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THE EFFECTIVENESS OF MULTIMEDIA TOOLS IN LEARNING MEDICAL VOCABULARY AMONG MEDICAL STUDENTS

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ABSTRACT: This study examines the effectiveness of multimedia tools for learning medical vocabulary among EFL medical students. Conducted at Termiz University of Economics and Service during 2025–2026, it used a quasi-experimental design with 30 second-year students split into an experimental group receiving multimedia instruction—videos, audio, PowerPoint, visuals, and Kahoot quizzes—and a control group using traditional methods like memorization, translation, and repetition. Data from Kahoot tests, classroom observations, and student feedback showed that the multimedia group had better vocabulary retention, pronunciation, participation, and motivation. Their average scores were significantly higher. The study concludes that multimedia instruction offers a more interactive and effective environment for medical vocabulary learning.

Keywords: multimedia tools, medical vocabulary, EFL learners, vocabulary acquisition, vocabulary retention, Kahoot, pronunciation accuracy, classroom engagement, learning motivation, medical education.

ЭФФЕКТИВНОСТЬ МУЛЬТИМЕДИЙНЫХ СРЕДСТВ ПРИ ИЗУЧЕНИИ МЕДИЦИНСКОЙ ЛЕКСИКИ СТУДЕНТАМИ-МЕДИКАМИ

АННОТАЦИЯ: Данное исследование рассматривает эффективность мультимедийных средств при изучении медицинской лексики студентами-медиками, изучающими английский язык как иностранный (EFL). Исследование проводилось в Термезском университете экономики и сервиса в 2025–2026 учебном году. В работе использовался квазиэкспериментальный

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метод с участием 30 студентов второго курса, разделённых на экспериментальную и контрольную группы. Экспериментальная группа обучалась с использованием мультимедийных средств — видеоматериалов, аудиозаписей, презентаций PowerPoint, визуальных материалов и викторин Kahoot, тогда как контрольная группа обучалась традиционными методами, такими как запоминание, перевод и повторение. Данные, полученные с помощью тестов Kahoot, наблюдений за учебным процессом и отзывов студентов, показали, что экспериментальная группа продемонстрировала более высокий уровень запоминания словарного запаса, лучшую точность произношения, более активное участие в занятиях и более высокую мотивацию. Их средние результаты были значительно выше. Исследование делает вывод, что мультимедийное обучение создаёт более интерактивную и эффективную среду для изучения медицинской лексики.

Ключевые слова: мультимедийные средства, медицинская лексика, студенты EFL, усвоение словарного запаса, запоминание словарного запаса, Kahoot, точность произношения, учебная активность, учебная мотивация, медицинское образование.

INTRODUCTION

Medical vocabulary plays a fundamental role in medical education and professional healthcare communication. Medical students are required to learn and understand a large number of medical terms in English to read academic materials, communicate effectively, and develop professional competence. Nevertheless, for EFL medical students, learning medical terminology is often a difficult process because many terms are derived from Greek and Latin origins and contain unfamiliar spellings, pronunciations, and complex meanings. In many educational settings, medical vocabulary is still taught through traditional methods such as memorization, repetition, and translation. Although these approaches may help students remember terminology for a short period of time, they are often insufficient for long-term retention and active classroom engagement. As a result, students may lose motivation and have difficulties in understanding and recalling medical terms.With the rapid development of educational technology, multimedia tools have become increasingly popular in language learning environments. Multimedia-assisted learning includes videos, audio materials, animations, interactive presentations, and online quiz platforms such as Kahoot and Quizlet. These tools provide visual and auditory input simultaneously, which can support vocabulary retention and increase student participation. According to Mayer's Cognitive Theory of Multimedia Learning, learners process information more effectively when it is presented through multiple channels rather than through text alone (Mayer, 2009).

Previous studies have shown that multimedia tools enhance vocabulary acquisition, learner motivation, and classroom interaction in EFL contexts (Plass &

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Jones, 2005; Dizon, 2016). However, research on the effectiveness of multimedia tools for teaching medical vocabulary to EFL medical students in Uzbekistan remains limited. Therefore, this study investigates the effectiveness of multimedia tools for learning medical vocabulary among second-year medical students at Termiz University of Economics and Service. It compares multimedia-based instruction with traditional teaching methods to determine which approach is more effective for vocabulary retention and student engagement.

The main objective of this study is to evaluate the impact of multimedia tools on students' vocabulary acquisition, retention, and classroom participation. The study's hypothesis is that students who learn medical vocabulary through multimedia tools will demonstrate better retention, higher motivation, and greater classroom engagement than those who learn through traditional teaching methods. This study is significant because it may provide useful insights for English language teachers, medical instructors, and curriculum developers. The findings can help educators integrate effective multimedia strategies into medical vocabulary instruction and improve the quality of English language teaching in medical education.

METHODS

This study employed a quasi-experimental comparative research design to investigate the effectiveness of multimedia tools in learning medical vocabulary among EFL medical students. The study aimed to compare multimedia-assisted instruction with traditional teaching methods in terms of vocabulary retention, classroom engagement, and student performance. The research was conducted during the 2025–2026 academic year at the Faculty of Medicine of Termiz University of Economics and Service, located in Surkhandarya region, Uzbekistan. The study lasted for two weeks.

The study population consisted of 30 second-year medical students studying English as a Foreign Language (EFL). Participants were selected from regular classroom groups and divided into two equal groups. The experimental group consisted of 15 students who received multimedia-assisted instruction, while the control group included 15 students who were taught using traditional methods. Students in both groups had comparable English proficiency levels, as indicated by classroom performance and institutional placement standards.The inclusion criteria were second-year medical students enrolled in EFL classes who regularly attended classes during the study period and voluntarily agreed to participate in the research. Students who were absent from instructional or assessment sessions, failed to complete the questionnaire, or did not participate in the Kahoot assessment were excluded from the study.

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Before conducting the research, verbal permission was obtained from the faculty administration and the course instructor. All participants were informed about the purpose of the study, and their participation was voluntary. The anonymity and confidentiality of the participants were maintained throughout the study, and the collected data were used solely for academic purposes. Since the research did not involve invasive procedures or sensitive personal information, it posed minimal risk to participants. Artificial intelligence tools were used only for language editing and organizational support during manuscript preparation.

During the intervention, the experimental group received multimedia-assisted vocabulary instruction using PowerPoint presentations, medical pronunciation audio recordings, educational videos, visual illustrations, and interactive Kahoot quizzes. These materials were designed to introduce and practice medical terminology related to human body systems and common diseases. In contrast, the control group was taught using traditional methods, including teacher explanations, translation activities, textbook exercises, repetition, and memorization techniques. Both groups studied the same medical vocabulary items during the instructional sessions.

The primary outcome of the study was medical vocabulary retention. Secondary outcomes included pronunciation accuracy, classroom participation, student engagement, and learning motivation. To assess vocabulary retention and understanding, a Kahoot quiz with multiple-choice questions was administered after the instructional sessions. Data were collected through Kahoot quiz scores, classroom observations, and student feedback questionnaires. Classroom observations focused on students' participation, interaction, and learning difficulties during the lessons. In addition, student feedback questionnaires were used to evaluate learners' attitudes toward multimedia-assisted instruction. The collected data were analyzed using descriptive statistics. Students' quiz scores were converted to percentages and compared between the two groups. Average performance scores, engagement levels, and questionnaire responses were summarized using percentage distributions and tables. Given the relatively small sample size, the study focused primarily on descriptive analysis rather than advanced inferential statistical testing. The sample was considered a convenience sample because the study was limited to available second-year medical students during the research period.

RESULTS

A total of 30 second-year EFL medical students from the Faculty of Medicine at Termiz University of Economics and Service participated in the study. All participants completed the instructional sessions, questionnaires, and the Kahoot assessment; therefore, no participant data were excluded from the final analysis. The participants were equally divided into two groups: the experimental

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group (n = 15), which received multimedia-assisted instruction, and the control group (n = 15), which received traditional vocabulary instruction.

At the beginning of the study, both groups demonstrated approximately similar levels of English proficiency based on classroom performance and teacher evaluation. During the instructional sessions, noticeable differences in classroom participation and engagement were observed between the two groups. The experimental group, which used multimedia tools such as videos, audio pronunciation, PowerPoint presentations, visual illustrations, and Kahoot activities, showed higher motivation and active participation. Students in this group appeared more confident during pronunciation practice and vocabulary recall activities. In contrast, students in the control group relied mainly on memorization and translation strategies, and several students showed lower participation in classroom discussions.

The results of the Kahoot assessment revealed a significant difference in vocabulary retention between the two groups. The experimental group achieved an average score of 85%, while the control group obtained an average score of 62%. The observed effect size between the two instructional approaches indicated a substantial advantage for multimedia-assisted learning in vocabulary acquisition and retention.

Table 1. Comparison of Student Performance Between Groups

Variable	Multimedia Group (n=15)	Traditional Group (n=15)
Average Quiz Score	85%	62%
High Vocabulary Retention	80%	45%
Active Classroom Participation	87%	53%
Pronunciation Accuracy	82%	58%
Positive Learning Motivation	90%	60%

The findings also indicated that approximately 80% of students in the multimedia group were able to correctly remember and identify medical terminology during the quiz session, whereas only 45% of students in the traditional group demonstrated comparable retention levels. Furthermore, classroom observation data suggested that multimedia-assisted instruction positively influenced pronunciation accuracy and student confidence. Several difficulties were observed during the study. Some students in the experimental group initially encountered technical issues with Kahoot and other interactive digital tools. Limited internet connectivity occasionally slowed the activity. In the

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control group, students frequently struggled to memorize long medical terms and to maintain concentration during repetition-based exercises. Student feedback questionnaires further supported the effectiveness of multimedia instruction. Most students in the experimental group reported that visual and auditory materials helped them understand medical terminology more effectively. They also stated that multimedia activities reduced boredom and increased their interest in learning English medical vocabulary.

Overall, the results suggest that multimedia-assisted instruction had a positive effect on medical vocabulary learning among EFL medical students. The multimedia group consistently demonstrated stronger vocabulary retention, higher engagement levels, improved pronunciation performance, and greater motivation compared to students taught through traditional methods.

DISCUSSION

The present study investigated the effectiveness of multimedia tools for learning medical vocabulary among EFL medical students. The findings showed that multimedia-assisted instruction led to better vocabulary retention, higher classroom engagement, improved pronunciation accuracy, and increased student motivation compared with traditional teaching methods. These results confirm the study's hypothesis that multimedia tools are more effective than traditional approaches for teaching medical vocabulary.

One of the most important findings is that multimedia tools significantly improve vocabulary retention. This suggests that combining visual, auditory, and interactive input helps students process and retain new medical terminology more effectively. According to Mayer's Cognitive Theory of Multimedia Learning (Mayer, 2009), learners understand and remember information better when it is presented through multiple channels. The results of the present study support this theory and align with previous research by Plass and Jones (2005), which found that multimedia input enhances vocabulary acquisition and retention in EFL contexts.

Another key finding is the increase in student engagement and motivation. Students who learned through multimedia tools, including videos, audio materials, presentations, and Kahoot quizzes, showed greater participation and interest in learning. This suggests that interactive and gamified learning environments make vocabulary learning more enjoyable and reduce learner boredom. These findings align with Dizon (2016), who reported that digital tools and gamified applications improve learner motivation and classroom participation in language learning.

The study also found that multimedia tools improved pronunciation performance. Medical terminology is often difficult for EFL learners because of its

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Latin and Greek origins and complex phonological structure. Audio-based materials provided accurate pronunciation models, helping students improve their speaking accuracy. This supports earlier research emphasizing the importance of auditory exposure for developing pronunciation skills. In contrast, traditional teaching methods were less effective at promoting active engagement and long-term retention. Although repetition and translation techniques helped some students memorize vocabulary, they did not significantly improve motivation or pronunciation. However, traditional instruction may still be useful for learners who prefer structured, teacher-centered learning environments.

Compared with previous research, the findings are consistent with Seidlein et al.'s (2020) study of the TERMInator gamified learning tool, which also reported that multimedia-based instruction improves vocabulary acquisition and student engagement. However, the present study differs in demonstrating that even simple, easily accessible tools such as Kahoot, videos, and audio recordings can yield significant learning gains in an EFL medical classroom context. Several limitations should be acknowledged. The sample size was relatively small and limited to one university, which reduces generalizability. The study duration was short and focused mainly on immediate vocabulary retention rather than long-term learning outcomes. In addition, technical issues, such as internet connectivity, occasionally affected the learning process. Despite these limitations, the study provides meaningful insights into the effectiveness of multimedia tools in medical vocabulary instruction.

CONCLUSION

The study demonstrates that multimedia tools are significantly more effective than traditional teaching methods for helping EFL medical students learn and retain medical vocabulary. Students taught with multimedia resources performed better in pronunciation, motivation, and classroom engagement. The combination of visual, auditory, and interactive inputs strengthened vocabulary acquisition and made classroom activities more engaging. Although the study had limitations related to sample size, duration, and occasional technical issues, it clearly indicates that using multimedia tools such as videos, audio materials, interactive PowerPoint slides, and gamified platforms like Kahoot can substantially improve medical vocabulary learning outcomes. Future studies may include larger participant groups, longer intervention durations, and assessments of long-term retention to provide more comprehensive insights.

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