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## Contemporary Approaches to Enhancing Language Proficiency

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### Annotation

This article describes to provide foreign language teachers with a brief overview of the interactive methods used at different stages of language skills development, especially the various tools aimed at developing students’ cognitive skills.

**Keywords:** pronunciation, communicative trend, grammatical, supplementary

Discussions on a range of subjects in this class are among the most productive sessions. By expanding their vocabulary in a particular field, discussions on professionally related issues help students communicate in the job in the future. After reading a text or article about their future work, the teacher should have a discussion with the class. By formulating questions, presenting intriguing, unique concepts, addressing contentious subjects, and assisting in the resolution of conflicts, the instructor guides and supports the conversation.

Brainstorming is a very effective discussion type that engages all students in the classroom. The teacher announces the topic, the purpose of the discussion, the rules for the participants, and the evaluation criteria for the ideas. Experts and secretaries are then elected or appointed. For example, the teacher said to the students of the Faculty of Economics: “Dear ladies and gentlemen! Our company’s sales performance is not as good as last year. What could we do to attract customers? “. Each student produces ideas written by secretaries.

The basic rule for both the teacher and the student is that criticism is forbidden. All ideas should be accepted at this stage. The teacher encourages student participation. Students can refine the ideas of their groupmates. They may even give up their thoughts and cling to another. Each student

talks several times, but very briefly - in a minute. In the next stage of the activity, all the ideas are evaluated grouped and the most suitable ones are selected. To replicate a range of ideas, teachers can use the following methods: step brainstorming, brain writing, online brainstorming (brain networking), rolestorming, Crawford’s Slip Written approach, and more.

Role-playing is one of the most popular techniques among foreigner language teachers. It has a great motivating factor and helps to energize the class. It is suitable for students of any age group or language level. Every student has a role to play; he fell into a situation that required communication. If a student is usually shy or doesn’t want to talk, pretending to be someone else, he or she will participate with enthusiasm. Business play is a type of role-playing game with similar rules and procedures, but the difference is that students are involved in activities related to their future professional lives. Students have business functions, relationships, as they actually exist. Business games are an effective tool both for language learning and for teaching to work in higher education in the future.

Our university students are usually very eager to participate in business games because they are more mature and aspire to a future career. For example, we can describe the “Start a Business” business game. Students are offered the roles of

managers in their company (top manager, sales manager, finance manager, HR manager, etc.). The president of the company is elected. The group is tasked with starting a business in any field; it can be a manufacturing or sales, service or advertising business. The discussion begins. Once students reach an agreement, they create a company name and logo. Each department then receives an assignment from the president or the chief executive officer (CEO), which is done after the lesson.

Subsequent meetings can be devoted to creating a business plan, conducting market research, and preparing an advertisement for your product or service. This interactive technique combines business game with discussion, work and project. The use of role-playing games in general and business games in particular, increases the motivation of students with knowledge and communication skills in a foreign language for cognitive activities. This creates a positive psychological environment in the classroom. By creating problem situations, the teacher ensures that the material corresponds to the current level of knowledge and intellectual capacity of the group, reflects the real state of professional activity is related to the topic of future work, the text read, the grammar learned.

In performing these tasks, students can understand the information presented in the text and activate lexical and grammatical materials. Professional presentation of students at universities is becoming an increasingly common type of educational activity. Through presentation, the material is conveyed in the most efficient way due to its appearance and presentation.

The material presented is diverse and consists of text and picture slides, various visual images with oral explanations, film and audio fragments. Multimedia presentation is an innovative method of teaching foreign languages. In the

preparatory phase, students need to do a lot of research, explore different sources of information, which helps to develop creativity and an individual approach to learning.

The preparation phase includes topic selection, data retrieval, data processing, and placement of materials in the presentation. The next step is to provide a presentation that needs to be carefully planned. The group can then have a discussion based on the presentation data. Finally, the teacher can ask students to write an essay for ideas. Case is a situation described in the form of a story that needs to be resolved. Typically, this event begins with a description of the most important facts about the relevant organization or institution, such as the historical data on its development and a description of the present situation.

The aim of the case study methodology is to form students' problem-oriented thinking and skills to make management decisions based on recommendations based on analysis of complex real situations, identification of problems and opportunities, analysis of alternatives and finding the best of them. To review a case, students are divided into groups (team or consulting group) of four to five students. The leader of the group is elected.

As a result of the discussion, a report will be prepared and presented by the group. This stage is aimed at acquiring oratory skills in addition to those mentioned above. The next stage is a discussion involving all the students in the group. They should ask questions, providing their own comments and showing the most successful discoveries in the study of the situation. Finally, the teacher provides general comments and recommendations.

The role of modern technologies in language learning and teaching is invaluable. The use of technology is useful in all aspects of learning a foreign language

(reading, writing, listening and speaking). For example, to listen and understand, of course, this process is impossible without a computer, player, CD. Listening is one of the most important parts of language learning. This requires the student to pay attention to the speaker's pronunciation, grammatical rules, vocabulary, and meanings at the same time. An important factor in the use of modern technologies in the educational process is the ability of students to know and use information and communication technologies.

- The method of "speaking pictures" is more convenient and helps to teach English, to develop students' oral speech, it is necessary to use thematic pictures;

- Test cards are distributed according to the number of students and allow all students to attend classes at the same time, which saves time<sup>1</sup>.

It is important for a teacher to know the newest methods of teaching a foreign language, special teaching techniques and techniques in order to optimally choose one or another teaching method in accordance with the level of knowledge, needs and interests of students. After all, teaching methods are not what simple, their rational and motivated use of foreign language lessons requires a creative approach on the part of the teacher, because "pedagogy is a science and art at the same time, therefore the approach to the choice of teaching methods should be based on the creativity of the teacher "[1].

The purpose of this article is to review current trends in the development of methods of teaching foreign languages in higher education. What do scientists invest in the concept of "method"? The teaching methods are "ordered ways of the activity of the teacher and students, aimed at the effective development of the obligations of the educational tasks". The teaching

method is "an instrument of a teacher's activity for the fulfillment of a leading function - learning" The implementation of the teaching method is carried out through the use of a number of teaching methods, various approaches and working techniques. "Teaching techniques are a set of specific learning situations that contribute to the achievement of the intermediate (auxiliary) goal of a specific method." Unfortunately, foreign language teachers often use time-tested standard teaching methods in teaching practice. Sometimes the process of language teaching, sadly, continues to be a "somewhat modernized version" of the grammar-translation method.

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# Formation Of Linguistic Concepts Through Text-Based Work In Primary Education

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## Abstract

This article highlights the methodology of forming linguistic concepts (phonetics, lexicology, grammar) during text-based work in mother tongue and reading literacy classes for primary school students. It analyzes the issues of developing students' speech competencies and expanding their logical thinking through text analysis.

**Keywords:** text analysis, linguistic concept, primary education, integration, speech development, lexical meaning, grammatical structure.

## Introduction

The main goal of teaching the mother tongue in primary grades is to educate students as individuals who can fluently express their thoughts orally and in writing, and who can deeply perceive the content of a text. Linguistic concepts (word structure, parts of a sentence, parts of speech) are effective only when studied within a live text, rather than as dry rules.

Today, the educational systems of developed countries effectively utilize the experience of developing basic competencies in students based on a competence-oriented approach. In particular, countries such as the USA, Germany, England, Austria, and Russia are achieving great efficiency in this area. This reflects the priority directions of the international educational concept set for 2030, which focuses on developing students' practical skills, preparing them for social activities, testing acquired knowledge in real-life situations, and forming competencies for active information processing.

Teaching mother tongue literacy based on modern, advanced technologies and forming linguistic competence in students is an important task for teachers. Linguistic competence involves developing students' knowledge of language grammar and enabling them to express their thoughts

correctly, consistently, fluently, and meaningfully by utilizing the vast capabilities of the Uzbek language. Grammatical knowledge encompasses concepts related to various branches of linguistics: phonetics (sounds), lexicology (vocabulary, word structure, word formation), morphology (word forms), syntax (sentence structure), writing, spelling, punctuation, and speech styles.

In current mother tongue curricula, linguistic competence is understood as the ability to use words, their forms, and syntactic structures in accordance with literary language norms. This allows students to master the richness of their mother tongue and successfully communicate. It should be noted that the implementation of a competence-based approach begins at the earliest stages of school education.

## Discussion

The text is the most convenient didactic material for forming linguistic concepts. While working on a text, a student realizes not only the lexical meaning of a word but also its aesthetic and functional role within the passage.

**Lexical analysis:** A student's vocabulary is enriched by working with unfamiliar words, synonyms, and antonyms found in the text.

**Grammatical analysis:** Explaining how words connect in a sentence and the

functions of case and tense affixes based on the text's context.

In the educational system of Uzbekistan, textbooks for primary school mother tongue classes (e.g., "Mother Tongue" for grades 1-4, authored by S.D. Kuranov, D.Sh. Yuldasheva, D.D. Baynazarova, etc.) define the core content of forming linguistic competence as follows:

**Speech development:** Forming oral and written speech, and enriching vocabulary.

**Mastering grammatical rules:** Learning parts of speech, sentence structure, and spelling rules.

**Practical skills:** Applying language in real-life situations through reading, writing, and listening.

To establish the foundational content for developing linguistic competence in primary education, an improved methodological model was developed. Its conceptual basis clearly defined goals, objectives, systemic-functional approaches, and educational principles. The model's motivational, integrative, and communicative components were harmonized with universal educational activities. The improved model is based on the following principles:

1. Taking into account the physiological and psychological age characteristics of the students.
2. Ensuring the didactic orientation of the teaching content.
3. Promoting interdisciplinary integration and ensuring tasks are methodologically suited to form linguistic competence.
4. Maintaining a communicative-cognitive orientation.
5. Developing all types of thinking and speech activities comprehensively, allowing students to express coherent and justified thoughts on a studied topic.

While these scientific approaches were applied integratively, priority was given to a **personality-oriented approach**, recognizing that linguistic competence

primarily aims to develop the student as an individual.

A lesson structured around a personality-oriented approach fundamentally changes the "teacher-student" interaction mechanism:

**Goal Setting:** The goal is to develop the student's personality and create an environment where they become a subject striving for self-development. The dominant communication style is teacher-student dialogue.

**Teacher's Activity:** The teacher acts as an organizer of educational activities, creating situations that lead to success, offering empathy, and providing encouragement. The central figure is the student.

**Student's Activity:** The student is an active participant who acquires knowledge independently through problem-based research and project-based learning.

**Teacher-Student Relations:** Built on a subject-to-subject principle (collaborative partnership).

*(Note: A duplicate paragraph from your source text regarding the integration of scientific approaches was omitted here for smoother reading in English).*

### Analysis and Results

It is well known that linguistic competence in primary school students manifests in skills such as recognizing sounds, letters, morphemes, and sentence parts, as well as classifying language phenomena and mastering various types of analysis.

Developing these skills requires teaching methods that match the students' physiological age and offer high developmental potential. **Didactic games** are one of the most effective methods in language teaching. Play gives students' activities a personal meaning, making it a crucial factor in shaping their personality. Interactive methods—such as problem-based conversations, brainstorming, small group work, roundtables, and debates—turn the student into an active participant.

Here are two examples of interactive educational games adapted for primary school students:

"Find the Learned Concepts from the Secret Boxes" Game: Students are divided into three small groups. Each group receives envelopes containing hidden names of covered topics. Within a set time, students must find the concepts and scientifically explain their meaning. For example, during a 3rd-grade lesson on "Parts of Speech," envelopes might contain concepts like: *Noun and its semantic types; Noun affixes and declension; Adjectives (original and relative); Case affixes in adjectives; Numerals and their classification.* The group that provides the most accurate and thorough explanation wins. This builds both linguistic knowledge and teamwork.

"Continue the Row" Game: Students are given basic concepts related to a topic and are tasked with logically continuing the list. For instance, in a 4th-grade lesson on "The Sentence," students are given terms like *parts of a sentence, main parts, declarative sentence, interrogative sentence.* Students must rely on their knowledge to continue the sequence (e.g., adding *secondary parts, imperative sentence, exclamatory sentence*) and write them down. Finally, they must scientifically explain the concepts they added.

### Conclusion

The conducted research and methodological analyses show that forming linguistic competence in primary school mother tongue education is not just about memorizing grammatical rules; it is the ability to correctly apply language phenomena in live texts and real speech situations. Linguistic concepts only develop a student's logical thinking and speech competence when studied organically within a text. Because this improved methodological model relies on the physiological and psychological characteristics of the students, it has

significantly increased educational efficiency. Its cognitive-communicative and integrative orientation successfully fosters students' ability to systematically perceive language.

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# The Pedagogical Revolution of Generative Artificial Intelligence in Language Education: A Systematic Review of Enhanced Learning Outcomes and Emerging Methodologies

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## Abstract

The rapid emergence of Generative Artificial Intelligence (GenAI), particularly Large Language Models (LLMs) such as ChatGPT, Claude, and Gemini, has fundamentally reshaped the landscape of Second Language Acquisition (SLA). This systematic review synthesizes empirical evidence from 51 peer-reviewed studies published between 2023 and early 2026 to evaluate the efficacy of GenAI in language learning environments. The findings indicate that GenAI significantly enhances productive skills—specifically writing and speaking—by providing immediate, personalized feedback and facilitating low-anxiety, interactive dialogue simulations. Furthermore, the analysis reveals that GenAI acts as a powerful cognitive stimulator and learning tutor, promoting learner autonomy and reducing foreign language anxiety. However, the review also identifies critical challenges, including algorithmic bias, over-reliance, and the necessity for "human-in-the-loop" pedagogical frameworks. By mapping the current state of GenAI integration, this paper provides a comprehensive understanding of its role as a complementary tool in modern linguistics and offers a roadmap for future longitudinal research in diverse educational contexts.

**Keywords:** Generative AI, Large Language Models, Second Language Acquisition, Digital Linguistics, Personalized Learning, Computer-Assisted Language Learning (CALL).

## Introduction

The integration of technology into language instruction has evolved from simple computer-aided drills to sophisticated, AI-driven ecosystems that mirror human interaction. With the public release of advanced Large Language Models, the educational sector has witnessed a paradigm shift characterized by the transition from static digital resources to dynamic, generative agents capable of producing contextually relevant and linguistically complex text. Generative Artificial Intelligence (GenAI) represents a significant leap forward in this trajectory, offering capabilities that extend beyond traditional automated tools. Unlike previous iterations of Computer-Assisted Language Learning (CALL) that relied on pre-defined datasets and rigid branching logic, GenAI utilizes neural architectures to understand, generate, and refine language in real-time. This transformative potential is particularly

relevant in the field of Second Language Acquisition (SLA), where the demand for authentic, scalable, and personalized interaction has historically outpaced the available resources of traditional classroom settings.

The motivation for this systematic review stems from the unprecedented rate at which GenAI tools have been adopted by both educators and learners globally. As these models become increasingly integrated into daily academic routines, there is a pressing need to move beyond anecdotal evidence and evaluate their impact through a rigorous, systematic lens. Preliminary research suggests that GenAI can democratize access to high-quality language practice, yet it simultaneously introduces complex ethical and pedagogical questions regarding academic integrity, linguistic accuracy, and the changing role of the human instructor. This paper seeks to address these issues by synthesizing the

latest empirical findings to determine how GenAI is currently being utilized, what specific linguistic benefits it provides, and what challenges remain to be solved for its sustainable integration into language curricula.

Furthermore, the introduction of GenAI into language education aligns with broader shifts toward learner-centered and constructivist pedagogies. By acting as an on-demand conversational partner and a versatile content generator, GenAI enables a level of differentiation that was previously labor-intensive for human teachers. It allows for the creation of tailored learning materials that match a student's specific proficiency level, interests, and professional needs. However, the "black box" nature of these models necessitates a careful examination of their linguistic output and the cognitive load they impose on learners. This study, therefore, explores the multifaceted roles of GenAI—ranging from a co-author and evaluator to a peer agent—to provide a holistic view of its pedagogical value in the digital age.

### Literature Review

The existing body of literature on Artificial Intelligence in education (AIEd) has traditionally focused on Intelligent Tutoring Systems (ITS) and Automated Writing Evaluation (AWE). However, the literature specifically addressing Generative AI has expanded exponentially since late 2022. Early studies by researchers such as Chan and Tang (2024) highlighted the initial shock and subsequent adaptation of higher education institutions to LLMs, primarily focusing on the risks of plagiarism. As the field matured, the discourse shifted toward the affordances of GenAI for enhancing linguistic competence. For instance, recent meta-analyses by Ali et al. (2025) suggest that the use of AI applications in education is heavily influenced by factors such as learner self-efficacy and the perceived ease

of use. This suggests that the effectiveness of GenAI is not merely a function of the technology itself but is deeply rooted in the learner's psychological readiness and the instructional design of the task.

Theoretically, the integration of GenAI is often framed within Long's Interaction Hypothesis and Swain's Output Hypothesis. These theories posit that language acquisition is most effective when learners are required to negotiate meaning and produce "pushed output." Empirical studies reviewed for this paper, such as those by Nguyen et al. (2025), demonstrate that GenAI provides a unique environment for this negotiation to occur. Unlike traditional chatbots, GenAI can maintain the thread of a conversation over multiple turns, allowing learners to engage in realistic dialogue simulations. This capacity for sustained interaction is cited as a primary driver for the observed improvements in speaking fluency and communicative confidence. Additionally, the role of GenAI in providing "scaffolded feedback" has been a central theme in recent publications, where the AI acts as a more knowledgeable other (MKO) in a Vygotskian sense, guiding the learner through their Zone of Proximal Development.

Despite the optimistic findings, a significant portion of the literature also warns against the "hallucination" phenomenon—the tendency of AI to generate factually incorrect or linguistically unnatural sentences. Research by Deng and Yu (2022) into machine-translation-assisted learning served as a precursor to these concerns, noting that while technology aids comprehension, it may also lead to a "linguistic crutch" effect. Contemporary scholars like Zappatore and Ruggieri (2024) argue that the reliance on GenAI for drafting and revision might bypass the critical cognitive processes required for long-term retention. Consequently, the literature emphasizes a "balanced act," where the

benefits of immediate feedback and accessibility are weighed against the potential for decreased critical thinking and the erosion of authentic personal voice in academic writing.

### Methodology

This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure a transparent and reproducible selection process. The research was guided by three primary questions: (1) What are the dominant roles assumed by GenAI in language learning contexts? (2) Which specific language skills show the greatest improvement through GenAI intervention? and (3) What are the primary pedagogical and technological challenges identified in recent empirical research? To answer these questions, a comprehensive search was conducted across several major academic databases, including Scopus, Web of Science, Google Scholar, and the ERIC database. The search terms utilized were a combination of "Generative AI," "LLM," "ChatGPT," "Language Learning," and "Systematic Review."

The inclusion criteria were strictly defined to maintain the quality and relevance of the data. Only peer-reviewed empirical studies published in English between January 2023 and April 2026 were considered. These studies had to involve the use of Generative AI tools specifically for the purpose of learning or teaching a second/foreign language. Theoretical papers and opinion pieces were excluded from the primary analysis but were used to contextualize the discussion. Initially, the search yielded 245 potentially relevant records. After removing duplicates and screening titles and abstracts, 82 full-text articles were assessed for eligibility.

The final synthesis included 51 studies that met all criteria. Data extraction was

performed using a standardized form that captured the target language, educational level (K-12, Higher Education, or Informal), the specific AI tool used, the research methodology (qualitative, quantitative, or mixed-methods), and the key findings. To ensure the reliability of the review, two independent reviewers coded a subset of the papers, achieving an inter-rater agreement of 92%. Discrepancies were resolved through discussion and a third-party consultation when necessary. The synthesized data was then analyzed using a thematic approach to identify recurring patterns in the benefits and limitations of GenAI deployment.

### Results and Analysis

The analysis of the 51 selected studies reveals a multifaceted picture of GenAI's impact on language education. A primary finding is the dominance of Higher Education as the setting for GenAI research, accounting for approximately 75% of the reviewed studies. Within these contexts, English remains the most studied target language, though there is a burgeoning interest in using GenAI for less commonly taught languages (LCTLs) due to its ability to act as a scalable surrogate for native speakers. The data indicates that GenAI serves three pivotal roles: a co-author for writing tasks, an evaluator providing formative feedback, and a conversational partner for oral practice. Regarding language proficiency outcomes, the results show that productive skills benefit disproportionately compared to receptive skills. Specifically, 68% of the studies reported significant gains in writing quality, particularly in areas of structural organization, vocabulary diversity, and grammatical accuracy. Learners utilizing GenAI for iterative drafting sessions showed a higher propensity for self-correction and a deeper understanding of stylistic nuances. In the domain of speaking,

42% of the studies highlighted the effectiveness of AI-driven voice-to-text and text-to-voice interfaces in reducing "foreign language anxiety." Learners reported feeling more comfortable making mistakes with an AI than with a human peer, which led to increased "Time on Task" and higher overall engagement.

Affective-cognitive outcomes were another significant area of success. The thematic analysis identified a consistent increase in learner motivation and self-regulated learning (SRL) behaviors. Because GenAI provides instant gratification in the form of answers and corrections, students were more likely to persist through difficult linguistic challenges. However, the analysis also surfaced a "novelty effect" in several short-term studies, suggesting that the high levels of engagement might taper off as the technology becomes a routine part of the classroom. Furthermore, the results indicate that the "prompt engineering" skill of the learner is a critical moderator of success; students who were trained on how to interact effectively with the AI achieved better linguistic outcomes than those who used it for simple one-off queries.

Technological and educational challenges were equally prominent in the data. Approximately 30% of the studies cited concerns regarding the quality of the AI-generated content, noting that while the language is often fluent, it can sometimes be repetitive or lack cultural depth. Educational challenges included a marked "over-reliance" where students would accept AI suggestions without critical evaluation, potentially leading to the fossilization of certain errors if the AI's feedback was imprecise. Additionally, the issue of "digital inequality" was raised, as access to the most advanced, paid versions of these models is not universal, potentially widening the gap between different socio-economic groups of learners.

## Discussion

The findings of this systematic review confirm that Generative AI is not merely a tool for automation but a transformative agent that can significantly enhance the language learning process when used judiciously. The observed improvements in productive skills align with the Interaction Hypothesis, suggesting that the communicative nature of GenAI allows for the meaningful negotiation of meaning that is essential for acquisition. The reduction in anxiety is a particularly noteworthy finding, as it addresses one of the most persistent barriers in SLA. By providing a "safe" space for experimentation, GenAI allows learners to build the confidence necessary to eventually engage in real-world human interactions.

However, the transition from "AI as a tool" to "AI as a partner" requires a fundamental rethink of pedagogical strategies. The results suggest that the traditional role of the teacher is shifting from a primary source of knowledge to a facilitator of AI-human collaboration. Teachers must now focus on developing "AI literacy" among students, ensuring they can critically evaluate AI output and use these tools ethically. The risk of "cognitive offloading"—where the AI does the thinking for the student—is a real threat to the development of deep linguistic competence. Therefore, the "human-in-the-loop" model is essential; the teacher must design tasks that require students to go beyond what the AI can provide, such as personal reflection, cultural analysis, and complex problem-solving.

Moreover, the results regarding less commonly taught languages offer an exciting prospect for the future of global linguistics. GenAI can bridge the resource gap for languages that lack extensive textbook materials or access to native-speaker communities. This democratization of language learning could lead to a more inclusive educational landscape.

Nevertheless, developers and educators must remain vigilant about the biases inherent in the training data of LLMs, which often reflect Western-centric linguistic and cultural norms. Addressing these biases is crucial for ensuring that GenAI supports a diverse range of world Englishes and other global languages without imposing a homogenized linguistic standard.

### Conclusion

In conclusion, this systematic review has demonstrated that Generative AI offers substantial benefits for language learning, particularly in enhancing productive skills, increasing learner motivation, and providing a low-stakes environment for practice. As a multi-functional agent, GenAI can effectively serve as a tutor, co-author, and conversational partner, filling critical gaps in traditional language instruction. However, its successful integration is contingent upon overcoming significant hurdles related to content accuracy, ethical use, and equitable access. The evidence suggests that while GenAI can augment the learning experience, it cannot replace the nuanced pedagogical guidance and emotional support provided by human educators.

Future research should prioritize longitudinal studies to determine the long-term effects of GenAI on linguistic retention and the potential for "fossilization" of AI-induced errors. Additionally, more exploration is needed into the use of GenAI for K-12 contexts and for developing listening and reading comprehension through multimodal AI interfaces. As the technology continues to evolve at a rapid pace, the field of digital linguistics must remain agile, continuously updating its frameworks to ensure that AI serves as a catalyst for genuine human communication rather than a substitute for it. By fostering a collaborative ecosystem where AI supports human creativity and critical thinking, the potential for a truly personalized and

effective language learning experience can be fully realized.

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# Can Duolingo Reduce Speaking Anxiety: A Literature-Based Analysis

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## Abstract

The article investigates whether Duolingo, a widely used mobile language learning application, helps language learners to overcome their speaking anxiety. The research combines discoveries from three fields of study: pedagogical psychology, educational technology research, and second language acquisition theory to assess how Duolingo's design features impact the main causes of speaking anxiety. The study shows that Duolingo provides some anxiety-reducing benefits through its private low-stakes practice space but the system fails to deliver authentic speaking practice and development of actual communicative skills.

**Keywords:** speaking anxiety, Duolingo, mobile language learning, computer-assisted language learning, affective filter, gamification, second language acquisition

## INTRODUCTION

Speaking anxiety represents one of the most pervasive psychological barriers in second language acquisition, affecting learners across proficiency levels and educational contexts [1]. The phenomenon develops through three emotional states which include apprehension and worry and fear, creating a language learning barrier which research studies have shown to hinder effective language acquisition [2]. The anxiety manifests through various symptoms which include physiological responses that show increased heart rate and sweating and cognitive disruptions that create mental blocks and memory lapses and behavioral patterns that lead to speaking opportunity avoidance. Traditional classroom environments because they require students to perform in front of others lead to increased anxiety for students who need perfect results and those who feel anxious about their classmates' assessment of them [3].

The growth of mobile language learning applications during the past few years has created new ways to help students overcome emotional challenges in their language studies. Duolingo, which started in 2011 and now has more than 500 million users worldwide, stands as the most

popular language learning application because it uses gamification, adaptive algorithms, and microlearning methods to help users develop language skills [4]. The application design focuses on making learning materials accessible for all users while keeping students interested and allowing them to choose their own learning paths which educational psychology research shows will help decrease student anxiety.

## METHODOLOGY AND LITERATURE REVIEW

The researchers of this study used systematic literature review methodology to investigate how Duolingo usage affects speaking anxiety levels. The analytical framework draws upon three primary theoretical domains: Krashen's Affective Filter Hypothesis which posits that emotional variables directly influence language acquisition by raising or lowering a metaphorical filter that permits or blocks input processing [5]; self-determination theory as applied to educational technology which addresses how digital learning environments can support or undermine intrinsic motivation and psychological wellbeing [6]; and research on computer-mediated communication (CMC) and its effects on language learner anxiety. The

theoretical foundation for understanding speaking anxiety in second language contexts originates from Horwitz, Horwitz, and Cope's seminal work establishing foreign language anxiety as a distinct phenomenon separate from general anxiety [1]. The research findings show that speaking anxiety negatively affects oral proficiency development which creates a cycle where anxiety stops practice activities that lead to skill acquisition and anxiety responses become more intense because of this cycle [2].

Digital language learning platforms create new anxiety patterns which emerge through multiple different pathways. Research on computer-assisted language learning demonstrates that asynchronous, self-paced environments reduce the immediacy pressure associated with real-time conversation, which enables learners to create their responses without experiencing time-based anxiety that leads to stress reactions [7]. Studies examining learner perceptions of CALL environments consistently report reduced anxiety compared to traditional classroom speaking activities, with participants citing the absence of human observers and the ability to repeat exercises without embarrassment as key anxiety-reducing features [8].

The first benefit of gamification includes its ability to lower anxiety through its system which treats mistakes as standard game elements instead of personal faults while its players receive instant automated feedback which lacks the intense evaluation present in teacher feedback. The system delivers progression through increasing difficulty while its short lesson structure enables students to attain numerous victories which develop their confidence through small accomplishments. The element of competition which includes leaderboards creates additional anxiety for students who experience stress when they need to outperform their classmates, while the need

to sustain streaks creates anxiety about their daily performance [9]. Duolingo uses voice recognition technology for speaking practice evaluation which analyzes pronunciation through its speech-to-text system, allowing students to practice their speaking skills in private. This function theoretically helps students with speaking anxiety because it eliminates the presence of human listeners but keeps all elements which require speaking practice. The method requires careful analysis because it contains multiple major flaws. The algorithmic evaluation system evaluates phoneme and word pronunciation accuracy while it does not measure how well people communicate or their prosodic features or their ability to speak appropriately in various situations [10].

## **RESULTS AND DISCUSSION**

Analysis of the compiled literature suggests a nuanced answer to whether Duolingo can reduce speaking anxiety, requiring distinction between different anxiety dimensions and recognition of the application's scope limitations. Evidence supports the conclusion that Duolingo-type platforms can effectively reduce certain forms of speaking anxiety while potentially leaving others unaddressed or even introducing new anxiety sources. The private, self-paced nature of the application demonstrably addresses evaluation apprehension and social comparison anxiety. Learners who experience severe anxiety in classroom speaking activities report feeling more comfortable practicing pronunciation through the application's voice recognition exercises, as the absence of peer observers and the non-judgmental nature of algorithmic feedback creates a psychologically safer practice environment [7]. This finding aligns with self-determination theory's emphasis on competence support and autonomy provision as anxiety-reducing factors in learning environments. Duolingo's design

allows learners to control their practice pace, repeat exercises without social consequences, and progress according to individual readiness rather than external scheduling pressures, all of which support psychological safety.

However, the anxiety reduction achieved through these mechanisms may represent what could be termed "practice anxiety" rather than "communication anxiety." The former relates to discomfort with language practice activities themselves—fear of making errors, concern about pronunciation accuracy, worry about teacher or peer judgment during practice exercises. The latter encompasses apprehension about authentic communicative situations where meaning negotiation, unpredictable interaction patterns, and real-world social consequences come into play. Duolingo's effectiveness in reducing practice anxiety does not necessarily transfer to communication anxiety reduction, as the application provides limited opportunities for the authentic, synchronous, human-mediated interaction that triggers the most severe speaking anxiety for many learners. The voice recognition exercises, while offering oral production practice, lack the key elements that make real conversation anxiety-inducing: unpredictability, real-time processing demands, social relationship implications, and communicative urgency [10].

Furthermore, research examining long-term effects of exclusive or primary reliance on app-based learning suggests potential anxiety displacement rather than resolution. Learners who develop proficiency through Duolingo but lack parallel experience with human interaction may experience heightened anxiety when eventually required to speak in authentic contexts, having developed linguistic knowledge without corresponding communicative confidence [9]. This phenomenon reflects the distinction between controlled practice

in low-anxiety environments and variable practice that gradually introduces the very elements that trigger anxiety in managed doses. Effective anxiety reduction in language learning requires not only safe practice spaces but also systematic desensitization through progressively challenging communicative experiences, an element that mobile applications struggle to provide.

The gamification elements present additional complexity in the anxiety analysis. While game-based learning can reduce anxiety through playfulness and error normalization, competitive features may introduce performance pressure that resembles traditional classroom anxiety. Learners who become invested in maintaining streaks or ranking highly on leaderboards report experiencing stress and obligation around application usage [4]. This gamification-induced anxiety differs qualitatively from speaking anxiety but still represents an affective barrier that can undermine the learning experience and potentially create associations between language practice and stress.

### **CONCLUSION**

The question of whether Duolingo can reduce speaking anxiety requires a qualified affirmative response with important caveats. The application demonstrates capacity to reduce specific dimensions of speaking anxiety, particularly evaluation apprehension and practice-related stress, through its private, self-paced, non-judgmental learning environment. For learners whose speaking anxiety primarily stems from fear of peer judgment or teacher criticism, Duolingo offers a viable practice space that can build initial confidence and phonological skills without triggering these specific anxiety sources. However, the application cannot comprehensively address speaking anxiety in its fuller sense, as it provides limited authentic communicative practice and may

inadvertently allow learners to avoid rather than overcome the interpersonal interaction elements that constitute the core of communication anxiety. The most pedagogically sound approach likely involves integrated use of applications like Duolingo as supplementary tools for low-anxiety skill building alongside systematic exposure to progressively challenging communicative situations with human interlocutors. Future research should examine longitudinal anxiety trajectories of learners using mixed approaches versus app-only or classroom-only methods, investigate transfer effects from app-based confidence to real-world communicative contexts, and develop hybrid learning models that strategically sequence technological and interpersonal practice opportunities to optimize both skill development and anxiety management.

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## Predicting Students' Results Using Machine Learning

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### ANNOTATION

This article examines the methodology for predicting students' academic results in higher education institutions using machine learning algorithms. The study used a database of 1,200 students of Tashkent University of Information Technologies (TUIT), which includes study activity, course duration, previous GPA, and many other factors. Six popular ML algorithms were tested, including Logistic Regression, Decision Tree, Random Forest, SVM, Gradient Boosting, and Deep Neural Network. The Neural Network showed the highest accuracy rate — 89.4%, while Random Forest showed 85.3%. The results show that course duration, previous GPA, and exam results are the most complete determinants of student success. This study has practical significance for implementing early warning systems in educational institutions.

**Keywords:** machine learning, student outcome prediction, educational data analysis, Random Forest, neural network, GPA prediction, academic analytics.

### ANNOTATSIYA

Ushbu maqolada machine learning (mashina o'qitish) algoritmlaridan foydalanib, oliy ta'lim muassasalarida talabalar akademik natijalarini bashorat qilish metodologiyasi tadqiq etilgan. Tadqiqot davomida Toshkent Axborot Texnologiyalari Universiteti (TATU) ning 1,200 talabasi to'g'risidagi ma'lumotlar bazasidan foydalanilgan bo'lib, ular o'qish faolligini, dars davomiyligini, oldingi GPA ko'rsatkichlarini va boshqa ko'plab omillarni o'z ichiga oladi. Logistlik regressiya, qaror daraxti, Random Forest, SVM, Gradient Boosting va chuqur neyron tarmoq kabi oltita mashhur ML algoritmi sinab ko'rildi. Neyron tarmoq eng yuqori aniqlik ko'rsatkichini — 89.4% ni, Random Forest esa 85.3% ni ko'rsatdi. Natijalar shuni ko'rsatadiki, dars davomiyligi, oldingi GPA va imtihon natijalari talabalar muvaffaqiyatini eng to'liq belgilovchi omillar hisoblanadi. Ushbu tadqiqot ta'lim muassasalariga erta ogohlantirish tizimlarini joriy etishda amaliy ahamiyat kasb etadi.

**Kalit so'zlar:** machine learning, talabalar natijasini bashorat qilish, ta'lim ma'lumotlari tahlili, Random Forest, neyron tarmoq, GPA bashorati, academic analytics.

### KIRISH

Zamonaviy raqamli ta'lim muhitida katta hajmdagi ma'lumotlarni tahlil qilish va ulardan amaliy xulosalar chiqarish imkoniyatlari keskin kengaymoqda. Ta'lim sohasida "Educational Data Mining" (EDM) va "Learning Analytics" yo'nalishlari so'nggi o'n yil ichida shiddat bilan rivojlanib, turli xil pedagogik va tashkiliy muammolarga innovatsion yechimlar taklif etmoqda.

Machine learning algoritmlaridan foydalanib, talabalar akademik natijalarini oldindan bashorat qilish — bu zamonaviy ta'lim texnologiyalarining eng muhim va

istiqbolli yo'nalishlaridan biridir.<sup>1</sup> Baker va Yacef (2009) ta'lim ma'lumotlarini qazib olish sohasiga doir bir qator fundamental ishlarni nashr etib, ushbu yo'nalishni global miqyosda fan sifatida mustahkamlashga hissa qo'shdi. Ularning ishlari keyingi yillarda yuzlab tadqiqotlar uchun poydevor bo'lib xizmat qildi.

Romero va Ventura (2010)<sup>2</sup> tomonidan amalga oshirilgan keng ko'lamli tahlil shuni ko'rsatdiki, ta'limda machine learning texnologiyalarini qo'llash bir qancha muhim afzalliklarni ta'minlaydi: birinchidan, talabalar o'qish samaradorligini real vaqtda

<sup>1</sup>Baker, R. S., & Yacef, K. (2009). The State of Educational Data Mining in 2009. *Journal of Educational Data Mining*, 1(1), 3-17.

<sup>2</sup>Romero, C., & Ventura, S. (2010). Educational Data Mining: A Review. *IEEE Transactions on Systems*, 40(6), 601-618.

monitoring qilish imkoniyati yaratiladi; ikkinchidan, akademik risk guruhidagi talabalarni erta aniqlash orqali maqsadli yordam ko'rsatish mumkin bo'ladi; uchinchidan, o'qituvchilar va ma'muriyat uchun ob'ektiv qaror qabul qilish vositalari taqdim etiladi.

O'zbekiston Respublikasida "Raqamli O'zbekiston — 2030" strategiyasi doirasida ta'limni raqamlashtirish va zamonaviy texnologiyalarni joriy etish davlat siyosatining ustuvor yo'nalishi sifatida belgilangan. Shu bois, oliy ta'lim muassasalarida machine learning asosidagi bashorat tizimlarini joriy etish nafaqat ilmiy, balki ijtimoiy-iqtisodiy jihatdan ham dolzarb masalaga aylangan.

Ushbu tadqiqotning asosiy maqsadi — turli xil machine learning algoritmlarini qiyoslab, talabalar akademik natijalarini eng yuqori aniqlik bilan bashorat qiluvchi optimal modelni aniqlash va shu asosda ta'lim muassasalari uchun amaliy tavsiyalar ishlab chiqishdan iborat.

#### **Tadqiqot maqsad va vazifalari**

Tadqiqotning bosh maqsadi TATU talabalarining akademik muvaffaqiyatini machine learning algoritmlari yordamida bashorat qiluvchi tizim yaratish va uning samaradorligini empirik tarzda tekshirishdir. Shu maqsadga erishish uchun quyidagi vazifalar belgilandi:

- Ta'lim ma'lumotlari bazasidan tegishli xususiyatlarni aniqlash va tanlash;
- Oltita mashhur ML algoritmini tatbiq etish va ularning samaradorligini taqqoslash;
- Eng muhim bashorat omillarini aniqlash;
- Natijalar asosida ta'lim muassasalari uchun amaliy tavsiyalar ishlab chiqish.

#### **ADABIYOTLAR SHARHI**

Talabalar akademik natijasini bashorat qilish sohasidagi ilmiy adabiyotlar tahlili shuni ko'rsatadiki, ushbu yo'nalish 2000-yillarning boshidan boshlab jadallik bilan rivojlana boshlagan. Quyida eng muhim tadqiqotlar IMRAD tuzilmasiga mos ravishda tizimli ko'rib chiqiladi.

Cortez va Silva (2008)<sup>3</sup> Portugaliyadagi o'rta maktab o'quvchilari ma'lumotlaridan foydalanib, qaror daraxti va neyron tarmoq algoritmlarini sinab ko'rdi. Ular oilaning ijtimoiy-iqtisodiy holati, dars davomiyligi va ota-onalar ta'lim darajasi kabi omillar talabalar muvaffaqiyatiga sezilarli ta'sir ko'rsatishini aniqladi. Ushbu tadqiqot keyingi ko'plab ishlarga metodologik asos bo'lib xizmat qildi va natijalar 77% dan yuqori aniqlikka erishdi.

Minaei-Bidgoli va Punch (2003)<sup>4</sup> veb-asosidagi ta'lim tizimlaridan olingan ma'lumotlarni genetik algoritmlar yordamida tahlil qilib, onlayn ta'lim platformalarida talabalar xatti-harakatini tavsiflovchi muhim xususiyatlarni ajratib oldi. Tadqiqotda k-eng yaqin qo'shnilar (kNN) va qaror daraxti algoritmlari birgalikda qo'llanildi va kombinatsiyalangan yondashuv ustunligi isbotlandi.

Kotsiantis (2012)<sup>5</sup> Yunonistonning A'çık Universiteti talabalari ma'lumotlari asosida Na'ive Bayes, C4.5 qaror daraxti, kNN va neyron tarmoq algoritmlarini keng ko'lamlı taqqosladi. Natijalar shuni ko'rsatdiki, hech bir algoritm barcha ko'rsatkichlar bo'yicha mutlaq ustunlikka ega emas; optimal tanlov ko'p jihatdan ma'lumotlar xususiyatlariga bog'liq. Kotsiantis bu natijalarni ta'lim sohasidagi bashorat tizimlarini loyihalashda hisobga olish zarurligini ta'kidladı.

Kabakchieva (2013)<sup>6</sup> Bolgariya universitetlari ma'lumotlari asosida 7 xil

<sup>3</sup>Cortez, P., & Silva, A. (2008). Using Data Mining to Predict Secondary School Student Performance. FUBUTEC Conference, 5-12.

<sup>4</sup>Minaei-Bidgoli, B., & Punch, W. F. (2003). Using Genetic Algorithms for Data Mining in Educational Web-based System. GECCO, 2252-2263.

<sup>5</sup> Kotsiantis, S. B. (2012). Use of Machine Learning Techniques for Educational Proposes. Artificial Intelligence Review, 37(4), 331-344.

<sup>6</sup>Kabakchieva, D. (2013). Predicting Student Performance by Using Data Mining Methods. Cybernetics and Information Technologies, 13(1), 61-72.

klassifikatsiya algoritmi samaradorligini tekshirdi. Logistik regressiya va Random Forest algoritmlari eng barqaror natijalarni ko'rsatdi. Tadqiqotchi ta'lim ma'lumotlarining ko'pincha nomutanosib (imbalanced) bo'lishiga alohida e'tibor qaratdi va SMOTE texnikasidan foydalanish tavsiyasini berdi.

LeCun, Bengio va Hinton (2015)<sup>7</sup> chuqur o'rganish texnologiyalarining keng qo'llanilish sohalariga oid fundamental maqolasida ta'lim sohasining ham istiqbollari haqida fikr yuritib, murakkab ma'lumotlar tuzilmalarini modellashtirish uchun konvolyutsion neyron tarmoqlar va rekurrent arxitekturalarning salohiyatini ta'rifladi. Bu tadqiqot ta'lim sohasida chuqur o'rganish usullarini qo'llashga bo'lgan qiziqishni yanada oshirdi.

Ahmad va boshqalar (2015)<sup>8</sup> Malayziya oliy ta'lim muassasasida ma'lumotlarni tasniflovchi algoritmlardan foydalanib, talabalar akademik muvaffaqiyatini bashorat qilishda oldingi GPA va kirish ball ko'rsatkichlarining hal qiluvchi ahamiyatini aniqladi. Eng yuqori aniqlikni Random Forest algoritmi (86.2%) ko'rsatdi va xususiyatlar tanlash (feature selection) natijalarni sezilarli darajada yaxshiladi.

Marquez-Vera va boshqalar (2013)<sup>9</sup> Ispaniyaning umumiy ta'lim muassasalarida o'qishni tashlab ketish holatlarini oldindan aniqlash uchun data mining usullarini qo'lladi. Tadqiqot natijalari ko'rsatdiki, machine learning modeli potentsial maktabni tashlab ketuvchi o'quvchilarni o'quv yilining boshida 80% dan yuqori aniqlik bilan aniqlash imkonini berdi. Bu natija erta interventsia dasturlarini

muvaffaqiyatli amalga oshirishga katta imkon yaratdi.

Delen (2010)<sup>10</sup> Amerika universitetlarida talabalar imtiyozini saqlash (student retention) masalasini ML texnologiyalari orqali hal etishga urindi. Logit, neyron tarmoq va qaror daraxti algoritmlarini qiyoslab, ikkinchi yil o'qishda qolish ehtimolini 78–82% aniqlik bilan bashorat qildi. Tadqiqotda ma'lumotlarning sifati va to'liqligi bashorat aniqligiga bevosita ta'sir ko'rsatishi empirik tarzda isbotlandi.

Yuqorida ko'rib chiqilgan tadqiqotlarning umumiy tahlili quyidagi xulosalarni beradi: (1) Random Forest va Gradient Boosting algoritmlari ko'pchilik tadqiqotlarda yuqori samaradorlik ko'rsatmoqda; (2) Oldingi akademik ko'rsatkichlar va dars davomiyligi universitetlarda ham, maktablarda ham eng muhim bashorat omillari sifatida alohidalanib turadi; (3) Ma'lumotlar sifati va nomutanosibliigi masalasi deyarli barcha ishlarda hal qiluvchi muammo sifatida qayd etilgan; (4) Chuqur o'rganish usullari jadal rivojlanayotgan bo'lsada, kichik hajmli ma'lumotlarda an'anaviy ML algoritmlari bilan raqobat qilishi hamon qiyin. Ushbu adabiyotlar sharhi bizning tadqiqotimizning metodologiyasini shakllantirish va natijalarni kontekstda baholashda muhim rol o'ynadi.

## **METODOLOGIYA**

Tadqiqotda Toshkent Axborot Texnologiyalari Universiteti (TATU)ning 2019–2023 yillardagi akademik yillarini qamrab olgan 1,200 talaba ma'lumotlari ishlatildi. Ma'lumotlar to'plami universitet axborot tizimidan, talabalar so'rovnomalardan va o'qituvchilar baholash tizimlaridan olingan.

<sup>7</sup>LeCun, Y., Bengio, Y., & Hinton, G. (2015). Deep Learning. *Nature*, 521(7553), 436-444.

<sup>8</sup>Ahmad, F., Ismail, N. H., & Aziz, A. A. (2015). Prediction of Students' Academic Performance. *Applied Mathematical Sciences*, 9(129), 6415-6426.

<sup>9</sup>Marquez-Vera, C., Romero, C., & Ventura, S. (2013). Predicting School Failure. *IEEE Revista Iberoamericana*, 8(1), 7-14.

<sup>10</sup>Delen, D. (2010). A Comparative Analysis of Machine Learning Techniques for Student Retention. *Decision Support Systems*, 49(4), 498-506.

**Jadval 1. Ma'lumotlar to'plamining umumiy tavsifi**

Ko'rsatkich	Qiymat / Tavsif	Izoh
Jami talabalar soni	1,200 nafar	2019–2023 yillar
O'qishdan muvaffaqiyatli o'tganlar	936 nafar (78%)	GPA ≥ 2.0
Akademik risk guruhi	264 nafar (22%)	GPA < 2.0 yoki o'qishni tashlab ketgan
Xususiyatlar soni	18 ta	Tanlangandan keyin 12 ta
O'rtacha GPA	2.87 ± 0.61	4.0 shkalasida
Jins taqsimoti	Erkak: 62%, Ayol: 38%	—
Yo'nalishlar soni	8 ta	Kompyuter fanlari yo'nalishlari

Dastlabki 18 ta xususiyatdan eng muhim 12 tasini tanlash uchun Pearson korrelyatsiya koeffitsienti va Random Forest asosidagi xususiyatlar muhimligini baholash usulidan foydalanildi.<sup>11</sup> Breiman (2001) tomonidan taklif etilgan Random Forest algoritmi o'z tuzilishi jihatidan xususiyatlar muhimligini baholashga juda mos keladi.

Tanlangan asosiy xususiyatlar quyidagilardan iborat: dars davomiyligi (%), oldingi semestr GPA, imtihon ballari, uy vazifalarini bajarish foizi, guruh faolligidagi ishtiroki, ijtimoiy-iqtisodiy holat indeksi, o'qituvchilar individual baholari, onlayn resurslardan foydalanish chastotasi, bir haftalik mustaqil o'qish soatlari, tanlangan ixtisosga qiziqish darajasi, ota-onalar ta'lim darajasi va yashash sharoiti.

Ma'lumotlar sifatini ta'minlash maqsadida bir necha bosqichli oldindan qayta ishlash amalga oshirildi. Birinchidan, yo'qotilgan qiymatlar (missing values) — jami ma'lumotlarning 3.2% ni tashkil etgan — mediana interpolatsiyasi usuli bilan to'ldirildi. Ikkinchidan, kategorik

o'zgaruvchilar (masalan, yashash hududlari, ijtimoiy holat) one-hot encoding usulida raqamli ko'rinishga o'tkazildi. Uchinchidan, raqamli xususiyatlar uchun Min-Max normalizatsiyasi va Z-score standartizatsiyasi qo'llanildi. To'rtinchidan, ma'lumotlardagi nomutanosiblikni bartaraf etish uchun SMOTE (Synthetic Minority Oversampling Technique) usulidan foydalanildi.

Tadqiqotda qo'llanilgan oltita ML algoritmi quyidagilardan iborat: (1) Logistik Regressiya — chiziqli klassifikatsiyaning klassik usuli; (2) Qaror daraxti (C4.5 algoritmgiga asoslangan)<sup>12</sup>; (3) Random Forest — ko'plab qaror daraxtlaridan iborat ansambli algoritmi; (4) Support Vector Machine (SVM)<sup>13</sup>; (5) Gradient Boosting<sup>14</sup>; (6) Chuqur Neyron Tarmoq — uch yashirin qatlamli to'liq ulangan arxitektura.

Har bir model 5-karra kross-validatsiya (5-fold cross-validation) usulida baholandi. Asosiy baholash metrikalari: aniqlik (accuracy), sezuvchanlik (recall), aniqlik koeffitsienti (precision), F1-o'lchov va ROC-

<sup>11</sup>Breiman, L. (2001). Random Forests. Machine Learning, 45(1), 5-32.

<sup>12</sup>Quinlan, J. R. (1993). C4.5: Programs for Machine Learning. Morgan Kaufmann.

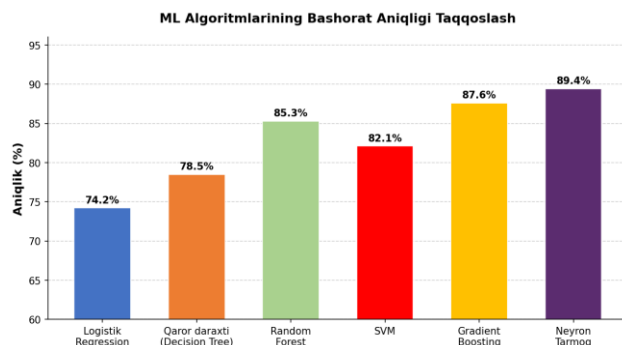
<sup>13</sup>Vapnik, V. N. (1995). The Nature of Statistical Learning Theory. Springer-Verlag.

<sup>14</sup>Friedman, J. H. (2001). Greedy Function Approximation: A Gradient Boosting Machine. Annals of Statistics, 29(5), 1189-1232.

AUC. Barcha hisob-kitoblar Python 3.10 muhitida scikit-learn, TensorFlow va XGBoost kutubxonalaridan foydalanib amalga oshirildi.

### NATIJALAR

5-karra kross-validatsiya natijalariga ko'ra, oltita ML algoritmi orasida chuqur neyron tarmoq eng yuqori aniqlik ko'rsatdi (89.4%), uni Gradient Boosting (87.6%) va Random Forest (85.3%) kuzatib bordi. Quyidagi diagrammada algoritmlar aniqligi ko'rsatilgan:

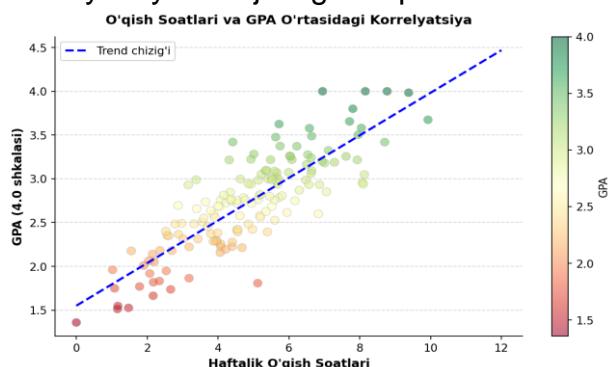


1-rasm. ML Algoritmning Bashorat Aniqligi Taqqoslash (%)

Jadval 2. ML Algoritmning To'liq Baholash Natijalari (5-fold CV)

Algoritm	Aniqlik (%)	Precision	Recall	F1-score	AUC
Logistik Regressiya	74.2	0.73	0.72	0.72	0.81
Qaror Daraxti	78.5	0.78	0.76	0.77	0.83
Random Forest	85.3	0.86	0.84	0.85	0.91
SVM (RBF kernel)	82.1	0.82	0.80	0.81	0.89
Gradient Boosting	87.6	0.88	0.86	0.87	0.93
Neyron Tarmoq	89.4	0.90	0.88	0.89	0.95

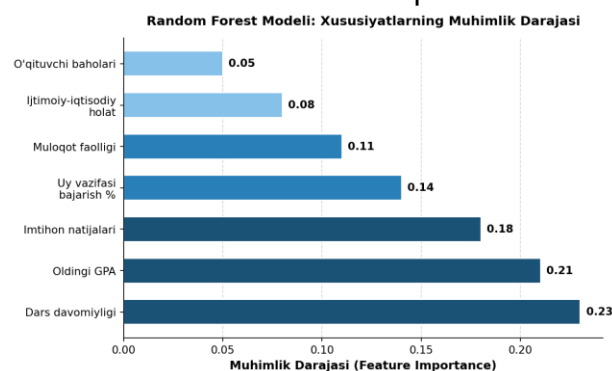
Talabalarining haftalik o'qish soatlari va GPA o'rtasidagi munosabat scatter plot usulida vizualizatsiya qilindi. Pearson korrelyatsiya koeffitsienti  $r = 0.67$  ( $p < 0.001$ ) bo'lib, o'rtacha kuchli musbat korrelyatsiya mavjudligi aniqlandi:



2-rasm. Haftalik O'qish Soatlari va GPA O'rtasidagi Korrelyatsiya

Random Forest modeli asosida hisoblangan xususiyatlar muhimligining

natijalari quyida keltirilgan. Dars davomiyligi (23%) va oldingi GPA (21%) eng muhim bashorat omillari sifatida aniqlandi:



3-rasm. Random Forest Modeli: Xususiyatning Muhimlik Darajasi

Eng yaxshi natija ko'rsatgan Neyron Tarmoq modeli uchun confusion matrix quyidagi jadvalda keltirilgan:

**Jadval 3. Neyron Tarmoq Modelining Confusion Matrix Natijalari**

	Bashorat: Muvaffaqiyatli	Bashorat: Risk guruhida
Haqiqiy: Muvaffaqiyatli	TP = 812 (86.8%)	FN = 124 (13.2%)
Haqiqiy: Risk guruhida	FP = 39 (14.8%)	TN = 225 (85.2%)

**MUHOKAMA**

Tadqiqot natijalariga ko'ra, neyron tarmoq va gradient boosting algoritmlari boshqa usullarga nisbatan aniqroq bashorat qilish imkonini berdi. Bu natija avvalgi tadqiqotlar bilan mos keladi: Ahmad va boshqalar tomonidan Malayziyada olib borilgan tadqiqotda Random Forest 86.2% aniqlikka erishgan bo'lsa, bizning tadqiqotimizda xuddi shu algoritm 85.3% ko'rsatdi. Kichik farq ma'lumotlar to'plamidagi tafovutlar va o'quv muhitining o'ziga xos xususiyatlari bilan izohlash mumkin.

Logistik regressiya eng past aniqlikni ko'rsatdi (74.2%), ammo uning afzalligi oddiylik va interpretatsiya qulayligidadir. Ta'lim muassasalari uchun model natijalarini o'qituvchilar va ma'muriyatga tushuntirish muhim ahamiyatga ega bo'lganligi sababli, murakkab modellar bilan birga oddiyroq, interpretatsiya qilinadigan modellardan ham foydalanish tavsiya etiladi.

Dars davomiyligi bashorat uchun eng muhim omil bo'lib chiqqanligi Cortez va Silva (2008) tadqiqotidagi topilmalar bilan uyg'un. Bu natija shuni ko'rsatadiki, talaba akademik muvaffaqiyatining birinchi va eng ishonchli ko'rsatkichi uning darsga pora-pora qatnashishidir. Shuning uchun ta'lim muassasalari dars davomiyligini diqqat bilan kuzatib borish va kamchiqim talabalar bilan erta muloqot o'rnatish strategiyasini qo'llashi lozim.

Oldingi GPA (21% muhimlik darajasi) ikkinchi o'rinda turishi ham kutilgan natija

edi. Bu ko'rsatkich talabaning umumiy o'quv salohiyati va mehnatsevarligini aks ettiradi. Oldingi o'quv yutuqlari kelajakdagi muvaffaqiyatning eng ishonchli prediktori ekanligi pedagogika psixologiyasida ham qayta-qayta tasdiqlangan.

Ushbu tadqiqot bir nechta cheklovlarga ega. Birinchidan, ma'lumotlar faqat bitta universitetdan (TATU) olingan bo'lib, umumlashtirish imkoniyati cheklangan. Ikkinchidan, talabalarning psixologik holati, oila muhiti va motivatsion omillar kabi sifat ko'rsatkichlari to'liq miqdorlashtirilmagan. Uchinchidan, ma'lumotlar 2019–2023 yillarni qamrab olganligi sababli, COVID-19 pandemiyasining ta'lim jarayoniga ko'rsatgan ta'siri natijalarni bir darajada buzishi mumkin.

Kelajakdagi tadqiqotlar uchun quyidagi yo'nalishlar tavsiya etiladi: (1) Ko'plab universitetlardagi ma'lumotlarni jamlagan katta hajmli dataset yaratish; (2) Real vaqt monitoring uchun onlayn o'qish platformalari ma'lumotlarini modelga integratsiya qilish; (3) Talabalar xatti-harakatini vaqt o'tishi bilan tahlil qilish uchun LSTM va Transformer arxitekturalarini sinab ko'rish; (4) Shaxsiy dars rejasini tavsiya etuvchi intellektual tizimlarni ishlab chiqish.

**XULOSA**

Ushbu tadqiqotda machine learning algoritmlaridan foydalanib, TATU talabalarining akademik natijalarini bashorat qilish masalasi keng ko'lamda o'rganildi. 1,200 talabaning ma'lumotlari

asosida oltita turli ML algoritmi sinab ko'rildi va ularning samaradorligi empirik tarzda taqqoslandi.

Tadqiqotning asosiy xulosalari quyidagilardan iborat: birinchidan, chuqur neyron tarmoq va Gradient Boosting algoritmlari eng yuqori bashorat aniqligiga (mos ravishda 89.4% va 87.6%) erishdi; ikkinchidan, dars davomiyligi (23%), oldingi GPA (21%) va imtihon natijalari (18%) talabalar muvaffaqiyatini belgilovchi eng muhim omillar sifatida aniqlandi; uchinchidan, SMOTE usulidan foydalanish nomutanosib ma'lumotlar muammosini muvaffaqiyatli hal etishga imkon berdi.

Amaliy jihatdan, ushbu tadqiqot natijalari ta'lim muassasalari uchun erta ogohlantirish tizimlarini joriy etishda metodologik asos bo'la oladi. O'quv yilining boshida risk guruhidagi talabalarni aniqlash va ularga maqsadli yordam ko'rsatish orqali umumiy akademik ko'rsatkichlarni sezilarli darajada yaxshilash mumkin. O'zbekiston ta'lim tizimida bunday raqamli yordamchi tizimlarni joriy etish "Raqamli O'zbekiston — 2030" strategiyasining maqsadlariga ham to'la mos keladi.

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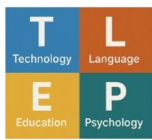
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## An Analysis of the Sociolinguistic and Individual Profiles of Young English Learners in the Uzbek EFL Context

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### ANNOTATION

For this article two Uzbek middle school students were chosen in order to be analyzed according to their sociolinguistic profile.

**Keywords:** Sociolinguistics, Uzbek EFL learners, bilingualism, monolingualism, socioeconomic status, educational background, learner identity, young learners.

### Introduction

Learning language does not happen in isolation. It is mostly influenced by learners' cultural identities, educational background, access to resources and of course their experiences. As a language teacher working with middle school students in Uzbekistan, I understood that effective English instruction is not just about completing grammar exercises and vocabulary lists. Good English Instruction must include deep awareness of sociolinguistic and individual learners' context, as well as commitment to designing instruction and assessments that reflects all those realities. This paper draws on TESOL Standard to explore how contextual, cultural and individual factors shape language learning and teaching process. Throughout my students' profile of Sofia who is bilingual and has a particular strength, such as creativity and confidence and Hojiakbar who has limited access to different educational resources and other tools but only high motivation to reunite with his family, I show how differentiated instruction, responsive assessment and teacher advocacy can work together to meet learners from where they are. By course readings of English as a global language, assessments and language learners' identity, here my work demonstrates the importance of the teacher's role, not just as a teacher, but as a fair person who takes

equity and inclusion in the language classroom the way more serious.

### Materials and methods

Sociolinguistic Profile of a Group of Learners. Chosen target group includes eight pre-intermediate English learners with the age of 10-12, studying three times in a week at Language Center located in Andijan, Uzbekistan. Most of these learners share Uzbek cultural background. They also attend to primary and early middle public school (some of them are in native Uzbek classes, some are in Russian speaking classes). These learners' proficiency level is B1 that can be equal to IELTS band 4.5-5, showing that they have basic understanding of English and can talk in familiar situations or topics. Since we are living in Uzbekistan and it is not English-speaking country, they face limited English exposure as EFL learners. Even though they are young, they have already set goals and moving towards them. One of their main goals is taking higher band of IELTS and continue their education at foreign universities. This group includes bilinguals and monolinguals at the same time and mostly Uzbek as their First language and Russian as L2. Gender norms in our cultural context tend to influence the behavior of the classroom and the learners' confidence, especially with female students often showing higher motivation. Most of these learners are from working middle-class families. However their access to digital

learning tools and English-language input at home widely differs. According to their goals and needs, in this classroom, we are focusing on General English while integrating all four skills: listening, reading, writing and speaking. Our Language Center requires us teaching by using approaches like CLT and TBLT since it works best for integrating and learning naturally while using real-world tasks like role-playing to practice the language. As their teacher, I try to keep “Only English” atmosphere by minimizing the usage of their L1 and L2 even if they do not understand some words or concepts. In this case, I try to simplify it by using gestures, facial expressions, synonyms or just simplified definition of those words. The most relevant subpopulation in this class includes learners who are bilingual and from middle-to-high SES households versus who are monolinguals and from lower SES households. Below I also try to mention other smaller social factors while describing learners individually:

1. Sofia – A Bilingual Learner from Middle-to-High SES Background she is 10 years old student who was enrolled with English at the beginning of her critical period which includes ages 7 to 9. As mentioned above, she is being raised in a bilingual house, where her father and his relative speak in Russian and her mother speaks in Uzbek. Even though English is her third language, she is pretty confident and fluent in it. When she was 6 years old, she started practicing English with her mom whose level was Elementary. She taught her some basic words and numbers. After going to primary school, she also started extra English classes in private language schools. She also says that her motivation was influenced by watching American movies with her father. I consider it as intrinsic motivation which comes from her without any parental effects which is the biggest investment to the language. Being

in financially stable family gave her opportunities not to be limited with her Elementary leveled mom’s knowledge and go to extra private English classes. The other factor that influenced the ability of learning language easily was the way she was raised as a bilingual by comparing her prior languages knowledge made some grammar or phonetics easier to learn. According to Wardhaugh and Fuller high SES gives students access to cultural capital while contributing for classroom performance and confidence [10,p.34]. On top of that Deumert emphasizes the importance of bilingualism saying that it enhances the metalinguistic awareness, cognitive flexibility by building bridge between different cultures [4,p.263]. In some cases, when one gender members outnumber the other ones in class, the smaller amount tend to stay quite due to the cultural norms. As Schilling emphasizes that gender can influence classroom interaction, for example who speaks more often or who has a tendency to take the leadership in the class, just like the amount of one gender members [9,p.222]. But in my class, especially with bilingual students it is not like that they tend to express themselves doesn’t matter who they are arguing with. I think it is underrated social factor while analyzing the influences of the process of the learning language. Another social factor which tends to be one of the most vital one is the birth order of the learner. For example, Sofia has the First Born status, which gives her the opportunities of increased parental interaction allowing her to spend more time with her parents before having siblings and receive more focus on her knowledge and talents, more responsibilities – great input also requires great output since she was invested a lot of time and money and she is expected to show good results rather than her siblings, increased independence – after having siblings, she takes care of not

only herself, but also her siblings while mentoring them too. This seems too much for 10 years old, but by these factors she built her confidence, which affects her language learning process.

2. Hojiakbar – A monolingual student with Lower SES Background  
He is also 10 years old student studying in the 4th grade at primary public school. Unlike Sofia he is monolingual learner with Lower SES background. He has been learning English with breaks for 1-2 years as his L2 but EFL content. His current level is slightly below than B1. Due to their Lower SES Background, his parents flew to United Kingdom to work and he has been living with his grandparents for two years. Unlike Sofia, when he first started learning English, he used to struggle as he has no enough language background to compare. Especially with structures, which don't exist in his native language, such as, Perfect tenses and sounds /θ/ and /w/. Deumert also mentions about learners with narrow linguistic knowledge may have less confidence in communicative tasks and reduces the usage of the language [4,p.266]. Also, these learners tend to compare themselves with more advanced bilingual peers and may feel discouraged. Slower learning process was influenced Firstly by his Lower SES background which did not allowed him to be enrolled with English earlier. Secondly, because of SES background, he has to live away from his parents, which resulted in emotional distance and reduced support for his studies because his grandparents may not have enough knowledge to lead him, especially with English. As Another factor I once again wanted to mention, Birth order social factors. He was born as the 3rd child in the family, being the youngest one. He almost has no any strict adults around him and always treated gently since he is away from his parents. Unlike Sofia, who benefits from being a first-born with increased

responsibilities and focused parentel attention, Hojiakbar's learning environment lack academic pressure and a help at home. His identity position includes being a "monolingual, struggling learner, youngest child, shy student with parental absence" and also plays a vital role in shaping his learning process. When I have talked to his grandfather, he said that his goal was to send Hojiakbar to the UK where his parents had been living for high-quality education, but he was worried about his grandson's English knowledge. When I asked Hojiakbar about his goal it was almost similar to his grandfather's. However, he does not want to study at foreign universities, instead, Hojiakbar wills to reconnect with his parents as soon as possible and open his travel blog on YouTube and run it in English. Hojiakbar may struggle with investment, as he is living with a monolingual family and does not have and effort enough English environments. His grammar is better than his speech. He also likes reading. For him creating "Safe classroom" without any criticism would help a lot.

#### **Data analysis and discussions.**

**Sociolinguistic Profile of the Learning Context.** The learning context for the group of learners is a private Language Center in Andijan, Uzbekistan, a multilingual city in the Fergana Valley near the border with Kyrgyzstan. In Andijan, although Uzbek is the official language and the majority of learners speak Uzbek as a first language (L1), Russian is still used as a language of education in some schools and media. In fact, particularly in urban centers like Andijan, there are many settings where learners are truly multilingual, and Uzbek and Russian are each used as dominant language, while English is a foreign language (EFL) used with limited purpose outside of the classroom. Within this context, learners experience a diglossic space as mentioned Wardhaugh and Fuller,

in which standard and nonstandard varieties of Uzbek are used side by side [10,p.38]. For instance, learners may speak in a regional dialect of Uzbek at home, but the written language is a more formal Uzbek in the school textbook. Russian, since it is related to science, higher education and upward mobility, affords a particular prestige to many speakers and for bilingual learners like Sofia, Russian increases their chances at success. These sociolinguistic factors will impact how learners experience language, depending on their L1, the language of schooling (Uzbek or Russian), and the resources to which they have access. In Uzbekistan, the educational system mostly uses a grammar-translation method across all public schools, resulting in students developing a strong passive knowledge (e.g. grammar, reading) but a weaker communicative capability. Also at school, mixed level students study in the same class and not always teachers use differentiation in different English tasks and activities due to short period of the lesson which is only 45 minute. Nowadays The Language Center focuses on both Communicative Language Teaching (CLT) and Task-Based Language Teaching (TBLT) approaches, which allow students to engage in real life, interactive English tasks. This pedagogical shift is crucial in an EFL setting where English exposure is scarce, and classroom interaction is the only source of input [4,p.274]. Teachers who work at educational centers will be able to use different methods and approaches, since they have well-equipped classrooms and extended period of lesson which is usually 90 minutes. Furthermore, socioeconomic status creates disparities in language learning environments. Learners like Sofia, from a middle-to-high SES family, commonly afford extra tutoring or have stable internet access, and may also convert English exposure through English movies or private lessons. In contrast, lower

SES learners like Hojiakbar do not benefit from such supports; instead, the classroom, the shared experience, becomes an unequal environment while the teacher has to manage those distinct differences and levels of investment [3,p.48]. Gender norms and cultural beliefs shape classroom and learning interactions [5,p.120]. In Uzbekistan, girls often demonstrate more motivation in learning English particularly in settings where they are mixed with the boys who might be concerned a lot especially when asked to speak a second language. Schilling also suggests that gender is a factor in patterns of participation, leadership roles, and modes of speaking to which, as teachers, we must address these issues to provide a barrier-free, inclusive and equitable experience for students [9,p.231]. Even though we don't talk about this theme in class, teacher always takes this into consideration, especially preparing seats for them, in pair-works and group works. Lastly, regional geography in Andijan and the digital divide (Andijan is not one of the top digitally connected cities in Uzbekistan), likely means that many learners get English input solely from school, and even those who have smartphones or internet access very likely do not use them for educational uses. The Language Center is clearly the main place for input and practice in English which means considerable responsibility falls on the instructor to create a supportive, immersive, and culturally responsive classroom.

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## Importance Of Steam Approach In Primary Education

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### Annotation

This article examines the theoretical foundations and practical significance of introducing the STEAM (Science, Technology, Engineering, Arts, Mathematics) approach at the primary education stage. The study shows that integrated teaching methods significantly develop students' critical thinking, problem-solving and creative skills. The article analyzes the advantages of the STEAM approach over traditional education, methods of application in the classroom, and the possibilities of its implementation in the conditions of Uzbekistan.

**Keywords:** STEAM education, integration, critical thinking, creative approach, primary education, problem-based learning, innovative methodology.

### Annotatsiya

Ushbu maqolada boshlang'ich ta'lim bosqichida STEAM (Science, Technology, Engineering, Arts, Mathematics) yondashuvini joriy etishning nazariy asoslari va amaliy ahamiyati ko'rib chiqilgan. Tadqiqot shuni ko'rsatadiki, integratsion ta'lim metodlari o'quvchilarning tanqidiy fikrlash, muammoni hal qilish va ijodiy ko'nikmalarini sezilarli darajada rivojlantiradi. Maqolada STEAM yondashuvining an'anaviy ta'limdan ustunliklari, dars jarayonida qo'llash usullari va O'zbekiston sharoitidagi tatbiq etish imkoniyatlari tahlil qilingan.

**Kalit so'zlar:** STEAM ta'lim, integratsiya, tanqidiy fikrlash, ijodiy yondashuv, boshlang'ich ta'lim, muammoga asoslangan ta'lim, innovatsion metodika.

**KIRISH:** XXI asr ta'lim tizimi oldiga misli ko'rilmagan yangi talablarni qo'yimoqda. Jahon iqtisodiy forumining tadqiqotlariga ko'ra, bugungi kunda maktabga kiruvchi bolalarning 65 foizi kelajakda hali mavjud bo'lmagan kasblarda ishlashi kutilmoqda. Bu haqiqat ta'lim tizimini tubdan qayta ko'rib chiqishni taqozo etadi.

O'zbekiston Respublikasi Prezidentining 2020-yil 6-noyabrdagi PF-6108-son "Ta'lim va fan sohasini 2030-yilgacha rivojlantirish kontsepsiyasi"da boshlang'ich ta'limni modernizatsiya qilish, zamonaviy pedagogik texnologiyalarni joriy etish va xalqaro tajribadan samarali foydalanish

ustuvor vazifalar sifatida belgilangan. Mazkur kontekstda STEAM (Science, Technology, Engineering, Arts, Mathematics) yondashuvini boshlang'ich ta'limga tatbiq etish muhim ahamiyat kasb etadi.

STEAM yondashuvi — bu tabiiy fanlar, texnologiya, muhandislik, san'at va matematikani bir-biriga organik ravishda bog'lagan holda o'qitish metodologiyasidir. Bu yondashuv o'quvchilarda mavzu bo'yicha chuqur tushuncha hosil qilish bilan birga, ularning hayotiy muammolarni hal qilish, ijodiy va tanqidiy fikrlash ko'nikmalarini shakllantiradi.

### 1-jadval. STEAM komponentlari va ularning mazmuni

Qisqartma	Fan sohasi	Asosiy ko'nikma va maqsad
S – Science	Tabiiy fanlar	Kuzatish, tadqiqot, gipoteza qilish
T –Technology	Texnologiya	Raqamli vositalar, dasturlash
E – Engineering	Muhandislik	Loyiha ishlab chiqish, qurilish
A – Arts	San'at va ijod	Kreativlik, estetika, dizayn
M – Mathematics	Matematika	Mantiqiy fikrlash, hisob-kitob

### Tahlil va xorijiy tajriba

STEAM metodologiyasi dastlab 2001-yilda Amerikaning milliy fan jamg'armasi (NSF) tomonidan ishlab chiqilgan bo'lib, keyinchalik Rhode Island dizayn maktabi tadqiqotchilari STEM ga "Arts" (san'at) komponentini qo'shib STEAM konsepsiyasini yaratganlar (Yakman, 2008). Bugungi kunda bu yondashuv 50 dan ortiq davlat ta'lim tizimlarida qo'llanilmoqda.

Finn olimi Pasi Sahlberg (2021) o'z tadqiqotlarida Finlyandiya ta'lim tizimidagi STEAM integratsiyasini o'rganib, boshlang'ich sinf o'quvchilarida fanlarararo bog'liqlikni tushunish darajasi 40 foizga

oshganini qayd etgan. Xitoy tadqiqotchilari Li va Zo (2022) ning so'nggi tadqiqotlari 6-10 yoshli STEAM guruhidagi o'quvchilar mantiqiy fikrlash testlarida nazorat guruhiga nisbatan 34 foiz yuqori natija ko'rsatganini tasdiqlagan.

O'zbekistonda ushbu sohadagi ilmiy izlanishlar so'nggi yillarda jadal rivojlanmoqda. Toshkent davlat pedagogika universiteti olimlari (2023) tomonidan o'tkazilgan 1200 ta boshlang'ich sinf o'quvchisini qamrab olgan tadqiqot STEAM yondashuvini qo'llagan sinflarda o'qish motivatsiyasining 28-33 foizga yuqori ekanligini ko'rsatdi.

### 2-jadval. An'anaviy ta'lim va STEAM yondashuvining qiyosiy tahlili

An'anaviy ta'lim	STEAM yondashuvi
Fanlar alohida o'qitiladi	Fanlar o'zaro bog'liq holda o'qitiladi
Yodlash va takrorlash ustuvor	Tadqiqot va kashfiyot ustuvor
O'qituvchi markaziy shaxs	O'quvchi faol ishtirokchi
Bir xil baholash tizimi	Ko'p qirrali baholash tizimi
Nazariy bilimga urg'u	Amaliy ko'nikmaga urg'u

### Tadqiqot metodologiyasi

Ushbu tadqiqot 2024–2025 o'quv yili mobaynida Farg'ona viloyati, Rishton tumanidagi 47-umumiy o'rta ta'lim maktabining 1–4-sinf o'quvchilari (jami 120 nafar) ishtirokida o'tkazildi. Tadqiqot davomida quyidagi metodlardan foydalanildi:

- Pedagogik kuzatish va dars tahlili (har haftada kamida 2 dars)
- So'rovnomalar o'tkazish (o'quvchilar, o'qituvchilar va ota-onalar o'rtasida)
- Tajriba-sinov darslari va loyiha topshiriqlari tahlili
- Baholash natijalari hamda o'quv ko'rsatkichlari taqqoslanishi

- Xalqaro ta'lim metodikalari bilan qiyosiy tahlil

Tadqiqot guruhlari ikkiga bo'lindi: eksperimental guruh (60 o'quvchi, STEAM yondashuvi qo'llangan) va nazorat guruh (60 o'quvchi, an'anaviy metodika). Besh oylik kuzatuv natijalariga asoslanib quyidagi xulosalar chiqarildi.

### Tadqiqot natijalari va tahlil

Besh oylik tadqiqot natijalari STEAM yondashuvining boshlang'ich ta'limdagi samaradorligini aniq ko'rsatdi. Eksperimental va nazorat guruhlarida o'tkazilgan so'rovnomalar hamda test natijalari quyidagi jadvalda aks ettirilgan:

**3-jadval. Eksperimental va nazorat guruhlari natijalarining taqqoslanishi (%)**

Ko'rsatkich	STEAM sinf (%)	An'anaviy sinf (%)	Farq (%)
Darsga qiziqish	87	54	+33
Muammoni hal qilish	82	49	+33
Jamoaviy ish ko'nikmasi	91	63	+28
Ijodiy fikrlash	85	58	+27
O'qish motivatsiyasi	89	61	+28

Jadval ko'rsatkichlari shuni tasdiqlayapti: STEAM yondashuvida o'qitilgan o'quvchilar barcha ko'rsatkichlar bo'yicha an'anaviy sinf o'quvchilaridan sezilarli darajada ustun turadi. Eng yuqori farq jamoaviy ish ko'nikmasida kuzatildi (+28%), bu esa STEAM loyiha topshiriqlarining guruh hamkorlikni kuchaytirishdagi roliga dalildir.

**Boshlang'ich ta'limda steam ni tatbiq etish usullari**

STEAM yondashuvini boshlang'ich sinflarda samarali joriy etish uchun quyidagi pedagogik usullar tavsiya etiladi:

**1. Loyihaga asoslangan ta'lim (Project-Based Learning, PBL).** Bolalar real hayotiy muammolarni hal qiluvchi mini-loyihalar yaratadi. Masalan, "Mening bog'im" loyihasida 2-sinf o'quvchilari o'simliklar o'sishini kuzatib (biologiya), grafiklar chizib

(matematika), tuproq tarkibini tekshirib (kimyo), loyiha pasporti yozib (savodxonlik) va 3D model yasaydi (muhandislik).

**2. Muammoga asoslangan ta'lim (Problem-Based Learning).** O'quvchilarga yosh va bilim darajasiga mos real muammo beriladi. Masalan, "Maktab hovlisidagi suv sarfini qanday kamaytiramiz?" kabi savollar orqali o'quvchilar fanlarararo muammoni hal qilishga undanadi.

**3. Makerspace tartibi.** Sinfda yoki alohida xonada qurilish materiallari, oddiy robotlar, rasm asboblari va raqamli vositalar joylashtiriladi. O'quvchilar erkin ijod qiladi, sinab ko'radi, xato qiladi va o'rganadi.

**4. STEAM kuni va festivallari.** Har chorakda kamida bir marta o'tkaziladigan STEAM kunlari o'quvchilarni ijodiy namoyishlar, ilmiy tajribalar va muhandislik musobaqalarida qatnashishga undaydi.

**4-jadval. Sinf bosqichlari bo'yicha STEAM mavzulari va integratsiya usullari**

Sinf	STEAM mavzu	Integratsiya usuli
1–2-sinf	Hayvonlar va shakllar	Rasm chizish + hisoblash
3–4-sinf	Suvning aylanishi	Tajriba + diagramma
5–6-sinf	Ekotizim	Loyiha + prezentatsiya
7–8-sinf	Energiya manbalari	Muhandislik modeli
9–10-sinf	Sun'iy intellekt	Dasturlash + matematika

**Muhokama va O'zbekiston konteksti**

masalalarni hal etishni talab qiladi. Birinchidan, o'qituvchilarni maxsus qayta tayyorlash zarurati mavjud. Respublika ta'lim markazi ma'lumotlariga ko'ra, 2023-yilda boshlang'ich sinf o'qituvchilarining atigi 12 foizi STEAM metodologiyasi bo'yicha maxsus kurslarni tugatgan.

Ikkinchidan, moddiy-texnik ta'minot muammosi mavjud bo'lib, uni hal etish uchun milliy STEAM markazlar tarmog'ini kengaytirish, har bir viloyat markazidagi ta'lim resurs markazlarini zamonaviy jihozlar bilan ta'minlash hamda xorijiy hamkorlar bilan birgalikda o'quv materiallarini ishlab chiqish tavsiya etiladi.

Ijodiy jihat shundaki, O'zbekistonda STEAM ta'limiga davlat siyosati darajasida e'tibor kuchaymoqda. Innovatsion ta'lim dasturi doirasida 2025-yilda 500 ta maktabda STEAM laboratoriyalari tashkil etilishi ko'zda tutilgan. Prezidentlik maktablari va ixtisoslashtirilgan litseylarda ushbu yondashuv samarali tatbiq etilmoqda.

**XULOSA:** STEAM yondashuvi boshlang'ich ta'limda faqat zamonaviy ta'lim texnologiyasi emas, balki kelajak avlodni hayot uchun tayyorlashning strategik yo'nalishi sifatida baholanishi lozim. Ushbu tadqiqot natijalari quyidagi xulosalarni asoslaydi.

- STEAM yondashuvi o'quvchilarning darsga qiziqishini 33 foizgacha oshirgani empirik tarzda isbotlangan;
- Integratsion ta'lim metodlari tanqidiy va ijodiy fikrlash ko'nikmalarini an'anaviy metodlarga nisbatan 27-34 foiz samarali rivojlantiradi;
- Jamoaviy loyihalar orqali o'quvchilarning muloqot va hamkorlik ko'nikmalari sezilarli darajada shakllanadi;
- Boshlang'ich ta'limdan boshlab joriy etilgan STEAM yondashuvi yuqori sinflarda STEM fanlariga qiziqishni uzluksiz ta'minlaydi;
- O'zbekiston sharoitida STEAM yondashuvini kengaytirish uchun o'qituvchilarni qayta tayyorlash, moddiy-

texnik baza va o'quv dasturlarini yangilash birgalikda amalga oshirilishi lozim.

Xulosa qilib aytganda, STEAM ta'lim yondashuvi boshlang'ich ta'limda bolaning nafaqat bilim, balki shaxsiy va ijtimoiy ko'nikmalarini ham kompleks tarzda rivojlantirishning eng samarali metodologiyasi hisoblanadi. Ushbu yondashuvni O'zbekiston maktablarida keng joriy etish mamlakatimizning innovatsion rivojlanishiga mustahkam poydevor bo'lib xizmat qiladi.

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# Цифровизация И Либерализация Правового Регулирования Предпринимательской Деятельности В Республике Узбекистан

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## Аннотация

В статье рассматриваются современные тенденции развития правового регулирования предпринимательской деятельности в Республике Узбекистан в условиях цифровизации и экономических реформ. Анализируются процедуры создания субъектов предпринимательства, особенности организационно-правовых форм, а также механизмы лицензирования, разрешительных и уведомительных процедур. Особое внимание уделяется переходу от разрешительной к уведомительной системе, внедрению цифровых платформ и их влиянию на снижение административных барьеров. Отмечается роль законодательства в обеспечении защиты прав предпринимателей и формировании благоприятного инвестиционного климата. Делается вывод о формировании гибкой и современной правовой среды, ориентированной на развитие бизнеса и повышение конкурентоспособности экономики.

**Ключевые слова:** предпринимательское право, Республика Узбекистан, цифровизация, лицензирование, уведомительный порядок, регистрация бизнеса, ООО, инвестиции, правовое регулирование, бизнес-среда

## Введение

На современном этапе экономического развития Республики Узбекистан ключевой задачей является создание максимально благоприятной деловой среды, стимулирование частной инициативы и привлечение инвестиций. Правовое регулирование предпринимательской деятельности претерпевает значительные изменения, направленные на сокращение бюрократических барьеров и цифровизацию взаимодействия государства и бизнеса. Основой регулирования выступают Конституция Республики Узбекистан, Гражданский кодекс, Закон «О гарантиях свободы предпринимательской деятельности» и принятый к внедрению Предпринимательский кодекс.

## Литературный обзор

Вопросы правового регулирования предпринимательской деятельности, включая формы организации бизнеса,

процедуры регистрации и механизмы лицензирования, широко освещены как в национальной, так и в зарубежной научной литературе. При этом в последние годы особое внимание уделяется трансформации правовых систем в условиях цифровизации и либерализации экономики, что в полной мере отражает современные реформы в Республике Узбекистан.

Теоретические основы предпринимательского права традиционно рассматриваются в трудах таких авторов, как Е.А. Суханов и В.Ф. Попондопуло, которые анализируют соотношение предпринимательского, гражданского и административного права. В их работах подчёркивается комплексный характер регулирования предпринимательских отношений, что находит отражение и в правовой системе Узбекистана, где нормы различных отраслей права применяются в совокупности.

В национальной научной литературе значительное внимание уделяется вопросам совершенствования инвестиционного климата и упрощения процедур ведения бизнеса. Исследования последних лет акцентируют внимание на роли законодательства, в частности Закон Республики Узбекистан «Об инвестициях и инвестиционной деятельности» и Закон Республики Узбекистан «О лицензировании, разрешениях и процедурах уведомления», в формировании благоприятной предпринимательской среды. Авторы отмечают, что переход к уведомительным механизмам и сокращение лицензируемых видов деятельности способствуют снижению административной нагрузки и стимулируют развитие малого и среднего бизнеса. Отдельный пласт исследований посвящён цифровизации государственного управления. В научных работах и аналитических отчётах международных организаций, таких как Всемирный банк и UNCTAD, подчёркивается значимость внедрения электронных платформ, включая Единый портал интерактивных государственных услуг (ЕПИГУ), для повышения прозрачности и эффективности взаимодействия государства и бизнеса. Цифровизация рассматривается как ключевой фактор снижения коррупционных рисков, ускорения административных процедур и повышения инвестиционной привлекательности страны. Вопросы выбора организационно-правовых форм также широко исследуются в юридической литературе. Учёные отмечают, что такие формы, как общества с ограниченной ответственностью и акционерные общества, обладают различными преимуществами с точки зрения

управления, ответственности и привлечения инвестиций. При этом подчёркивается тенденция к доминированию ООО как наиболее гибкой и удобной формы для ведения бизнеса в переходных экономиках. Несмотря на значительное количество исследований, в научной литературе сохраняется дискуссия относительно правовой природы предпринимательского права, а также оптимального соотношения частноправовых и публично-правовых механизмов регулирования. В контексте Узбекистана данные вопросы приобретают особую актуальность в связи с активным реформированием законодательства и внедрением новых правовых институтов, включая Предпринимательский кодекс Республики Узбекистан.

Таким образом, проведённый анализ литературы показывает, что рассматриваемая проблематика находится в центре внимания как теоретических, так и прикладных исследований. Представленная статья органично вписывается в существующий научный дискурс, дополняя его анализом современных реформ в Узбекистане, связанных с цифровизацией, либерализацией регулирования и совершенствованием организационно-правовых механизмов предпринимательской деятельности.

### **1. Организационно-правовые формы субъектов предпринимательства**

Выбор организационно-правовой формы (ОПФ) предопределяет правовой статус, порядок управления, степень ответственности учредителей и налоговые обязательства. В Узбекистане выделяют следующие основные формы коммерческих организаций:

- **Индивидуальный предприниматель (ИП):** Осуществляет

предпринимательскую деятельность без образования юридического лица, что делает данную форму одной из самых простых и доступных для начала бизнеса. Регистрация ИП, как правило, проходит в упрощённом порядке, включая онлайн-формат через Единый портал интерактивных государственных услуг (ЕПИГУ). Индивидуальный предприниматель самостоятельно распоряжается доходами, принимает управленческие решения и несёт ответственность по своим обязательствам всем принадлежащим ему имуществом. Это является одновременно преимуществом (полный контроль над бизнесом) и риском (неограниченная ответственность). С 2026 года планируется внедрение права использования фирменного наименования для ИП, что позволит повысить их конкурентоспособность, улучшить узнаваемость на рынке и приблизить правовой статус ИП к юридическим лицам в части коммерческой идентификации.

• **Общество с ограниченной ответственностью (ООО):** Является наиболее распространённой организационно-правовой формой в Узбекистане благодаря сочетанию гибкости управления и ограниченной ответственности участников. ООО может быть учреждено одним или несколькими физическими и (или) юридическими лицами, включая иностранных инвесторов. Уставный фонд формируется за счёт вкладов учредителей и может быть выражен как в денежной, так и в неденежной форме (имущество, имущественные права). В соответствии с Законом Республики Узбекистан «Об обществах с ограниченной и дополнительной ответственностью» минимальный размер уставного капитала, как правило, не установлен, что делает данную

форму особенно привлекательной для малого и среднего бизнеса. Участники ООО не отвечают по обязательствам общества и несут риск убытков только в пределах своих вкладов. Управление может осуществляться единоличным исполнительным органом (директором) либо коллегиальными органами, что обеспечивает гибкость корпоративной структуры.

• **Совместное предприятие (СП ООО):** Представляет собой разновидность общества с ограниченной ответственностью, создаваемого с участием иностранных инвесторов. Как правило, доля иностранного участника составляет не менее 15% уставного фонда, что позволяет квалифицировать предприятие как предприятие с иностранными инвестициями. Такая форма широко используется для привлечения зарубежного капитала, технологий и управленческого опыта. СП ООО пользуется рядом преимуществ, включая возможность применения международных стандартов управления, расширенный доступ к внешним рынкам и, в отдельных случаях, налоговые и таможенные преференции в зависимости от действующего законодательства и инвестиционных соглашений. Вместе с тем создание и функционирование совместного предприятия может сопровождаться дополнительными требованиями, связанными с валютным регулированием, отчётностью и соблюдением инвестиционного законодательства, включая положения Закона Республики Узбекистан «Об инвестициях и инвестиционной деятельности».

**Уставный фонд:** Минимальный размер УФ для большинства форм (ООО) законом не установлен, определяется самими учредителями, за исключением специализированных видов

деятельности (банки, страховые компании).

## 2. Процедуры создания субъектов предпринимательства

**Реформа 2026 года:** С 1 января 2026 года вводится принцип «Начать бизнес за 15 минут», предусматривающий автоматическое осуществление ряда процедур:

1. Получение электронной цифровой подписи (ЭЦП).
2. Подача заявления на госрегистрацию.
3. Открытие банковского счета.
4. Постановка на учет в налоговых органах.
5. Постановка на учет в органах статистики.
6. Подача заявления на получение лицензии (при необходимости).

## 3. Разрешительные и уведомительные механизмы

Функционирование предпринимательской деятельности в Республике Узбекистан регулируется Законом Республики Узбекистан «О лицензировании, разрешительных и процедурах уведомления», который устанавливает единые принципы и механизмы допуска субъектов хозяйствования к осуществлению различных видов деятельности. Данная система направлена на баланс между необходимостью государственного контроля и обеспечением свободы предпринимательства, а также на снижение административных барьеров для бизнеса.

Современная модель регулирования строится на трёх ключевых механизмах:

**1. Лицензирование.** Этот механизм применяется в отношении видов деятельности, требующих повышенного уровня государственного контроля ввиду их потенциального влияния на общественную безопасность, здоровье граждан или стратегические интересы

государства. К таким видам деятельности относятся, в частности, банковская и финансовая сфера, медицинская и фармацевтическая деятельность, образовательные услуги, транспортные перевозки, строительство и ряд других отраслей. Получение лицензии предполагает соблюдение установленных квалификационных, технических и организационных требований, а также прохождение процедуры проверки со стороны уполномоченных органов. Лицензия, как правило, носит срочный или бессрочный характер и может быть приостановлена или аннулирована при нарушении условий её получения.

**2. Разрешительная процедура.** Данный механизм применяется в случаях, когда необходимо получить согласование или заключение государственных органов для осуществления отдельных действий в рамках уже зарегистрированной деятельности. Это может включать, например, получение разрешений на экспорт или импорт определённых товаров, согласование строительных проектов, экологические заключения, а также иные виды одобрений. В отличие от лицензирования, разрешительные процедуры, как правило, носят более узкий и ситуационный характер и не всегда связаны с постоянной деятельностью субъекта предпринимательства.

**3. Уведомительный порядок.** Наиболее либеральный механизм регулирования, при котором предприниматель не обязан получать предварительное разрешение или лицензию, а лишь уведомляет уполномоченный государственный орган о начале своей деятельности. После подачи уведомления субъект вправе незамедлительно приступить к работе. Такой порядок широко применяется, например, в сфере розничной торговли,

оказания бытовых услуг и иных видах деятельности с низким уровнем риска. Уведомительный режим существенно ускоряет процесс выхода на рынок и снижает административную нагрузку на бизнес.

Особого внимания заслуживает проводимая в последние годы политика либерализации предпринимательской деятельности. Так, с 1 марта 2024 года в Узбекистане было отменено более 20 видов лицензируемой деятельности, что стало важным шагом на пути к дальнейшему упрощению регуляторной среды. Одновременно был внедрён специальный режим «В бизнес без лицензии», предусматривающий возможность осуществления ряда видов деятельности без получения лицензии или разрешения, при условии соблюдения общих требований законодательства.

Данные реформы направлены на повышение деловой активности, развитие малого и среднего предпринимательства, а также создание более привлекательных условий для инвесторов. В результате происходит постепенный переход от жёсткой разрешительной модели к более гибкой, основанной на принципах доверия к предпринимателю, прозрачности и цифровизации административных процедур.

Роль цифровизации и защиты прав В современных условиях Республика Узбекистан активно внедряет цифровые технологии в сферу государственного управления и регулирования предпринимательской деятельности, что существенно трансформирует взаимодействие бизнеса и государства. Ключевую роль в этом процессе играет Единый портал интерактивных государственных услуг (ЕПИГУ), через который предприниматели могут в онлайн-формате осуществлять

регистрацию бизнеса, получать необходимые справки, подавать заявления и взаимодействовать с государственными органами без личного посещения учреждений.

Дополнительно функционирует специализированная информационная система Система «Лицензия» Узбекистан, направленная на автоматизацию процессов лицензирования, разрешительных процедур и уведомлений. Внедрение данных цифровых платформ позволяет значительно сократить сроки рассмотрения заявок, повысить прозрачность административных процедур и минимизировать человеческий фактор, включая риски коррупции.

Цифровизация государственных услуг способствует формированию более предсказуемой и удобной бизнес-среды, в которой предприниматели получают равный доступ к государственным сервисам независимо от региона. Это особенно важно для развития малого и среднего бизнеса, а также для привлечения иностранных инвесторов, заинтересованных в прозрачных и понятных правилах ведения деятельности.

Наряду с цифровизацией, важным направлением государственной политики является усиление правовых гарантий защиты предпринимателей. Существенным шагом в этом направлении стало принятие Предпринимательский кодекс Республики Узбекистан, который систематизирует нормы, регулирующие предпринимательскую деятельность, и закрепляет ключевые принципы функционирования рынка.

В частности, кодекс направлен на обеспечение неприкосновенности частной собственности, ограничение необоснованного вмешательства

государственных органов в деятельность субъектов предпринимательства, а также установление равных условий конкуренции для всех участников рынка. Особое значение придаётся принципу презумпции добросовестности предпринимателя, а также внедрению риск-ориентированного подхода при проведении проверок. Кроме того, законодательство предусматривает механизмы защиты прав предпринимателей, включая возможность обжалования действий государственных органов, использование альтернативных способов разрешения споров и развитие института бизнес-омбудсмана. Таким образом, сочетание цифровизации государственных услуг и совершенствования правовых механизмов защиты бизнеса формирует в Узбекистане современную институциональную среду, направленную на стимулирование предпринимательской активности, снижение административных барьеров и повышение инвестиционной привлекательности страны.

### Заключение

Правовое регулирование создания и функционирования субъектов предпринимательства в Республике Узбекистан на современном этапе характеризуется последовательной трансформацией в сторону либерализации и упрощения условий ведения бизнеса. Одним из ключевых направлений данной реформы является переход от традиционной разрешительной системы к уведомительному порядку осуществления отдельных видов предпринимательской деятельности. Это означает, что в ряде случаев для начала деятельности субъекту

предпринимательства достаточно уведомить уполномоченные органы, без необходимости получения предварительного разрешения, что существенно сокращает временные и административные издержки. Важным достижением стало внедрение принципа «Начать бизнес за 15 минут», реализуемого посредством цифровых платформ, прежде всего через Единый портал интерактивных государственных услуг (ЕПИГУ). Данный механизм позволяет в кратчайшие сроки пройти процедуру государственной регистрации юридического лица или индивидуального предпринимателя в онлайн-режиме, что свидетельствует о высоком уровне цифровизации административных процессов. Это, в свою очередь, способствует снижению бюрократических барьеров и минимизации необходимости личного взаимодействия с государственными органами. Существенное значение имеет и унификация законодательства посредством принятия Предпринимательский кодекс Республики Узбекистан, который систематизирует нормы, регулирующие предпринимательскую деятельность, и закрепляет единые принципы взаимодействия бизнеса и государства. Кодекс направлен на обеспечение стабильности правовой среды, повышение уровня правовой определённости и устранение коллизий между различными нормативно-правовыми актами. Кроме того, проводимые реформы ориентированы на внедрение современных механизмов регулирования, включая риск-ориентированный подход при осуществлении государственного контроля и надзора, сокращение количества проверок и повышение их прозрачности. Это позволяет снизить административную нагрузку на бизнес и

одновременно сохранить необходимый уровень государственного контроля в целях защиты общественных интересов. Цифровизация процессов, включая развитие электронных реестров, автоматизированных систем лицензирования и онлайн-взаимодействия с государственными органами, способствует формированию более открытой и предсказуемой деловой среды. В результате предприниматели получают возможность оперативно принимать управленческие решения, сокращать транзакционные издержки и эффективно планировать свою деятельность.

Таким образом, проводимые в Узбекистане реформы в сфере правового регулирования предпринимательства направлены на создание благоприятного инвестиционного климата, повышение конкурентоспособности национальной экономики и стимулирование развития частного сектора. Упрощение процедур входа на рынок, цифровизация государственных услуг и совершенствование нормативной базы формируют современную и эффективную систему поддержки предпринимательской деятельности.

### **Список литературы**

Гражданский кодекс Республики Узбекистан.

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# The Impact of E-learning Platforms on Student Motivation in Higher Education

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## Abstract

The study investigates how digital learning platforms impact student engagement in higher education environments. The study shows that digital platforms can boost student engagement through their interactive elements and personalized learning paths and group work features but their actual impact depends on the teaching methods and institutional resources and student ability to use digital tools. The research shows that schools should use online platforms together with proven teaching methods because this approach will lead to better student engagement results in classrooms although schools must first resolve their digital access issues and technology capacity problems and teacher preparation needs.

**Keywords:** student engagement, higher education, online learning, educational technology, learning management systems, interactive learning, pedagogical innovation

## INTRODUCTION

Higher education institutions have undergone a complete transformation of their teaching and learning methods through their quick adoption of digital technologies, which now make digital learning platforms essential for delivering education in modern times. The critical role of student engagement in predicting academic success shows its importance for academic retention and student learning achievements because students now interact with learning materials through technological systems [1]. Digital learning platforms establish their boundaries through multiple technology categories which include Learning Management Systems (LMS), Massive Open Online Courses (MOOCs), virtual learning environments, and educational applications designed for content delivery and communication and assessment and collaborative work [2]. The COVID-19 pandemic accelerated the adoption of these platforms, transforming what were often supplementary tools into primary instructional environments, thereby intensifying scholarly and practical interest

in understanding their effectiveness. The three dimensions of student engagement include behavioral engagement which refers to students taking part in academic activities. The three dimensions of student engagement include behavioral engagement which refers to students taking part in academic activities. The three dimensions of student engagement include behavioral engagement which refers to students taking part in academic activities. The three dimensions of student engagement include behavioral engagement which refers to students taking part in academic activities [3]. The combination of digital platforms with student engagement creates both benefits and difficulties for higher education institutions which want to improve their students' learning experiences through digital technology [4]. Research from post-Soviet educational systems, particularly in Russia and Central Asian republics, demonstrates unique contextual factors influencing digital platform adoption, including infrastructural limitations, pedagogical traditions emphasizing direct instruction, and varying

levels of institutional readiness for technological transformation [5].

## **METHODOLOGY AND LITERATURE REVIEW**

The research uses a complete analytical method to study academic peer-reviewed articles and institutional documents and empirical research studies. Research studies about Learning Management Systems which include Moodle and Blackboard and Canvas show that educational platforms which provide users with interactive communication tools and collaborative work functions together with clear assessment standards lead to better student engagement, which they measure through tracking how often students log in and complete assignments and participate in discussion forums [6]. Russian researchers enhance knowledge about digital learning success through their work, which includes Andreev's research on electronic educational resources and student cognitive activity, which shows that interactive digital content leads to advanced thinking when educators use it correctly within teaching methods instead of using it as a basic information source [7].

The digital platforms use gamification elements which include badges and leaderboards and progress tracking and achievement systems but these elements show inconsistent results because their effectiveness depends on which studies show that users initially become excited but then their motivation decreases when the newness of the experience wears off while other studies find that users maintain their efforts as they pursue their intrinsic learning objectives through gamification elements that match their learning goals [8]. Digital platforms use social and collaborative features which include discussion forums and peer review systems and group project spaces and real-time communication tools to create emotional engagement because these features help users build community

and social connections but users need more than access to tools because their success depends on teachers who provide direct teaching support and establish clear participation standards [9]. The research from Uzbekistan's higher education system shows that digital platforms function differently between urban and rural areas because metropolitan universities show more active digital platform usage than regional universities which lack the necessary infrastructure and resources to support their digital needs and this indicates that contextual factors determine how technology functions in such environments [10].

## **RESULTS AND DISCUSSION**

The present examination of recent studies demonstrates how digital learning platforms bring substantial benefits to student engagement through their multiple engagement enhancement capabilities, which depend on three critical factors: implementation quality and pedagogical design and the specific context of usage. The metrics used to measure student behavior demonstrate positive relationships with platform interfaces that have been developed through effective design and with the presence of instructors who deliver feedback in a timely manner and with straightforward guidelines that define student participation requirements. The research indicates that humanizing elements such as instructor video presence and personalized communication and peer interaction opportunities and responsive support systems which recognize the emotional aspects of learning create greater challenges for developing emotional engagement with digital platforms.

Cognitive engagement, which demonstrates the highest level of learning commitment, shows greater dependence on teaching methods than on the capabilities of learning platforms which

deliver educational content. The constructivist learning designs which require students to solve problems and analyze information and apply knowledge and create innovative solutions, deliver superior educational results than transmission models, which rely on technology to show their educational content. Russian educational research emphasizes that digital platforms must be conceptualized not as replacements for traditional instruction but as complementary tools that extend pedagogical possibilities. Polat states that successful integration requires schools to change how teachers work. The educational system experiences major educational inequalities because students from different backgrounds access digital learning platforms. Students who lack sufficient internet access and necessary devices and quiet study areas and technical support elements face systemic educational barriers which make it difficult for them to learn effectively.

The research demonstrates that instructor confidence in using digital tools together with online teaching pedagogical training and technical support and institutional online instruction quality evaluation create the main factors which determine how effectively platforms are used to boost student engagement. The discussion must acknowledge that correlation between platform usage and engagement metrics does not establish causation, as highly motivated students may naturally engage more with available platforms regardless of their design quality, while struggling students may remain disengaged despite access to sophisticated technological tools, indicating that digital platforms function as enablers of engagement rather than generators of motivation in isolation. Central Asian universities demonstrate that building successful digital platforms needs to use methods which honor local educational traditions while supporting

modern teaching approaches that integrate new technologies with educational practices which stress individualized instruction and learning through communal interactions.

### **CONCLUSION**

Higher education institutions can use digital learning platforms to increase student engagement through their strategic implementation in teaching frameworks which effectively handle all three learning aspects of student behavior and emotional state and cognitive development. The research demonstrates that educational technology features will not create student engagement unless educational institutions design their instructional programs through their faculty members who will teach different subjects and educational methods and provide students with personalized learning experiences while their academic progress requires institutional resources to support both faculty development and student success. The most effective platform implementations combine platform features with research-based teaching methods to develop educational settings which utilize technology's abilities in accessibility and flexible learning and multimedia content delivery and data-driven assessment while preserving essential human aspects that support student motivation and interpersonal connections and deep learning. The educational system can achieve its goals through continuous infrastructure development and teacher training programs and efforts to solve digital equity issues and assessment of student engagement across various student groups. The research shows that educational institutions need to develop distinct implementation methods based on their available resources and educational practices and their technological capabilities and student readiness to use digital platforms.

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# Using Role Play Activities To Motivate Students To Speak English

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## Abstract

This article explores the effectiveness of role-play activities as a pedagogical tool to motivate students to speak English. It examines how simulated real-life situations encourage active participation, reduce anxiety, and enhance communicative competence. Role-play is analyzed as a dynamic method that fosters creativity, interaction, and confidence in language use. By engaging in different social roles, learners develop both linguistic and pragmatic skills, improving fluency and spontaneity. The study concludes that role-play activities significantly contribute to creating a communicative classroom environment, thereby increasing students' motivation and overall speaking proficiency.

## Introduction

In recent years, the development of students' speaking skills has become one of the primary goals in English language teaching, particularly in contexts where learners have limited opportunities to use the language outside the classroom. Despite years of formal instruction, many students still experience difficulties in expressing themselves fluently and confidently in English. This challenge is often caused by a lack of motivation, fear of making mistakes, limited vocabulary, and insufficient exposure to real-life communication. Therefore, it is essential for teachers to adopt innovative and interactive teaching methods that not only improve linguistic competence but also create a supportive and engaging learning environment.

One of the most effective approaches to addressing this issue is the use of role play activities. Role play is a communicative technique that allows students to simulate real-life situations, take on different roles, and practice language in meaningful contexts. By engaging in role play, learners move beyond passive learning and become active participants in the educational process. This method encourages spontaneity, creativity, and critical thinking,

as students must respond to situations in real time, negotiate meaning, and express their ideas clearly. As a result, role play helps reduce anxiety and builds students' confidence in speaking English.

## Research methodology

This study employs a qualitative, classroom-based approach to investigate the effectiveness of role play activities in motivating students to speak English. The research focuses on observing and analyzing students' participation, interaction patterns, and speaking performance during role play tasks. Data are collected through classroom observations, student feedback, and reflective teaching practices in order to gain a deeper understanding of how role play influences learners' motivation and communicative behavior.

The methodological framework of the study is grounded in communicative language teaching (CLT) and task-based language teaching (TBLT), which emphasize meaningful interaction and real-life communication. The concept of motivation is examined through both intrinsic and extrinsic perspectives, highlighting how engaging activities such as role play can increase students' willingness to participate in speaking tasks. Particular attention is given to factors such as student confidence,

anxiety reduction, fluency development, and active involvement in classroom communication.

In this study, different types of role play activities are designed and implemented, including structured role plays, semi-structured scenarios, and free improvisation tasks. These activities simulate real-life situations such as conversations in daily life, problem-solving discussions, and social interactions. Students are assigned roles and encouraged to express their ideas, respond spontaneously, and interact with peers in English. Their performance is analyzed at lexical, grammatical, and discourse levels to evaluate improvements in speaking skills. In addition, a comparative analysis is conducted to examine students' speaking performance before and after the implementation of role play activities. This method helps to identify changes in fluency, accuracy, and overall communicative competence. Students' attitudes toward speaking English are also considered to assess the motivational impact of role play. The findings are interpreted through a pedagogical perspective, focusing on how role play activities contribute to creating an interactive learning environment, enhancing students' confidence, and promoting effective language use. Overall, the methodology allows for a comprehensive evaluation of the role of role play as a practical and motivational tool in developing students' speaking skills in English language classrooms.

### **Analysis and result**

This section provides a detailed analysis of the use of role-play activities in motivating students to speak English and examines their pedagogical functions. The findings are presented under six main aspects.

One of the most effective aspects of role-play activities is their ability to simulate real-life communication. Students are placed in everyday situations such as ordering food, attending interviews, or resolving conflicts.

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These scenarios provide a meaningful context for language use, allowing learners to practice speaking in a natural and purposeful way. The analysis shows that such activities are not merely entertaining but significantly enhance communicative competence and confidence.

Role-play also contributes to the development of interactive skills. By engaging in dialogues and group performances, students learn how to initiate conversations, respond appropriately, and maintain interaction. This collaborative process encourages peer learning and reduces the fear of making mistakes, which is a common barrier in speaking. As a result, learners become more willing to participate actively in classroom communication.

Another important function of role-play is its impact on students' creativity and imagination. When students take on different roles, they are encouraged to think beyond their usual perspectives and experiment with language. This creative engagement helps them expand their vocabulary and use a wider range of expressions. It also makes the learning process more dynamic and enjoyable.

At the structural level, role-play activities help organize classroom interaction in a systematic way. Teachers can design tasks with clear objectives, stages, and outcomes, ensuring that all students are involved. These structured interactions mirror real conversational patterns, enabling learners to develop fluency and coherence in their speech.

Role-play also enhances linguistic and pragmatic competence through the use of appropriate language forms. Students learn how to adjust their speech depending on context, such as formal or informal situations. This awareness of language use strengthens their ability to communicate effectively in diverse social settings.

Finally, role-play activities create strong emotional and motivational effects. By making lessons engaging and student-centered, they increase learners' interest and enthusiasm. Students feel more relaxed and confident, which leads to greater participation and improved speaking performance.

**Summary of Findings.** The analysis demonstrates that role-play activities function on multiple levels communicative, interactive, creative, structural, linguistic, and emotional. These pedagogical strategies help create a supportive learning environment where students are motivated to speak English actively. As a result, role-play serves as an effective tool for improving both speaking proficiency and overall language competence.

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# Semantic classification of compound words in English Lexicology

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## Abstract

This article examines the semantic classification of compound words within the framework of English lexicology. It aims to identify and analyze the main types of compounds based on the relationships between their components and the meanings they convey. The study explores various semantic categories, including endocentric, exocentric, copulative, and appositional compounds, highlighting their structural and functional characteristics. Special attention is given to the ways in which meaning is derived from the interaction of constituent elements and how semantic transparency or opacity influences interpretation. The research employs descriptive and analytical methods to systematize existing theoretical approaches and provide illustrative examples from modern English usage. The findings contribute to a deeper understanding of word formation processes and demonstrate the significance of semantic classification in enriching vocabulary and improving linguistic competence.

**Keywords:** Compound words, semantic classification, endocentric, exocentric, copulative, semantic relations, structure, meaning, vocabulary.

## INTRODUCTION

The study of compound words occupies a central position in English lexicology, as compounding represents one of the most productive means of vocabulary expansion. Beyond their structural formation, compound words reveal complex semantic relationships that contribute to meaning construction in the language. The semantic classification of compound words, therefore, provides valuable insight into how meaning is organized, interpreted, and systematized within the English lexicon.

This article aims to explore the semantic types of English compound words by examining the relationships between their constituent elements and the overall meaning they convey. Particular attention is paid to categories such as endocentric, exocentric, and copulative compounds. By analyzing these classifications, the study highlights how compounds function not only as lexical units but also as carriers of cultural and cognitive information.

Ultimately, this research contributes to a deeper understanding of word-formation processes and semantic structures, offering a systematic approach to interpreting compound words in modern English.

## MATERIALS AND METHODS

The semantic classification of compound words in English lexicology is primarily based on the relationship between the meanings of their constituent elements and the overall meaning of the compound. Compound words, formed by combining two or more lexical units, function as single semantic entities, yet their internal structure often reflects varying degrees of semantic motivation and transparency. Understanding these relationships allows linguists to categorize compounds into several semantic types. One of the most widely recognized classifications distinguishes *endocentric*, *exocentric*, and *copulative (coordinative)* compounds.

**1. Endocentric compounds** are words containing a “head” that determines the general semantic category of the compound

while the other element functions as a modifier. Endocentric compounds are often contrasted with *exocentric* (headless) compounds, where the meaning is not derived from either component, such as *scarecrow* (not a type of *crow*) or *redhead* (a person, not a type of *head*). They are generally classified by their head's part of speech (*nominal, verbal, adjectival*) or by their semantic relationship, typically being right-headed in English:

a. *Nominal Compounds*: The head is a noun, often resulting in a noun that is a specific type of the head word. Nominal compounds (or compound nouns) are formed by joining two or more words to create a single noun, acting as a new unit of meaning. Common types of nominal compounds include:

- Noun + Noun  
Noun: *toothbrush, wallpaper, coffee cup, table salt*;

- Adjective + Noun  
Noun: *blackboard, software, greenhouse, high school*;

- Verb (-ing) + Noun  
Noun: *washing machine, swimming pool, frying pan*;

- Noun + Verb (-ing)  
Noun: *haircutting, signmaking*;

- Verb + Noun  
Noun: *breakfast, dashboard, playground*;

- Noun + Prepositional Phrase  
Noun: *mother-in-law, editor-in-chief*;

- Preposition + Noun  
Noun: *underworld, overcoat, input*.

b. *Adjectival Compounds*: The compound behaves as an adjective. They are formed by joining two or more words, usually with a hyphen when appearing before a noun, to act as a single descriptive phrase. Common types of adjectival compounds include:

- Adjective + Past Participle  
Adjective: *old-fashioned, well-behaved, kind-hearted*

- Adjective + Present Participle  
Adjective: *good-looking, easy-going, slow-moving*;

- Noun + Present Participle  
Adjective: *record-breaking, man-eating, time-consuming*;

- Noun + Past Participle  
Adjective: *sun-dried, hand-painted, home-made, heart-broken*;

- Noun + Adjective  
Adjective: *sugar-free, ice-cold*.

- Adjective + Noun  
Adjective: *short-term, long-term, long-distance*.

- Number + Noun  
Adjective: *two-part, five-star*.

When these compounds follow the noun (as a predicate adjective), they are often not hyphenated (e.g., "The story was well known"), but they are hyphenated when they come before the noun (e.g., "A well-known story").

c. *Verbal Compounds*: The compound behaves as a verb, though these are rarer in English. Compound verbs are multi-word units acting as a single verb, commonly categorized into phrasal verbs, prepositional verbs, and compound single-word verbs (closed or hyphenated). Common types of verbal compounds include:

- Phrasal Verbs (Verb + Adverb/Preposition): These verbs change meaning when paired with a particle, such as *break down, get up, hand over, leave behind*;

- Prepositional Verbs (Verb + Preposition): The verb is followed by a preposition that connects it to the object, such as *count on, join together, watch for, apply to*;

- Closed Compound Verbs (Single Word): These are compound verbs written as one word, including *babysit, broadcast, double click, shortcut, proofread*.

- Hyphenated Compound Verbs: Compound verbs joined by a hyphen, such as *strong-arm, test-drive, or color-code*.

- Noun + Verb Compounds: These compounds are often categorized as a subtype of closed or hyphenated verbs, such as *housekeep, spoon-feed, or brainwash*.

Verbal compounds are crucial in English to express specific nuances of action, direction, or state.

**2. Exocentric compounds** (or *headless* compounds) are words where the meaning is not determined by either constituent, representing an external entity rather than a type of one of its parts. Common types of *exocentric compounds* include:

*a. Bahuvrihi compounds (Possessive Compounds):* These compounds are adjectives or nouns that denote a person or object characterized by the combined constituents, often taking the form Adj + Noun or Noun + Noun. Examples: *redhead* (a person who has *red hair*), *blockhead* (a person with a *head like a block*), *sabretooth* (the most iconic animal with teeth like “sabres” is Smilodon, often called the saber-toothed cat or tiger), *egghead*.

*b. Nominal compounds (N + N/V):* Nominal compounds are lexical units consisting of two or more bases (e.g., nouns, verbs) that function grammatically and semantically as a single noun.

- *Noun Compounds [V + N]N:* A verb and noun combine to refer to a person or thing that performs an action, which is not a type of the noun used. Examples:

*spoilsport* (person who spoils sport), *cutthroat* (a killer), *pickpocket*, *daredevil*.

- *Noun Compounds [P + N]N:* A preposition (or particle) and a noun combine to create a new noun. Examples: *underworld*, *afterbirth*, *outback*, *overcoat*.

- *Noun Compounds [V + V]N:* Two verbs combine to form a noun. Examples: *freeze-dry*, *stir-fry*, *jump-start*.

- *Noun Compounds [N + P]N/V:* A noun and a particle or adjective, often creating a noun denoting a state or a person. Examples: *dust-up* (a fight), *hand-me-down*.

- *Metaphorical Compounds:* Compounds where the meaning is entirely metaphorical,

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often based on [N + N] structures. Examples: *mothball*, *heartbreak*.

Exocentric compounds are commonly called “headless” because the syntactic head does not determine the semantic category of the whole word.

*c. Verbal compounds:* These compounds (often Noun + Verb or Verb + Noun) are headless structures where the compound’s grammatical category and meaning are derived from a semantic head outside the phrase. They typically function as nouns (e.g., *pickpocket*) or adjectives, denoting a person or object characterized by the action, rather than the action itself. Common types of verbal compounds include:

- *Verb + Noun (VN) Compounds (Agentive/Instrumental):* These are common in English, acting as nouns denoting the agent or tool.

- *Noun + Verb (NV) Compounds (Possessive/Action):* These denote a characteristic of a person or entity. Examples: *haircut* (denotes the result, not a type of cut), *sunburn*, *heartbreak*.

- *Bahuvrihi Compounds (Possessive Compounds):* Though frequently Adjective + Noun, these can involve verbal elements to describe a person who possesses a characteristic. Examples: *must-have*, *know-it-all*.

**3. Copulative / Coordinative**

**Compounds:** These compounds feature two heads that both contribute equally to the meaning. They represent a combination of two parts. Examples: *bittersweet* (something that is both bitter and sweet), *actor-manager* (an actor who is also a manager), *singer-songwriter* (a person who is both a singer and songwriter), and *actor-director* (an actor who is also a director). This type reflects a semantic relationship of addition or coordination rather than subordination.

Type	Semantic Relation	Headedness	Example
Endocentric	A is a type of B	Head-final (usually)	<i>Bedroom</i>
Exocentric	A+B relates to external C	Headless	<i>Redhead</i>
Copulative	A is combined with B	Both are heads	<i>Bittersweet</i>

In addition to structural classification, compound words can also be analyzed in terms of semantic transparency. Transparent compounds are those whose meanings can be easily deduced from their components, such as “bookshelf” or “raincoat”. In contrast, opaque compounds have meanings that are not predictable from their parts, such as “butterfly” or “honeymoon”. Between these extremes lie semi-transparent compounds, where the meaning is partially motivated but still requires some degree of interpretation. Furthermore, semantic relations within compounds can be classified according to the type of relationship between their components. These include *attributive relations* (e.g., *greenhouse* - a house for plants), *objective relations* (e.g., *taxi driver* – one who drives a taxi), *locative relations* (e.g., *seashore* – the shore by the sea), and *temporal relations* (e.g., *nightfall* – the falling of night). Such classifications highlight the diversity of logical and conceptual connections that underlie compound formation in English.

## RESULTS AND DISCUSSION

The analysis of compound words conducted in this study reveals several important patterns regarding their semantic classification and functional behavior in modern English. Based on the selected data, compound words were successfully categorized into endocentric, exocentric, and copulative types, confirming the validity and applicability of traditional semantic classifications in contemporary linguistic research.

The results indicate that *endocentric compounds* constitute the largest and most productive group within the dataset. These

compounds demonstrate a clear head-modifier relationship, where the semantic core of the word is preserved in one of its components. Examples such as “bedroom”, “schoolteacher”, and “rainfall” illustrate that the meaning of the compound can be easily inferred from its parts. This high degree of semantic transparency makes endocentric compounds particularly accessible for language learners and supports their frequent use in everyday communication.

In contrast, *exocentric compounds* were found to be less frequent but semantically more complex. The analysis shows that their meanings are often idiomatic and cannot be directly derived from their individual elements. Compounds such as “*loudmouth*”, “*skinhead*”, and “*blue-collar*” require contextual or cultural knowledge for accurate interpretation. This semantic opacity presents challenges for both learners and translators, as the meaning must often be memorized rather than logically deduced.

The study also identified a smaller group of *copulative compounds*, where both elements contribute equally to the overall meaning. Although less common, these compounds play a significant role in expressing combined or dual concepts. Examples like “*writer-director*” and “*deaf-mute*” demonstrate how semantic coordination functions in compound formation. These forms are especially productive in professional and descriptive contexts, where multiple roles or characteristics need to be conveyed concisely.

Another key result concerns the degree of semantic transparency. The findings suggest that most compounds fall along a

continuum ranging from fully transparent to fully opaque. Transparent compounds, such as toothpaste and sunlight, are dominant in technical and descriptive language, while opaque compounds, such as butterfly and deadline, are often rooted in historical or idiomatic usage. Semi-transparent compounds occupy an intermediate position, requiring partial inference and contextual understanding.

Furthermore, the analysis of semantic relations between compound elements revealed a variety of underlying patterns. Attributive relations were the most common, indicating that one element typically modifies or specifies the other. Objective and locative relations were also frequently observed, reflecting practical and real-world associations between concepts. These findings confirm that compound formation is not arbitrary but follows identifiable cognitive and logical patterns.

The discussion of these results highlights the interplay between structure, meaning, and usage in English compounds. The predominance of endocentric and transparent compounds suggests that efficiency and clarity are key factors in lexical development. At the same time, the existence of exocentric and opaque compounds demonstrates the influence of historical evolution, metaphor, and cultural context on language.

The results of this study reinforce the idea that compound words represent a dynamic and multifaceted aspect of English lexicology. Their semantic classification not only reflects linguistic structure but also reveals deeper insights into how speakers conceptualize and organize meaning. These findings have important implications for language teaching, lexicography, and further linguistic research.

### CONCLUSION

In conclusion, the semantic classification of compound words represents a significant aspect of English lexicology, offering

valuable insights into the relationship between word structure and meaning. The study has demonstrated that compound words can be effectively categorized into *endocentric*, *exocentric*, and *copulative (coordinate) types*, each reflecting distinct semantic patterns and levels of transparency.

The findings confirm that *endocentric compounds* are the most productive and semantically transparent, while *exocentric compounds* tend to be more idiomatic and require contextual interpretation. *Copulative (coordinate) compounds*, although less frequent, serve an important role in expressing coordinated meanings.

Overall, the research emphasizes that compound words are not merely structural combinations but meaningful lexical units shaped by linguistic, cognitive, and cultural factors. Understanding their semantic classification contributes to a deeper comprehension of word-formation processes and supports more effective language learning, teaching, and analysis.

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## Methodology Of Forming National Values In Karakalpak Literature Lessons At School

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### Abstract

This article considers the issues of instilling national values in the process of teaching Karakalpak literature at school. Ways of enriching the spiritual world of students through literary works, forming patriotism, humanity and national consciousness in them are analyzed. Also, special attention is paid to the importance of interactive methods, the use of folklore materials and interdisciplinary communication. The results of the study allow us to give practical recommendations for increasing the effectiveness of instilling national values in Karakalpak literature lessons.

**Keywords:** Karakalpak literature, teaching methodology, national values, education, interactive methods, folklore, spiritual education, patriotism, interdisciplinary communication, pedagogical process.

### Annotatsiya

Ushbu maqolada maktabda qoraqalpoq adabiyotini o'qitish jarayonida milliy qadriyatlarni singdirish masalalari ko'rib chiqiladi. Adabiy asarlar orqali o'quvchilarning ma'naviy olamini boyitish, ularda vatanparvarlik, insoniylik va milliy ongini shakllantirish yo'llari tahlil qilinadi. Shuningdek, interfaol metodlar, folklor materiallarini qo'llash va fanlararo aloqaning ahamiyatiga alohida to'xtalib o'tiladi. Tadqiqot natijalari qoraqalpoq adabiyoti darslarida milliy qadriyatlarni singdirishning samaradorligini oshirish uchun amaliy tavsiyalar berishga imkon beradi.

**Kalit so'zlar:** qoraqalpoq adabiyoti, o'qitish metodikasi, milliy qadriyatlar, tarbiya, interfaol metodlar, folklor, ma'naviy tarbiya, vatanparvarlik, fanlararo aloqa, pedagogik jarayon.

### Kirish

Bugungi kunda ta'lim tizimida nafaqat ta'lim berish, balki yosh avlodning ma'naviy, madaniy va milliy qadriyatlarga hurmat tuyg'usini qaliplestiriv bosh masalalardan biri hisoblanadi. Ayniqsa, maktabda adabiyot fanini o'qitish - bu faqat estetik tuyg'uni berish emas, balki o'quvchilarning dunyoqarashi, ma'naviy dunyosiniasin boyituvchi kuchli pedagogik vositadir.

Qoraqalpoq adabiyoti xalqimizning tarixiy, turmushi, urf-odati, axloqiy me'yorlari va ma'naviy qarashini o'zida aks ettiradi. Shuning uchun ham uni o'qitish jarayonida milliy tuyg'uni singdyuksaltirish - o'quvchilarni vatanparvarlik, ajdodlar merosiga hurmat, insoniy fazilatlariga tarbiyalashning asosiy yo'lidir.

Ushbu maqolaning maqsadi - maktabda qoraqalpoq adabiyotini o'qitishda milliy qadriyatlarni singdirishning metodik asoslarini aniqlash, samarali usullarini ko'rsatish va pedagogik tajriba asosida tavsiyalar berish.

### Adabiyotlarni tahlil qilish

Maktabda qoraqalpoq adabiyotini o'qitishda milliy qadriyatlarni singdirish masalalari bo'yicha ilmiy adabiyotlarda turlicha ko'rib chiqilgan. Bu sohadagi tadqiqotlar asosan pedagogika, adabiyot o'qitish metodikasi va milliy tarbiya nazariyalari bilan bog'liq.

Birinchi, N. Davletov asarlarida qoraqalpoq tili va adabiyotini o'qitishning metodik asoslari keng bayon etilgan. Muallif o'quvchilarning til va tafakkurini rivojlantirishda adabiy materiallarning ahamiyatini ta'kidlab, darslarda interfaol

metodlarni qo'llashni tavsiya etadi. Biroq bu asarlarda milliy qadriyatlarni singdirishning maxsus mexanizmlari to'liq ochilmagan. Ikkinchidan, K. Mambetov o'zining adabiyot nazariyasi bo'yicha tadqiqotlarida adabiy asarlarni tahlil qilish orqali o'quvchilarning estetik tarbiyasini takomillashtirishga ahamiyat beradi. Muallif adabiy obrazlar orqali axloqiy sifatlarni shakllantirish mumkinligini ko'rsatadi, biroq milliy identifikatsiya masalalari chuqurroq o'rganilmagan.

Milliy tarbiya masalalari S. Pirnazarov asarlarida to'laroq yoritilgan. Muallif milliy qadriyatlarni yosh avlodga singdirishning nazariy asoslarini ochib beradi va uni ta'lim jarayoniga tatbiq etish zarurligini asoslaydi. Ammo bu asarda adabiyot darslariga maxsus metodik tavsiyalar cheklangan.

Qoraqalpoq adabiyotining mazmuni va tarbiyaviy imkoniyatlari J. Allamuratovning asarlarida keng bayon etiladi. Muallif xalq adabiyoti va mumtoz asarlardagi ma'naviy qadriyatlarni tahlil qilib, ularning tarbiyaviy ahamiyatini ta'kidlaydi. Bu mehnat adabiyot orqali milliy ruh bilan tarbiyalashning asosini shakllantiradi.

Shuningdek, I. Karimov va Sh. Mirziyoyevning asarlarida ma'naviy tarbiya, milliy qadriyatlar va yoshlar siyosati masalalariga alohida e'tibor berilgan. Ularda milliy qadriyatlarni asrash va rivojlantirish davlat siyosatining bosh yo'nalishlaridan biri ekanligi belgilanadi. Bu fikrlar ta'lim tizimida, ayniqsa, adabiyot darslarida, milliy tarbiyani kuchaytirishni talab etadi.

Zamonaviy pedagogik tadqiqotlarda interfaol metodlar va innovatsion texnologiyalarni qo'llash masalalari ham keng o'rganilmoqda. Bu boradagi ishlar o'quvchilarning faolligini oshirish orqali milliy qadriyatlarni chuqurroq singdirish imkonini berishini ko'rsatadi.

Umuman olganda, tahlil qilingan adabiyotlar qoraqalpoq adabiyotini o'qitishda milliy qadriyatlarni singdirishning nazariy va

amaliy asoslari mavjudligini isbotlaydi. Lekin bu masala bo'yicha maxsus kompleks metodika hali to'liq ishlab chiqilmagan. Shu sababli, ushbu maqola ushbu yo'nalishdagi tadqiqotlarni to'ldirishga yo'naltirilgan.

### Metodlar

Ushbu tadqiqot ishida quyidagi metodlardan foydalanildi:

1. Nazariy tahlil.

Qoraqalpoq adabiyotini o'qitish metodikasi, pedagogika va tarbiya nazariyalari bo'yicha ilmiy adabiyotlar o'rganildi. Milliy qadriyat tushunchasi, uning mazmuni va ta'limdagi o'rni tahlil qilindi.

2. Pedagogik nazorat.

Maktab darslari davomida o'quvchilarning badiiy asarlarga munosabati, ularning milliy qadriyatlarga bo'lgan qiziqishi kuzatildi.

3. Dars modellashtirish.

Milliy qadriyatlarni singdirishga yo'naltirilgan dars namunalari ishlab chiqildi va amaliyotga tatbiq etildi.

4. So'rovnoma va fikr almashish.

O'quvchi va o'qituvchilar bilan so'rovnoma o'tkazilib, adabiyot darslarining tarbiyaviy ta'siri aniqlandi.

### Natijalar

Tadqiqot natijalari qoraqalpoq adabiyotini o'qitishda milliy qadriyatlarni singdirish uchun quyidagi samarali yo'nalishlar mavjudligini ko'rsatdi:

1. Adabiy asarlar orqali milliy qadriyatlarni oshirib borish.

Qoraqalpoq adabiyotidagi eposlar, dostonlar va mumtoz asarlarda ota-onaga hurmat, do'stlik, botirlik, adolat kabi qadriyatlar keng ko'rsatiladi. Ularni tahlil qilish orqali o'quvchilar bu qadriyatlarni chuqur anglay boshlaydilar.

2. Interaktiv metodlarning ta'sirchanligi.

Rolli o'yin, sahnalashtirish, bahs-munozara kabi usullar o'quvchilarning darsga ishtirokini kuchaytirib, milliy qadriyatlarni faoliyat orqali o'rganishga imkon beradi.

3. Folklor materiallaridan foydalanish.

Maqol, topishmoq, ertak va rivoyatlar o'quvchilarning milliy ongini uyg'otishda katta ahamiyatga ega ekanligi aniqlandi.

#### 4. Integrativ yangi metodlar.

Adabiyot darslarini tarix, geografiya, etnografiya fanlari bilan bog'lash o'quvchilarning bilimlarini kengaytiradi va milliy identifikasiyani kuchaytiradi.

#### **Muhokama**

Olingan natijalar ko'rsatganidek, qoraqalpoq adabiyotini o'qitish - bu nafaqat ta'lim berish jarayoni, balki u kuchli tarbiyaviy mexanizm hisoblanadi. Lekin amaliyotda har doim ham milliy qadriyatlarni singdirish yetarli darajada amalga oshirilmaydi.

Bu quyidagi sabablar bilan bog'liq:

O'qituvchilarning zamonaviy metodlarni yetarli bilmasligi

Darslarda nazariyaning ustun bo'lib, amaliyotning kamligi.

O'quv materiallarining yetarli darajada yangilanmaganligi

Shu sababli quyidagi tavsiyalar beriladi:

#### 1. Mug'o'qituvchilarni qayta tayyorlash.

Milliy qadriyatlarni singdirish metodikasi bo'yicha ko'proq seminar va treninglar o'tkazish kerak.

#### 2. Interfaol darslarni ko'paytirish.

O'quvchi muhitida mavjud bo'lgan metodlar keng qo'llanilishi lozim.

#### 3. Zamonaviyo'o'quv qo'llanmalarin ishlab shiw.

Multimedia, video, raqamli resurslar bilan boyitilgan materiallar o'quvchilarning qiziqishini oshiradi.

#### 4. Milliy muhit yaratish.

Maktabda adabiy kechalar, sahnalashtirishlar, asar tanlovlari o'tkazish orqali milliy ruh kuchaytiriladi.

#### **Xulosa**

Qoraqalpoq adabiyotini maktabda o'qitish jarayonida milliy qadriyatlarni singdirish - yosh avlodni tarbiyalashning eng muhim omillaridan biridir. Adabiyot orqali o'quvchilar o'z xalqining tarixini,

madaniyatini, ma'naviy merosini tushunadi va qadrlaydi.

Tadqiqot ko'rsatganidek, agar o'qitish jarayonida interfaol metodlar, folklor materiallari va integratsion yondashuvlar to'g'ri qo'llanilgan bo'lsa, milliy qadriyatlarni singdirishning samaradorligi ancha yuqori bo'ladi.

Shu bois, adabiyot darslarini yangicha metodik asoslar asosida tashkil etish - davr talabidir.

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## Analysis of syntactic and stylistic features of Zulfiya Muminova's poetry

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### Abstract

This article is devoted to identifying the artistic and aesthetic functions of syntactic means in the work of Zulfiya Muminova, a bright representative of modern Uzbek poetry. The work analyzes the mechanisms of influence of syntactic devices (parallelism, inversion, gradation, antithesis, etc.) on the reader's psyche, unlike lexical units. It is shown with the help of comparative examples how the inner feelings, patriotism and human suffering of the lyrical hero in the poet's poems are reflected precisely through changes in the structure of the sentence, the shift of logical emphasis and emotional statements.

**Keywords:** syntactic figure, artistic skill, Zulfiya Muminova, lyrical experience, parallelism, inversion, gradation, expressiveness, poetic syntax, stylistic device.

### Annotatsiya

Mazkur maqola zamonaviy o'zbek she'riyatining yorqin vakili Zulfiya Mo'minova ijodida sintaktik vositalarning badiiy-estetik funksiyalarini aniqlashga bag'ishlangan. Ishda leksik birliklardan farqli o'laroq, sintaktik qurilmalarning (parallelizm, inversiya, gradatsiya, antiteza va b.) kitobxon ruhiyatiga ta'sir ko'rsatish mexanizmlari tahlil qilingan. Shoir she'rlaridagi lirik qahramonning ichki kechinmalari, vatanparvarlik va insoniy iztiroblari aynan gap strukturasi o'zgarishi, mantiqiy urg'uning ko'chishi va emotsional gaplar orqali qanday aks etishi qiyosiy misollar yordamida ko'rsatib berilgan.

**Kalit so'zlar:** sintaktik figura, badiiy mahorat, Zulfiya Mo'minova, lirik kechinma, parallelizm, inversiya, gradatsiya, ekspressivlik, poetik sintaksis, uslubiy vosita.

**Kirish.** Badiiy nutqning ta'sirchanligi va jozibadorligini oshirishda sintaktik usul eng qudratli lisoniy vositalardan biri hisoblanadi. Agar leksik vositalar (tashbeh, istiora) asosiy yukni so'zning ma'no qatlamiga yuklasa, sintaktik vositalar gapning qurilishi, ohangi va strukturaviy jozibasi orqali kitobxon ruhiga bevosita ta'sir qiladi. Zulfiya Mo'minova she'riyatida sintaktik usul shunchaki grammatik shakl emas, balki shoir qalbining o'ziga xos "nafas olish maromi"dir. Uning ijodida fikrning ochiqligi, ayollarga xos nazokat va vatanparvarlik ruhi aynan sintaktik figuralar orqali o'quvchiga yetkaziladi. Tadqiqotning dolzarbligi shundaki, zamonaviy o'zbek she'riyatida shakl va mazmun mutanosibligini o'rganishda sintaktik tahlil she'rning ichki energiyasini ochib beruvchi asosiy kalit hisoblanadi. Mazkur maqolada shoir ijodidagi parallelizm, inversiya va ritorik

so'roq gaplar misolida badiiy mahorat masalalari ko'rib chiqiladi.

Badiiy nutqning ta'sirchanligi va jozibadorligini oshirishda sintaktik usul eng qudratli lisoniy vositalardan biri hisoblanadi. Agar leksik vositalar (tashbeh, istiora) so'zning ma'no qatlamiga yuklasa, sintaktik vositalar gapning qurilishi, ohangi va strukturaviy jozibasi orqali kitobxon ruhiga ta'sir qiladi. Zulfiya Mo'minova she'riyatida sintaktik usul shunchaki grammatik shakl emas, balki shoir qalbining "nafas olish maromi"dir. Uning ijodida fikrning ochiqligi, ayollarga xos nazokat va vatanparvarlik ruhi aynan sintaktik figuralar orqali o'quvchiga yetkaziladi.

Sintaktik figuralarning quyidagi asosiy ko'rinishlari mavjud:

1. Sintaktik parallelizm.
2. Emotsional gap.
3. Ritorik so'roq gap.
4. Inversiya.

5. Ellipsis.
6. Gradatsiya.
7. Antiteza.
8. Farqlash.
9. O'xshatish.

**Sintaktik parallelizm.** Badiiy matnda, shuningdek, uning bir ko'inishi bo'lgan she'riyatda sintaktik jihatdan bir xil shakllangan gaplar ko'p qo'llaniladi. Tilshunoslikda bunday qurilmalar parallelizm atamasi ostida o'rganiladi. Parallelizm (yunoncha, parallelos-yonmayon boruvchi) yonma-yon gaplar, sintagmalarning bir xil sintaktik qurilishga ega bo'lishi [1].

Shoira Zulfiya Mo'minova she'riyatida sintaktik parallelizmlarning go'zal namunalarini ko'plab uchratish mumkin. Jumladan,

*Qirda bug'doy o'rgan botirga ayon  
Ko'zada chayqalgan qimizning hidi.*

**G'aramlarga ayon, chodirga ayon**  
*Suluvlar quritgan mayizning hidi*  
(“O'zbekiston she'ridan”) [2].

Gaplarning bir xil qolipda takrorlanishi nutqqa joziba bag'ishlab, fikrning ta'sir quvvatini oshiradi. Bu usul o'quvchiga tasvir markazidagi voqeelikni barcha detallari bilan, qadamma-qadam va teranroq his qilishga yordam beradi. Masalan:

*To'rtta bolasidan ayrilgan ayol,  
Ishonmay titradi: “Tushimmi — o'ngim?”*

*U og'ir yo'llarga og'ir bir savol,*

**U mening o'lanim, u mening mungim** ( “G'alaba” she'ridan ) [2].

**Emotsional gaplar.** Badiiy nutqda so'zlovchi yoki lirik qahramonning ruhiy-psixologik holatini, xususan, kuchli hayajon, shodlik yoki chuqur iztirob kabi ichki kechinmalarini ifodalovchi qurilmalar emotsional gaplar hisoblanadi. Bunday gaplarning semantik asosi va nutqiy ekspressivligi quyidagi til birliklari orqali shakllanadi: Konnotativ leksika: Gap tarkibida ijobiy (chehra, o'ktam, tabassum) yoki salbiy (turq, qo'pol, tirjaymoq) bo'yoqdorlikka ega bo'lgan so'zlarning

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qo'llanishi. Bu birliklar tasvir obyektiga nisbatan muallifning subyektiv-baholovchi munosabatini ochiqalaydi. Affektiv birliklar va Undovlar: Inson ruhiyatidagi sevinch, qo'rquv, g'azab va afsus kabi turli modallikdagi his-tuyg'ularni ifodalovchi maxsus leksik qatlam (oh, voy sho'rim, eh attang, bay-bay-bay) gapning emotsional yukini kuchaytiradi.

**Xah, sening boshingga**

*Osmon qulasin.*

*Ortingdan bir umr*

*Kulfat quvlasin* (“Er kishi qarg'ishi” she'ridan) [2].

**Jonim Vatan, jon tomiring**

*Tillolarga alishmasman.*

*Shiroq o'tgan sahrolaring*

*Daryolarga alishmasman* (“Alishmasman” she'ridan) [3].

**Ritorik so'roq gap.** Badiiy matnning emotsional-ekspressiv mundarijasini boyitishda ritorik so'roq gaplar muhim sintaktik vosita hisoblanadi. Lingvistik nuqtayi nazardan ushbu qurilmalar mohiyatan kommunikativ javob talab qilmaydigan, biroq mazmunan qat'iy tasdiq yoki inkorni ifodalovchi “yashirin tasdiq” mexanizmi bo'lib xizmat qiladi

*Qay kun turna qaytdi, onam qaytmadi,*

*Ko'ngli yarim-ku, deb hech kim aytmadi.*

**Dunyo vaslu, vido uchrar baytmidi?**

*Turnalar qaytguncha omon bo'laylik*  
(“Turnalar qaytguncha omon bo'laylik” she'ridan) [3].

**Inversiya.** Lisoniy qurilmada gap bo'laklarining odatdagi (neytral) joylashuv tartibining uslubiy maqsadlar asosida o'zgarishi inversiya (lot. inversio — o'rin almashish) hodisasi hisoblanadi.

*Foydalanar undan allakim,*

*Ba'zan hech kim tushunmas uni.*

*U-chi, sanar umidvor va jim,*

*Turnalarning qaytar kunini* (“Yaxshi odam haqida oddiy satrlar” she'ridan) [2].

**Ellipsis** (yun. elleipsis - tushish, tushirilish) deb nutqiy aloqa jarayonida gap bo'laklarining muayyan maqsad bilan

tushirilishi hodisasiga aytiladi. Bunday tushirilish tildagi lingvistik iqtisod - lisoniy tejamkorlik tamoyili asosida amalga oshiriladi [4].

1) *Ayolga baxt bering, saodat bering...*

2) *Ayol shirin bir may bo'lar, gulob bo'lar...*

Keltirilgan misollarning birinchisida “**ayolga**” soʻzi, ikkinchi va uchinchisida “**ayol**” soʻzi ellipsisga uchragan.

**Gradatsiya** (lotincha gradatio — „zinapoya“, „bosqichma-bosqich koʻtarilish“) — badiiy nutq va stilistikaning muhim sintaktik-semantik figuralaridan biri boʻlib, u tushuncha, belgi yoki harakatning maʼno kuchini, emotsional boʻyogʻini yoki mantiqiy salmogʻini muayyan tartibda (oʻsish yoki pasayish yoʻnalishida) joylashtirish hodisasidir.

*Biriga qirmizi qon dogʻi tekkan,*

*Birining poyi yoʻq, birining ipi yoʻq.*

*Yirtilgan, qonxoʻrning pichogʻi tekkan...*

(“Tuflichalar” sheʼridan ) [2].

Dastlab buyumdagi kichik nuqson (*dogʻ*) koʻrsatiladi, soʻng uning butunligi yoʻqolgani (*poyi yoʻq, ipi yoʻq*) taʼkidlanadi va yakunda fojining sababi — tajovuzkorlik (*pichoq tekkan*) darajasiga koʻtariladi. Bu kitobxon ruhiyatidagi daxshat hissini bosqichma-bosqich oshiradi.

**Antiteza** (yun. antithesis — qarshilantirish, zidlash) — badiiy tasvirning samaradorligini oshirish maqsadida oʻzaro qarama-qarshi tushuncha, timsol yoki holatlarni bir-biriga qiyoslash va zid qoʻyish asosiga qurilgan lisoniy hodisadir. Bu usul voqelikning murakkab va ziddiyatli tabiatini ochiqroq koʻrsatish, lirik qahramonning ruhiy kechinmalaridagi toʻqnashuvlarni vizuallashtirish uchun xizmat qiladi.

*“Daryo — tiniq oqadi, koʻz yoshdek tiniq,*

*Nega loyqa oqar dillardagi oʻy?”*

*“Tiniq daryo”* (poklik simvoli) va *“loyqa oʻy”* (yomon niyat, shubha) oʻrtasidagi kontrast orqali shoira jamiyatdagi maʼnaviy inqirozni savol ostiga oladi

Xulosa qilib aytganda, Zulfiya Moʻminova sheʼriyatining lisoniy va uslubiy tahlili shuni

koʻrsatadiki, shoira ijodida sintaktik vositalar shunchaki grammatik qoliplar emas, balki asarning gʻoyaviy-estetik taʼsirchanligini taʼminlovchi eng qudratli omillardan biri hisoblanadi. Shoira sheʼrlaridagi lirik qahramonning ruhiy holati, vatanparvarlik tuygʻulari va ayollarga xos nozik kechinmalar aynan gap strukturasidagi oʻziga xosliklar — sintaktik parallelizm, inversiya va ritorik soʻroqlar orqali kitobxon qalbiga muhrlanadi. Ayniqsa, shoira qoʻllagan parallelizm usuli misralarga oʻziga xos musiqiylik va mantiqiy izchillik bagʻishlasa, “Nahotki...” kabi soʻroq-yuklamalar asosiga qurilgan ritorik soʻroq gaplar oʻquvchini chuqur mushohadaga chorlaydi va lirik “men” bilan kitobxon oʻrtasida yaqin maʼnaviy koʻprik oʻrnatadi. Gradatsiya va antiteza kabi vositalar esa hayotiy ziddiyatlarni, xususan, “Tuflichalar” sheʼridagi kabi ijtimoiy fojialarni bosqichma-bosqich, taʼsirchan boʻyoqlarda vizuallashtirishga xizmat qiladi. Umuman olganda, Zulfiya Moʻminova oʻz ijodida oʻzbek tilining boy sintaktik imkoniyatlaridan mahorat bilan foydalangan holda, fikrning emotsional yukini oshirishga va oʻzining takrorlanmas “sintaktik nafas”iga ega individual uslubini yaratishga erishgan. Mazkur tahlillar shoira sheʼriyatining nafaqat mazmunan boyligini, balki shaklan ham yuksak badiiy mukammallikka ega ekanligini toʻlaqonli tasdiqlaydi.

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# The Phonetic System Of Chinese And The Communicative Significance Of Tones

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**Abstract:** The article studies how Chinese people use their phonetic system to communicate through different tonal variations. The research investigates how Mandarin Chinese uses tones as its fundamental phonological elements to create word meanings and establish grammatical connections. The research demonstrates that tonal accuracy functions as both a phonetic enhancement and an essential element for effective communication because tonal mistakes cause complete comprehension failure or unintentional understanding. The article investigates how people perceive and produce tones in language and how second-language speakers from non-tonal languages encounter difficulties, while also examining the importance of tones in suprasegmental phonology.

**Keywords:** Chinese phonetics, tonal system, Mandarin tones, communicative function, tone perception, semantic differentiation, lexical tones.

## INTRODUCTION

The Chinese language uses its phonetic system to create a unique and intricate organizational system which denotes all its spoken elements through tonal changes that serve as the main method for showing words and grammar [1]. Mandarin Chinese uses tone as a phonemic feature because speakers produce identical syllabic segments with distinct pitch patterns which result in separate morphemes that have no relationship to each other [2]. The unique feature of Chinese tonal systems places the language into a tonal language category which includes around seventy percent of the world's languages yet has found limited research attention because studies have historically focused on Indo-European language systems [3]. Chinese tones serve as vital meaning transmitters which surpass their role as phonetic decorations because they function at the same level as consonants and vowels to establish word identity while helping speakers identify homophones that sound identical in spoken form [4].

## METHODOLOGY AND LITERATURE REVIEW

The present study uses a complete literature review method to bring together theoretical and descriptive phonetic studies of Chinese phonetics which different linguistic traditions studied through Western phonological theory and Russian-Soviet Sinological research and native Chinese linguistic knowledge [5]. The analytical framework uses acoustic phonetics to obtain actual measurements of fundamental frequency patterns and it uses cognitive phonology to study how native speakers and language learners mentally store and manage tonal categories [6]. The analysis of both traditional and modern texts shows that the Standard Mandarin Chinese tonal system contains four main lexical tones with an additional neutral tone which researchers usually label as Tone 1 (high level, represented phonetically as a sustained high pitch at approximately 55 on the Chao tone letter scale), Tone 2 (rising, mid-to-high pitch movement from approximately 35 to 55), Tone 3 (dipping or falling-rising, with a characteristic low dip to 21 before rising to 35 in citation form, though often realized as a simple low tone in connected speech), and Tone 4 (falling, high-to-low pitch movement from 51 to 21),

with the neutral tone representing a toneless or weakly articulated syllable whose pitch is determined by the tonal context of preceding syllables [7].

Research by Russian linguists demonstrates that tonal systems use tonal contrasts to create a complete system which operates in the same way as consonant and vowel systems do in languages without tonal features because native speakers need to learn these tonal patterns through their respective systems instead of just learning specific pitch patterns [8]. Non-tonal language speakers use pitch changes to create intonational patterns which include question marking and focus assignment and emotional expression while Chinese speakers must handle both lexical tone and sentence-level intonation which creates a complex prosodic system that makes it difficult to learn for second-language learners [9]. The research shows that people perceive and produce tone through two processes which include bottom-up acoustic processing and top-down lexical activation while native Chinese speakers use contextual information and phonotactic constraints and semantic plausibility to resolve tonal input when they listen under degraded conditions or fast speech which reduces tonal distinctions to phonetic similarities [10].

## RESULTS AND DISCUSSION

Theoretical and descriptive literature research produces multiple important results which demonstrate how Chinese phonetic system tones function as means of communication. First, tones operate as obligatory components of syllable structure rather than optional suprasegmental overlays, which means every syllable in connected speech must carry a specified tonal value because speakers who fail to produce correct tonal distinctions will experience communication breakdown through lexical non-recognition or mis-recognition by their listeners. The functional

load of phonetic contrasts appears throughout educational resources and linguistic descriptions, which present minimal pair examples that include the syllable "ma" which produces four different meanings through tonal variations that include "mā" (mother), "má" (hemp), "mǎ" (horse), and "mà" (to scold). Second, tones create communicative demands which extend to both grammatical and discourse functions because certain morphological processes and syntactic constructions involve tone sandhi phenomena where underlying tonal specifications undergo systematic alternation based on tonal environment, syllable position, and morphosyntactic structure. The third tone sandhi rule shows how Tone 3 syllables dissimilate when two of them occur together because the first syllable shifts to Tone 2.

The sandhi processes function as essential elements of phonological grammar while creating extra processing requirements for speakers and listeners who need to derive surface tone from base sound patterns while keeping word meanings clear. The psycholinguistic evidence shows that tone processing activates different brain pathways from segmental processing because neuroimaging research shows that tonal languages use both left-hemisphere language areas and right-hemisphere pitch processing regions to process tone perception which serves as a cognitive connection point between linguistic and musical understanding.

The pedagogical implications which emerge through this study demonstrate deep impact on learning because students from non-tonal backgrounds require complete perceptual retuning to develop their ability to recognize pitch differences which function as linguistic elements and they need to acquire active pitch control skills which extend beyond their existing native language sound system. The research results demonstrate that tones operate as

essential components of the Chinese phonetic system because they function as the primary rules which determine how words are structured and how word formation processes work and how speakers can successfully communicate within the strict phonotactic rules that govern Chinese syllable patterns which allow only about 1,300 different syllable forms before tonal distinctions begin but which increase to more than 5,000 different syllabic units when tonal differences are added.

The acoustic realization of tones in connected speech demonstrates complex coarticulation and contextual modification patterns which challenge basic models that treat tone as unchanging pitch targets. Research shows that tonal contours will show systematic compression and expansion and assimilation through three factors which include speech rate and prosodic boundaries and tonal characteristics of nearby syllables. The finding demonstrates that listeners need to use relational pitch patterns for tonal information decoding because the actual frequency values do not help them identify tonal elements. The finding demonstrates that tones have a communicative function because listeners use normalization to perceive tones through a process which enables them to identify consistent phonological categories from varying acoustic patterns. Tone sandhi phenomena which occur in various Chinese dialects show Standard Mandarin through third tone modification and grammatical morpheme tone change rules which demonstrate that tonal systems follow established rules in the same way as segmental phonological systems. The sandhi patterns serve to communicate specific messages which extend beyond their basic role in phonetic assistance because they mark morphological boundaries and indicate syntactic connections and help differentiate

between homophonous grammatical constructions that would create confusion during spoken communication. The tonal alternation patterns show systematic execution because speakers have developed phonological skills which enable them to create tonal outputs from basic sound patterns through their knowledge of phonological rules.

### **CONCLUSION**

The examination of the Chinese phonetic system and the communicative significance of tones reveals that tonal specification represents a fundamental organizing principle of the language, functioning at the level of primary phonological contrast and serving as an indispensable mechanism for lexical differentiation, grammatical encoding, and semantic precision. The four-tone system of Standard Mandarin Chinese demonstrates how prosodic features can assume the functional load typically distributed across larger consonantal and vocalic inventories in non-tonal languages, compensating for the relatively restricted syllable structure of Chinese through systematic exploitation of the pitch dimension. The findings underscore the necessity of integrating tonal competence into any comprehensive model of Chinese phonology and highlight the challenges posed by tonal systems for linguistic theory, language acquisition research, and pedagogical practice. Future research directions should explore the interface between lexical tone and sentence-level intonation, investigate the cognitive mechanisms underlying tone processing in bilingual speakers, and examine the sociolinguistic variation in tonal realization across regional varieties and speaker populations. Understanding the communicative primacy of tones in Chinese contributes to broader theoretical debates regarding the boundaries between phonetics and phonology, the relationship between form and meaning in linguistic

structure, and the cognitive architectures that support human language processing across typologically diverse linguistic systems.

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# Effect Of Traditional Clay Oven (Uzbek Tandir) Cooking On Nutritional And Sensory Properties Of Meat

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## ABSTRACT

Traditional clay oven cooking, exemplified by the Uzbek tandir (tandyr), represents one of the oldest high-temperature cooking methodologies in Central Asian culinary culture. This review examines the mechanisms through which tandir cooking affects the nutritional composition, protein structure, lipid stability, and sensory characteristics of meat. The tandir's unique thermal environment—characterized by temperatures exceeding 480°C, radiant heat from clay walls, and wood-fire smoke infusion—creates distinct biochemical transformations that differentiate it from conventional cooking methods. While tandir cooking enhances flavor development through Maillard reactions and preserves certain nutritional properties, it also presents challenges regarding the formation of heat-induced carcinogens including heterocyclic amines (HCAs) and polycyclic aromatic hydrocarbons (PAHs). Understanding these transformations is essential for optimizing traditional cooking practices within modern nutritional frameworks.

**Keywords:** tandir, tandoor, Uzbek cuisine, meat cooking, Maillard reaction, protein denaturation, heterocyclic amines, polycyclic aromatic hydrocarbons, sensory properties, nutritional quality

## 1. INTRODUCTION

The Uzbek tandir is a cylindrical clay oven traditionally fueled by wood or charcoal, representing a culinary technology that has persisted across Central Asia for millennia (Sharma, 2025). Unlike the Indian subcontinent tandoor (from which the term likely derives via Persian *tanūr*, meaning "fire oven"), the Uzbek tandir features distinct construction adaptations for both bread baking (*tandyr nan*) and meat preparation (Grokikipedia, 2022; Sharma, 2025). In Uzbek cuisine, meat—particularly lamb and beef—constitutes the central nutritional component, with traditional dishes emphasizing high-calorie preparations using cottonseed oil or animal fats combined with spices (Western European Journal of Linguistics and Education, 2024; People Travels, 2024).

Meat serves as the primary protein source in Uzbek dietary patterns, with sheep meat (lamb and mutton) and beef forming the cornerstone of traditional dishes such as *palov* (pilaf), *kabob*, and *tandir-kabob* (People Travels, 2024; PMC, 2023). The

Uzbek population's food consumption patterns between 1992–2019 demonstrate a diet composed mainly of wheat, rice, and meat, with sheep meat holding particular cultural and nutritional significance (PMC, 2023). Understanding how traditional tandir cooking modifies the nutritional and sensory properties of these meats is essential for evaluating both the health benefits and potential risks associated with this ancient culinary technique.

Despite the widespread use of tandir ovens throughout Central Asia, scientific literature specifically addressing the nutritional and sensory transformations of meat cooked in Uzbek tandirs remains limited. Most existing research focuses on Indian tandoori cooking or general high-temperature meat processing. This review synthesizes available scientific evidence on high-temperature cooking effects, traditional oven thermal characteristics, and meat biochemistry to construct a comprehensive framework for understanding tandir-specific transformations.

## 2. MATERIALS AND METHODS

This review was conducted through systematic literature searches across multiple databases including PubMed, ScienceDirect, Google Scholar, and relevant culinary science publications. Search terms included combinations of "tandir," "tandoor," "Uzbek cooking," "clay oven," "high-temperature meat cooking," "Maillard reaction," "heterocyclic amines," "polycyclic aromatic hydrocarbons," "protein denaturation," and "meat sensory properties." Additional sources were identified through cross-referencing bibliographies of retrieved articles.

Studies were selected based on relevance to: (1) thermal characteristics of clay or tandoor-type ovens; (2) biochemical transformations of meat proteins and lipids during high-temperature cooking; (3) formation of heat-induced contaminants; and (4) sensory evaluation of roasted or grilled meat products. Where direct data on Uzbek tandir cooking was unavailable, inferences were drawn from comparable high-temperature cooking methods, with explicit acknowledgment of methodological limitations.

Thermal data for tandir ovens were compiled from culinary science sources and traditional cooking documentation. Nutritional composition data for Uzbek meats were obtained from published food composition studies. Biochemical transformation pathways were analyzed based on established meat science literature regarding protein denaturation, lipid oxidation, and Maillard reaction kinetics.

## 3. RESULTS AND DISCUSSION

### 3.1 Thermal Characteristics of the Uzbek Tandir

#### 3.1.1 Temperature Profile and Heat Transfer Mechanisms

The tandir operates through a complex multimodal heat transfer system. Traditional tandoor-type ovens reach internal temperatures of **480–540°C (900–1000°F)**, creating an environment where radiant heat from clay walls, convection from swirling hot air, and direct flame exposure operate simultaneously (DineTime, 2024; MTL Wholesale, 2023; Sharma, 2025). This thermal profile differs fundamentally from conventional oven roasting (typically 150–230°C) or pan-frying methods.

The clay construction provides excellent thermal mass, storing and radiating heat evenly while the cylindrical shape promotes natural convection currents (MTL Wholesale, 2023; Grokipedia, 2022). For meat cooking, pieces are typically skewered and placed vertically inside the oven, allowing exposure to radiant heat from all sides while fat and juices drip onto the hot coals below, generating flavor-infusing smoke (DineTime, 2024; Sharma, 2025).

#### 3.1.2 Comparison with Other High-Temperature Methods

Scientific studies on roasting temperatures demonstrate that even conventional high-temperature roasting (150–310°C) significantly impacts meat biochemistry (ScienceDirect, 2025). The tandir's extreme temperatures—often double those of conventional roasting—accelerate chemical reactions exponentially, following Arrhenius equation principles where reaction rates increase with temperature.

### 3.2 Nutritional Modifications During Tandir Cooking

#### 3.2.1 Protein Transformations

**Denaturation and Aggregation.** Protein denaturation in meat follows specific temperature-dependent pathways. Myosin, a primary myofibrillar protein, begins denaturation at approximately **40–53°C**, with complete denaturation above 53°C (PMC, 2022). Actin denatures at higher temperatures (66–73°C), and this transition

is primarily responsible for meat toughening and moisture loss (ThermoWorks, 2026).

In tandir cooking, where surface temperatures far exceed these thresholds, the extreme thermal gradient creates rapid surface protein coagulation. Research on beef patties roasted at 150–310°C demonstrates that myosin heavy chain (220 kDa) degrades significantly with increasing temperature, while actin (42 kDa) shows greater thermal stability (ScienceDirect, 2025). At tandir temperatures (>480°C), surface myosin likely undergoes near-instantaneous denaturation and degradation, creating a crust while the interior may remain at lower temperatures depending on cooking duration.

The rapid surface searing in tandir cooking may paradoxically help retain interior moisture by creating a barrier, though prolonged exposure leads to substantial moisture loss. Studies indicate that moisture loss in meat increases dramatically once internal temperatures reach **66°C (150°F)**, with actin denaturation driving this expulsion (ThermoWorks, 2026).

**Protein Oxidation and Amino Acid Modifications.** High-temperature cooking induces significant protein oxidation, generating reactive oxygen species (ROS) that attack amino acid side chains (ScienceDirect, 2025). Research on beef roasted at various temperatures (150–310°C) reveals that free thiol content decreases significantly with increasing temperature ( $p < 0.001$ ), while protein carbonyl content increases, indicating oxidative damage. Tryptophan residues undergo significant oxidative modification, producing kynurenine and 3-hydroxykynurenine (ScienceDirect, 2025). Advanced glycation end products (AGEs) form when lysine residues react with reducing sugars, producing carboxymethyllysine (CML) and carboxyethyllysine (CEL), particularly at

temperatures above 230°C (ScienceDirect, 2025).

At tandir temperatures (>480°C), these oxidative modifications likely intensify, though the short cooking duration may partially mitigate total exposure compared to prolonged conventional roasting.

**Nutritional Availability.** Despite denaturation, cooked meat protein maintains high bioavailability (90–95% absorption rate) (NutriScan, 2024). The tandir-cooked meat provides complete protein containing all nine essential amino acids. Comparative analysis shows beef contains higher levels of essential amino acids than lamb, with 1.25–1.48 times more valine, lysine, threonine, leucine, and histidine (Western European Journal of Linguistics and Education, 2024). However, excessive oxidation may reduce protein solubility and functional properties. Studies demonstrate that protein solubility decreases significantly at temperatures above 150°C, affecting water-holding capacity and texture (ScienceDirect, 2025).

### 3.2.2 Lipid Transformations

**Fatty Acid Stability.** Lipid oxidation represents a primary deteriorative reaction during high-temperature meat cooking. Research demonstrates that roasting temperature directly correlates with increased peroxide value (PV), thiobarbituric acid reactive substances (TBARS), and malondialdehyde (MDA)—a cytotoxic lipid oxidation product detected in samples cooked above 230°C (ScienceDirect, 2025).

Uzbek cuisine traditionally uses lamb with higher fat content (8–20% depending on fatness grade) compared to beef (4–15%) (Western European Journal of Linguistics and Education, 2024). The higher fat content in tandir-cooked lamb increases susceptibility to oxidation, though the presence of fat-soluble antioxidants (vitamin E) in lamb (0.6 mg/100g, 1.5× higher than beef) may provide partial

protection (Western European Journal of Linguistics and Education, 2024).

**Fat Rendering and Juiciness.** Intramuscular fat begins rendering at **52–54°C (125–130°F)**, contributing to succulence (ThermoWorks, 2026). In tandir cooking, rapid surface searing may limit excessive fat loss while creating characteristic flavor compounds. However, prolonged cooking or excessive temperatures can lead to complete fat melt-out, reducing caloric content but potentially compromising texture.

### 3.2.3 Vitamin Retention and Mineral Stability

**B-Complex Vitamins.** Meat serves as an important source of B vitamins, particularly B3 (niacin), B6 (pyridoxine), B12, and B2 (riboflavin) (Western European Journal of Linguistics and Education, 2024; PMC, 2023). Thermal processing generally reduces heat-labile vitamins. Thiamine (B1) is highly heat-sensitive; lamb contains 0.08 mg/100g (5% daily requirement) and beef 0.06 mg/100g (4% daily requirement) (Western European Journal of Linguistics and Education, 2024). Riboflavin (B2) is moderately stable, while niacin (B3) is relatively heat-stable; beef contains 8.2 mg/100g (41% daily requirement) versus 7.1 mg/100g (36%) in lamb (Western European Journal of Linguistics and Education, 2024).

The short cooking duration in tandir ovens may partially preserve these nutrients compared to prolonged boiling or stewing, though surface charring at extreme temperatures may destroy surface-layer vitamins.

**Mineral Retention.** Minerals (iron, zinc, selenium, phosphorus) remain stable during cooking. Sheep meat contains higher levels of heme iron (h-Fe)—the most bioavailable form—compared to beef, along with significant calcium, magnesium, cobalt, copper, and selenium (PMC, 2023). Tandir cooking does not significantly alter mineral

content, though dripping fat may carry away fat-soluble compounds.

### 3.3 Formation of Heat-Induced Contaminants

#### 3.3.1 Heterocyclic Amines (HCAs)

HCAs form in meat cooked at high temperatures through Maillard reactions involving creatine/creatinine, amino acids, and reducing sugars (News-Medical, 2025). Two classes exist: thermic HCAs, which form at 100–300°C, and pyrolytic HCAs, which form at temperatures exceeding 300°C (News-Medical, 2025).

Given tandir temperatures (>480°C), pyrolytic HCAs likely form in significant quantities, particularly on charred surfaces. Research on lamb cooked by various methods (roasting, frying, pan-frying, stewing) detected higher heterocyclic aromatic amine content in stewing, suggesting that moisture and duration may be as critical as temperature (PMC, 2022).

#### 3.3.2 Polycyclic Aromatic Hydrocarbons (PAHs)

PAHs form when fat drips onto hot coals or flames, generating smoke that deposits compounds such as benzo[a]pyrene onto meat surfaces (News-Medical, 2025). Wood combustion specifically promotes PAH synthesis, particularly during early combustion stages when flames dominate and oxygen levels are lower (PMC, 2025). Studies comparing wood-fire cooking (asado method) with charcoal grilling found approximately **5× higher benzo[a]pyrene levels** in wood-cooked meat, attributed to active wood burning versus pre-combusted charcoal (PMC, 2025). This finding is particularly relevant to Uzbek tandir cooking, which traditionally uses wood or charcoal. The dripping of lamb fat (with its higher fat content) onto hot coals creates optimal conditions for PAH formation.

#### 3.3.3 Advanced Glycation End Products (AGEs)

The Maillard reaction, responsible for desirable browning and flavor, also

produces AGEs. These compounds form when lysine residues react with reducing sugars, creating CML and CEL (ScienceDirect, 2025). Research shows these modifications appear at temperatures above 230°C and increase with thermal intensity (ScienceDirect, 2025). At tandir temperatures, AGE formation likely accelerates, though the brief cooking period may limit total accumulation compared to slower methods.

### 3.4 Sensory Properties

#### 3.4.1 Flavor Development

##### **Maillard Reaction and Volatile Compounds.**

The Maillard reaction between amino acids and reducing sugars creates hundreds of volatile flavor compounds, including pyrazines, furans, and thiazoles, contributing to the characteristic "roasted" flavor (News-Medical, 2025; Orka Tech, 2024). At tandir temperatures (>480°C), this reaction proceeds rapidly, creating intense surface browning and complex flavor profiles.

Research on dry-aged beef demonstrates that grilling at 230°C produces significantly stronger "roasted flavor" compared to oven roasting at the same temperature, attributed to direct heat transfer and Maillard reaction intensity (PMC, 2022). The tandir's radiant heat and smoke infusion likely amplify these effects.

**Smoke Infusion.** The tandir's open-flame environment creates distinctive smoky aromatics through: (1) wood smoke volatiles (guaiacol, syringol, and other phenolic compounds from wood combustion); (2) fat pyrolysis products (volatile fatty acids and carbonyl compounds from dripping fat) (News-Medical, 2025); and (3) clay wall adsorption, where the porous clay surface may adsorb and later release flavor compounds (Groklopedia, 2022).

#### 3.4.2 Texture and Tenderness

**Surface Crust Formation.** The extreme surface temperatures in tandir cooking create a rapid crust through protein coagulation and dehydration. This crust provides textural contrast—crispy exterior versus potentially juicy interior. However, overcooking leads to excessive moisture loss and toughness.

**Collagen Transformation.** Connective tissue collagen undergoes critical transformations during heating: transition from crystalline (helical) to amorphous (randomly coiled) structure at 58–64°C; unrestrained collagen fiber shrinkage at 60–70°C; and gelatinization and solubilization above 80°C (PMC, 2022). In tandir cooking, the rapid temperature gradient may create uneven collagen transformation, with surface gelatinization while interior collagen remains intact, resulting in variable tenderness depending on meat cut and cooking duration.

#### 3.4.3 Color Development

Meat color changes during tandir cooking follow established pathways: myoglobin denaturation occurs at ~60°C, converting red myoglobin to brown metmyoglobin (ThermoWorks, 2026; ScienceDirect, 2025); Maillard browning creates golden-brown to dark brown surface coloration (ScienceDirect, 2025); and extreme temperatures may create blackened carbonized areas. The characteristic red-orange color of tandoori-type meats often comes from spice marinades (turmeric, paprika, Kashmiri chili) rather than the cooking process itself (NutriScan, 2024).

#### 3.4.4 Sensory Profile Summary

Table 1 presents a summary of sensory attributes affected by tandir cooking.

**Table 1. Sensory attributes of tandir-cooked meat and their underlying mechanisms.**

SENSORY ATTRIBUTE	TANDIR COOKING EFFECT	MECHANISM
<b>Aroma</b>	Intense smoky, roasted	Wood smoke + Maillard volatiles + fat pyrolysis
<b>Flavor</b>	Complex, umami-rich, slightly bitter	Maillard products + smoke compounds + spice integration
<b>Texture</b>	Crusty exterior, variable interior	Rapid surface dehydration + uneven heat penetration
<b>Appearance</b>	Charred spots, golden-brown surface	Direct radiant heat + Maillard browning
<b>Juiciness</b>	High if properly timed; dry if overcooked	Rapid surface sealing vs. prolonged moisture loss

### 3.5 Comparative Nutritional Analysis

#### 3.5.1 Tandir-Cooked vs. Other Methods

Table 2 compares key nutritional parameters across different cooking methods.

**Table 2. Comparative nutritional and safety parameters across cooking methods.**

PARAMETER	TANDIR COOKING	BOILING	FRYING	GRILLING
<b>Protein retention</b>	High (90–95% bioavailable)	High	Moderate-High	High
<b>Fat content</b>	Moderate (some drips away)	Low (leaches into water)	High (oil absorption)	Moderate
<b>Vitamin B retention</b>	Moderate (short duration helps)	Low (leaching)	Moderate	Moderate
<b>HCA formation</b>	High (pyrolytic class likely)	Low	Moderate	Moderate-High
<b>PAH formation</b>	High (wood smoke)	Negligible	Low	Moderate
<b>Moisture retention</b>	Moderate	High	Moderate	Moderate
<b>Caloric density</b>	Moderate (187 kcal/110g chicken leg)	Low	High	Moderate

#### 3.5.2 Nutritional Value of Tandir-Cooked Uzbek Meats

Based on compositional data for raw meats (Western European Journal of Linguistics and Education, 2024; PMC, 2023):

**Lamb (per 100g):** Calories ~200–250 kcal (depending on fatness); Protein ~18–20g; Fat 8–20g; Iron high (heme form, highly bioavailable); Vitamin B12 significant; Vitamin E 0.6 mg (higher than beef).

**Beef (per 100g):** Calories 208 kcal; Protein 18.6g; Fat 4–15g; Cholesterol 80mg; Niacin 8.2mg (41% DV); Vitamin B6 0.37mg (19% DV).

Tandir cooking modifies these values primarily through: (1) fat reduction (15–30% of fat may drip away during cooking); (2) moisture loss (20–40% weight reduction depending on duration); and (3) concentration effect (nutrients become more concentrated per gram of cooked meat).

### 3.6 Health Implications and Risk Assessment

#### 3.6.1 Beneficial Aspects

Tandir cooking offers several nutritional advantages: high protein bioavailability with complete amino acid profile maintained (NutriScan, 2024; Western European Journal of Linguistics and Education, 2024); lower fat content compared to fried preparations as fat drips away during cooking (NutriScan, 2024); no added oils required unlike frying (NutriScan, 2024); mineral preservation with iron, zinc, and selenium remaining intact (PMC, 2023); and potential probiotic contribution when yogurt-based marinades are used (NutriScan, 2024).

#### 3.6.2 Risk Factors

Primary risk factors include: PAH exposure from wood-fire cooking, with chronic consumption potentially increasing cancer risk (News-Medical, 2025; PMC, 2025); HCA formation at high temperatures creating mutagenic compounds (News-Medical, 2025); protein oxidation with advanced oxidation products potentially reducing nutritional quality (ScienceDirect, 2025); elevated sodium content from traditional marinades; and advanced glycation end products (AGEs) linked to inflammation and oxidative stress (ScienceDirect, 2025).

#### 3.6.3 Mitigation Strategies

Evidence-based mitigation strategies include: antioxidant-rich marinades (yogurt, lemon, spices) that may reduce HCA formation by 30–90% (PMC, 2025); trimming fat to reduce PAH-generating drippings; avoiding direct flame contact to minimize charring; and moderate consumption frequency, consistent with traditional Uzbek dietary patterns where meat dishes were typically consumed weekly rather than daily (Western European Journal of Linguistics and Education, 2024).

### 4. Conclusion

The Uzbek tandir represents a sophisticated thermal processing system that fundamentally transforms meat chemistry through extreme radiant heat, rapid surface dehydration, and smoke infusion. Nutritionally, tandir cooking preserves high-quality protein and essential minerals while reducing fat content through dripping. However, the extreme temperatures (>480°C) accelerate the formation of potentially harmful compounds including PAHs, HCAs, and protein oxidation products.

Sensory-wise, tandir cooking creates an unparalleled flavor profile through intense Maillard reactions, wood smoke volatile incorporation, and characteristic textural contrasts. The method's short cooking duration may partially mitigate some thermal damage compared to prolonged conventional roasting, though the extreme temperatures introduce unique risks that require consideration.

Future research should focus on: (1) quantitative analysis of HCA and PAH levels specifically in tandir-cooked Uzbek meats; (2) optimization of cooking protocols to minimize harmful compound formation while preserving sensory quality; (3) investigation of traditional spice marinades' protective effects against heat-induced contaminants; and (4) comparative studies between traditional wood-fired and modern gas-fired tandir variants.

The Uzbek tandir exemplifies the dual nature of traditional cooking technologies: they offer exceptional sensory experiences and cultural value while requiring modern scientific understanding to optimize safety and nutritional outcomes. As global interest in traditional foods continues to grow, integrating ancient culinary wisdom with contemporary food safety knowledge represents the most promising path forward for preserving these cultural heritage practices.

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# The Influence of Gender Roles on the Formation of Adolescent Girls' Psychology in the Modern Social Environment

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## ABSTRACT

This article explores the influence of gender roles on the psychological development of adolescent girls in the modern social environment. The study analyzes how cultural norms, family expectations, educational systems, and media representations shape identity formation, self-esteem, emotional well-being, and behavioral patterns. Using a qualitative analytical approach, the research examines both traditional and contemporary perspectives on gender roles. The findings indicate that rigid gender stereotypes can negatively affect psychological development, leading to lower self-confidence, body dissatisfaction, and emotional stress. At the same time, more flexible and egalitarian gender norms contribute to increased resilience, autonomy, and positive self-perception. The study highlights the importance of creating supportive social environments that promote gender equality and individual potential among adolescent girls.

**Keywords:** gender roles, adolescent girls, psychological development, social environment, gender stereotypes, identity formation, self-esteem, mental health

## Introduction

Adolescence is a crucial developmental stage marked by rapid psychological, emotional, and social changes. During this period, individuals actively construct their identity and develop a sense of self. For adolescent girls, this process is deeply influenced by social expectations and cultural norms. One of the most significant factors shaping their development is the concept of gender roles. Gender roles refer to socially constructed patterns of behavior, attitudes, and responsibilities assigned to individuals based on their sex. These roles are learned through socialization processes within the family, school, peer groups, and media.

In the modern social environment, gender roles are both evolving and persistent. On one hand, globalization and technological advancements promote ideas of equality and individual freedom. On the other hand, traditional stereotypes about femininity continue to influence expectations placed on girls. As a result, adolescent girls often experience a complex interaction between

progressive and conservative values. This interaction plays a critical role in shaping their psychological development. Media and digital platforms significantly contribute to the reinforcement or transformation of gender norms. Social media, in particular, exposes adolescent girls to diverse representations of femininity, which can be both empowering and harmful. Constant comparison with idealized images may negatively affect self-esteem and body image. At the same time, access to alternative narratives can support identity exploration and self-expression. Family and educational institutions also play a vital role in transmitting gender-related expectations. Parents and teachers may consciously or unconsciously encourage behaviors that align with traditional gender roles. Such influences can either limit or enhance the personal growth of adolescent girls depending on the flexibility of these expectations. Understanding how gender roles impact the psychology of adolescent girls is essential in today's rapidly changing world. It allows researchers and educators

to identify challenges and opportunities for healthy development. This study aims to analyze the influence of gender roles on identity formation, emotional well-being, and behavioral patterns among adolescent girls. By examining these factors, the research seeks to contribute to the development of more inclusive and supportive social environments.

### **Methodology**

This study employs a qualitative research design to explore the influence of gender roles on the psychological development of adolescent girls. The research is based on a comprehensive review of interdisciplinary literature from psychology, sociology, and gender studies. Academic sources such as peer-reviewed journal articles, scholarly books, and international reports were systematically analyzed. The selection criteria focused on relevance, credibility, and recent publications addressing adolescent development and gender socialization. Comparative analysis was used to examine differences between traditional and modern interpretations of gender roles. The study also incorporates a thematic analysis approach to identify recurring patterns and key concepts related to identity formation, self-esteem, and emotional well-being. Data were categorized into major themes, including media influence, family environment, and educational context. The research applies a theoretical framework based on social cognitive theory and gender schema theory to interpret findings. This framework allows for a deeper understanding of how social expectations shape psychological processes. The methodology ensures analytical consistency by synthesizing diverse perspectives into a coherent interpretation. Overall, this approach provides a well-rounded understanding of the complex relationship between gender roles and adolescent girls' psychology.

### **Results**

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The analysis shows that gender roles significantly shape the psychological development of adolescent girls. Many participants internalize societal expectations, which influence their self-concept and identity formation. Traditional norms often encourage passivity and emotional sensitivity, limiting the expression of independence. As a result, some girls develop lower self-confidence in academic and leadership contexts. The findings also indicate that media plays a major role in reinforcing beauty standards and idealized femininity. Exposure to such representations is associated with body dissatisfaction and decreased self-esteem. At the same time, access to diverse and empowering content can positively influence self-perception. Family environment was identified as another key factor affecting psychological outcomes. Supportive and egalitarian family attitudes contribute to higher self-esteem and emotional stability. In contrast, strict adherence to traditional gender roles may lead to increased anxiety and internal conflict. Additionally, the results highlight that modern adolescent girls often experience tension between traditional expectations and contemporary values. This dual pressure can create confusion in decision-making and identity development. However, girls exposed to flexible gender norms tend to demonstrate greater resilience and adaptability.

### **Discussion**

The findings of this study are supported by a range of international statistical data demonstrating the impact of gender roles on adolescent girls' psychological development. According to reports by World Health Organization, approximately 10–20% of adolescents worldwide experience mental health conditions, with girls showing higher rates of anxiety and depression compared to boys. This disparity is often linked to social expectations, emotional

pressure, and gender-based discrimination. Data from UNICEF indicate that nearly 1 in 3 adolescent girls report low self-esteem related to body image concerns, largely influenced by media and societal beauty standards. Furthermore, a global survey conducted by Plan International in 2022 revealed that 58% of girls feel pressured to behave according to traditional gender norms, particularly in relation to appearance and behavior. In the educational context, statistics from UNESCO show that although girls' school enrollment has improved globally, gender stereotypes still influence subject choices, with fewer girls pursuing STEM fields. This reflects the internalization of gender roles that associate science and technology with masculinity. Social media also plays a measurable role in shaping psychological outcomes. A study by Pew Research Center found that 45% of teenage girls report feeling overwhelmed by drama and pressure on social media platforms, compared to 34% of boys. Additionally, 70% of girls reported that social media significantly affects their self-confidence.

### **Conclusion**

In conclusion, gender roles play a significant role in shaping the psychological development of adolescent girls. Traditional expectations can limit self-expression, confidence, and personal growth. At the same time, modern social changes provide opportunities for more flexible and empowering identities. The interaction between these opposing influences creates both challenges and developmental possibilities. The findings emphasize the importance of promoting gender equality in family, educational, and social environments. Supportive and open-minded contexts contribute to higher self-esteem and emotional well-being among adolescent girls. Reducing stereotypes and encouraging individuality can foster healthier psychological outcomes. Creating inclusive environments is essential for

helping adolescent girls reach their full potential in today's rapidly changing world.

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## Формирование Культуры Устной Речи У Детей С Речевыми Нарушениями

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### Аннотация

В статье рассматриваются особенности формирования культуры устной речи у детей с речевыми нарушениями. Анализируются теоретические подходы к развитию устной речи, раскрываются основные трудности речевого развития у детей данной категории. Особое внимание уделяется методам и педагогическим условиям формирования культуры устной речи в процессе логопедической и педагогической работы. Представлены основные направления коррекционно-развивающей деятельности, направленные на развитие фонематического восприятия, лексико-грамматической стороны речи и связного высказывания. Подчеркивается необходимость комплексного взаимодействия специалистов и родителей для эффективного развития коммуникативной компетентности детей.

**Ключевые слова:** культура речи, устная речь, речевые нарушения, логопедия, речевое развитие, коррекционная педагогика, дошкольный возраст.

Развитие речи является одним из важнейших факторов формирования личности ребёнка. Устная речь выступает основным средством общения, передачи информации и выражения мыслей. В процессе речевого общения ребёнок усваивает социальный опыт, формирует навыки взаимодействия с окружающими и развивает познавательную деятельность.

Особую актуальность проблема формирования культуры устной речи приобретает в отношении детей с речевыми нарушениями. По данным современных исследований, количество детей, имеющих различные отклонения в речевом развитии, ежегодно увеличивается. Речевые нарушения могут проявляться в недостаточном развитии звукопроизношения, ограниченном словарном запасе, нарушении грамматического строя речи

и трудностях построения связных высказываний.

Недостаточный уровень развития устной речи негативно влияет на коммуникативные способности ребёнка, затрудняет его адаптацию в образовательной среде и может приводить к трудностям в обучении. В связи с этим формирование культуры устной речи становится важной задачей педагогической и логопедической практики.

В современных условиях развития образования большое внимание уделяется формированию коммуникативной компетентности детей. Умение грамотно и правильно выражать свои мысли является важным условием успешной социализации ребёнка.

Дети с речевыми нарушениями часто испытывают трудности в процессе общения. Неправильное звукопроизношение, недостаточное развитие словарного запаса и

грамматического строя речи затрудняют формирование полноценной речевой культуры. Это может приводить к снижению уверенности ребёнка в себе, ограничению социальных контактов и возникновению психологических проблем.

Формирование культуры устной речи у таких детей требует систематической и целенаправленной коррекционной работы, которая должна включать развитие всех компонентов речевой системы. Особенно важным является раннее выявление речевых нарушений и организация комплексной помощи.

Таким образом, проблема формирования культуры устной речи у детей с речевыми нарушениями является актуальной как с научной, так и с практической точки зрения.

В данной статье целью исследования можно определить педагогические условия и эффективные методы формирования культуры устной речи у детей с речевыми нарушениями.

Исходя из поставленной цели мы закрепляем задачи, которые важны для обучения детей с нарушением речи. Во – первых, проанализировать психолого-педагогическую и логопедическую литературу по проблеме формирования устной речи. Во -вторых рассмотреть особенности речевого развития детей с речевыми нарушениями и определить основные компоненты культуры устной речи. В – третьих выявить эффективные методы коррекционно-педагогической работы по формированию устной речи, а также описать педагогические условия, способствующие развитию речевой культуры у детей.

Известно, что для реализации данных задач современная педагога требует использования некоторых методов, таких как теоретические методы, эмпирические методы и методы педагогического анализа.

Теоретический метод — это анализ научной литературы по проблеме исследования, обобщение и систематизация педагогического опыта. Эмпирический метод предусматривает наблюдение за речевой деятельностью детей, анализ результатов логопедической работы. В свою очередь методы педагогического анализа рассматривает сравнение и интерпретация полученных данных. Применение данных методов позволило рассмотреть проблему формирования культуры устной речи комплексно и определить основные направления коррекционной работы.

Необходимо понять и рассмотреть теоретические основы формирования культуры устной речи. Теоретические основы формирования культуры устной речи — это совокупность научных знаний и принципов, которые объясняют, *как и почему человек учится говорить правильно, ясно, выразительно и уместно в разных ситуациях общения.* Данные компоненты важны для развития устной речи.

Развитие данных компонентов является важным условием полноценного речевого общения. Формирование культуры речи начинается в раннем возрасте и продолжается в процессе обучения и воспитания.

Исследователи отмечают, что развитие речи тесно связано с развитием мышления, памяти и внимания. Поэтому работа по формированию устной речи должна осуществляться комплексно и учитывать индивидуальные особенности ребёнка.

У детей с речевыми нарушениями процесс формирования речевой системы происходит с определёнными трудностями. Ребёнок может неправильно произносить отдельные звуки, заменять их другими или пропускать. Например, при нарушении

звукосопроизношения ребёнок может заменять сложные звуки более простыми. Так, слово «рыба» произносится как «лыба», а слово «рак» — как «лак». Подобные ошибки свидетельствуют о недостаточном развитии артикуляционного аппарата и фонематического восприятия.

Дети испытывают трудности в различении близких по звучанию фонем, что влияет на правильность произношения, например различать звуки б–п, с–ш, р–л, путает похожие звуки «сапка» вместо «шапка», неправильно повторяет слова. Встречается ограниченность словарного запаса. Активный словарь детей с речевыми нарушениями часто значительно меньше возрастной нормы. Ограниченность словарного запаса проявляется в использовании небольшого количества слов и трудностях при подборе нужных лексических единиц. Например, вместо точного названия предмета ребёнок может использовать обобщённые слова: «это», «там», «вещь». Так, слово «автобус» ребёнок заменяет словом «машина», а вместо фразы «дай мне яблоко» говорит «дай это». Подобные особенности свидетельствуют о недостаточном развитии лексической стороны речи.

Наблюдаются ошибки в согласовании слов, неправильное употребление окончаний и предлогов. Нарушения грамматического строя речи проявляются в ошибках при изменении слов и построении предложений. Например, ребёнок может неправильно согласовывать слова по роду и числу («большой кукла», «красный машина»), пропускать предлоги («книга лежит столе») или использовать неправильные формы глаголов («я рисовать» вместо «я рисую»). Подобные ошибки свидетельствуют о недостаточном

развитии грамматической системы языка.

Более старшем возрасте дети испытывают трудности при составлении рассказов, описаний и пересказе текстов.

Все перечисленные особенности требуют специальной педагогической и логопедической помощи. Недостаточное развитие связной речи проявляется в трудностях последовательного и логичного изложения мыслей. Например, при составлении рассказа по картинке ребёнок может ограничиваться отдельными словами: «мальчик... птицы... хлеб», вместо полного высказывания «мальчик кормит птиц хлебом». Кроме того, дети часто испытывают трудности при пересказе текста и нарушают последовательность событий.

Эффективная коррекционная работа должна включать различные методы и приёмы развития речи. Артикуляционные упражнения направлены на развитие подвижности органов речи и формирование правильного звукосопроизношения. Проводятся упражнения на различение звуков, определение их последовательности и положения в слове.

Педагогу необходима работать над обогащением словарного запаса учащегося. Для расширения словарного запаса используются:

- ✓ дидактические игры;
  - ✓ тематические беседы;
  - ✓ работа с наглядным материалом.
- Научить детей учиться правильно строить предложения, согласовывать слова и использовать различные грамматические формы, развивать связную речь используя следующие виды работы:
- ✓ составление рассказов по картинкам;

- ✓ пересказ литературных текстов;
- ✓ описание предметов и явлений;
- ✓ участие в диалогах.

Игровые методы особенно эффективны, поскольку они стимулируют активность детей и создают естественную речевую ситуацию.

Важную роль играет сотрудничество логопеда, воспитателя и родителей, которое позволяет обеспечить комплексное развитие речи ребёнка.

В заключение можно сказать, что формирование культуры устной речи у детей с речевыми нарушениями является важной задачей современной педагогики и логопедии. Недостаточное развитие речевых навыков может отрицательно влиять на коммуникативную деятельность ребёнка и его успешность в обучении.

Эффективная работа по развитию устной речи должна быть комплексной и включать развитие звукопроизношения, фонематического слуха, словарного запаса, грамматического строя и связной речи.

Использование специальных методов и создание благоприятных педагогических условий способствует формированию коммуникативной компетентности детей и успешной их социализации.

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# Entering International Trade: Strategies And Effective Decision-Making

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## Abstract

this article analyzes strategies for entering international trade and mechanisms for effective decision-making. The study highlights global market conditions, competitive environments, economic risks, and management approaches. It also emphasizes the importance of strategic planning, risk management, and analytical decision-making in achieving success in international trade.

**Keywords:** international trade, strategy, decision-making, global market, risk management, economic integration.

## Introduction

In recent years, the acceleration of globalization processes has significantly transformed the system of international economic relations. International trade, as a key element of economic integration among countries, ensures not only the exchange of goods and services but also the movement of capital, technology, and knowledge. From this perspective, the integration of national economies into the global market acquires strategic importance [1, p. 25].

The process of entering international trade is complex and multi-stage, involving the interaction of economic, political, legal, and social factors. Particularly for developing countries, finding a position in the global market, ensuring competitiveness, and increasing export potential are considered urgent issues [2, p. 47].

In modern conditions, the main task facing enterprises and governments is to develop scientifically grounded strategies and make effective decisions to operate successfully in international markets. Therefore, this article provides an in-depth analysis of strategies for entering international trade and decision-making processes.

## Methodology

This study was conducted based on a comprehensive approach. Several scientific

methods were employed during the research process, which made it possible to examine the problem from multiple perspectives.

Through a systems approach, international trade was considered as a complex economic system. This approach enabled the analysis of all elements of the trade process - production, logistics, marketing, financing, and management- in an interconnected manner.

Using the comparative analysis method, international trade strategies of developed and developing countries were examined. This allowed for the identification of both common and distinctive features of effective models and contributed to the development of universal strategies [3, p. 78].

In addition, SWOT analysis was applied to identify the strengths, weaknesses, opportunities, and threats of enterprises, thereby providing a solid basis for strategic decision-making.

## Results

The results of the study made it possible to identify several key factors in entering international trade.

First, an in-depth market analysis and the implementation of marketing research are essential conditions for success in international trade. The analysis shows that

enterprises that fail to study market demand, the competitive environment, and consumer behavior face a high level of risk. Second, strategic planning significantly enhances the effectiveness of international trade activities. Sustainable development can be achieved by clearly defining long-term goals, efficiently allocating resources, and taking risks into account [4, p. 56]. Third, risk management mechanisms are an integral part of international trade. Risks such as exchange rate fluctuations, political instability, and logistical challenges can negatively affect business operations. Fourth, digital technologies and artificial intelligence tools play an important role in optimizing decision-making processes in international trade. They enable the rapid analysis of large volumes of data and support forecasting.

### **Discussion**

The obtained results once again confirm the importance of a strategic approach in entering international trade.

According to Porter's theory of competitive advantage, firms must apply either differentiation strategies or cost leadership strategies in order to achieve success in the market [5, p. 102].

In addition, changes in the global economy require a high level of flexibility from enterprises. In particular, disruptions in supply chains during pandemics and geopolitical crises have created the need for new strategic decision-making.

Modern approaches indicate that success in international trade depends not only on economic factors, but also on the quality of management, innovative approaches, and human capital.

### **Conclusion**

In conclusion, entering international trade is a complex and multifactorial process that requires a strategic approach. The results of the study indicate that effective strategies, risk management, and analytical decision-making are key factors for success in

international trade. In the future, digital technologies, artificial intelligence, and global integration processes will contribute to elevating international trade to a new level.

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# The Role Of The English Language In International Communication

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## Abstract

This article examines the role of the English language in international communication and analyzes its historical development, global expansion, and contemporary functions in diplomacy, business, education, science, media, and digital communication. The paper explores how English has become a global lingua franca and discusses both the advantages and challenges associated with its dominance. Particular attention is given to cultural exchange, globalization, linguistic diversity, and the future of multilingual communication in an increasingly interconnected world.

**Keywords:** English language, international communication, globalization, lingua franca, cultural exchange, multilingualism, global education, diplomacy

Language has always played a central role in shaping human civilization. It is not only a tool for communication but also a carrier of culture, knowledge, identity, and social values. In the modern era of globalization, one language has emerged as a dominant medium of international interaction: English. Today, English functions as a bridge between people of different linguistic and cultural backgrounds. It connects governments, businesses, scholars, travelers, and digital communities across continents. The transformation of English into a global language did not occur suddenly. It was the result of historical processes, political developments, economic expansion, and technological progress. The spread of English through colonization, international trade, scientific advancement, and digital platforms gradually established it as the primary language of global communication. This article explores how English achieved this position and why it continues to play such a vital role in international relations and intercultural dialogue.

The global spread of English is closely connected to the expansion of the United Kingdom during the colonial period. As the British Empire expanded across

Asia, Africa, North America, and Oceania, English was introduced into new territories. It became a language of administration, education, and governance in many regions. Over time, local communities adapted English to their own cultural contexts, leading to the development of diverse varieties of the language. Later, the rise of the United States as a global economic and political power significantly strengthened the international status of English. The influence of American industry, science, technology, cinema, and popular culture further popularized the language worldwide. Institutions such as the United Nations and the World Trade Organization adopted English as one of their working languages, reinforcing its global importance.

In addition, international organizations, multinational corporations, and global media networks began to use English as their primary means of communication. As a result, English gradually became the main language of diplomacy, commerce, aviation, and international law. One of the most important characteristics of English today is its role as a lingua franca. A lingua franca is a common language used by speakers of

different native languages to communicate with each other. In many international contexts, English is not spoken between native speakers but between non-native speakers who use it as a neutral communication tool.

For example, a business meeting between representatives from Japan, Germany, and Brazil is likely to be conducted in English. Academic conferences, scientific publications, and global forums often rely on English as the shared medium of discussion. This function allows English to serve as a platform for cooperation and mutual understanding. The use of English as a lingua franca also encourages linguistic flexibility. Speakers adapt vocabulary, pronunciation, and grammar to ensure mutual comprehension. This dynamic nature demonstrates that English no longer belongs exclusively to native-speaking countries; it has become a global resource shaped by diverse communities.

In the global economy, English plays a decisive role. Multinational companies often adopt English as their corporate language, even when their headquarters are located in non-English-speaking countries. International trade agreements, financial markets, and technological innovation frequently rely on English terminology. Global brands, marketing strategies, and digital commerce platforms commonly use English to reach wider audiences. Knowledge of English increases employment opportunities and enhances professional mobility. Many international job descriptions require proficiency in English, as it enables communication with partners, clients, and colleagues from various parts of the world. Moreover, English serves as the primary language of international banking, aviation, and shipping industries. In civil aviation, standardized English communication ensures safety and

coordination between pilots and air traffic controllers from different countries.

Another significant area where English dominates is education. Many of the world's leading universities offer programs in English, even in countries where it is not the official language. Academic mobility programs encourage students to study abroad, and English often becomes the medium of instruction. Scientific research is largely published in English. International journals, conferences, and research collaborations depend on English to share findings and innovations. This widespread use facilitates the rapid exchange of knowledge across borders. Scholars from diverse linguistic backgrounds contribute to global academic discussions through English. However, this dominance also raises concerns about linguistic inequality. Researchers who are not fluent in English may face difficulties in publishing their work or participating fully in international academic communities. Thus, while English promotes global knowledge sharing, it can also create barriers for non-native speakers.

The digital revolution has further strengthened the global position of English. A large portion of online content is created in English. Social media platforms, international news outlets, streaming services, and technological innovations often operate primarily in English. The influence of English-language media, including Hollywood films, international music industries, and global television networks, has shaped cultural trends worldwide. Digital platforms allow people from different countries to interact instantly, and English frequently becomes the default language of communication. Technological advancements such as software development, programming languages, and artificial intelligence systems also rely heavily on English terminology. As digital connectivity expands, English continues to

function as a bridge language in virtual spaces.

The global role of English has contributed to cultural exchange and intercultural understanding. Through English, people gain access to literature, philosophy, history, and art from different parts of the world. It enables dialogue between cultures and promotes international cooperation. At the same time, the dominance of English raises questions about cultural identity and linguistic diversity. Some scholars argue that the widespread use of English may threaten smaller languages and local traditions. Others believe that multilingualism can coexist with the global use of English. In many countries, English is learned as a second or foreign language while local languages remain central to national identity. This balance demonstrates that English can serve as a practical communication tool without replacing native linguistic heritage.

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# The Specific Features of National Image Formation of the Republic of Korea

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## Abstract

The contemporary system of international relations is increasingly defined by competition among states for influence, legitimacy, and global recognition. In such an environment, the construction of a positive national image has become a strategic priority. The Republic of Korea stands out as a successful example of how a country can transform its global perception through the integration of cultural diplomacy, economic development, digital communication, and geopolitical strategy. This paper examines the specific features of South Korea's national image formation by analyzing its historical evolution, the role of soft power, and the impact of the Korean Wave (Hallyu). Special attention is given to cultural exports such as K-pop and cinema, as well as the use of digital diplomacy in shaping global narratives. The study also explores the role of multinational corporations and international organizations in strengthening South Korea's global image. The findings demonstrate that South Korea's experience offers a comprehensive and adaptable model for developing countries seeking to enhance their international reputation and competitiveness.

**Keywords:** Republic of Korea, national image, soft power, cultural diplomacy, digital diplomacy, geopolitics, Hallyu, national branding

## 1. Introduction

In the context of globalization, international relations have evolved beyond traditional power dynamics. While military and economic strength remain important, countries increasingly compete through cultural influence, technological innovation, and communication strategies. As a result, the concept of national image has emerged as a critical factor in shaping global perceptions and international cooperation. A positive national image contributes to foreign investment, tourism, diplomatic relations, and cultural exchange. Conversely, a negative image can limit a country's opportunities and reduce its influence on the global stage.

The Republic of Korea provides a compelling case study of successful national image transformation. In the aftermath of the Korean War, the country was widely perceived as impoverished and unstable. However, over the past few

decades, it has rebranded itself as a technologically advanced, culturally vibrant, and economically powerful nation.

This transformation has been achieved through a strategic combination of policies and initiatives aimed at promoting national identity and global engagement. The purpose of this paper is to analyze the key components of South Korea's national image formation and to evaluate their effectiveness in the contemporary international system.

## 2. Methodology

This research is based on a qualitative analytical approach. It combines:

- comparative analysis
- case study methodology
- content analysis of academic literature and media sources

The study focuses on key dimensions of South Korea's image-building strategy, including cultural diplomacy, digital communication, economic branding, and

geopolitical positioning. Secondary data from international organizations such as the World Bank and UNESCO are also used to support the analysis.

### **3. Theoretical Framework: Soft Power and National Branding**

The theoretical foundation of this study is based on the concept of soft power, developed by Joseph Nye. Soft power refers to the ability of a country to influence others through attraction rather than coercion.

Soft power is derived from three main sources:

1. Culture
2. Political values
3. Foreign policy

In addition, the concept of national branding plays a crucial role in shaping international perceptions. National branding involves the strategic management of a country's image through coordinated communication and policy efforts.

South Korea's approach demonstrates how soft power and national branding can be effectively combined to achieve long-term strategic goals.

### **4. Historical Evolution of South Korea's National Image**

#### **4.1 Post-war Period**

Following the Korean War, South Korea faced severe economic and social challenges. Its image was largely negative and associated with instability and poverty.

#### **4.2 Economic Development**

During the second half of the 20th century, South Korea experienced rapid industrialization and economic growth. This transformation significantly improved its global reputation.

#### **4.3 Democratization**

The transition to democracy further enhanced South Korea's image as a modern and progressive nation.

### **5. Cultural Diplomacy and the Korean Wave (Hallyu)**

Cultural diplomacy has become a central pillar of South Korea's national image strategy.

#### **5.1 K-pop and Global Influence**

K-pop has emerged as a global cultural phenomenon. Groups such as BTS and BLACKPINK have millions of fans worldwide.

K-pop contributes to:

- global cultural exchange
- youth engagement
- economic growth

#### **5.2 Film and Media Industry**

The success of Parasite marked a turning point in the global recognition of Korean cinema.

#### **5.3 Cultural Economy**

The export of cultural products generates significant economic benefits and enhances national prestige.

### **6. Digital Diplomacy and Communication Strategy**

Digital technologies have revolutionized the way countries communicate with global audiences.

South Korea actively uses digital platforms to:

- promote cultural content
- engage with international audiences
- shape global narratives

Digital diplomacy allows for:

- real-time communication
- interactive engagement
- increased transparency

### **7. Economic Dimension of National Image**

Economic success plays a crucial role in shaping national image. South Korea is home to global corporations such as Samsung, Hyundai, and LG.

These companies:

- enhance technological reputation
- attract foreign investment
- strengthen global competitiveness

### **8. Geopolitical Context**

South Korea's geopolitical environment significantly influences its national image.

### 8.1 Relations with North Korea

Tensions with North Korea remain a defining factor.

### 8.2 International Partnerships

South Korea maintains strong relations with major global powers.

### 9. Case Study: The Korean Wave as Soft Power

The Korean Wave (Hallyu) serves as a practical example of soft power in action.

Its impact includes:

- tourism growth
- cultural influence
- economic expansion

### 10. Statistical Analysis and Global Impact

According to international reports:

- cultural exports generate billions annually
- tourism has increased significantly due to Hallyu
- Korean media content dominates global streaming platforms

### 11. Challenges and Criticism

Despite its success, South Korea faces several challenges:

- over-commercialization
- labor issues in entertainment industry
- geopolitical risks

### 12. Comparative Perspective: Lessons for Uzbekistan

The experience of O'zbekiston demonstrates that national image building is also relevant for developing countries.

### 13. Conclusion

South Korea's national image formation represents a successful integration of cultural, economic, and political strategies. Its experience provides valuable lessons for other countries seeking to enhance their global standing.

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## Горизонты Экстраполяции: Как Разум Познает Бесконечную Вселенную

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### Аннотация

Статья посвящена анализу метода экстраполяции как фундаментального инструмента познания Вселенной в рамках современной космологии. Автор рассматривает гносеологические трудности, возникающие при попытке человеческого разума судить о бесконечном объекте на основе данных из его «исчезающе малой» части. В работе прослеживается эволюция космологических представлений — от античного геоцентризма до современной релятивистской эпохи — и обосновывается переход от классической индукции к «антропному принципу». Особое внимание уделяется проблеме «тонкой настройки» Вселенной и научным дискуссиям вокруг применимости фундаментальных физических законов (таких как закон сохранения энергии) в экстремальных условиях. Делается вывод, что экстраполяция является необходимым условием научного прогнозирования, представляя собой интеллектуальное «хождение с вытянутой шеей» в сторону неведомого.

**Ключевые слова:** космология, экстраполяция, антропный принцип, тонкая настройка Вселенной, физические константы, гносеология, история науки.

Космология — наука о предельном. Она изучает Вселенную как единое целое, объект, включающий в себя «все существующее». Но как человеческий разум, привязанный к крошечной точке в пространстве-времени, решается судить о бесконечности? Ответ кроется в методе экстраполяции — фундаментальном мостике между известным и непостижимым.

Экстраполяция — это один из ключевых логико-методологических приемов в науке, который заключается в распространении выводов, сделанных на основе одной части явления (изученной), на другую часть того же явления или на явление в целом (неизученную). Если говорить простыми словами: это интеллектуальный перенос знаний из «здесь и сейчас» в «там и потом». Ниже представлен развернутый разбор этого метода с точки зрения логики, математики и философии науки.

В математике и статистике экстраполяция — это процесс определения значений функции за пределами интервала известных данных. Отличие от интерполяции заключается в том, что если интерполяция помогает «заполнить пробелы» внутри набора данных, то экстраполяция выходит в область неизвестного.

Например, если мы знаем темпы роста населения города за последние 10 лет, мы можем экстраполировать эти данные, чтобы предсказать численность населения через 5 лет.

Существует и научный аспект, то есть рассмотрение экстраполяции как фундамента познания. В естественных науках (физике, астрономии, биологии) экстраполяция позволяет строить глобальные теории. Как упоминалось в вашей статье о космологии, мы не можем облететь всю Вселенную, но мы экстраполируем законы гравитации или

термодинамики, проверенные в земных лабораториях, на далекие галактики. Однако метод экстраполяции всегда несет в себе риск ошибки, который Ричард Фейнман называл «хождением с вытянутой шеей». Их обязательно необходимо учитывать при построении теории. Первая из них это проблема нелинейности. Явление может развиваться стабильно до определенного порога, а затем резко изменить характер. Например, вода нагревается линейно до 100°C, но попытка экстраполировать этот рост дальше без учета фазового перехода приведет к ошибке. Далее - границы применимости. Любой закон имеет свои пределы. Законы Ньютона идеально работают для обычных скоростей, но при попытке экстраполировать их на скорости, близкие к световым, они перестают быть точными и требуют замены на релятивистскую физику Эйнштейна.

Велика роль метода экстраполяции в космологии. Более того, метод экстраполяции является единственным способом сделать космологию наукой. Поскольку Вселенная уникальна и мы не можем провести над ней эксперимент, мы вынуждены изучать «локальную» физику. Затем экстраполировать её на «все существующее», а потом сверять полученную модель с наблюдениями (например, через реликтовое излучение).

Чтобы экстраполяция была научно обоснованной, должны соблюдаться два условия:

Первое: Это принцип единообразия: Уверенность в том, что природа в своей основе однородна и не меняет правила игры в разных частях пространства. И затем преемственность: новые данные не должны полностью отменять старые, а лишь уточнять их (принцип соответствия).

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Исходя из вышесказанного экстраполяция — это отвага разума. Это инструмент, который позволяет нам превращать разрозненные факты в целостную картину мира, осознавая при этом, что любая наша «догадка о будущем или далеком» нуждается в постоянной проверке практикой.

Альберт Эйнштейн однажды заметил, что самое удивительное во Вселенной — это её познаваемость. Действительно, мы всегда имеем дело лишь с исчезающе малой частью мира. Экстраполяция дает нам когнитивную смелость переносить знания о локальных областях на глобальную структуру космоса.

Однако здесь кроется парадокс. Обычная индукция (переход от частного к общему) работает с классами предметов. Но Вселенная уникальна, она — единственный представитель своего «класса». Поэтому современная наука говорит не просто о переносе формул, а об антропном принципе: логика природы и бытие наблюдателя оказываются неразрывно связаны.

Антропный принцип — это одна из наиболее обсуждаемых и философски глубоких концепций в современной космологии и физике. Если говорить совсем просто, он отвечает на вопрос: «Почему законы Вселенной и физические константы именно такие, что позволяют нам существовать?»

Как этот принцип работает в науке? Ученые заметили, что жизнь во Вселенной возможна лишь при крайне узком диапазоне фундаментальных констант (например, массы электрона, силы гравитации или скорости света). Если бы гравитация была чуть сильнее, звезды сгорали бы слишком быстро, не давая жизни развиваться. Если бы сильное ядерное взаимодействие было чуть иным, углерод — основа жизни — никогда бы не сформировался.

Такое невероятное совпадение параметров называют «тонкой настройкой». Антропный принцип предлагает способ объяснить это без привлечения идеи «разумного замысла».

Сегодня слабый антропный принцип часто идет в связке с теорией Мультивселенной. Если существует бесконечное множество вселенных с разными законами физики, то логично, что мы оказались в той единственной (или одной из немногих), где параметры совпали идеально. Это превращает антропный принцип из философской догадки в статистическое объяснение. Долгое время принцип считали «не научным», так как его нельзя было проверить экспериментально. Однако в последние годы ситуация меняется: появилась теория связи с темной материей и инфляцией. Современные исследования предполагают, что если антропный принцип верен, то набор констант в начале времен должен был привести к специфическим последствиям, которые мы можем зафиксировать. Например, через поиск первобытных гравитационных волн и изучение природы темной материи. Далее, с появлением телескопа «Джеймс Уэбба» мы видим, что новые данные о ранних галактиках заставляют ученых заново пересматривать модели «тонкой настройки», проверяя, насколько гибкими на самом деле могут быть условия для возникновения сложных структур во Вселенной.

Таким образом, мы можем сделать вывод, что антропный принцип меняет наше понимание роли человека: мы не просто случайные прохожие в космосе, а необходимое условие для того, чтобы Вселенная могла быть осознана. Для одних ученых это способ избежать теологических споров, для других —

ключ к пониманию того, почему физика выглядит именно так, а не иначе.

История антропного принципа — это путь от случайных догадок философов до одного из самых влиятельных (и спорных) инструментов в современной космологии. Его возникновение стало ответом на научный кризис: классическая физика не могла объяснить, почему Вселенная кажется «подстроенной» под человека.

Хотя сам термин появился позже, идеи «соответствия мира человеку» высказывались задолго до 1973 года. Еще Альфред Рассел Уоллес (1904), кстати соратник Ч. Дарвина первым предположил, что огромная и сложная Вселенная может быть «абсолютно необходима» для создания мира, приспособленного для жизни. Затем Григорий Идлис (1958), будучи советским астрономом первым на научном уровне обосновал, что мы наблюдаем не просто «какую-то» Вселенную, а такую, в которой могли возникнуть мы как наблюдатели. Он вывел это из анализа физических констант. Вслед за ним Роберт Дикке (1961), американский физик заметил, что возраст Вселенной не случаен. Если бы она была моложе, в звездах еще не успел бы синтезироваться углерод; если бы намного старше — звезды бы уже выгорели. Наше существование диктует временной интервал, в котором мы можем наблюдать космос. После этих гениальных догадок, настоящий прорыв в этом вопросе произошел в 1973 году в Кракове на симпозиуме, посвященном 500-летию Николая Коперника. Физик-теоретик Брэндон Картер выступил с докладом, который шел вразрез с «принципом Коперника» (утверждающим, что Земля и человек не занимают никакого особого места). Картер ввел сам термин «антропный

принцип» (от греч. *anthropos* — человек) и разделил его на две формы:

- Слабый (WAP): Наши наблюдения ограничены условиями, необходимыми для нашего присутствия.

- Сильный (SAP): Вселенная *должна* быть такой, чтобы в ней на каком-то этапе возник наблюдатель.

В 1980-х годах идеи Картера подхватили другие выдающиеся ученые, такие как физик Джон Уиллер. Он предложил «Антропный принцип участия». Опираясь на квантовую механику, он предположил, что Вселенная не обретает реального статуса, пока ее кто-то не увидит. «Наблюдатели необходимы для того, чтобы привести Вселенную в бытие». Затем астрономы Барроу и Типлер (1986) опубликовали фундаментальный труд «Антропный космологический принцип», который систематизировал все накопленные знания и сделал тему мейнстримом в науке и философии.

Сегодня антропный принцип перестал быть просто философской загадкой. Он стал частью теории струн и моделей вечной инфляции. Ученые (такие как Стивен Хокинг и Леонард Сасскинд) используют его для объяснения «проблемы ландшафта»: если существует бесконечное множество вселенных с разными законами, то антропный принцип — это просто статистический фильтр, объясняющий, почему мы находимся в «живой» части Мультивселенной.

История нашего понимания космоса — это история расширения границ экстраполяции. Если рассматривать как философы и ученые экстраполировали свои знания на обоснование картины Вселенной, то можно выделить три этапа. Первый, это геоцентризм. В античности мир был антропоморфным и замкнутым. Аристотель представлял Вселенную как систему идеальных сфер,

где движение определялось близостью к центру мира — Земле. Затем второй этап: -гелиоцентризм. Коперник и Ньютон лишили человека центрального места. Вселенная стала восприниматься как гигантский, безразличный к наблюдателю механизм, подчиняющийся универсальным законам. И, наконец, релятивистская эпоха. Современная стадия развития космологии диалектически возвращает наблюдателя в уравнение. Сегодня мы понимаем, что структура Вселенной на фундаментальном уровне включает в себя возможность появления разума.

Фундамент космологии — абсолютная экстраполяция всеобщих законов, таких как закон сохранения энергии. Но история науки знает моменты, когда этот фундамент дрожал. В свое время Нильс Бор был готов признать, что при распаде нейтрона энергия сохраняется лишь статистически, пока не была открыта частица-«невидимка» — нейтрино, спасающая закон. Похожая ситуация возникла с открытием квазаров, чья колоссальная энергия не вписывалась в привычные рамки. Сегодня наука сталкивается с еще более масштабными вызовами: например объяснение темной энергии и материи: современные исследования показывают, что 95% состава Вселенной — это субстанции, природа которых нам до сих пор не ясна. Экстраполяция стандартной модели физики на масштаб всей Вселенной требует введения новых сущностей, что вызывает споры, сравнимые с дискуссиями Амбарцумяна и Гинзбурга. К тому же, данные телескопа «Джеймс Уэбба» показывают, что недавние снимки сверхдалеких галактик ставят под вопрос наши представления о скорости эволюции ранней Вселенной. Оказывается, «старая физика» снова

нуждается в уточнении, когда мы заглядываем так далеко.

Как справедливо отмечал Ричард Фейнман, если мы будем принимать только те законы, которые проверены на опыте, мы никогда не сможем предсказать будущее. Наука — это всегда риск, это интеллектуальное «хождение с вытянутой шеей» в сторону неведомого.

Экстраполяция — не просто сухой математический прием. Это выражение самой сути научного поиска: нашей способности распространять структуры разума на новые горизонты бытия, превращая хаос неизвестности в гармонию познанной Вселенной. Связь между методом экстраполяции и антропным принципом в науке — это не просто пересечение двух понятий, а глубокий методологический симбиоз. В современной космологии они работают как «система сдержек и противовесов».

Если экстраполяция — это наш инструмент расширения знаний, то антропный принцип — это фильтр, который определяет границы и направление этого расширения. Экстраполяция позволяет нам предположить, что законы физики, открытые на Земле, действуют во всей Вселенной. Однако теоретически мы можем представить себе бесконечное множество вариантов устройства физического мира (разные массы частиц, иная сила гравитации).

Здесь вступает антропный принцип. Во первых, он ограничивает «произвол» экстраполяции. Во вторых, из всех теоретически возможных моделей Вселенной, которые мы можем экстраполировать, мы выбираем только те, что допускают существование углеродной жизни и наблюдателя. В третьих, (и это связь) экстраполяция говорит: «Законы могут быть такими везде». Антропный принцип уточняет:

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«Но они должны быть именно такими, чтобы мы могли об этом рассуждать».

Главная проблема экстраполяции в космологии заключается в том, что Вселенная единственна в своем роде. Мы не можем сравнить её с другими объектами. Экстраполяция в данном случае рискует стать необоснованной фантазией. Однако, антропный принцип дает нам точку опоры. Наличие наблюдателя становится «фактом номер один». Мы экстраполируем знания не «в пустоту», а исходя из того, что конечный результат этой экстраполяции должен приводить к возникновению сложных структур (галактик, звезд, планет). В современной физике эти два понятия связываются через идею Мультивселенной. Мы экстраполируем законы квантовой механики и инфляции, что приводит нас к выводу о существовании множества миров с разными физическими константами. Мы используем антропный принцип, чтобы объяснить, почему в нашей конкретной «ветви» Вселенной экстраполяция земных законов на весь космос оказывается успешной.

В свое время советский физик Фейнман говорил, что наука — это риск («хождение с вытянутой шеей»). Мы можем продолжить эту аллегорию. Экстраполяция — это сам акт вытягивания шеи, попытка заглянуть за горизонт видимого. А вот антропный принцип — это понимание того, что сама «шея» (разум, биология, наблюдатель) является частью той системы, которую она пытается познать.

Подводя итог, можно сказать, что связь заключается в том, что антропный принцип превращает «слепую» экстраполяцию в осмысленный научный поиск. Он объясняет, почему наша смелая догадка о том, что «там всё так же, как здесь», вообще работает. Мы находимся в той части бытия, где это

соответствие является условием нашего выживания.

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## Hybrid Translation Model At International Conferences: Human-AI Collaboration

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### Abstract

The article analyzes the theoretical foundations which support the hybrid translation model that international conferences use and it investigates the possibilities created by human-AI collaboration. The study presents its findings about artificial intelligence's role in simultaneous interpretation through a literature review and theoretical analysis which explains its professional interpreter integration challenges. The hybrid model presents a successful method which enhances translation quality while maintaining operational effectiveness during conference interpretation.

**Keywords:** hybrid translation model, artificial intelligence, simultaneous interpretation, human-machine collaboration, conference interpretation, machine translation.

### INTRODUCTION

The number of international conferences and diplomatic negotiations and multilateral forums continues to increase each year because of present-day globalization. The demand for translation services has risen because of this development while the need to assess whether traditional simultaneous interpretation systems meet technical requirements and human resource needs has become urgent. The field of conference interpretation has gained new opportunities through artificial intelligence (AI) technology and the academic community has started to explore the hybrid translation model [1]. The hybrid model refers to a system that unites the language skills and cultural understanding of a human interpreter with the fast data processing abilities of artificial intelligence which can recognize similar language patterns [2].

The research intends to study the theoretical framework which explains human-AI partnership during international conference events together with its three main components that include linguistic elements and cognitive components and technical aspects. The article is based exclusively on existing literature review and

theoretical reasoning, since the practical application of the hybrid translation model has not yet passed through full-scale testing stages; nevertheless, its conceptual base has already formed a solid theoretical foundation at the intersection of linguistics, cognitive science, and computer science [3].

### METHODOLOGY AND LITERATURE REVIEW

Theoretical methodology of literature review serves as the foundation for this study. The researchers used comparative-analytical method together with descriptive approach to evaluate various national scholarly traditions which led to their final results. The literature review was conducted through two paths which examined translation theory and AI technologies as research fields. The number of specialized studies on translation issues at international conferences remains low in Uzbek-language scholarly sources but Mirzaev and Yusupova's foundational works provide essential support for national terminological and conceptual development in this field [4]. The Russian-language scholarly literature contains two main sources which include Komissarov's classical translation theory [5]

and contemporary authors' monographs that examine machine translation and human interpreter relationships [6].

The simultaneous interpretation theory developed by Pöchhacker and Shlesinger together with Koehn's AI translation analysis work establish essential foundations for studying hybrid model cognitive mechanisms according to foreign sources [7, 8]. The Nuffield Conference materials which analyze interpreter work through cognitive load assessment and automation limits identification serve as valuable research materials according to [9]. The research of Déjean Le Féal and his colleagues about training materials establishes the fundamental elements which make up conference interpretation work, which researchers need to build the "human component" for their hybrid model system [10]. The literature review demonstrates that scholarly debate on the hybrid translation model is being conducted in three principal directions: the first concerns the assessment of AI's functional capabilities, the second concerns the redefinition of the human interpreter's role, and the third concerns the development of mechanisms for the systematic integration of these two components.

## **RESULTS AND DISCUSSION**

The literature review establishes multiple theoretical aspects which define the hybrid translation model used in international conference translations. The theory of classical simultaneous interpretation establishes that conference interpreters need to handle three complex cognitive tasks which include listening and comprehension and translation work at the same time [7]. The interpreter's performance ability decreases because of the multi-layered cognitive demands which lead to increased mistake frequency during extended working periods. Artificial intelligence enables better workload distribution because its functions handle

automatic speech recognition and real-time lexical processing and translation variant suggestions which let interpreters focus on important text aspects [2].

The literature review demonstrates that artificial intelligence systems which exist today cannot understand cultural context and fail to interpret speaker intent while they struggle to produce accurate results during informal and improvised speech situations which frequently happen in diplomatic conferences [8]. The hybrid model becomes essential because it facilitates AI to analyze spoken language through its system which generates vocabulary and grammatical options that professional interpreters must assess in real-time while they add cultural and practical details to create their final translations. The execution of this task distribution system bases its operations on how human and machine abilities work together because machines excel at processing data while humans possess the ability to understand contexts and create original content and maintain effective social interactions [3].

The training process and adaptation methods serve as fundamental theoretical components which define how humans and AI systems work together. The success of AI systems used for conference interpretation depends primarily on how well their systems are trained with specific domain-based data which they need to operate. The general-purpose machine translation systems show insufficient capability to handle the specialized terminology used at diplomatic, legal, and scholarly conferences. The hybrid model requires a third component which establishes a feedback loop between the interpreter and the AI system. The interpreter can use this process to correct an AI-generated mistake which then provides new information to help the system learn. The hybrid model training process uses iterative methods to create a system

which begins as static but evolves into a dynamic system which maintains effectiveness over time. The hybrid model includes multiple elements which show how an interpreter's mental state and work identity affect their performance.

The literature widely holds that artificial intelligence cannot fully replace the professional interpreter, and this position is grounded in the argument that translation is not merely a process of language substitution but a process of cultural mediation [5]. The hybrid model requires a different conceptual framework because it should be viewed as an "interpreter augmented by an AI tool" system instead of an "interpreter + AI" system. The approach solves the professional identity problem while establishing theoretical foundations that support the interpreter's fundamental role within the hybrid system [10]. The hybrid translation model demands ethical and legal matters to be addressed through its implementation. The use of artificial intelligence at international conferences brings to the fore such matters as data confidentiality, liability for translation errors, and intellectual property [1].

At diplomatic and judicial conferences, translation errors create dangerous situations which lead to unresolvable legal issues about determining responsibility for these errors between the AI developer and interpreter and conference organizer. The hybrid model deployment process continues to face delays because of this issue, which demonstrates that legal regulations must develop together with the model's theoretical research work.

The theoretical discussion of the hybrid translation model also assigns particular importance to the question of technological infrastructure. The successful operation of AI systems in conference settings depends on three essential elements which include high-quality sound systems together with fast data transmission networks and

dedicated software programs. However, the fact that these technical requirements cannot be met equally by all countries and organizations represents a significant constraint noted in the literature [6]. The complete use of the hybrid model in developing countries and international organizations with limited resources faces major technical and financial hurdles. The existing gap in access to advanced AI-powered interpretation technology creates a new pattern of communication inequity between international conferences because well-funded events enjoy better interpretation services while other events must cope with basic systems. The theoretical resolution of this issue points toward the development of scalable and modular hybrid model configurations that can be adapted to varying levels of technological readiness, rather than insisting on a single universal standard of implementation.

### **CONCLUSION**

The theoretical analysis of the hybrid translation model at international conferences demonstrates that human-AI collaboration can be firmly established as the most promising direction of development for contemporary conference interpretation. The hybrid model, on the one hand, draws upon artificial intelligence's capacity for rapid processing, parallel lexical retrieval, and the reduction of cognitive load, while on the other hand it preserves the professional interpreter's abilities of contextual understanding, cultural mediation, and pragmatic interpretation. On the basis of the literature review, three principal structural components of this model are identified: functional specialization, iterative adaptation, and professional centralization. The first component presupposes that humans and machines each receive tasks in accordance with their respective strengths. The second component ensures

the continuous refinement of the AI system on the basis of the interpreter's corrections. The third component reinforces the professional interpreter as the final decision-making link in the hybrid system. Ethical, legal, and technical constraints continue to pose obstacles to the widespread implementation of the hybrid model; however, these obstacles are problems of a character that will inevitably find resolution. The fact that specialized research in this field remains insufficiently developed within Uzbek linguistics and translation studies once again confirms the need to increase the attention of the national scholarly community toward this promising direction.

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# Research Methodology As A Systemic Factor In Ensuring The Reliability Of Scientific Results

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## Abstract

The article examines research methodology as a system-forming component of scientific activity. It clarifies the relationship between the concepts of “methodology,” “method,” and “research methodology,” and analyzes the structure of research methodology, its fundamental principles, and its main types. Special attention is given to the organization of research and the interpretation of obtained results. The author proposes a structural-logical model of research methodology and demonstrates its application through a pedagogical case study. It is concluded that the methodological culture of a researcher is the most important condition for scientific reliability and professional competence.

**Keywords:** research methodology, philosophy of science, hypothesis, scientific experiment, principles of scientific research, research activity.

## INTRODUCTION

**Introduction.** The contemporary development of science is characterized by the increasing complexity of research tasks, the strengthening of interdisciplinary connections, and the growing requirements for the validity of scientific conclusions. The information society, digitalization, and the globalization of the scientific space necessitate strict methodological regulation of research activities.

Today, scientific research is considered a systematically organized activity that includes problem identification, hypothesis formulation, selection of methods, and interpretation of results. Methodology serves as a connecting link between theoretical principles and the practical actions of the researcher.

As Vladimir Stepin notes, “scientific cognition represents a complex system of theoretical activity in which the methods and means of research are determined by the nature of the object and the level of development of scientific knowledge.” This statement emphasizes the systemic nature of scientific research and the importance of

methodology as its organizational foundation.

### Scientific Novelty of the Research

- a structural-logical model of research methodology has been developed;
- the correlation between the concepts of “methodology,” “method,” and “research methodology” has been clarified;
- the role of the methodological culture of the researcher in the context of the digitalization of science has been substantiated;
- an integrative approach to the organization of research has been proposed.

### Materials and Methods

The methodological basis of the study consists of the works of domestic and foreign scholars in the field of philosophy of science and the methodology of scientific cognition.

As Evgeny Yudin emphasizes, “the methodology of science acts as a system of principles and methods for organizing theoretical and practical activity, ensuring the integrity and direction of research.”

The study employed methods of theoretical analysis, systematization, comparative comparison, and generalization.

## Results and Discussion

**1. Theoretical Foundations of Research Methodology.** Research methodology is defined as a system of interconnected methods and procedures aimed at solving a scientific problem. It ensures the implementation of methodological principles in the practical activity of the researcher and gives the study logical completeness.

**2. Structure of Research Methodology.** The structure of research methodology represents a system of interconnected components that ensure the consistency and logical coherence of scientific inquiry. Its foundation is the step-by-step organization of research activity.

First of all, the object and subject of the research are determined, which makes it possible to specify the direction of scientific analysis. Then the purpose and objectives are formulated, which define the general strategy and stages of the study. An important place is occupied by the hypothesis, which acts as a scientific assumption and guides the research process.

The next stage is the selection of research methods, which ensure the collection and analysis of the necessary information. A significant role is played by the organization of the research process, including planning, data collection, and compliance with scientific standards.

The final stage is the analysis and interpretation of results, during which patterns are identified, the hypothesis is tested, and conclusions are formulated.

**3. Principles of Methodology.** Research methodology is based on a number of key principles that ensure its scientific validity and reliability.

The principle of scientificity presupposes reliance on verified theoretical provisions and scientific facts.

The principle of systemacity requires considering the object of research in the interconnection of its elements.

The principle of objectivity excludes the influence of subjective factors on the research results.

The principle of reproducibility ensures the possibility of repeating the study and verifying its results by other scholars.

The principle of ethics presupposes compliance with the norms of scientific and professional responsibility during the research process.

**4. Author's Model of Research Methodology.** Within the framework of this study, an author's model of research methodology is proposed, including several последовательных stages. The conceptual stage предусматривает problem identification, goal definition, and hypothesis formulation. The methodological stage is associated with the selection of scientific approaches and research methods. The empirical stage is aimed at collecting factual data, while the analytical stage involves their processing and interpretation. The final stage is the reflective stage, which includes the evaluation of the obtained results and the formulation of conclusions.

The proposed model makes it possible to structure the research process and increase its effectiveness.

**5. Example of Methodology Application (Original Case).** As a practical illustration, let us consider a pedagogical study.

Problem: a low level of formation of text-production skills among primary school students.

Hypothesis: the use of an integrative approach (reading + analysis + writing) contributes to the development of textual competence.

The study used such methods as pedagogical observation, experiment, and analysis of students' written works. To test the hypothesis, control and experimental groups were formed. In the experimental group, teaching was carried out using integrative methods.

**Research Results.** The research results showed positive dynamics: the coherence of texts increased, their logical structure improved, students' vocabulary expanded, and the level of their independence in completing tasks also increased.

The practical significance of research methodology lies in its regulatory function, ensuring the orderliness and consistency of the research process. In the context of the digitalization of science, the requirements of reproducibility and transparency of results become especially important, which contributes to increasing their reliability and scientific validity.

**Conclusion.** Research methodology is a key instrument for ensuring the reliability of scientific results. It unites all stages of scientific inquiry into a single system. The proposed model makes it possible to increase research efficiency and improve the quality of data interpretation. The methodological culture of the researcher acts as the most important factor of scientific objectivity and professional competence.

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## Theory And Core Approaches To Translating Idioms

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### Abstract

This article provides a detailed analysis of the theoretical foundations and practical approaches to translating idioms. It highlights the distinctive features of idiomatic units and the cultural and linguistic complexities they present, shedding light on the challenges encountered during the translation process. Key strategies such as equivalence, compensation, and adaptation are thoroughly examined. The study also emphasizes the importance of the translator's intercultural competence and accurate contextual assessment. Ultimately, the research offers both theoretical and practical recommendations for successfully translating idioms.

**Keywords:** Idiom, translation, theory, approaches, culture, linguistics, equivalence, strategies

### Introduction

Idioms are an integral part of any language, playing a crucial role in enriching speech and making it more vivid, meaningful, expressive, and engaging. They are regularly used in everyday conversation as well as in both spoken and written discourse, enhancing the impact and aesthetic appeal of expression. However, the unique nature of idioms specifically, the fact that their semantic meaning is not simply the sum of their individual components creates significant obstacles during translation. This challenge becomes especially evident when working between languages with different cultural and linguistic structures, as idioms encapsulate not only linguistic elements but also deep cultural layers.

A key issue in translating idioms is whether to render them literally or to find an equivalent expression that fully conveys their intended meaning. This dilemma is recognized as one of the fundamental theoretical problems in translation studies. Although translation theory is closely connected to linguistics, it is not merely a branch of it; rather, it is an independent

academic discipline with its own object of study and methodology. The semantic content of idioms, their adequacy, ironic features, and positive or negative connotations all demand special scholarly attention in the translation process. Therefore, developing robust theoretical foundations and effective methodological approaches to ensure adequacy when translating idioms is of pressing importance. This article is dedicated to analyzing the main aspects of the theory of idiom translation, the problems that arise in the process, and the key strategies and approaches designed to address these issues. It also considers the influence of cultural and contextual factors on translation, helping to identify solutions that allow the original meaning and stylistic features of idioms to be fully reflected in the target language.

### Literature Review

The problem of translating idioms has long been one of the most complex and pressing issues in translation studies, consistently drawing the attention of scholars for many years. An analysis of the literature in this field reveals that the unique linguistic nature

of idioms specifically, the fact that their meaning differs from the sum of their constituent parts continues to pose significant challenges during the translation process. Although early research often focused on finding word-for-word equivalents for idioms, the limitations of this approach became increasingly evident over time. Modern translation studies have developed more profound and comprehensive approaches to idiom translation, which require taking into account not only linguistic factors but also cultural, contextual, and pragmatic considerations (Al-Khawaldeh, Nabeel, 2021).

In the literature, achieving adequacy in idiom translation occupies a central place. The concept of adequacy refers to the target text's ability to fully reflect the semantic and stylistic features, as well as the expressive impact, of the source text. This is particularly important for culturally loaded units such as idioms. A translator must accurately convey not just the literal dictionary meaning of an idiom but also its underlying connotations, irony, emotional coloring, and cultural associations. In this regard, it is emphasized that concepts such as meaning, appropriateness, irony, and positive or negative connotations demand special attention during the translation process. Neglecting these factors can lead to a decline in translation quality and the emergence of misinterpretations in the target language. The key strategies and methods used in translating idioms are widely discussed in the literature and can be grouped into several categories:

- **Full equivalence:** Finding an idiom in the target language that matches the source language idiom in both meaning and form. This is the most ideal scenario and typically occurs when there is cultural proximity between the languages.
- **Partial equivalence:** Selecting an idiom that matches in meaning but differs

somewhat in form. Here, the primary focus is on preserving the idiom's sense.

- **Calque (loan translation):** Translating the components of an idiom literally. However, this approach often results in awkward or incomprehensible expressions in the target language and is therefore rarely recommended.
- **Paraphrase (explanatory translation):** When no equivalent idiom exists in the target language, the meaning of the idiom is explained in plain words. While this approach may diminish the idiom's expressiveness, it allows for accurate conveyance of its meaning.
- **Substitution with a similar meaning but different imagery:** Choosing an idiom that expresses the same meaning as the source idiom but is based on different imagery. This requires a proactive approach from the translator.
- **Compensation:** If the stylistic or figurative features of an idiom cannot be fully preserved in the target language, the loss is compensated elsewhere in the text—for example, through other stylistic devices in a different passage.
- **Omission:** In cases where an idiom does not negatively affect the overall meaning of the text and finding a suitable equivalent is impossible, omitting it from the translation may occasionally be necessary. However, this approach must be applied with great caution to avoid distorting the text's true meaning.

When choosing among these strategies, the context of the translation, the target audience, the genre of the text, and its stylistic characteristics play a decisive role. For instance, paraphrasing idioms may be more common in scientific or technical texts, whereas literary translation prioritizes finding figurative equivalents.

The influence of cultural and contextual factors on idiom translation deserves particular attention. Idioms often reflect the historical, social, religious, and everyday

experiences of a specific culture. Consequently, an idiom from one language may be unfamiliar not only linguistically but also culturally in another language. For example, a literal translation of the English idiom "to kick the bucket" into Uzbek would be meaningless in the target language and could even come across as ridiculous. In such cases, the translator must have a deep understanding of both languages and both cultures, grasp the original cultural burden of the idiom, and be able to adapt it to the target culture. This process demands intercultural competence and interpretive skill on the part of the translator.

In recent years, scholarly research on idiom translation has increasingly focused not only on theoretical aspects but also on practical solutions. In particular, approaches from corpus linguistics and cognitive linguistics have made it possible to study more deeply the semantic structure of idioms, their frequency of use, and their contextual features. This provides translators with valuable information for finding the most adequate equivalents for idioms. Furthermore, advances in translation technology especially efforts to improve the detection and accurate translation of idioms in machine translation systems have spurred ongoing research. Nevertheless, due to the complexity and cultural specificity of idioms, the translator's effective judgment and cultural sensitivity remain indispensable.

### **Research Methodology**

This study focuses on an in-depth analysis of the theory and practice of idiom translation, grounded in a qualitative, descriptive, and analytical methodology. The research design involves a systematic review and examination of existing scholarly literature, including monographs, academic articles, and dissertations. The primary objective is to systematically explore both theoretical and practical approaches to translating idioms, assess

their effectiveness, and determine how cultural and contextual factors influence the translation process. In doing so, the study aims to offer theoretical and practical solutions to the challenges inherent in this complex area of translation studies.

The theoretical framework draws on functionalist approaches in translation studies specifically Skopos theory as well as principles from cognitive linguistics. Skopos theory emphasizes the need to prioritize the target audience and the function of the text when translating idioms. Cognitive linguistics, meanwhile, helps deepen our understanding of how idioms generate meaning, their role in human thought, and their reliance on cultural symbols, thereby making it easier for translators to find adequate equivalents. Together, these approaches allow translation to be viewed not merely as a linguistic substitution but as a communicative act driven by a specific purpose and grounded in cultural and contextual considerations.

A comprehensive literature review was chosen as the data collection method. Priority was given to recent scholarly sources on idiom translation, particularly studies published after 2020. Special attention was paid to research examining the linguistic features of idioms, translation theories, translation strategies, and the impact of cultural and contextual factors. Works addressing the issue of achieving adequacy in idiom translation (Harding, Sue-Ann, and Ovidi Carbonell Cortés), along with studies analyzing problems in translating idioms between English and Uzbek, were of particular interest. Additionally, articles from both international and local academic journals, as well as conference proceedings on the topic, were reviewed to build a broad information base. Concepts such as meaning, appropriateness, irony, and positive or negative connotations of idioms were

analyzed within the framework of each strategy. The success of different approaches was evaluated against criteria for adequacy (Harding, Sue-Ann, and Ovidi Carbonell Cortés), with the main indicator being the target language's ability to fully capture the original meaning, stylistic features, and expressive impact of the translated idiom.

Comparative, analytical, and synthetic methods were employed for data analysis. Each translation strategy—full equivalence, partial equivalence, calque, paraphrase, substitution with a similar-meaning unit, compensation, and omission was examined individually. Their strengths and weaknesses, appropriate usage contexts, and level of effectiveness were assessed. The analysis aimed to identify the optimal conditions for applying each strategy. The influence of cultural and contextual factors on the translation process was analyzed within the framework of intercultural communication theories. Although this research is primarily theoretical in nature, the importance of corpus linguistics approaches for identifying the contextual usage and frequency of idioms is also acknowledged. It is noted that future empirical studies could analyze idiom corpora in source and target languages to identify translation equivalents and evaluate their usage, helping to find more precise and evidence-based solutions to translation challenges. Furthermore, the capabilities and limitations of translation technologies particularly machine translation systems in detecting and rendering idioms are examined from a theoretical perspective, underscoring the value of the human translator's effective judgment and cultural sensitivity (Al-Shawi, Hadeel Abdul-Kareem).

Throughout the study, all sources have been properly cited, and plagiarism has been strictly avoided. The principles of academic ethics have been rigorously

upheld. This methodology ensures a comprehensive and multifaceted approach to idiom translation, providing a solid foundation for deepening existing theoretical knowledge and developing practical recommendations. By analyzing various translation methods in conjunction with cultural and contextual factors, the study serves as a practical guide for translators seeking solutions that fully reflect the original meaning and stylistic features of idioms in the target language. This research fills gaps in translation studies, strengthens the theoretical underpinnings of idiom translation, and contributes to overcoming practical difficulties in the field.

### **Conclusion**

Translating idioms proves to be a complex and multifaceted process that demands broader theoretical and practical approaches than simple linguistic substitution. This study has particularly emphasized that idioms carry deep cultural and contextual weight, and that their meaning, stylistic nuances, and expressive impact must be adequately rendered in the target language. Effective translation encompasses not only linguistic competence but also cross-cultural awareness, cognitive understanding, and the skillful application of various strategies. This, in turn, underscores the need for continuous research and the development of new approaches within this branch of translation studies. Ultimately, the creative judgment and sensitivity of the human translator play a decisive role in idiom translation, serving as a key factor in facilitating successful cross-cultural communication.

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## Family Values in Various Cultures: Linguoculturological and Conceptual Analysis

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### Abstract

This article examines the concept of family values from a linguocultural perspective, focusing on its semantic, cultural, and conceptual dimensions across different languages and cultures. The study is based on the theoretical foundations of linguoculturology, as developed by E. M. Vereshchagin, V. G. Kostomarov, and further expanded by Yuri Karaulov and Anna Wierzbicka. Special attention is given to the concept of “family” as a culturally marked unit reflecting national mentality, social norms, and value systems. The article analyzes the structure of the concept, including its lexical, associative, and etymological layers, and highlights cross-cultural differences between Eastern and Western interpretations of family values. The findings demonstrate that language serves as a key medium for encoding and transmitting culturally specific models of family relations, moral obligations, and social expectations. The research contributes to a deeper understanding of the interrelation between language, culture and cognition.

**Keywords:** Linguoculturology, family values, concept, conceptsphere, culture, language, national mentality, cross-cultural analysis, semantic structure, cultural linguistics.

### Introduction

In modern linguistics, the study of the interrelationship between language and culture is considered one of the most relevant scientific directions. In particular, within the framework of linguoculturology, identifying and analyzing the cultural content embodied in language units holds significant importance. This approach makes it possible to interpret language not only as a means of communication, but also as a form of reflection of national thinking, a system of values, and social experience. The theoretical foundations of linguoculturology were developed by E. M. Vereshchagin and V. G. Kostomarov and were later advanced by scholars such as Yuri Karaulov and Y. D. Apresyan. In particular, the theories of concept and conceptsphere provided a deeper substantiation of the organic connection between language and culture. [1. P=34-35]

This article analyzes the concept of “family values” based on a linguoculturological approach. The family is one of the most important social institutions of human society, distinguished in every culture by its own unique system of values. Therefore, the concept of “family” in different languages embodies not only lexical meaning, but also deep cultural, historical, and spiritual layers. The aim of the study is to identify the linguoculturological features of the “family” concept in various languages and cultures, to analyze its semantic structure, and to highlight the national-cultural specificities from a comparative perspective. To achieve this goal, concept analysis, comparative-linguistics and descriptive methods were used.

At the intersection of language and culture, within the framework of linguocultural studies, the concept of *family values* is interpreted as a phenomenon possessing

distinct national and cultural specificity. Linguoculturology, as an interdisciplinary field, explores how cultural meanings are embedded in language units and how they reflect the worldview of a particular linguistic community.

The founders of linguoculturology, E. M. Vereshchagin and V. G. Kostomarov, focused on identifying cultural information encoded in linguistic structures. Their work was further developed by scholars such as Y. D. Apresyan and V. V. Vorobyov, who emphasized that language serves as a reflection of national mentality and worldview. In this context, Yuri Karaulov introduced the theory of the *national conceptosphere*, arguing that each language contains a system of culturally significant concepts that manifest themselves in the linguistic personality of its speakers.

Within linguoculturology, the notion of *concept* extends beyond mere lexical meaning; it represents a complex mental unit that integrates cultural, historical, and value-based dimensions of a people's experience. A concept thus embodies collective memory and cultural identity.

For instance, the concept of *family* demonstrates significant variation across cultures. In Western cultures, the term *family* typically denotes a nuclear unit consisting of parents and children. In contrast, in many Eastern cultures, including Uzbek society, the notion of family encompasses a broader network, including extended relatives and ancestral lineage.

The internal structure of concepts was further elaborated by V. V. Stepanov, who identified three layers:

1. The core lexical meaning (current,aktual meaning);
2. The associative-cultural layer (emotional, symbolic, and evaluative connotations);
3. The internal or etymological layer (historical origin of the word) [2. P=1-3]

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Applying this model to the concept of *family*, one may observe that in Uzbek, the word *oila* derives from the Arabic *a'ila*, meaning “household” or “family unit.” Its primary meaning refers to individuals living together in kinship relations, while its associative layer includes notions such as sacred space, moral foundation, and a center of upbringing.

Similarly, the Russian term *semya* is believed to be etymologically connected to the number “seven,” reflecting an idealized traditional family structure. In contemporary usage, it denotes family or kinship, while culturally it evokes associations such as “*semeyny ochag*” (family hearth), symbolizing warmth, unity, and emotional support.

In English, the word *family* originates from the Latin *familia*, which historically included not only relatives but also household servants. In modern Western discourse, the term *family values* are commonly associated with moral principles such as marital fidelity, child-rearing responsibilities, and religious commitment.

Thus, the concept of *family values* acquires a distinct national-cultural coloring in each linguistic community. Through this concept, societal attitudes toward family, moral ideals, and educational principles are expressed.

The Australian linguist Anna Wierzbicka, in her theory of cultural key words, demonstrated that certain lexical units are deeply culture-specific and cannot be fully translated without contextual interpretation. For example, the Russian concept “*dusha*” (soul) reflects emotional openness and interpersonal closeness characteristic of Russian culture. In contrast, the English concept of “*privacy*” highlights the importance of personal space and individual autonomy, even within family relations. [3. P=317]

Likewise, in Uzbek and Russian cultures, the notion of filial duty—respect and care for

parents—is considered a fundamental moral obligation. This is reflected in expressions such as “respect your parents” or “seek their blessing.” Conversely, in Western cultures, greater emphasis is often placed on individual independence, as illustrated by expressions like “follow your dream.”

Although such generalizations should be approached with caution, comparative analysis of linguistic units provides valuable insights into the linguocultural characteristics of family values. It reveals how language encodes culturally specific norms, beliefs, and social expectations, thereby serving as a key to understanding the deeper structures of human thought and cultural identity.

### Conclusion

In conclusion, the linguocultural analysis of the concept of family values demonstrates that language serves as a powerful medium for reflecting and transmitting culturally specific norms, beliefs, and social structures. The concept of “family” is not limited to its lexical meaning but encompasses a complex system of cultural, historical, and emotional associations that vary across different linguistic communities. The study has shown that in Eastern cultures, particularly in Uzbek society, family values are strongly associated with collectivism, respect for elders, and extended family ties, whereas in Western cultures, individualism, personal autonomy, and nuclear family structures are more prominent. These differences are clearly manifested in language, including lexical choices, phraseological units, and culturally marked expressions.

The application of conceptual analysis, particularly the model proposed by V. V. Stepanov, has allowed for a deeper understanding of the internal structure of the concept, including its core meaning, associative layer, and etymological background. Furthermore, the theories of

Yuri Karaulov and Anna Wierzbicka have highlighted the role of language in shaping national worldview and cultural identity.

Overall, the findings confirm that the concept of family values is culturally conditioned and linguistically encoded, making it an essential object of study in linguoculturology. Future research may focus on broader comparative studies involving additional languages and cultural contexts, as well as empirical analysis of discourse and real-life language use.

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## Message from the Editor-in-Chief

*Prof. Chinedu M. Ogundele*

Dear Colleagues, Scholars, and Contributors,

On behalf of the editorial board, I extend my deepest gratitude to all authors who have contributed to the latest volume of the *TLEP (Technology, Language, Education, and Psychology)* journal. Your dedication to advancing knowledge in these interdisciplinary fields is not only appreciated—it is essential to the continued growth and impact of our scholarly community.

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Let us continue fostering academic excellence and innovation together. We look forward to receiving your submissions and to further enriching our global academic discourse.

With sincere thanks and best regards,

**Prof. Chinedu M. Ogundele**

*Editor-in-Chief*

*TLEP Journal*

