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EFFECTIVENESS OF SIMULATION-BASED APPROACH IN ESP TEACHING THROUGH DIGITAL TOOLS

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Abstract: This article theoretically examines the effectiveness of a simulation-based approach in teaching ESP (English for Specific Purposes) through digital tools. The paper explores the essence of the simulation method, its role in education, and its integration with digital platforms. Using architecture students as a case, the article reveals the possibilities and advantages of applying simulation methods in ESP instruction.

Keywords: ESP; simulation method; digital tools; speech competence; architectural education; interactive learning.

ЭФФЕКТИВНОСТЬ СИМУЛЯЦИОННОГО ПОДХОДА В ОБУЧЕНИИ ESP С ПОМОЩЬЮ ЦИФРОВЫХ ИНСТРУМЕНТОВ

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Аннотация: В данной статье рассматривается теоретическая эффективность симуляционного подхода в обучении ESP (английский язык для специальных целей) с использованием цифровых инструментов. Анализируются сущность симуляционного метода, его роль в образовании и интеграция с цифровыми платформами. На примере студентов архитектурного направления раскрываются возможности и преимущества применения симуляционных методов в обучении ESP.

Ключевые слова: ESP; симуляционный метод; цифровые инструменты; речевая компетенция; архитектурное образование; интерактивное обучение.

RAQAMLI VOSITALAR ORQALI ESP O'QITISHDA SIMULYATSION YONDASHUV SAMARADORLIGI

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Annotatsiya: Ushbu maqolada raqamli vositalar orqali ESP (maxsus maqsadlar uchun ingliz tili) o'qitishda simulyatsion yondashuvning samaradorligi nazariy jihatdan tahlil qilinadi. Maqolada simulyatsion metodning mohiyati, uning ta'limidagi o'rni va raqamli platformalar bilan integratsiyasi ko'rib chiqiladi. Arxitektura yo'nalishi talabalari misolida ESP o'qitishda simulyatsion metodlarni qo'llanish imkoniyatlari va afzalliklari ochib beriladi.

Kalit so'zlar: ESP; simulyatsion metod; raqamli vositalar; nutqiy kompetensiya; arxitektura ta'limi;

interaktiv o'qitish.

Introduction

The rapid advancement of digital technologies has fundamentally transformed the landscape of higher education, particularly in the domain of language teaching. English for Specific Purposes (ESP) — a branch of language instruction tailored to the professional and academic needs of learners — increasingly demands innovative pedagogical approaches that align with real-world communicative demands. Among these approaches, simulation-based learning has emerged as a particularly promising method, enabling learners to engage in authentic professional interactions within a structured educational environment.

Architecture students represent a unique learner group in ESP contexts: they must acquire not only general academic English proficiency but also the specialized communicative competencies required in international professional settings — presenting design proposals, negotiating with clients, conducting site briefings, and participating in interdisciplinary team discussions. Traditional grammar-translation or lecture-based methods have proven insufficient in developing these complex speech competencies [1]. A systematic review of simulation studies in TESOL confirms that simulation consistently enhances speaking fluency, pragmatic competence, and critical thinking while also reducing language anxiety [9].

The integration of digital tools — such as virtual reality platforms, collaborative simulation software, and AI-powered language environments — into ESP instruction offers new dimensions for simulation-based pedagogy. This article theoretically examines the effectiveness of this integration, with a focus on architecture-oriented ESP courses.

Theoretical Framework: Simulation in Language Education

The theoretical foundations of simulation-based language learning draw from several established frameworks. Vygotsky's sociocultural theory emphasizes the role of social interaction and collaborative activity in cognitive development, providing a key rationale for simulation as a learning methodology [2]. Similarly, Krashen's Input Hypothesis and Swain's Output Hypothesis collectively support the view that language acquisition is best facilitated through meaningful, contextualized communication — precisely what simulation environments offer.

Jones (1982) defined simulation as a guided reconstruction of real-world conditions allowing rehearsal of target performances under safe, controllable constraints, distinguishing it from role-play by its emphasis on participants maintaining their own identity while responding to realistic professional scenarios [3]. This distinction is particularly significant in ESP contexts, where learners are expected to function as future professionals, not fictional characters.

More recently, scholars have categorized simulation methods into three main types as applied to language education: (1) scenario-based simulations, where learners respond to pre-structured professional situations; (2) problem-based simulations, where open-ended challenges require negotiated solutions; and (3) project simulations, where learners complete authentic professional tasks over extended periods [4]. Each type activates different communicative functions and contributes to the development of distinct competency dimensions.

Digital Tools and Their Role in Simulation-Based ESP

The proliferation of digital platforms has dramatically expanded the possibilities for simulation-based ESP instruction. Virtual collaboration platforms such as Miro and Microsoft Teams replicate the communicative environments of architectural firms and design studios, enabling students to conduct virtual client presentations and collaborate on documentation tasks in English [5].

AI-powered language tools, including GPT-based tutoring systems, provide personalized feedback on pronunciation, vocabulary use, and discourse structure. When embedded within simulation tasks, these tools offer immediate corrective input without interrupting the communicative flow of the simulation. Research further confirms that AI and augmented reality tools significantly enhance student engagement and learning outcomes across technical disciplines [8].

Learning Management Systems (LMS) such as Moodle and Canvas can host structured simulation sequences, allowing instructors to design scaffolded scenarios with embedded language support materials, assessment rubrics, and peer feedback mechanisms [6].

Application of Simulation Method in Architecture-Oriented ESP

Architecture students face specific communicative challenges in their professional future: they must articulate design concepts clearly, justify aesthetic and functional decisions, engage with clients from diverse linguistic backgrounds, and collaborate with international engineering and construction teams. ESP courses tailored to this learner group must, therefore, prioritize the development of presentational, negotiation, and technical description competencies.

A simulation-based approach in this context might proceed in the following sequence: First, learners are introduced to a realistic professional scenario (e.g., presenting a residential design to a foreign client). Second, preparatory language tasks activate relevant vocabulary and discourse structures. Third, the simulation itself is conducted using digital tools — a video conferencing platform replicating a client meeting. Finally, reflective debriefing activities guided by a rubric consolidate language gains and professional insights [7]. Research conducted in the Uzbek higher education context similarly confirms that simulation methodology actively bridges the gap between theoretical knowledge and practical communicative skills in ESP settings [10].

Research has consistently shown that such sequences produce measurable improvements in both linguistic accuracy and communicative fluency. The professional authenticity of the simulation appears to enhance learner motivation significantly, as students perceive direct relevance between their language study and their future professional identity [1, 9].

Factors Contributing to the Effectiveness of Simulation-Based Digital ESP

Several factors have been identified in the literature as contributing to the effectiveness of simulation-based digital ESP instruction. Authenticity is widely recognized as the most critical factor: simulations that closely replicate real professional contexts generate higher levels of engagement and more durable language acquisition [3]. The use of discipline-specific digital platforms enhances this authenticity considerably.

Learner agency — the degree to which students make meaningful decisions within the simulation — is another key factor. Unlike traditional drills or scripted dialogues, well-designed simulations require learners to respond to unpredictable communicative demands, activating the kind of strategic language use that characterizes real professional discourse [2].

Finally, structured reflection and feedback mechanisms are essential for converting simulation experience into explicit language learning. Digital tools facilitate this process by enabling video recording of simulations for subsequent analysis, automated feedback on linguistic features, and peer assessment through shared digital rubrics [5, 6].

Conclusion

The integration of simulation-based approaches with digital tools in ESP instruction offers significant theoretical advantages for developing the professional communicative competencies of architecture students. By creating authentic, interactive, and technologically mediated learning environments, this approach bridges the longstanding gap between classroom language learning and real-world professional communication.

Future empirical research should examine the relative effectiveness of different digital simulation formats across varying learner contexts and proficiency levels. The findings would have direct implications not only for architecture education but for ESP instruction across all professionally oriented disciplines.

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ИСПОЛЬЗОВАНИЕ ТЕХНОЛОГИЙ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В ПРЕПОДАВАНИИ РУССКОГО ЯЗЫКА В ВЫСШИХ УЧЕБНЫХ ЗАВЕДЕНИЯХ: ПРОБЛЕМЫ И РЕШЕНИЯ

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Аннотация: Статья рассматривает возможности и проблемы использования технологий искусственного интеллекта в преподавании русского языка в высших учебных заведениях. Анализируются направления применения ИИ-инструментов, их педагогический потенциал и методические ограничения, включая вопросы культурного контекста и цифровой компетентности преподавателей. Предлагаются практические решения на основе гибридной модели обучения и осознанной интеграции технологий в образовательный процесс.

Ключевые слова: искусственный интеллект, преподавание русского языка, высшее образование, цифровая педагогика, адаптивное обучение, автоматическая проверка, языковая компетенция, культурный контекст, цифровая компетентность, образовательные технологии.

USE OF ARTIFICIAL INTELLIGENCE TECHNOLOGIES IN TEACHING THE RUSSIAN LANGUAGE IN HIGHER EDUCATION INSTITUTIONS: PROBLEMS AND SOLUTIONS

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Abstract: This article examines the opportunities and challenges of using artificial intelligence (AI) technologies in teaching Russian as a foreign language in higher education. It analyzes the main areas of application of AI tools, their pedagogical potential and methodological limitations, including issues related to cultural context and teacher digital competence. Practical solutions are proposed based on a blended learning model and the careful integration of technologies into the educational process. **Keywords:** artificial intelligence, teaching Russian, higher education, digital pedagogy, adaptive learning, automated assessment, language competence, cultural context, digital competence, educational