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# INTEGRATION OF INTERACTIVE AND DIGITAL TECHNOLOGIES INTO THE METHODOLOGY OF TEACHING RUSSIAN AT A TECHNICAL UNIVERSITY

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**Abstract**

The integration of interactive and digital technologies into higher education has become one of the most important factors in improving the quality of language teaching and learning. In technical universities, where students primarily focus on engineering, information technology, mathematics, and other specialized disciplines, teaching Russian requires innovative methodological approaches that combine linguistic knowledge with professional communication skills. This article examines the theoretical and practical aspects of integrating interactive methods and digital technologies into the methodology of teaching Russian to students of technical universities. Particular attention is paid to the use of digital educational platforms, multimedia resources, online collaboration tools, artificial intelligence, interactive exercises, and project-based learning. The article also explores the advantages and challenges of technology-enhanced language instruction and proposes methodological recommendations for developing students' communicative, professional, and digital competencies. It is argued that the systematic application of interactive and digital technologies creates a student-centered learning environment, increases motivation, and contributes to the development of Russian-language communication skills in professional contexts.

**Keywords**: Interactive technologies, digital education, Russian language teaching, technical university, communicative competence, digital platforms, educational technology, professional communication, blended learning, artificial intelligence.

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## Introduction

The rapid development of information and communication technologies has significantly transformed the educational process in higher education institutions. Modern universities are increasingly adopting digital learning environments, interactive teaching methods, and innovative educational resources to improve the effectiveness of teaching and learning. In this context, foreign and second language education requires particular attention because language proficiency is an essential component of professional competence, academic mobility, and intercultural communication.

Teaching Russian at technical universities has its own specific characteristics. Unlike students studying philology, students of engineering and technical specialties usually need Russian primarily as a means of professional communication, accessing scientific information, understanding technical documentation, participating in academic discussions, and communicating in multicultural professional environments. Therefore, the methodology of teaching Russian should be closely connected with students' future professional activities. Traditional approaches based mainly on grammar explanation, vocabulary memorization, and translation exercises do not always provide sufficient opportunities for developing practical communication skills. Although these methods remain important for building linguistic knowledge, they should be complemented by interactive activities and digital learning tools that encourage students to use the language actively.

The integration of digital technologies makes it possible to organize a more flexible, accessible, and individualized learning process. Multimedia presentations, online dictionaries, educational platforms, virtual communication environments, electronic textbooks, and artificial intelligence-based applications can support the development of listening, speaking, reading, and writing skills.

The purpose of this article is to analyze the methodological potential of interactive and digital technologies in teaching Russian at technical universities and to identify effective ways of incorporating them into the educational process.

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## 1. Theoretical Foundations of Technology-Enhanced Russian Language Teaching

The methodology of teaching Russian as a second or additional language is based on several important pedagogical principles, including communicative orientation, learner-centered instruction, accessibility, consistency, and the connection between language learning and practical activities.

The communicative approach considers language primarily as a means of interaction. According to this approach, students should not only acquire grammatical rules and vocabulary but also learn to apply linguistic knowledge in real-life communication situations. For students of technical universities, such situations may include describing engineering processes, discussing scientific projects, explaining technical problems, reading professional literature, and presenting research findings.

The integration of interactive technologies is closely related to the constructivist approach to education. According to constructivist principles, learners actively construct knowledge through experience, interaction, problem-solving, and collaboration. Consequently, the teacher's role changes from being the only source of information to becoming an organizer, facilitator, and educational consultant.

Digital technologies also support the principles of differentiated and individualized learning. Students have different levels of Russian language proficiency, learning styles, and educational needs. Digital platforms allow teachers to provide additional materials, assign tasks according to students' abilities, and monitor individual progress.

The application of the Common European Framework of Reference for Languages (CEFR) can also contribute to the development of communicative competence. Although the CEFR is not a specific methodology for teaching Russian, its descriptors provide a useful framework for defining learning outcomes and assessing students' language proficiency.

Thus, the theoretical foundation of technology-enhanced Russian language teaching combines communicative, learner-centered, constructivist, and competency-based approaches.

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## 2. Interactive Technologies in Teaching Russian at Technical Universities

Interactive technologies are educational methods and tools that involve students in active communication, cooperation, critical thinking, and problem-solving. Their use is particularly relevant in technical universities because students need to develop the ability to exchange information, explain complex processes, and cooperate in professional teams.

One of the most effective interactive methods is group work. Students can be divided into small groups and assigned tasks related to their professional fields. For example, engineering students may prepare a short presentation on modern technologies, while information technology students may discuss cybersecurity, artificial intelligence, or software development in Russian.

Another effective technique is role-playing. It allows students to simulate professional communication situations. For instance, students may act as engineers discussing a technical problem, specialists presenting a new project, or employees participating in a professional meeting. Such activities develop speaking skills, professional vocabulary, and confidence in communication.

Educational discussions and debates are also useful for developing communicative competence. Students can discuss topics such as the advantages of renewable energy, the role of artificial intelligence in modern industry, environmental protection, or the future of engineering. These activities encourage students to express opinions, support arguments, ask questions, and respond appropriately.

Project-based learning is another important interactive approach. Students work individually or collaboratively to complete a practical project using Russian. For example, they can prepare a digital presentation entitled "Innovative Technologies in Modern Engineering" or create a glossary of technical terms related to their specialization.

The following table presents some interactive methods and their educational functions.

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**Interactive method**
Application in Russian lessons
Expected learning outcomes
Group work
Discussing technical topics in small groups
Cooperation and speaking skills
Role-playing
Simulating professional conversations
Practical communication competence
Debates
Discussing scientific and technological issues
Critical thinking and argumentation
Project-based learning
Preparing presentations and research projects
Independent learning and professional vocabulary
Case studies
Solving professional problems through discussion
Problem-solving and analytical skills
Brainstorming
Generating ideas related to technical subjects
Creativity and active participation
The systematic use of these methods transforms the language classroom into an interactive environment in which students become active participants in the learning process.

## 3. Digital Technologies and Their Application in Russian Language Instruction

Digital technologies provide teachers with a wide range of opportunities to organize effective language learning. Their application allows educational materials to be presented in different formats, facilitates communication, and creates opportunities for independent learning.

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### 3.1. Learning Management Systems and Online Educational Platforms

Learning Management Systems (LMS) such as Moodle and Google Classroom can be used to organize and manage Russian language courses. Teachers can upload electronic textbooks, lecture materials, vocabulary lists, video lessons, and assessment tasks.

These platforms also make it possible to organize online tests, collect written assignments, provide feedback, and monitor student progress. Students can access learning materials at any time, which supports independent and continuous learning.

For example, a teacher may create a thematic module called "Russian for Future Engineers", consisting of professional vocabulary, reading materials, listening exercises, grammar tasks, and speaking assignments. At the end of the module, students can complete an online assessment and prepare a short professional presentation.

### 3.2. Multimedia Resources

Multimedia resources combine text, audio, video, animation, and images. Their use is particularly beneficial for teaching Russian because they present linguistic information in different forms and help students understand complex concepts.

Short educational videos about engineering processes, scientific discoveries, technological innovations, and industrial production can be incorporated into language lessons. Before watching a video, students may receive vocabulary tasks. During the viewing process, they can complete comprehension exercises, and afterwards they can summarize the content or discuss the main ideas.

Audio materials, podcasts, and recorded dialogues can also improve listening comprehension and pronunciation. Teachers can use authentic Russian-language materials to familiarize students with different speech styles and professional communication situations.

### 3.3. Online Collaboration Tools

Online collaboration tools provide opportunities for students to communicate and work together beyond the traditional classroom. Digital documents, shared presentations, discussion boards, and video-conferencing platforms can support collaborative language learning.

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For instance, students can jointly prepare a technical report in Russian using collaborative document-editing tools. Each participant may be responsible for a particular section, such as the introduction, technical description, results, or conclusion.

Such activities develop writing skills, teamwork, digital literacy, and the ability to communicate in an academic environment.

### 3.4. Artificial Intelligence in Language Learning

Artificial intelligence (AI) is increasingly influencing language education. AI-powered applications can provide additional opportunities for vocabulary development, grammar practice, writing improvement, and conversational training.

Students can use AI-based tools to generate examples of professional dialogues, practice answering questions, receive explanations of grammatical structures, and identify possible mistakes in written assignments.

For example, students studying mechanical engineering may ask an AI assistant to create a dialogue between two engineers discussing the operation of a machine. They can then analyze the vocabulary, identify grammatical structures, and practice the dialogue in pairs.

However, AI should be used as a supporting educational instrument rather than a substitute for independent thinking or teacher guidance. Teachers should encourage students to verify generated information, evaluate the accuracy of language suggestions, and develop their own communication skills.

## 4.Methodological Approaches to Integrating Digital and Interactive Technologies

The effectiveness of technology integration depends not only on the availability of digital resources but also on the methodological principles guiding their use. Digital tools should be selected according to lesson objectives, students' language proficiency, professional interests, and expected learning outcomes.

A practical lesson should combine traditional instructional techniques with interactive and digital activities. The following stages may be recommended.

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**Stage 1. Motivation and introduction of the topic.**
The lesson begins with a visual presentation, a short video, a photograph, or an interesting question related to students' professional fields. The purpose is to activate prior knowledge and introduce relevant vocabulary.

**Stage 2. Presentation of linguistic material.**
The teacher introduces new vocabulary, grammatical structures, and useful expressions through multimedia presentations, digital flashcards, and contextual examples. Technical terminology should be presented in meaningful professional contexts.

**Stage 3. Interactive practice.**
Students complete pair-work activities, online quizzes, vocabulary-matching tasks, role-playing exercises, and group discussions. Digital platforms can be used to provide immediate feedback and identify areas requiring additional practice.

**Stage 4. Professional communication.**
Students participate in simulations of professional situations. They may describe technical equipment, explain a production process, discuss a scientific problem, or present a project in Russian.

**Stage 5. Assessment and reflection.**
Students complete online tests, submit written assignments, or record short oral presentations. The teacher provides feedback and evaluates their progress according to clearly defined criteria.
An example of a technology-integrated lesson is presented below.
Lesson component
Activity
Digital or interactive tool
Topic introduction
Watching a video about modern engineering
YouTube or educational video resources

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Vocabulary development
Learning technical terms
Quizlet or digital flashcards
Grammar practice
Completing interactive exercises
Moodle or Google Forms
Speaking
Role-playing a professional meeting
Pair work and video conferencing
Writing
Preparing a short technical report
Google Docs or Microsoft Word
Assessment
Completing an online quiz
Moodle or Google Forms

This model demonstrates that digital technologies can be incorporated into every stage of the lesson without changing its fundamental pedagogical objectives.

**5. Advantages and Challenges of Digital Technology Integration**

The integration of interactive and digital technologies provides several important advantages for teaching Russian at technical universities.

First, it increases students' motivation and engagement. Interactive tasks, videos, online competitions, and collaborative projects make the learning process more dynamic and meaningful.

Second, digital resources provide access to authentic language materials. Students can work with Russian-language scientific articles, technical manuals, interviews, and educational videos, thereby improving their understanding of professional discourse.

Third, technology supports individualized learning. Students can repeat exercises, review difficult topics, and work at their own pace.

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Fourth, interactive learning develops not only linguistic competence but also teamwork, critical thinking, creativity, problem-solving, and digital literacy.

Fifth, technology-enhanced instruction strengthens the relationship between language education and professional training. Students learn to use Russian in situations directly connected with their future careers.

Despite these advantages, several challenges should also be considered. Not all students have equal access to reliable internet connections and digital devices. Some teachers may lack sufficient digital competencies or experience in designing technology-supported lessons. Excessive use of digital resources can also reduce direct communication if online activities are not properly balanced with face-to-face interaction.

Another important issue concerns the reliability of information generated by artificial intelligence and online resources. Students should be taught to evaluate information critically, check terminology, and avoid unverified content.

To address these challenges, technical universities should provide appropriate digital infrastructure, organize professional development courses for teachers, develop high-quality electronic teaching materials, and establish clear guidelines for responsible technology use.

## 6. Recommendations for Improving the Methodology of Teaching Russian

Based on the analysis of interactive and digital technologies, several methodological recommendations can be proposed for improving Russian language instruction at technical universities.

Develop professionally oriented learning materials. Russian language courses should include texts, dialogues, exercises, and projects connected with students' technical specializations.

Combine traditional and digital teaching methods. Digital resources should complement, rather than completely replace, direct teacher-student interaction and classroom communication.

Introduce interactive speaking activities. Role-playing, debates, group discussions, and professional simulations should be regularly incorporated into lessons.

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Use digital assessment tools. Online quizzes, electronic portfolios, and digital assignments can help teachers monitor students' progress and provide timely feedback.

Promote independent learning. Students should be encouraged to use electronic dictionaries, educational platforms, podcasts, and online reading materials outside the classroom.

Integrate artificial intelligence responsibly. AI-based tools can support language practice, but students must maintain academic integrity and independently evaluate the information they receive.

Improve teachers' digital competencies. Professional development programs should focus on the pedagogical application of digital platforms, multimedia materials, and interactive learning technologies.

The implementation of these recommendations can contribute to the creation of an effective educational environment in which linguistic, professional, communicative, and digital competencies develop simultaneously.

## Conclusion

The integration of interactive and digital technologies into the methodology of teaching Russian at technical universities represents an important direction in the modernization of higher education. In the context of rapidly changing professional requirements, students need not only theoretical knowledge of the Russian language but also the ability to use it effectively in academic, technical, and professional communication.

Interactive methods such as group work, role-playing, debates, case studies, and project-based learning create opportunities for active language practice and collaborative knowledge construction. At the same time, digital platforms, multimedia resources, online collaboration tools, and artificial intelligence applications expand access to educational materials and support individualized learning.

The analysis demonstrates that the effectiveness of digital technology integration depends on its purposeful and pedagogically justified application. Technology alone cannot guarantee successful language acquisition; it must be combined with

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clear learning objectives, appropriate teaching strategies, qualified teacher guidance, and systematic assessment.

Therefore, the most effective methodology is based on the balanced integration of traditional teaching approaches, interactive learning activities, and modern digital tools. Such an approach can improve students' communicative competence, develop their professional vocabulary, increase motivation, and prepare future engineers and technical specialists for successful communication in Russian-speaking academic and professional environments.

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