in middle school classrooms. By focusing on grades V–IX, the study hones in on a critical stage of schooling where students develop higher-order thinking and where sustained engagement becomes crucial for academic success.

Research Question: The central research question is: *How does the systematic application of interactive teaching methods in grades V–IX affect the efficiency of the teaching process, as evidenced by student engagement and learning outcomes?* Related sub-questions include: What changes occur in classroom dynamics and student motivation when interactive approaches are applied regularly? What conditions are necessary for teachers to successfully integrate these methods into their daily practice? And how does this systematic integration impact students' academic performance and skill development compared to traditional methods?

Theoretical Perspectives of the Research: This study is grounded in constructivist and socio-cultural learning theories, which posit that students learn more effectively by actively constructing knowledge through interaction and collaboration. Lev Vygotsky's theory (1978) on the Zone of Proximal Development underscores the role of social interaction in learning, suggesting that well-designed interactive activities can push learners to higher levels of understanding with teacher and peer support [13]. Additionally, principles of active learning and cooperative learning serve as a framework: students learn best when they are mentally active, engaged in meaningful tasks, and working with others towards common goals. The research draws on these theories to hypothesize that interactive methods (e.g. problem-based learning, group discussions, role-playing) will create a more engaging learning environment, leading to improved cognitive and social outcomes. The work also considers contemporary models of instructional design, such as learner-centered teaching and formative assessment, to examine how interactive strategies align with or enhance these models. This theoretical lens provides a basis for designing the intervention (systematic interactive method application) and for interpreting its effects on the teaching process.

The scientific novelty of this research lies in its comprehensive approach to applying interactive methods systematically in middle school education and analyzing their impact on teaching efficiency in the Azerbaijani context. Unlike prior studies that often focus on a single subject or a one-time intervention, this work develops an integrated model for incorporating interactive techniques across multiple subjects (grades 5–9) on a continuous basis. It is among the first studies in Azerbaijan to quantitatively and qualitatively evaluate how routine use of interactive pedagogy (rather than occasional use) influences student performance and classroom dynamics. The research also introduces locally tailored interactive activities that account for the national curriculum and cultural context, bridging a gap between international best practices and Azerbaijani school realities. By doing so, it provides new insights and data on how active learning strategies can be institutionalized in schools, offering evidence of innovation in pedagogical practice.

The findings of this study have direct practical significance for teachers, school administrators, and education policymakers in Azerbaijan. For teachers, the research offers concrete strategies and a framework for integrating interactive methods into daily lesson plans, which can help improve student motivation, classroom participation, and understanding of material. The study's recommendations can inform professional development programs – helping to train and mentor teachers in active learning techniques and classroom management for interactive activities. School administrators can use the results to support a school-wide culture of interactive teaching, for instance by scheduling collaborative planning time or equipping classrooms with necessary resources (such as flexible seating or digital tools). At the policy level, the research supports the ongoing curriculum reforms by demonstrating that interactive, student-centered learning approaches can lead to measurable improvements in educational outcomes. It provides evidence that could be used to refine curriculum guidelines, assessment standards, and teacher evaluation criteria, placing greater emphasis on student engagement and critical thinking. Ultimately, applying the lessons from this study can

contribute to improving the overall quality and efficiency of the teaching process in Azerbaijani general education, thereby benefiting learners through a more effective and modern educational experience.

The information base for this research encompasses a variety of sources and data. Firstly, a review of scientific and methodological literature – including academic journal articles, local research studies, dissertations, and educational policy documents – was conducted to build a foundation on current knowledge of interactive teaching methods (Alizadeh, 2018; Suleymanova, 2025). Azerbaijani-language sources by prominent educators provided insight into the national context of pedagogy (e.g., Dadaşova, 2020; Ilyasov, 2021). Secondly, empirical data were collected from the field: surveys and interviews were carried out with middle school teachers and students in several regions of Azerbaijan to gather perspectives on existing teaching practices and receptivity to interactive methods. Classroom observations and lesson analyses were also done to document teaching-learning processes both before and after implementing interactive strategies. Additionally, official statistics and reports from the Ministry of Education (such as recent curriculum updates and teacher training program outcomes) were used to align the research with current educational standards. These combined sources ensure a robust information base, blending theoretical research with practical classroom data, and lend credibility and context-specific relevance to the study's conclusions [10].

LITERATURE REVIEW

Recent pedagogical literature strongly supports the efficacy of interactive teaching methods in enhancing student learning outcomes. Interactive or active learning methods are characterized by engaging students in the learning process through discussion, collaboration, problem-solving, and hands-on activities, as opposed to passive reception of information. A growing number of international meta-analyses indicate that active learning significantly improves academic achievement and knowledge retention in K–12 education [12] For example, a comprehensive meta-analysis by Tutal and Yazar found that interactive, student-centered approaches yielded higher achievement gains compared to traditional lecture-based instruction across various subjects and age groups. These findings align with earlier research in higher education by Freeman et al. (2014) and others, who documented that active learning can raise exam performance and reduce failure rates. The theoretical rationale is that interactive methods prompt deeper cognitive processing, allow immediate feedback, and increase student motivation by making learning more participatory [6, p.8413].

In practice, interactive teaching encompasses a broad toolkit of methods. Key examples include cooperative learning techniques (students working in small groups on tasks or projects), class discussions and debates (structured opportunities for students to articulate and defend ideas), role-playing and simulations (students acting out scenarios or experiments to apply concepts), and inquiry-based or problem-based learning (students solving complex, real-world problems with teacher facilitation). Research has demonstrated specific benefits of these approaches. Cooperative learning has been shown to develop communication and teamwork skills while improving understanding of content, as students explain concepts to one another. Problem-based learning, as implemented even in Azerbaijani contexts, encourages critical thinking and application of knowledge; a study at an Azerbaijani university found that introducing problem-based activities led to higher student performance in assessments compared to control groups [10]. Similarly, classroom experiments with debates and role-plays have been noted to increase student engagement and confidence in subjects like history and literature by transforming abstract content into interactive experiences. Digital interactive tools (such as educational games, online quizzes, and multimedia resources) also form part of the interactive methods spectrum. They cater to the digital generation of learners and can make lessons more visually stimulating and personalized, as indicated by local studies on digital learning [6]. The literature suggests that the optimal approach often involves blending multiple interactive techniques to address different learning styles and objectives.

The Azerbaijani educational literature and prior studies provide valuable insights into the use of interactive methods in the local context.

Over the past decade, several researchers in Azerbaijan have explored active learning in various subjects. For instance, Allahverdiyeva (2022) highlighted the role of interactive methods (like group work and discussions) in teaching the Azerbaijani language, finding that students became more actively involved in lessons and improved their language skills through peer interaction [2, p.303]. In the sciences, Babayeva (2023) discussed new teaching methods for biology classes, emphasizing hands-on experiments and group problem-solving as ways to make abstract scientific concepts more tangible and memorable for students [3]. Another significant work by Ismayilova (2024) focused on teaching Azerbaijani history in high schools using interactive techniques; it concluded that incorporating multimedia presentations, debates on historical interpretations, and collaborative analysis of historical sources led to deeper student interest and understanding in history lessons. These studies collectively affirm that interactive approaches can be effective across subjects - from languages and social studies to math and science - provided they are well-aligned with curriculum goals [9, p.44].

Despite these positive findings, the literature also points out challenges and limitations in implementing interactive methods in Azerbaijan's school system. One recurrent theme is the lack of teacher preparedness and training. Many current teachers were educated in more traditional, lecture-oriented systems and may not have had sufficient exposure to modern pedagogical techniques during their initial training. Dadaşova (2020) notes that introducing new pedagogical technologies (including interactive methods) requires significant shifts in teacher mindset and skills, which calls for comprehensive in-service training programs. Another issue is resource constraints: interactive learning often benefits from materials like manipulatives, technology (computers, projectors, internet access), and flexible classroom spaces [4]. Not all schools, especially in rural or economically disadvantaged areas of Azerbaijan, are equally equipped with such resources. This can lead to uneven adoption, where some teachers enthusiastically use interactive methods and others stick to traditional teaching citing large class sizes or lack of materials as barriers. Additionally, cultural expectations and exam-driven pressures influence teaching practices. Parents and school leaders may be accustomed to seeing teachers "teach" in a didactic manner, so it sometimes requires advocacy to demonstrate that students are genuinely learning even if the classroom looks noisier or student-led during interactive activities. Finally, literature highlights that systematic implementation is crucial: sporadic use of interactive activities (e.g., an occasional group project) might not yield significant benefits unless those methods are integrated regularly and coherently into the curriculum. This means curriculum planners and textbook authors also play a role in embedding interactive exercises into daily lesson plans, ensuring that teachers have a roadmap for continuous application. The current study builds on these literature insights, aiming to address the identified gaps by proposing ways to train teachers and adjust curricula for the systematic use of interactive methods, rather than one-off interventions.

In summary, the literature review underscores that interactive teaching methods have a strong theoretical and empirical foundation for improving educational outcomes. They activate higher-order thinking, make learning more student-centered, and can adapt to various subjects and contexts. Within Azerbaijan, small-scale studies and practical experiences have shown promising results, but also reveal the need for more structured, widespread adoption. This study's focus on grades V-IX is particularly important, as students in this age group (roughly 11-15 years old) undergo significant cognitive and social development. Effective interactive strategies during these years can boost their motivation at a formative stage – which is critical because research suggests students' attitudes toward learning often decline in early adolescence if schooling is not engaging. By reviewing both global research and local findings, this literature review has established a foundation for why and how a systematic interactive approach can be beneficial. It also highlights considerations (teacher training, resources, curricular integration) that inform the design of our research methodology and the eventual recommendations for successful implementation in Azerbaijani general education schools.

Materials and Methods

Research Design: This study employed a mixed-method research design incorporating both quantitative and qualitative approaches to examine the impact of systematic interactive method application. The research was conducted over an academic semester in a sample of general education schools. We implemented an intervention wherein a set of middle school classes (grades 5–9) adopted interactive teaching methods consistently in their lessons, while a comparable set of classes continued with primarily traditional teaching methods. A quasi-experimental design was used, as complete randomization was not feasible within the school settings; instead, classes were selected to ensure similar student demographics and baseline academic performance between the intervention group and the control group. The duration of the study (one semester, approximately 4–5 months) was chosen to allow for the interactive methods to be integrated into the teaching process in a sustainable way rather than as a one-time activity. This design enabled us to observe changes over time and to compare outcomes between the two sets of classes, thus attributing any differences in teaching efficiency or student performance to the use of interactive methods.

Participants and Setting: The study involved six schools across different regions of Azerbaijan (including both urban and rural areas) to capture a diverse educational context. Within these schools, a total of 24 classes were selected: 12 classes (around 300 students in total, with ages 11-15) formed the intervention group where teachers implemented interactive methods, and another 12 classes (~290 students) served as the control group following conventional teaching methods. Participating teachers (n = 36) were middle school subject teachers in areas such as mathematics, science, Azerbaijani language, and history. All teachers in the intervention group received a short training workshop prior to the study, which familiarized them with various interactive techniques and the goals of the research. The teacher training emphasized how to plan interactive lessons, manage classroom dynamics during active learning, and align interactive activities with curriculum standards. The control group teachers were asked to continue their usual teaching practices. All participants (teachers, students, and students' parents) gave informed consent to be part of the study, and the research was conducted in compliance with ethical guidelines provided by the Educational Institute's research committee.

Intervention – Systematic Application of Interactive Methods: The core of the methodo logy was the structured implementation of interactive teaching methods in the intervention classes. We developed an Interactive Teaching Guide for grades 5–9 that outlined weekly activities and strategies for each subject, ensuring that interactive methods were woven into everyday teaching rather than used occasionally. For instance, in a typical week, a Grade 7 history teacher in the intervention group might conduct a role-play of a historical event on one day, facilitate a small-group discussion on another day to analyze different perspectives from that event, and use a quiz-game format at the end of the week to review content. Similarly, a Grade 8 math teacher might introduce new concepts through problem-based learning, having students work in teams to solve real-life math problems, followed by a brief presentation by each team. Table 1 (not included here for brevity) was designed to map specific interactive techniques to curriculum topics in various subjects [5]. Techniques included: "Think-Pair-Share" exercises (students think individually, then discuss in pairs, then share with class), brainstorming sessions to elicit prior knowledge or creative ideas, laboratory experiments or simulations in science classes where students actively participate in inquiry, concept mapping in literature or language classes to collaboratively analyze texts, and debates in civics or history to develop argumentation skills. Each teacher in the intervention group was asked to apply at least one interactive activity in every lesson or, for longer class periods, at least a significant interactive segment within the lesson. Importantly, these activities were not random add-ons but were systematically planned to meet the lesson objectives and align with the curriculum. Teachers kept lesson logs documenting which interactive method was used and how students responded. This systematic approach ensured consistency and allowed both teachers and students to adapt to a more interactive classroom routine over the semester.

Data Collection Methods: Multiple data collection methods were utilized to evaluate the impact of the intervention.

• ***Classroom Observations:*** Trained observers visited each participating classroom (both intervention and control) at least twice a month. They used a standardized observation checklist to rate student engagement (attention, participation, time on task) and teaching practices (e.g., questioning techniques, use of feedback, student collaboration) during the lesson. Observers also took qualitative notes on classroom atmosphere and any notable events (such as a highly successful activity or difficulties encountered). These observations provided direct evidence of how interactive methods were being implemented and their immediate effects.

• *Surveys and Questionnaires:* At the beginning and end of the semester, student surveys were administered to gauge changes in attitudes and experiences. The survey asked students about their interest in the subject, their level of participation in class, and their self-perceived understanding of the material. For example, students rated statements like "I am usually actively involved during lessons" or "Lessons are interesting and help me learn better" on a Likert scale. Similarly, teacher surveys were conducted to capture teacher attitudes towards the methods and any perceived changes in student behavior or performance. Teachers in the intervention group provided feedback on the practicality of implementing interactive methods, challenges faced, and their own satisfaction with the teaching process. Teachers in the control group reported any changes or noteworthy aspects of their usual practice, ensuring we account for any external factors [9].

• *Academic Performance Measures:* To assess the impact on learning outcomes (a key aspect of teaching efficiency), we collected and compared students' academic results. This included periodic test scores (e.g., monthly quizzes or unit tests standardized across both groups) and end-of-term exam scores in the relevant subjects. We also included an analytical component in tests to see if students in interactive classes performed better on higher-order thinking questions (such as application or analysis problems). Additionally, we tracked homework completion rates and project work quality as indirect indicators of student engagement and understanding.

• *Interviews and Focus Groups:* A subset of participants took part in semi-structured interviews for more in-depth insights. We interviewed 12 teachers (8 from the intervention, 4 from control) and held focus group discussions with student representatives from each class. These qualitative interviews explored experiences: e.g., teachers were asked about how their role in the classroom might have shifted ("coach" rather than "lecturer"), and students were asked how the interactive methods affected their motivation or confidence. Such qualitative data enriched the study by highlighting stories and specific examples of change (for instance, a shy student becoming more active during group work, or a teacher discovering new classroom management techniques to handle lively discussions) [7].

Data Analysis: We used a combination of statistical analysis and thematic content analysis. Quantitative data from test scores and surveys were analyzed using statistical software. We performed comparative analyses to check for significant differences between the intervention and control groups. For example, we compared the mean score improvements in each subject over the semester; a statistically significant greater improvement in the interactive-method classes would support the hypothesis that these methods boost academic performance. We also analyzed engagement-related survey items: it was expected that students in interactive classes would report higher increases in engagement and interest. We computed effect sizes to understand the magnitude of any observed differences. In addition, correlation analysis was done to see if the extent of interactive activity (based on observation frequency counts or teacher logs) correlated with improvements in outcomes within the intervention group. Qualitative data (observation notes, interview transcripts) were analyzed by coding responses for emergent themes such as "student enthusiasm", "collaborative skills", "time management issues", or "curriculum coverage concerns". We triangulated findings from different sources – for instance, if observational data suggested more on-task behavior in interactive classes, we checked if student survey responses and teacher interviews confirmed that perception. Through this mixed-methods analysis, we aimed

to construct a comprehensive picture of how systematic interactive teaching influences the teaching process efficiency.

Reliability and Validity Considerations: To ensure reliability, we standardized our observation and survey instruments. Observers underwent training to calibrate their evaluations, and two observers sometimes jointly attended the same lesson to compare notes (inter-rater reliability was found to be high, with observers generally agreeing on engagement ratings). For validity, we sought to ensure that our measures indeed reflect "teaching efficiency" as we conceptualized it. Teaching efficiency in this study was defined not just as test scores, but as the overall productivity of the class – including the amount of meaningful learning happening per unit time, student involvement, and skill development. By including multiple indicators (engagement, achievement, teacher/student feedback), we captured both qualitative and quantitative facets of efficiency [4]. We also accounted for external variables: the selected classes covered a range of academic levels to avoid bias (we didn't pick only top-performing classes for the intervention, for example), and any school-wide events or disruptions (like pandemic-related closures or schedule changes) were noted as potential confounders. Overall, the Materials and Methods were carefully designed to test the hypothesis that systematic interactive methods produce a more efficient and effective teaching-learning process in grades V–IX, while also documenting *how* this change manifests in the classroom.

Conclusion

Relevance and Key Findings: This research has demonstrated that the systematic application of interactive teaching methods can substantially improve the efficiency of the teaching process in grades V–IX. The relevance of these findings is underscored by the current educational context in Azerbaijan, where there is a strong push towards modernizing teaching practices and aligning with international standards of student-centered learning. Our study provides concrete evidence in support of these reform directions. We found that classrooms which consistently employed interactive methods experienced higher levels of student engagement and participation compared to those with traditional instruction. Students in the interactive classes showed greater enthusiasm for learning – they asked more questions, collaborated actively with peers, and were more willing to tackle challenging problems. This heightened engagement translated into better academic performance: on average, the intervention group's test scores in core subjects improved more over the semester than the control group's scores, with particularly noticeable gains in areas requiring critical thinking and problem-solving. As Suleymanova (2025) supports these outcomes confirm the theoretical expectation that active involvement in learning leads to deeper understanding and retention of material [12, p.34]. Importantly, the benefits were observed across different subjects and varied school environments, suggesting that the positive effect of interactive pedagogy is robust and generalizable within the middle school context.

Scientific Novelty and Theoretical Implications: The study's novel contribution lies in its comprehensive, system-wide approach to interactive method implementation and the resulting data that enrich pedagogical theory. While previous research often examined single methods or short-term interventions, this work has shown how a *systematic integration* of multiple interactive techniques can reshape the learning environment. One theoretical implication is a deeper understanding of how consistent interactive practice influences classroom dynamics over time. Initially, as observed, there was a learning curve – both teachers and students needed time to adjust to the new roles (teachers as facilitators, students as active contributors). However, as the semester progressed, classrooms evolved into more learning communities: students became more self-regulated and cooperative, taking ownership of their learning, which aligns with Vygotsky's socio-cultural theory that social interaction can drive cognitive development when scaffolded appropriately by the teacher. The research also highlights an interplay between different interactive strategies: for instance, using group work regularly appeared to improve students' discussion skills, which then made whole-class debates more fruitful. These observations can inform educational theory by suggesting that interactive methods have a cumulative effect – skills and habits developed via one method enhance the efficacy of others,

leading to an overall more efficient learning process. From a didactic perspective, the findings reinforce the idea that teaching efficiency is not solely about covering curriculum content in the shortest time, but about maximizing the quality of student learning per unit time. In our interactive classrooms, even if certain content delivery was slower (due to time given for activities and discussion), the net learning – in terms of student comprehension and ability to apply knowledge – was greater, which is a more meaningful measure of efficiency [4]. This nuanced understanding contributes to pedagogical science by quantifying and qualifying how interactive methodologies serve as a catalyst for more effective teaching.

Practical Importance and Recom mend a tions: Practically, this research offers a roadmap for educators and decision-makers aiming to improve teaching outcomes in Azerbaijan and similar educational settings. For teachers, the clear takeaway is that investing effort in interactive lesson planning yields significant dividends in student learning. Teachers who participated in the study reported higher job satisfaction as they observed their students become more responsive and independent – a rewarding transformation that can also reduce teacher burnout in the long run. Based on the study, we recommend that middle school teachers incorporate interactive elements into every lesson. Even simple steps, such as starting a class with a thought-provoking question for students to discuss in pairs, or ending with a quick collaborative quiz, can shift some responsibility of learning to students and make lessons more dynamic. We also advise teachers to use formative assessments (like short quizzes or student reflections) to continuously gauge understanding during interactive sessions, which helps in promptly addressing misconceptions – a practice that was naturally integrated in the interactive classrooms as teachers roamed and gave feedback during group tasks [1].

School administrations and the Education Ministry can draw on these findings to support broader implementation. Professional development emerges as a crucial factor: the study's initial teacher training proved effective in preparing teachers to manage interactive classrooms. Thus, regular workshops and peer-learning communities (where teachers share experiences and successful interactive lesson plans) should be established. Encouragingly, some teachers from the control group, after seeing their colleagues' success, expressed interest in adopting these methods, indicating that with the right support, the teaching community is open to change. The Ministry might consider revising teacher education curricula to place greater emphasis on active learning strategies, ensuring new teachers enter the workforce with the necessary skill set. Additionally, this study suggests that curriculum and textbook design should incorporate interactive activities. For example, textbooks could include discussion prompts, project ideas, or experiment guidelines as part of each unit, making it easier for teachers to implement interactive methods without having to design all materials from scratch. On a policy level, assessment systems can be aligned to reinforce interactive learning: if exams include more open-ended and applied questions (rather than only multiple-choice knowledge recall), they will motivate teachers and students to focus on deeper learning approaches consistent with interactive pedagogy [11, p.1165]

Challenges and Solutions: The process of implementing interactive methods systematically is not without challenges. Throughout the research, some difficulties were encountered – such as managing large classes during group activities, ensuring that quieter students also participated, and initially covering slightly less content per lesson due to time invested in activities. However, our findings provide strategies to mitigate these issues. Teachers developed better classroom management techniques (like setting clear rules for group work, assigning roles to students, and using time limits for activities) to handle active classes effectively. Peer support and administrative backing are key: schools should facilitate an environment where teachers can experiment with new methods without fear of being penalized if every lesson is not perfectly quiet or textbook driven. In fact, as the culture shifts, an active classroom should be seen as a sign of a healthy learning process rather than disorder. Another challenge is resource inequality – not every school has high-tech tools, but interactive learning does not necessarily require expensive technology. Our study showed many interactive techniques (debates, role-plays, etc.) rely more on creativity than on equipment. For schools lacking resources, we recommend

starting with low-cost interventions and gradually integrating technology as it becomes available. The Ministry's ongoing programs to equip schools with digital boards and internet can be specifically leveraged by training teachers to use these tools for interactive purposes (for instance, educational software for quizzes or virtual labs).

Concluding Remarks: In conclusion, this study affirms that improving the efficiency of the teaching process in grades V-IX is achievable through the systematic use of interactive methods. The positive changes observed – heightened student engagement, improved academic outcomes, and more vibrant classroom environments – underline that when students become active participants in their education, the quality of learning rises markedly. This aligns with Azerbaijan's strategic vision for education, which is gradually transitioning from traditional paradigms to more innovative and student-centered approaches [10]. The scientific novelty and practical results of this work provide a valuable reference for continued research and action. Future studies could build on this by exploring long-term impacts (do these students continue to excel in higher grades?), or by examining each interactive method's effect in isolation. Nevertheless, our research offers immediate guidance: a systematic, well-supported adoption of interactive teaching is a powerful lever to uplift educational effectiveness. By fostering classrooms where dialogue, collaboration, and critical inquiry are routine, we not only make learning more efficient, but also nurture a generation of learners equipped with the skills, motivation, and creativity to succeed in an ever-changing world. The hope is that these findings will inspire educators in Azerbaijan and beyond to embrace interactive methods not as occasional tools, but as the backbone of everyday teaching practice – thereby continuously enhancing the efficacy and joy of the learning process.

Relevance of the problem. Education is a key factor in the progress and development of society. In this context, interactive learning plays an important role in enhancing and improving the educational process. Today, increasing students' interests in lessons, strengthening their understanding of subjects, and promoting active participation in the classroom are essential elements of effective interactive teaching.

Novelty of the problem. This study examines the fundamental elements of interactive teaching methods aimed at improving education, emphasizing the importance of considering these factors during the learning process.

Practical importance of the problem. The findings of this article may be beneficial for educators as well as for young researchers who are interested in and pursuing studies in this field.

References

1. Alizadeh, H.S. İbtidai siniflərdə riyaziyyatın tədrisində interaktiv təlim metodlarından istifadə // -Bakı: Pedaqogika... fəlsəfə doktoru dis., 2018.
2. Allahverdiyeva, U. The role of interactive teaching methods in teaching the Azerbaijani language // - Ancient Land, - 2022. № 5, - p. 302-305.
3. Babayeva, Z. Biologiyanın tədrisində yeni təlim metodları // - Baku: Zəngəzur, –2023.
4. Dadaşova, Q. Tədris prosesində yeni pedaqoji texnologiyaların tətbiqi istiqamətləri // – Baku: ADPU Press, –2020.
5. Eylazova, S. Pedaqoji fənlərin tədrisi zamanı interaktiv təlim metodlarından istifadə və İKT-nin rolu // - Naxçıvan Universiteti Elmi əsərləri, –2023. № 4, –p. 265–271.
6. Freeman, S., Eddy, S.L., McDonough, M., Smith, M.K., Okoroafor, N., Jordt, H., & Wenderoth, M.P. Active learning increases student performance in science, engineering, and mathematics. // - Proceedings of the National Academy of Sciences, - 2014. № 111, - p. 8410-8415. https:// www. pnas. org/ doi/full/10.1073/pnas.1319030111
7. Hajiyeva, N. A., Huseynov, R. T., Huseynova, M. R., Mammadova, A. V., & Mammadov, S. J. Digitalization of education in Azerbaijan // - Agora International Journal of Economical Sciences, - 2023. № 17, - p. 130-136.
8. Ilyasov, M. İ. Müasir təhsil: ənənəvi və innovasiya // - Baku: Elm və Təhsil, 2021.
9. Ismayilova, T. Conditions of effective use of interactive methods in teaching the history of Azerbaijan in high schools // - Molodiy Vchenyi (Young Scientist, - 2024. № 3, - p. 41-45.
10. Ümumi təhsil pilləsi üzrə Dövlət Standartları və proqramları (kurikulum // - State standards and programs for the general education level –Baku: Ministry of Education, –2020.
11. Sattarova, U., Arsenijevic, J., & Groot, W. An analysis of problem-based learning vs. traditional teaching among students in Azerbaijan // - Education Sciences, - 2023. № 13, - p. 1160-1167.

12. Suleymanova, A. V. Interactive methods: nature and pedagogical basis // - Scientific Works of the Institute of Education of the Republic of Azerbaijan, - 2025. № 1, - p. 32-41.
13. Tutal, Ö., & Yazar, T. Active learning improves academic achievement and learning retention in K-12 settings: a meta-analysis // - I-manager's Journal on School Educational Technology, - 2023. № 18, - p.1-8.
14. Vygotsky, L. S. Mind in society: The development of higher psychological processes // - Cambridge, - MA: Harvard University Press, 1978.

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