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THE IMPACT OF MOBILE-ASSISTED LANGUAGE LEARNING (MALL) ON MEDICAL VOCABULARY DEVELOPMENT: AN EMPIRICAL STUDY AT MEDICAL UNIVERSITY

Annotation

This study explores how first-year medical students develop medical vocabulary through Mobile-Assisted Language Learning (MALL). It compares mobile tools such as Quizlet, Anki, and Kahoot with traditional methods to evaluate their effects on vocabulary retention, motivation, and engagement. Using a mixed-method design with tests, surveys, and interviews, the study found that students using mobile apps were more motivated, independent, and achieved higher scores. The findings suggest that MALL enhances interaction, autonomy, and long-term vocabulary retention, supporting English for Specific Purposes (ESP) instruction and offering directions for future digital learning research.

Key words: Mobile-Assisted Language Learning (MALL), Medical English, ESP, Vocabulary Development, Technology Integration.

ВЛИЯНИЕ МОБИЛЬНОГО ОБУЧЕНИЯ ЯЗЫКАМ (MALL) НА РАЗВИТИЕ МЕДИЦИНСКОЙ ЛЕКСИКИ: ЭМПИРИЧЕСКОЕ ИССЛЕДОВАНИЕ В МЕДИЦИНСКОМ УНИВЕРСИТЕТЕ

Аннотация

В данном исследовании рассматривается, как студенты первого курса медицинского университета развивают медицинскую лексику с использованием мобильного обучения (Mobile-Assisted Language Learning — MALL). Основная цель заключалась в сравнении мобильных технологий, таких как Quizlet, Anki и Kahoot, с традиционными методами обучения, чтобы определить их влияние на запоминание слов, мотивацию и вовлечённость студентов. Исследование использовало смешанную методику, включающую тесты до и после эксперимента, опросы и полуструктурированные интервью.В экспериментальной группе обучение проводилось с помощью мобильных приложений, а в контрольной — по учебникам. Результаты показали, что студенты, использовавшие мобильные технологии, были более мотивированы, самостоятельны и показали более высокие результаты. Исследование подтверждает, что MALL способствует взаимодействию, автономии и долговременному усвоению словарного запаса, поддерживая обучение в рамках English for Specific Purposes (ESP). В заключении приводятся предложения по дальнейшим исследованиям и интеграции мобильных инструментов в курсы медицинского английского языка.

Ключевые слова: Мобильное обучение (MALL), медицинский английский, ESP, развитие словарного запаса, интеграция технологий.

MOBIL QURILMA YORDAMIDA TIL O‘RGANISH (MALL)NING TIBBIY LUG‘AT BOYLIGINI RIVOJLANTIRISHGA TA’SIRI: TIBBIYOT UNIVERSITETIDA OLIB BORILGAN EMPIRIK TADQIQOT

Annotatsiya

Ushbu tadqiqot tibbiyot universitetining birinchi bosqich talabalari mobil yordamli til o‘rganish (Mobile-Assisted Language Learning — MALL) orqali tibbiy lug‘atni qanday rivojlantirishlarini o‘rganadi. Tadqiqotning asosiy maqsadi — Quizlet, Anki va Kahoot kabi mobil texnologiyalarni an’anaviy usullar bilan solishtirib, ularning so‘zlarni yodda saqlash, motivatsiya va talabalarning faolligiga ta’sirini aniqlashdir. Tadqiqot aralash uslubda olib borilib, old va keyingi testlar, so‘rovnomalar hamda yarim tuzilgan intervyularni o‘z ichiga olgan. Eksperimental guruhda o‘qitish mobil ilovalar yordamida, nazorat guruhida esa darslik asosida olib borilgan. Natijalar shuni ko‘rsatdiki, mobil texnologiyalar bilan o‘qigan talabalar yanada motivatsiyalangan, mustaqil va yuqori natijalarga erishgan. Tadqiqot natijalariga ko‘ra, MALL tizimi o‘zaro muloqotni, mustaqillikni va so‘z boyligini uzoq muddatga mustahkamlashni qo‘llab-quvvatlaydi hamda English for Specific Purposes (ESP) darslariga samarali ta’sir ko‘rsatadi. Maqola yakunida raqamli ta’lim bo‘yicha kelajak tadqiqotlar va tibbiy ingliz tili dasturlariga mobil vositalarni joriy etish bo‘yicha tavsiyalar berilgan.

Kalit so‘zlar: Mobil yordamli til o‘rganish (MALL), tibbiy ingliz tili, ESP, lug‘at boyligini rivojlantirish, texnologiyani integratsiya qilish.

Introduction. The integration of digital tools has transformed language teaching, making learning more flexible and interactive. Mobile-Assisted Language Learning (MALL) allows students to study anytime and anywhere, promoting autonomy and personalized learning (Kukulska-Hulme & Shield, 2008).For English for Specific Purposes (ESP) learners, especially in medicine, mastering specialized vocabulary is essential for understanding lectures and clinical communication. Traditional methods like memorization and translation often fail to ensure long-term retention.

Mobile applications such as Quizlet, Anki, and Kahoot make vocabulary learning more engaging through digital flashcards, pronunciation practice, and interactive quizzes.

These tools enable self-paced study, instant feedback, and motivation through gamified learning.

This study explores how MALL influences first-year medical students' vocabulary development. It aims to answer two questions:

1.Does MALL improve vocabulary learning more effectively than traditional methods?

2.How do students perceive using mobile apps for medical English?

The study is relevant to Uzbek medical education, where digital learning is still developing but English proficiency is increasingly important. Combining traditional and mobile-based approaches can help ESP teachers design more effective and engaging vocabulary lessons.

Literature Review. Over the past two decades, Mobile-Assisted Language Learning (MALL) has become a major focus of educational research. It combines technology that boosts motivation and interaction with theories like constructivism and self-directed learning. Studies show that mobile-based vocabulary learning outperforms traditional paper methods (Stockwell, 2010).

Because mobile devices are portable, students can learn anywhere, promoting spaced repetition and long-term retention (Godwin-Jones, 2017; Burston, 2015). Research in ESP contexts shows similar benefits: science and medical students using mobile tools achieved better vocabulary and confidence (Sandberg et al., 2011; Lin & Lin, 2019; Dashtestani, 2016).

Medical English requires understanding complex Greek- and Latin-based terms. Mobile apps help with pronunciation, repetition, and comprehension, supporting CLIL and blended learning principles (Coyle et al., 2010).

However, challenges include limited internet access, distractions, and lack of teacher guidance (Wu, 2019). Effective MALL integration thus depends on institutional support and teacher preparation. This study adds new insights by examining its motivational and vocabulary effects among Uzbek first-year medical students.

Therefore, successful MALL integration requires institutional support, teacher training, and awareness of possible challenges. Focusing on Uzbek first-year medical students, this study contributes new insights by examining both motivational and vocabulary development effects of mobile learning in medical English.

Methodology. Using a quasi-experimental mixed-method design, the study looked at both qualitative factors including student attitudes and experiences as well as quantitative vocabulary gains. Students were divided into two groups: the experimental group, which employed mobile tools, and the control group, which used conventional materials.

The study involved 60 first-year Medical University students from the Faculty of Medicine. The participants ranged in age from 18 to 20. The CEFR scale placed their English proficiency between A2 and B1. Both groups shared comparable academic backgrounds and were equally represented by gender.

Pre- and post-tests, surveys with interviews, and smartphone apps (Quizlet, Anki, and Kahoot) were among the tools used. There were 40 multiple-choice questions on medical terminology in each test. Three 60-minute sessions each week were held during the eight-week intervention.

To find significant variations between pre- and post-test scores, paired sample t-tests were used to assess the quantitative data from the tests. Thematic analysis of qualitative interview data revealed recurring themes including involvement, motivation, and convenience.

Results. Significant disparities between the two groups were seen in the pre-test and post-test outcomes.

Group | Means for the Pre- and Post-tests | Improvement | p-value

Control | 20.9 | 28.4 | +7.5 | <.01

Experimental | 21.3 | 34.8 | +13.5 | <.01

When compared to the control group, the experimental group had a noticeably higher improvement. At the 0.01 level, the difference between the groups was statistically significant, suggesting that MALL improved vocabulary acquisition.

According to interviewees, the majority of kids said mobile learning was inspiring and fun. A number of students reported that «Kahoot helped me compete and learn faster» and «Quizlet made it easier to remember medical words.» The ability to study at any time without carrying notebooks was valued by the students.

The pre-test and post-test results revealed notable differences between the two groups.

Group	Pre-test Mean	Post-test Mean	Improvement	p-value
Experimental	21.3	34.8	+13.5	< .01
Control	20.9	28.4	+7.5	< .01

The experimental group showed a significantly greater improvement compared to the control group. The difference between groups was statistically significant at the 0.01 level, indicating that MALL had a positive effect on vocabulary development.

Interview responses showed that most students found mobile learning enjoyable and motivating. Several students mentioned that “Quizlet made it easier to remember medical words” and “Kahoot helped me compete and learn faster.” Students appreciated being able to study anytime without needing to carry notebooks.

Discussion. The findings demonstrate that MALL can greatly enhance medical students' language acquisition. The results corroborate earlier studies by Burston (2015), Lin & Lin (2019), and Stockwell (2010), who also discovered that mobile tools increase motivation and vocabulary retention.

The effectiveness of MALL in this study could be attributed to a number of elements, including gamification, learner autonomy, multimodal learning, and spaced repetition. These components improved retention and engagement, fostering a supportive learning environment.

MALL promotes learner-centered instruction from a pedagogical standpoint, which is consistent with constructivist and self-determination theories. It motivates students to actively participate in their education and make connections between new words and situations in everyday life.

However, drawbacks include the requirement for teacher training, internet problems, and unequal access to devices. To guarantee successful implementation, institutions must to offer instructions and technical assistance.

Conclusion. According to the study's findings, ESP students can improve their acquisition of medical vocabulary by using Mobile-Assisted Language Learning (MALL). It improves motivation, autonomy, and engagement in addition to retention. Quizlet, Anki, and Kahoot are examples of mobile technologies that can make traditional learning more engaging and fun. The results imply that teachers can close the gap between conventional approaches and contemporary digital activities by including MALL into ESP and CLIL classes. To optimize learning outcomes, educators are urged to integrate mobile applications with in-person activities. Training teachers, incorporating mobile learning into curricula, and creating locally relevant digital resources are

among the recommendations. Larger sample sizes and AI-based mobile learning tools may be investigated in future studies.

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