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DEVELOPING MEDICAL STUDENTS' PROFESSIONAL COMPETENCE THROUGH ENGLISH MEDICAL TEXTS VIA DIGITAL PLATFORMS

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Abstract
The integration of digital technologies into higher education has significantly transformed language learning, particularly in specialized fields such as medicine. This study explores the development of medical students' professional competence through English medical texts delivered via digital platforms. The research investigates how digital tools enhance reading comprehension, terminology acquisition, and professional communication skills. A mixed-method approach was employed, involving experimental and control groups of medical students. The findings demonstrate that digital platforms significantly improve students' engagement, comprehension, and ability to apply professional knowledge in real-life contexts. The study highlights the pedagogical potential of digital learning environments in English for Specific Purposes (ESP) instruction.

Keywords: Professional competence, medical English, digital platforms, ESP, reading skills, higher education.

Introduction

In the contemporary landscape of higher education, the increasing globalization of knowledge and the rapid advancement of information technologies have significantly reshaped the requirements for professional training, particularly in the field of medicine. Modern healthcare professionals are expected not only to possess strong clinical skills but also to engage with international scientific discourse, which is predominantly conducted in English. Consequently, proficiency in English – especially the ability to comprehend and interpret specialized medical texts – has become an essential component of medical students' professional competence.

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Professional competence in medical education is a multidimensional construct that encompasses not only subject-specific knowledge and practical skills but also communicative, analytical, and cognitive abilities required for effective decision-making in clinical contexts. Within this framework, reading competence in English plays a pivotal role, as it enables students to access up-to-date medical information, including research articles, systematic reviews, clinical protocols, and evidence-based guidelines [1]. The ability to critically analyze such materials contributes directly to the development of evidence-based medical practice.

Despite the recognized importance of English proficiency, traditional approaches to teaching medical English often remain limited in scope and effectiveness. These approaches tend to rely heavily on textbook-based instruction, simplified texts, and decontextualized vocabulary exercises, which do not adequately reflect the complexity of authentic medical discourse. As a result, students frequently encounter difficulties when dealing with real-life professional materials, such as clinical case reports or research publications.

In recent years, digital platforms have emerged as a transformative tool in language education, offering new opportunities for enhancing both linguistic and professional competencies. Digital learning environments – such as Learning Management Systems (LMS), online medical databases, interactive reading tools, and artificial intelligence-based applications – provide access to authentic resources, adaptive learning pathways, and interactive features that promote active engagement [2]. These platforms support the integration of language learning with professional content, which is a core principle of English for Specific Purposes (ESP) and content-based instruction.

Furthermore, digital platforms facilitate learner autonomy and personalized learning, allowing students to control the pace, depth, and focus of their learning process [3]. They also enable collaborative learning through discussion forums, peer interaction, and shared problem-solving tasks, which are essential for developing communicative competence in professional contexts. Importantly, the use of authentic medical texts within digital environments helps bridge the gap between academic learning and real-world professional practice.

However, despite the growing interest in digital education, there remains a need for systematic research on how digital platforms can be effectively utilized to develop medical students' professional competence through English-language materials. In

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particular, it is necessary to examine the pedagogical conditions under which digital tools can enhance reading comprehension, facilitate the acquisition of specialized terminology, and promote the application of knowledge in professional contexts.

Methods

This study employed a mixed-method research design that integrates both quantitative and qualitative approaches in order to obtain a comprehensive understanding of the effectiveness of digital platforms in developing medical students' professional competence through English medical texts [4]. The choice of a mixed-method design is обусловлено the need to combine measurable learning outcomes with in-depth insights into students' learning experiences, engagement, and perceptions [5]. Within this framework, an experimental approach was adopted to compare the outcomes of digital platform-based instruction with those of traditional teaching methods.

The research was conducted among 60 second-year students enrolled in a General Medicine program at a higher educational institution. The participants were selected based on their similar level of English language proficiency, which ranged between B1 and B2 according to the Common European Framework of Reference (CEFR). To ensure the reliability of the results, the students were randomly assigned to two groups: an experimental group (n = 30) and a control group (n = 30). Both groups were taught by the same instructor to minimize variability related to teaching style and instructional delivery [6].

The instructional intervention for the experimental group was carried out using a variety of digital platforms and tools designed to enhance both linguistic and professional competencies. These included Learning Management Systems (LMS) for organizing course materials and assignments, online medical databases providing access to authentic and up-to-date medical texts, interactive reading tools that support annotation and comprehension monitoring, and artificial intelligence-based vocabulary applications that facilitate the acquisition of specialized medical terminology. In contrast, the control group received instruction through conventional methods, relying primarily on printed textbooks, teacher-led explanations, and paper-based exercises.

The experimental procedure was conducted over a period of eight weeks and followed a structured sequence. At the initial stage, both groups were administered a pre-test aimed at assessing their baseline level of reading comprehension and medical

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vocabulary knowledge [7]. This was followed by the instructional phase, during which the experimental group engaged with authentic English medical texts in a digital environment. The materials used included clinical case reports, research abstracts, and medical guidelines, all of which reflect real-world professional discourse. Students were required to perform various tasks such as identifying key information, interpreting terminology in context, and discussing clinical implications [8]. Meanwhile, the control group worked with adapted texts and completed traditional comprehension and vocabulary exercises.

At the end of the intervention, a post-test was administered to both groups in order to evaluate the extent of progress achieved. The structure of the post-test was parallel to that of the pre-test, allowing for a direct comparison of results. In addition to testing, the study incorporated qualitative data collection methods to capture students' attitudes and experiences. These included structured questionnaires designed to assess motivation, perceived usefulness of instructional methods, and overall satisfaction, as well as classroom observations focusing on student engagement, interaction, and participation.

The collected data were analyzed using appropriate quantitative and qualitative techniques. Quantitative data obtained from pre- and post-tests were subjected to statistical analysis, including paired and independent sample t-tests, in order to determine the significance of differences between and within groups. Qualitative data from questionnaires and observations were analyzed through thematic analysis, allowing for the identification of recurring patterns and key themes related to the use of digital platforms in learning.

Overall, this methodological framework ensured a systematic and reliable investigation of the research problem, providing both empirical evidence and interpretive insights into the role of digital technologies in enhancing medical students' professional competence.

Results

The findings of the study demonstrate a statistically and pedagogically significant improvement in the performance of the experimental group compared to the control group, confirming the effectiveness of digital platform-based instruction in developing medical students' professional competence through English medical texts.

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The results are presented in terms of key indicators, including reading comprehension, terminology acquisition, student engagement, and statistical significance.

First, with regard to reading comprehension, the data indicate that students in the experimental group achieved substantially higher scores in the post-test compared to their initial performance and to that of the control group. The improvement was particularly evident in tasks requiring the interpretation of complex medical texts, such as clinical case reports and research abstracts. Students exposed to digital platforms demonstrated enhanced abilities to identify main ideas, infer meaning from context, and critically analyze professional content. In contrast, the control group showed only moderate improvement, primarily limited to surface-level understanding of texts [9].

Second, the analysis of terminology acquisition revealed that the experimental group outperformed the control group in both recognition and productive use of medical vocabulary. The integration of interactive tools and AI-assisted applications enabled students to encounter specialized terminology in multiple contexts, which facilitated deeper processing and long-term retention. Moreover, students in the experimental group were more successful in applying newly learned terms in context-based tasks, such as summarizing texts and discussing clinical scenarios. This suggests that digital platforms support not only memorization but also functional use of professional language.

Third, the findings related to student engagement highlight the motivational advantages of digital learning environments. The results of the questionnaire indicate that a substantial majority of students in the experimental group perceived digital platforms as more engaging and effective than traditional instructional methods. Specifically, 85% of participants reported increased engagement during lessons, 78% noted a significant improvement in their motivation to learn, and 82% expressed a clear preference for digital learning over conventional approaches. Classroom observations further supported these findings, revealing higher levels of participation, interaction, and task involvement among students using digital tools [10].

Finally, statistical analysis of the pre- and post-test results confirmed the significance of the observed differences between the experimental and control groups. The application of independent and paired sample t-tests demonstrated that the improvements in the experimental group were statistically significant at the $p < 0.05$

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level. This indicates that the observed gains are unlikely to be due to chance and can be attributed to the instructional intervention involving digital platforms [11].

Overall, the results provide strong empirical evidence that the use of digital platforms in teaching English medical texts significantly enhances students' reading comprehension, terminology acquisition, and engagement, thereby contributing to the development of their professional competence.

Discussion

The findings confirm that digital platforms play a crucial role in developing medical students' professional competence. The use of authentic materials allows students to engage with real-world medical discourse, enhancing both linguistic and professional skills.

One of the key advantages of digital platforms is their interactivity. Features such as instant feedback, multimedia content, and collaborative tools create a dynamic learning environment. This aligns with modern pedagogical approaches such as student-centered learning and constructivism [12].

Moreover, digital tools support individualized learning, enabling students to progress at their own pace. This is particularly important in ESP contexts, where learners have diverse needs and professional goals.

However, challenges such as technical issues, digital literacy, and access to resources should be considered. Effective implementation requires proper training for both teachers and students.

Conclusion

The present study has demonstrated that the integration of digital platforms into the teaching of English medical texts constitutes an effective pedagogical approach for developing medical students' professional competence. By combining language learning with discipline-specific content in a technology-enhanced environment, the study confirms the potential of digital tools to address key challenges in English for Specific Purposes (ESP), particularly within medical education.

The findings indicate that digital platforms significantly improve students' reading comprehension, especially in processing complex and authentic medical materials such as clinical case reports, research abstracts, and professional guidelines. The ability to interact with real-world texts enables students to develop higher-order

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cognitive skills, including critical analysis, inference, and contextual interpretation. In addition, the study reveals that digital learning environments facilitate more effective acquisition and retention of specialized medical terminology. This can be attributed to repeated exposure, multimodal input, and interactive exercises that promote deeper cognitive processing.

Another important outcome of the research is the positive impact of digital platforms on student engagement and motivation. The interactive and flexible nature of digital tools encourages active participation, fosters learner autonomy, and supports individualized learning trajectories. These factors are particularly important in professional education contexts, where students must take responsibility for continuous learning and self-development.

From a pedagogical perspective, the study underscores the importance of integrating authentic materials and digital technologies into the curriculum of medical English courses. The results suggest that educators should move beyond traditional, text-centered approaches and adopt more dynamic, technology-supported methodologies that align with contemporary educational paradigms such as student-centered learning and constructivism. Furthermore, the use of digital platforms allows for the creation of learning environments that simulate real-life professional situations, thereby enhancing the practical relevance of language instruction.

Despite its contributions, the study has certain limitations that should be acknowledged. The relatively small sample size and the limited duration of the experimental intervention may restrict the generalizability of the findings. Additionally, factors such as students' digital literacy, access to technological resources, and individual learning preferences may influence the effectiveness of digital instruction. Therefore, future research should consider larger and more diverse samples, longer intervention periods, and the exploration of additional variables, including the role of teacher training and institutional support.

In conclusion, the study provides empirical evidence that digital platforms are a powerful tool for enhancing medical students' professional competence through English-language instruction. Their effective implementation can contribute to better preparation of future healthcare professionals who are capable of engaging with global medical knowledge and participating in international professional communication. Consequently, the integration of digital technologies should be

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regarded not as an optional supplement, but as a strategic component of modern medical education.

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