

COMPUTER-ASSISTED LANGUAGE LEARNING (CALL) IN MEDICAL EDUCATION

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*Dedicated to the cherished memory
of Professor Mikhail Davidovich Amirkhanyan*

This article, "*Computer-Assisted Language Learning (CALL) in Medical Education*," honors the memory of Professor Mikhail Davidovich Amirkhanyan and examines the transformative role of CALL in modern medical education. It presents CALL as more than a teaching aid—rather, a dynamic and adaptive approach that integrates digital tools, artificial intelligence, and multimedia to foster professional fluency in foreign languages. Focusing on tailored strategies such as specialized vocabulary modules, real-time communication practice, and mobile learning applications, the study highlights how CALL enhances both linguistic competence and cultural sensitivity. It also addresses key challenges in implementation and offers practical solutions to support its integration into medical curricula. The article concludes that CALL is not merely a pedagogical innovation but a necessary instrument in preparing globally competent healthcare professionals for the demands of contemporary clinical practice.

Key words: *training, implementation, method, computer, platform, methodology.*

Introduction

In the ever-evolving domain of medical education, the integration of technology has emerged as a crucial component in facilitating effective learning experiences. As educational paradigms shift to accommodate advancements in digital tools, one area that has gained increasing prominence is Computer-Assisted Language Learning (CALL). This approach plays a fundamental role in enhancing foreign language proficiency of medical students, equipping them with the essential communication skills required for their professional success. Given the critical nature of doctor-patient interactions, interdisciplinary collaboration, and the necessity of clear and precise communication in medical settings, mastering foreign languages is indispensable for aspiring healthcare professionals. [[Cambridge University Press, *Handbook for English Language Laboratories*, page 5](#)]

This article delves into the various strategies and methodologies involved in implementing CALL within medical universities, underscoring its significance in fostering linguistic competence among students. CALL extends beyond a mere pedagogical approach; it represents a dynamic and technology-driven method that systematically presents, reinforces, and evaluates language learning materials. By leveraging multimedia resources, interactive simulations, virtual classrooms, and AI-powered language tools, CALL cultivates an engaging and immersive learning environment. It enables students to not only refine their language skills but also to develop the ability to communicate effectively with patients, colleagues, and medical professionals across diverse contexts.

One of the primary advantages of CALL is its ability to create interactive and adaptive learning experiences. Through the integration of advanced software applications, virtual language labs, and digital assessments, students can engage with the content in a manner that is both structured and flexible. These technological interventions encourage active participation, self-paced learning, and immediate feedback, all of which are essential for language acquisition. Moreover, CALL facilitates teacher-

student and peer-to-peer interactions by providing platforms for collaborative learning, discussion forums, and real-time communication, thereby reinforcing the practical application of foreign languages.

Furthermore, CALL harnesses the power of artificial intelligence and machine learning to personalize language instruction based on the learner's proficiency level and individual learning needs. By incorporating speech recognition software, grammar analysis tools, and automated assessments, CALL offers medical students a tailored learning experience that adapts to their progress. This individualized approach ensures that learners receive targeted support in areas that require improvement, ultimately enhancing their overall language proficiency.

As medical education continues to embrace digital transformation, CALL emerges as an indispensable tool for refining the linguistic capabilities of future healthcare professionals. By integrating technology into medical English education, universities can bridge language gaps, promote cross-cultural communication, and prepare students for the globalized healthcare landscape. The utilization of CALL not only enhances language skills but also empowers medical students to navigate their professional responsibilities with confidence and competence. Thus, the incorporation of CALL into medical curricula is not merely an enhancement—it is a necessity in shaping proficient and effective healthcare practitioners of the future.

Overview of Computer-Assisted Language Learning (CALL)

Computer-Assisted Language Learning (CALL) refers to the use of computer technology to facilitate language learning and teaching. [Cambridge University Press, *Handbook for English Language Laboratories*, page 7.] It encompasses a broad range of digital tools and applications designed to enhance language acquisition through interactive and adaptive learning experiences. CALL has gained prominence as an effective approach in various educational settings, particularly in specialized fields. In this context, CALL serves as a powerful resource for

improving communication skills essential for healthcare professionals. It plays a critical role in refining proficiency in patient-doctor interactions, medical documentation, and academic discourse, thereby ensuring better communication in clinical settings.

CALL is not merely an auxiliary supplement to traditional pedagogical methods; rather, it is a transformative force that redefines how learners engage with language education. By integrating digital resources, artificial intelligence, and interactive platforms, CALL creates an engaging, flexible, and learner-centered environment. This innovative approach enhances the ability of medical professionals to acquire and refine their linguistic competencies, thereby improving their overall effectiveness in patient care and professional communication.

One of the significant advantages of CALL is its adaptability to individual learning needs. It allows learners to progress at their own pace, catering to diverse learning styles and proficiency levels. The use of technology in CALL spans various stages of the learning process, including the presentation of new material, the creation of visual aids such as mind maps, structured practice exercises, and immediate feedback mechanisms. These features ensure a comprehensive and interactive learning experience, making language acquisition more efficient and accessible.

Moreover, CALL incorporates various technological tools such as multimedia applications, virtual simulations, speech recognition software, and online collaboration platforms. These technologies provide learners with realistic and immersive language experiences that are particularly beneficial for medical professionals who require precise and contextually appropriate communication skills. Through simulated patient interactions, case-based learning modules, and digital assessments, CALL facilitates the practical application of language skills in real-world medical scenarios.

Additionally, CALL supports a variety of learning methodologies, including blended learning, mobile-assisted language learning (MALL), and gamification. These approaches further enhance learner engagement and motivation, ensuring sustained progress in language proficiency. The integration of CALL into medical English training programs helps bridge

linguistic gaps, fosters cultural competence, and ultimately contributes to better patient outcomes and professional development.

Customization of CALL for Medical English Education

Teaching foreign languages can greatly benefit from innovative approaches within the realm of Computer-Assisted Language Learning (CALL). By leveraging technological advancements, CALL facilitates an engaging, flexible, and effective language learning environment tailored specifically for healthcare professionals. [Cambridge University Press, *Handbook for English Language Laboratories*, page 12.]

Below are some key strategies for customizing CALL to enhance foreign language education:

a. Multimodal Resources Integrating a variety of media, such as audio recordings, video demonstrations, and interactive visuals, enhances the learning experience by engaging multiple senses. Medical students can improve their comprehension and pronunciation skills by listening to authentic medical conversations, watching procedural videos, and interacting with multimedia simulations. These resources provide exposure to real-world medical scenarios, reinforcing language acquisition through contextually relevant content.

b. Specialized Vocabulary Modules Developing CALL modules that focus on specialized medical vocabulary ensures that learners acquire the precise terminology required for their specific roles within the healthcare system. These modules can be tailored for different professions, including nurses, physicians, pharmacists, and medical researchers. Incorporating interactive vocabulary-building exercises, flashcards, and pronunciation guides helps learners master essential medical terms effectively.

c. Real-Time Communication Practice Utilizing platforms that enable real-time communication, such as video conferencing and virtual simulations, facilitates interactive role-playing scenarios. Students can engage in simulated patient consultations, medical discussions, and interdisciplinary team meetings. These live practice sessions help improve

fluency, enhance diagnostic communication, and build confidence in professional interactions.

d. Language for Cultural Competence Medical professionals often interact with patients from diverse cultural backgrounds. Including CALL modules that address culturally sensitive communication strategies enables learners to develop cultural competence in healthcare settings. These modules may include simulated patient interactions, case studies on cross-cultural communication, and language training specific to handling diverse patient populations.

e. Digital Language Portfolios Implementing digital language portfolios provides students with a structured way to document and track their language-learning progress over time. These portfolios can include written reflections, recorded speaking exercises, vocabulary lists, and assessments. Instructors can use this tool to evaluate proficiency progression and provide personalized feedback, while students gain a clear understanding of their strengths and areas for improvement.

f. Interactive Case Studies Developing interactive case studies enhances students' ability to comprehend and analyze medical cases in a foreign language. These case studies require learners to read patient histories, interpret diagnostic reports, and discuss treatment options using appropriate medical terminology. This method reinforces critical thinking, analytical skills, and language proficiency within a medical context.

g. Professional Communication Skills Designing CALL modules that focus on professional communication skills ensures that healthcare professionals can effectively interact within their workplace. These modules can cover writing medical emails, drafting patient reports, documenting case notes, and participating in professional meetings. By improving written and verbal communication skills, medical professionals can enhance collaboration and efficiency in clinical settings.

h. Mobile Learning Applications The development of mobile-friendly CALL applications allows students to engage in language learning anytime, anywhere. These applications can include quick exercises, flashcards, interactive quizzes, and gamified language challenges to make learning convenient and engaging. Mobile-assisted language learning

(MALL) provides flexibility, enabling busy healthcare professionals to reinforce their foreign language skills on the go.

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Challenges in Integrating CALL into Foreign Language Education

Despite the clear benefits of CALL in medical English training, several challenges need to be addressed: [Cambridge University Press, *Handbook for English Language Laboratories*, page 15.]

- **Limited Access to Resources:** Not all medical schools or institutions have the infrastructure necessary for integrating CALL tools. Some schools may face challenges in providing sufficient hardware (computers, tablets, etc.), software (CALL programs), and reliable internet access for students and teachers.
- **Lack of Training:** Many medical instructors may not be trained to effectively use CALL technologies. For optimal results, faculty need professional development to incorporate these tools into their teaching practices. Medical students also require instruction on how to use these tools for enhancing their English proficiency in medical contexts, which includes terminology and patient communication.
- **Assessing Effectiveness:** Institutions need to regularly assess the effectiveness of CALL tools in enhancing a foreign language proficiency. Research should focus on how well these tools improve specific language skills, such as writing medical reports, delivering patient education, or conducting consultations.
- **Customization for Specific Needs:** Medical students have unique needs when it comes to language learning. CALL systems must be tailored to address specialized medical vocabulary, ethical language use, patient interaction, and cultural sensitivity. Customization ensures that the learning experience remains relevant and impactful.

Strategies for Overcoming Challenges

To overcome technological barriers, medical institutions need to invest in both infrastructure and the development of a long-term CALL strategy. This includes:

- **Hardware and Software:** Schools should secure reliable technology such as computers, tablets, and advanced CALL software, which is specifically designed for a foreign language teaching.

- **Regular Maintenance and Updates:** Institutions must ensure that software is regularly updated to reflect the latest medical research and terminology.
- **Faculty Training Programs:** Teachers should receive training not only in using CALL tools but also in understanding the best practices for blending technology with traditional teaching methods, ensuring a seamless integration of digital tools into their curriculum.

Conclusion

In conclusion, Computer-Assisted Language Learning represents a paradigm shift in language education, particularly in specialized fields such as medical English. By leveraging technological advancements, CALL provides a dynamic and effective platform for language acquisition, enabling healthcare professionals to communicate with accuracy, clarity, and confidence. As technology continues to evolve, CALL will remain at the forefront of language education, continuously adapting to meet the needs of learners in an increasingly digital and globalized world.

By customizing CALL for a foreign language teaching, educators can create highly effective, engaging, and accessible learning experiences tailored to the unique needs of healthcare professionals. The integration of multimodal resources, real-time communication practice, specialized vocabulary training, and mobile learning tools ensures a comprehensive approach to language acquisition. As CALL continues to evolve with advancements in artificial intelligence and interactive technology, its role in foreign language education will become increasingly indispensable, fostering better communication skills among healthcare providers and improving patient outcomes.

Computer-Assisted Language Learning represents a paradigm shift in language education, particularly in specialized fields such as foreign languages. By leveraging technological advancements, CALL provides a dynamic and effective platform for language acquisition, enabling healthcare professionals to communicate with accuracy, clarity, and confidence. The application of CALL in foreign language instruction is particularly significant as it not only enhances linguistic proficiency but also improves the ability of healthcare workers to navigate complex

patient interactions, medical documentation, and interdisciplinary communication. With the continuous evolution of technology, CALL remains at the forefront of language education, integrating adaptive learning technologies, artificial intelligence, and immersive virtual environments to meet the growing linguistic demands of the medical field. As English remains the dominant language in global medicine, the role of CALL in medical education will expand further, ensuring that future healthcare professionals acquire the necessary language skills for effective patient care, academic research, and professional collaboration. Incorporating **Computer-Assisted Language Learning (CALL)** into **Foreign language education** offers significant potential to enhance language proficiency and communication skills crucial for future healthcare professionals. Automated tools provide immediate, dynamic feedback that fosters independent learning, while teacher-mediated guidance ensures personalized, context-sensitive instruction, bridging the gap between technology and human expertise. However, challenges such as technological barriers, the need for content updates, and continuous evaluation must be addressed to maximize the effectiveness of these tools in medical contexts.

By investing in infrastructure, providing adequate training for both students and faculty, and ensuring that CALL systems are regularly updated to reflect medical advancements, institutions can create an enriching learning environment. Ongoing research and feedback will further refine these systems, ensuring that medical students develop the communication skills necessary to excel in their clinical practice.

The future of CALL in medical education holds great promise, as long as these challenges are met with a strategic, thoughtful approach that balances technology and pedagogy. In doing so, medical schools can prepare students not only to be experts in their fields but also to communicate effectively and empathetically in the complex and evolving world of healthcare.

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**ՕՏԱՐ ԼԵԶՎԻ ՈՒՍՈՒՑՄԱՆ ՀԱՄԱԿԱՐԳՉԱՅԻՆ
ՏԵԽՆՈԼՈԳԻԱՆԵՐԸ (CALL) ԲԺՇԿԱԿԱՆ ԿՐԹԱԿԱՆ
ՀԱՄԱԿԱՐԳՈՒՄ**

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Մխիթար Հերացու անվան ԵՊԲՀ

Մույն հոդվածը՝ «Օտար լեզվի ուսուցման համակարգչային տեխնոլոգիաները (CALL) բժշկական կրթական համակարգում» նվիրված է պրոֆեսոր Մխիթայի Դավթի Ամիրխանյանի հիշատակին: Ներկայացվում է CALL-ի դերը որպես նորարարական կրթական մոտեցում՝ ուղղված օտար լեզվի արդյունավետ տիրապետմանը մասնագիտական միջավայրում: CALL-ը դիտարկվում է ոչ թե որպես սովորական ուսուցողական գործիք, այլ՝ որպես ինտեգրացված, տեխնոլոգիապես հագեցած մեթոդաբանական համակարգ, որն ապահովում է բազմաչափ ուսուցում՝ համադրելով թվային հարթակներ, արհեստական բանականություն և բազմամեդիա լուծումներ:

Հոդվածում անդրադարձ է կատարվում CALL-ի կիրառման նպատակային ռազմավարություններին, ներառյալ՝ բժշկական տերմինաբանության դասընթացային մոդուլների մշակում, համաժամանակյա հաղորդակցման պրակտիկայի ներդրում և շարժական տեխնոլոգիաների վրա հիմնված ուսուցման գործիքների կիրառում: Վերլուծվում են նաև տեխնոլոգիայի ինտեգրման ընթացքում ի հայտ եկող հիմնական մարտահրավերները և առաջարկվում են կիրառական լուծումներ՝ բժշկական կրթական ծրագրերում դրա արդյունավետ ներդրումն ապահովելու նպատակով: Եզրակացվում է, որ CALL-ը չի հանդիսանում զուտ մանկավարժական նորամուծություն, այլ՝ անխուսափելի գործիք

աշխարհաքաղաքական և միջմշակութային համատեքստում աշխատող ժամանակակից բժիշկների լեզվական և մասնագիտական կոմպետենտության բարձրացման համար:

Բանալի բառեր՝ լեզվային ուսուցում, համակարգչային տեխնոլոգիա, բժշկական կրթություն, CALL, մեթոդաբանություն, թվային հարթակ, մասնագիտական հաղորդակցություն:

ОБУЧЕНИЕ ИНОСТРАННЫМ ЯЗЫКАМ С ИСПОЛЬЗОВАНИЕМ КОМПЬЮТЕРНЫХ ТЕХНОЛОГИЙ (CALL) В СИСТЕМЕ МЕДИЦИНСКОГО ОБРАЗОВАНИЯ

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Настоящая статья «Обучение иностранному языку с использованием компьютерных технологий (CALL) в системе медицинского образования» посвящена памяти профессора Михаила Давидовича Амирханяна. Раскрывается значение CALL как инновационного подхода к обучению, направленного на эффективное овладение иностранным языком в профессиональной среде. CALL рассматривается не как обычный учебный инструмент, а как интегрированная, технологически оснащённая методологическая система, обеспечивающая многомерное обучение посредством цифровых платформ, искусственного интеллекта и мультимедийных решений. В статье рассматриваются целенаправленные стратегии применения CALL, включая разработку модулей медицинской терминологии, внедрение практики синхронной коммуникации и использование обучающих средств на базе мобильных технологий. Также анализируются ключевые вызовы, возникающие при интеграции технологий, и предлагаются практические решения, способствующие эффективному включению CALL в программы медицинского образования. Делается вывод, что

CALL является не просто педагогической инновацией, а необходимым инструментом для повышения языковой и профессиональной компетентности современных врачей, работающих в глобальном и межкультурном контексте.

Ключевые слова: языковое обучение, компьютерные технологии, медицинское образование, CALL, методология, цифровая платформа, профессиональная коммуникация.

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