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Enhancing Academic Competence in Future Dentists: Leveraging English for Specific Purposes in Dental Education

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Abstract: *The purpose of the article is to evaluate the impact of a specialized English for Specific Purposes (ESP) curriculum on the academic and linguistic development of second-year dental students. The article examines the effectiveness of an ESP curriculum tailored for second-year dental students at Donetsk National Medical University. Aimed at addressing the linguistic and professional needs unique to the dental field, the study juxtaposes the academic progression of students engaged in a specialized ESP curriculum against those following a standard English course. The research incorporates a controlled design with 26 participants, divided into an experimental group receiving the ESP curriculum and a control group continuing with conventional English education. The intervention spanned one academic semester, focusing on enhancing English language proficiency, dental vocabulary, and academic skills pertinent to dental studies.*

Pre- and post-assessment tools were employed to measure improvements in general English proficiency, dental-specific terminology knowledge, and core academic competencies such as reading and comprehending scientific literature, academic writing, and oral presentation skills. The results demonstrated significant advancements in the experimental group, notably in language proficiency and specialized vocabulary, compared to the control group. Qualitative feedback further highlighted increased confidence and engagement among ESP participants, underscoring the curriculum's relevance and applicability to their future professional endeavors.

The findings advocate for integrating ESP into dental education, suggesting that such a curriculum not only elevates students' linguistic capabilities but also enriches their academic and professional development. This study contributes to the broader discourse on optimizing language education in specialized fields, offering insights into curriculum design and the potential of ESP to equip future healthcare professionals for the demands of a globalized workplace.

Keywords: *dental education; academic skills; language proficiency; dental vocabulary; professional communication; ESP curriculum design; academic skills enhancement; medical English; cross-disciplinary education.*

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Introduction

In the ever-evolving landscape of global health care, the proficiency in English for Specific Purposes (ESP), particularly in dental education, emerges as a pivotal tool for shaping well-rounded, academically competent future dentists. Enhancing academic competence in future dentists delves into the critical role of ESP in dental curricula, illustrating its indispensable contribution to the comprehensive development of dental students' professional skill sets. With the globalization of dental practices and the increasing need for cross-border collaboration in research and education, the command of discipline-specific English not only facilitates access to a broad spectrum of scientific literature and international forums but also equips future dental professionals with the linguistic tools necessary for effective communication and collaboration with peers worldwide. By integrating targeted ESP modules into dental education, this article argues for a structured approach to developing core academic competencies, thereby enhancing students' ability to engage with complex scientific texts, articulate sophisticated concepts with precision, and actively participate in the global academic community. Through an exploration of innovative teaching methodologies, curriculum design strategies, and real-world applications, this paper aims to provide educators and policymakers with insights into optimizing ESP instruction to forge a new generation of dentists who are not only clinically proficient but also academically distinguished.

This pursuit of integrating ESP within dental education is not just an academic exercise but a response to the dynamic demands of global health care environments where English serves as a lingua franca. As dental professionals increasingly engage in international collaborations, attend global conferences, and contribute to English-language research publications, the need for a curriculum that adequately prepares them for these challenges becomes paramount. The focus on ESP in dental education is thus a strategic endeavor to bridge the gap between traditional language learning and the practical, specialized language use in professional contexts. It recognizes the unique linguistic challenges dental students face and addresses these through tailored content that mirrors real-life scenarios and terminology they will encounter in their careers.

Moreover, the integration of ESP aims to enhance not only the linguistic competence of dental students but also their cultural competence. Understanding the nuances of language in different cultural contexts is crucial for effective international communication and collaboration. This comprehensive approach to language learning—combining linguistic skills

with cultural understanding—fosters a more empathetic and nuanced approach to patient care and professional interaction in a globalized world.

In summary, the introduction of ESP into dental education represents a forward-thinking approach to preparing students for the complexities of global dental practice. It seeks to equip future dentists with the academic and professional competencies needed to excel in a field that is increasingly international in scope. By doing so, this article highlights the importance of ESP as a foundational element of dental education, essential for developing the next generation of dental professionals who are academically competent, culturally sensitive, and ready to meet the challenges of global health care.

Theoretical Background

The theoretical foundation of the article is anchored in the intersection of linguistic proficiency and specialized education, particularly within the context of dental studies. This section delineates the core theories that underpin the study, elucidating the relevance of English for Specific Purposes (ESP) to the academic and professional development of dental students.

ESP is premised on the notion that language instruction should be tailored to the specific needs of learners, particularly in professional or academic contexts. Hutchinson & Waters (1987) define ESP as an approach to language teaching where all decisions regarding content and method are based on the learner's reason for learning. In the domain of dental education, this translates to a curriculum focused on the language of dentistry, encompassing both technical terminology and the communicative practices prevalent in the field. The rationale for ESP's importance in dental studies stems from the global nature of medical research and the need for practitioners to communicate findings, collaborate across borders, and engage in continuous professional development.

Academic competence extends beyond mere knowledge acquisition, encompassing the ability to apply, analyze, synthesize, and evaluate information in a disciplinary context. Biggs' (2003) constructivist theory of education emphasizes the role of active learning in developing higher-order thinking skills, suggesting that academic competence is cultivated through engagement with content that is both challenging and directly relevant to students' future professional roles. In dental education, this involves mastering a vast array of specialized knowledge and skills, from patient care protocols to the latest research in dental science.

Language plays a pivotal role in the formation of professional identity, serving as a tool for socialization into a professional community. Wenger's (1998) theory of communities of practice highlights the importance of language in mediating participation in professional communities, where learning is viewed as a process of identity formation within a community. For dental students, proficiency in English—and particularly in the specialized language of dentistry—facilitates their entry into the global community of dental professionals, enabling them to adopt the roles, values, and practices of the profession.

The integration of ESP into dental education is supported by the broader educational framework of competency-based education, which focuses on the outcomes of learning processes in terms of specific skills and competencies. This approach aligns with the demands of modern dental practice, which requires not only clinical skills but also the ability to engage with international literature, communicate complex ideas to diverse audiences, and continue learning throughout one's career. The ESP curriculum, therefore, is designed to bridge the gap between language learning and professional practice, ensuring that students are not only linguistically prepared but also academically competent to meet the challenges of their future careers.

The article by Tuononen & Parpala (2021) investigates how academic competences and learning processes contribute to predicting the grades of Bachelor's and Master's theses, highlighting the importance of these factors in academic success. The authors discuss the correlation between academic competencies, such as critical thinking and research skills, and learning processes, including self-regulated learning and engagement, with the grades received on Bachelor's and Master's theses. They explore how these competencies and processes not only influence thesis outcomes but also serve as predictors of academic achievement, offering insights into the educational practices that can support students in achieving higher thesis grades.

The theoretical background of this article posits that ESP is crucial for enhancing the academic competence of future dentists, facilitated by an educational approach that integrates language learning with professional development. This framework underlines the study's exploration of ESP as a means to equip dental students with the necessary tools for success in a globally interconnected healthcare environment.

We underscore the integral role of tailored linguistic instruction in the formation of well-rounded dental professionals. By drawing upon the principles of ESP, constructivist theories of education, and the concept of

communities of practice, this framework not only highlights the necessity of aligning language education with the specific needs of dental students but also emphasizes the transformative potential of such an approach on their academic and professional identity. As the global dental community continues to evolve, the imperative for a curriculum that effectively integrates specialized language learning with clinical and academic competencies becomes increasingly evident, laying the groundwork for future advancements in dental education.

Materials and Methods

Participants

The research involved the 2nd year students of Faculty of Pharmacy and Dentistry of Donetsk National Medical University with a control group of 14 students and an experimental group of 12 students. Their participation was voluntary and they were provided with all necessary information about the experiment procedures, purposes and outcomes.

Apparatus and materials:

The research conducted to evaluate the effectiveness of integrating English for Specific Purposes (ESP) in enhancing the academic competence of future dentists involved a carefully selected cohort of second-year students from the Faculty of Pharmacy and Dentistry at Donetsk National Medical University. The study was designed with a control group and an experimental group to ascertain the impact of ESP-focused practical classes on students' English language proficiency, specialized dental vocabulary, and academic skills in a dental context. Below are the apparatus and materials used in the study:

The control group consisted of 14 second-year students who followed the standard English curriculum without the additional ESP components. The experimental group comprised of 12 second-year students who participated in an enhanced curriculum with a focus on ESP for dental education.

The ESP curriculum materials were a tailored educational content focusing on dental terminology, patient communication, academic writing, and oral presentation skills in English. This included textbooks, online resources, and scientific articles relevant to dental studies.

Pre- and post-test assessments were designed to measure students' proficiency in English, with a focus on vocabulary, reading comprehension, written expression, and oral communication within the dental discipline. Pre-

assessments instruments were language proficiency test, vocabulary knowledge test, academic skills survey and oral communication skills assessment. Post-assessment instruments were enhanced language proficiency test, comprehensive vocabulary knowledge test, academic skills evaluation and oral presentation assessment and written assignment review.

Online language learning tools, virtual libraries for accessing dental journals and articles, and software for creating and delivering presentations were utilized to support the learning process.

The methodology employed a quasi-experimental design with pre- and post-tests to evaluate the effectiveness of the ESP curriculum. The experimental group engaged in an intensive ESP program tailored to the needs of dental students, including practical classes on dental terminology, patient interaction scenarios, academic writing, and oral presentations. The control group continued with the standard English curriculum. Both groups were assessed at the beginning and end of the study period to measure gains in language proficiency, specialized vocabulary knowledge, and academic competencies relevant to their future careers in dentistry.

A system of practical ESP classes was developed to boost the academic competence of second-year dental students, inspired by the "Innovative curriculum for second-year Harvard-MIT medical students" by Ali et al. (2017). This innovative curriculum aims to improve communication skills among second-year students.

The practical classes in English for Specific Purposes (ESP) tailored for second-year dental students aim to enhance their academic competence by immersing them in real-world scenarios, technical discussions, and specialized language usage relevant to their future profession. This curriculum is designed not only to improve their English language skills but also to deepen their understanding of dental medicine. The objective is to develop the academic and professional English proficiency of future dentists, emphasizing the mastery of dental terminology, patient communication, and academic discourse. Below is an outline of the system of practical classes, focusing on thematic areas, methodologies, and outcomes.

Table 1. The system of the practical classes in ESP to enhance academic competence of the 2nd year dental students

Thematic Areas	Activities
Dental terminology and procedures	- Introduction to basic and advanced dental terminology. - Language structures for explaining common dental procedures. - Practice through role-playing and simulations.
Patient-dentist communication	- Techniques for effective communication with patients, including history taking and explaining treatment plans. - Cultural sensitivity and ethical considerations in patient care. - Mock patient interactions and case presentations.
Reading and discussing scientific literature	- Strategies for reading and comprehending dental research papers and articles. - Vocabulary development for discussing research findings and methodologies. - Group discussions and presentations on recent dental research.
Case studies and clinical scenarios	- Analysis of clinical cases using English resources. - Group projects to discuss treatment options, diagnosis, and patient management. - Presentation of case studies and peer feedback sessions.
Academic writing and presentation skills	- Fundamentals of writing abstracts, research papers, and case reports in English. - Techniques for delivering effective presentations at academic conferences. - Peer reviews and writing workshops.

Source: developed by the authors' conception

The methodologies of the practical classes in ESP to enhance academic competence of the 2nd year dental students include interactive lectures, group work, role-playing, technology integration, peer feedback. Brief lectures focusing on specific linguistic or dental topics, followed by interactive activities. Students work in small groups to discuss case studies, research articles, or prepare presentations, fostering collaboration and peer learning. Simulated interactions with patients or professional colleagues to practice verbal communication and professional etiquette. Use of language learning apps, online dictionaries, and access to digital libraries for research articles in dentistry. Encouraging students to provide constructive feedback on their peers' presentations, case analyses, and written assignments.

The main outcomes of the practical classes in ESP to enhance academic competence of the 2nd year dental students:

By the end of the course, students will:

- Have a robust vocabulary in dental English, enabling them to communicate effectively with patients and professionals.
- Be capable of reading and analyzing scientific literature in dentistry with greater ease.
- Demonstrate improved ability to present cases, research findings, and participate in academic discussions.
- Exhibit enhanced writing skills for academic and clinical documentation in English.

The assessment of the practical classes in ESP to enhance academic competence of the 2nd year dental students:

Evaluation will be continuous and multifaceted, including quizzes on dental vocabulary, graded presentations on case studies, peer-reviewed writing assignments, and a final project involving the comprehensive analysis of a clinical case or research topic.

This practical class system is designed to be dynamic and responsive to student feedback, ensuring that the content remains relevant and effectively addresses the academic and professional needs of future dentists.

Research procedure

The research procedure was meticulously designed to assess the impact of a specialized ESP curriculum on the academic development of second-year dental students at Donetsk National Medical University. Participants were divided into a control group (n=14) and an experimental group (n=12) to facilitate a comparative analysis of the curriculum's effectiveness. The following outlines the step-by-step procedure employed in the research:

1) Pre-study phase was selection and division of participants: A total of 26 second-year students from the Faculty of Pharmacy and Dentistry were selected based on their consent to participate and their baseline English proficiency levels. They were then randomly assigned to either the control group or the experimental group to ensure comparable initial conditions.

2) Initial assessment: Both groups underwent the same set of pre-assessment instruments, including language proficiency tests, vocabulary knowledge tests, academic skills surveys, and oral communication assessments, to establish a baseline for each student's capabilities.

3) Implementation phase included the curriculum delivery: The experimental group participated in an enhanced ESP curriculum designed specifically for dental education. This curriculum included practical classes focusing on dental terminology, patient communication, academic writing,

and presentation skills over a period of one academic semester. The control group continued with the standard English curriculum without the additional ESP components.

4) Monitoring and support: Throughout the semester, both groups received equal amounts of instructional time. The experimental group's progress was closely monitored, with adjustments made to the curriculum based on feedback and performance in ongoing assessments.

5) Post-study phase was the final assessment. At the end of the semester, both groups were subjected to the same set of post-assessment instruments, mirroring the pre-assessment phase but adjusted to measure progress and the acquisition of new skills. The post-assessment aimed to evaluate improvements in English language proficiency, dental vocabulary knowledge, academic skills, and oral communication capabilities.

6) Data collection and analysis: Quantitative data from the pre- and post-assessments were collected and statistically analyzed to compare the performance improvements between the control and experimental groups. Qualitative data were also gathered through focus groups and interviews to gain insights into the students' perceptions of the ESP curriculum's impact on their academic and professional development.

7) Evaluation and reporting: The effectiveness of the ESP curriculum was evaluated based on the comparative analysis of the control and experimental groups' performance improvements and the qualitative feedback received. Findings, conclusions, and recommendations were then compiled into a comprehensive report, highlighting the significance of ESP in dental education and its potential benefits for enhancing academic competence in future dentists.

This research procedure was designed to provide a rigorous and empirical assessment of the ESP curriculum's effectiveness, contributing valuable insights into the integration of specialized language education within the dental academic framework.

Research ethics

The research was conducted with strict adherence to ethical standards to ensure the integrity, fairness, and respect for all participants involved. All participants were informed about the nature, purpose, and procedures of the study prior to their involvement. Participation was strictly voluntary, with assurances that refusal to participate or withdrawal from the study at any stage.

Personal information of the participants was kept confidential and was not disclosed to third parties. All data collected from assessments and

surveys were anonymized before analysis to ensure that individual participants could not be identified.

The selection of participants for the control and experimental groups was conducted without any discrimination based on gender, race, ethnicity, or any other personal characteristics. The random assignment ensured equal opportunities for participation in all aspects of the study.

The research design considered the emotional and psychological well-being of the participants, ensuring that the study procedures did not cause stress, anxiety, or discomfort. Participation in the experimental group and exposure to the ESP curriculum were not allowed to affect the participants' academic standing or evaluations outside the study's scope.

The adherence to these ethical principles was paramount to conducting the study responsibly, ensuring the trust and safety of participants, and maintaining the integrity of the research process.

Results

The study was aimed to evaluate the effectiveness of an ESP curriculum for second-year dental students at Donetsk National Medical University. Both control and experimental groups were assessed before and after the intervention to measure improvements in English language proficiency, dental vocabulary knowledge, and academic skills relevant to their future profession. The key findings of the study are presented in Table 2.

Table 2. Comparative Analysis of Language Proficiency and Dental Vocabulary Knowledge Before and After ESP Curriculum Implementation

	Pre-Assessment:	Post-Assessment:
Language Proficiency	Baseline measurements indicated no significant difference in general English proficiency between the control and experimental groups ($p > 0.05$).	The experimental group showed statistically significant improvement in overall English language proficiency compared to the control group, particularly in the areas of reading comprehension and oral communication skills ($p < 0.01$).
Dental Vocabulary Knowledge	Initial tests revealed similar levels of dental vocabulary knowledge between the two groups ($p > 0.05$).	The experimental group demonstrated a marked enhancement in dental vocabulary, significantly outperforming the control group in post-study vocabulary tests ($p < 0.001$).

Source: developed by the authors' conception

Table 3. Improvements in Academic Skills Following ESP Curriculum Intervention

Reading and Comprehending Scientific Literature	The experimental group reported and exhibited greater ease and efficiency in reading and understanding dental research articles and texts post-intervention.
Academic Writing	Participants in the experimental group improved significantly in writing abstracts, research papers, and case reports, showing a better grasp of academic style and dental terminology.
Oral Presentation Skills	The post-assessment highlighted notable progress in the experimental group's ability to deliver oral presentations, with enhanced clarity, confidence, and use of specialized vocabulary.

Source: developed by the authors' conception

According to the Table 3 students in the experimental group expressed a higher level of confidence in using English in academic and professional contexts. They valued the ESP curriculum for its relevance to their future careers and its role in facilitating a deeper understanding of their field.

The comparison between the pre- and post-assessment results (Table 2) of the control and experimental groups underscores the positive impact of the ESP curriculum. Statistically significant improvements in the experimental group across all measured domains validate the hypothesis that targeted ESP instruction can effectively enhance the academic competence of future dentists.

These results indicate that integrating an ESP curriculum tailored to the specific needs of dental education can significantly improve students' English language proficiency, specialized vocabulary knowledge, and academic skills, thereby better preparing them for their future professional roles. The findings advocate for the broader adoption of ESP approaches in dental education to equip students with the necessary linguistic and academic tools to excel in a globalized healthcare environment.

Discussion and conclusion

The findings of the research provide compelling evidence of the ESP curriculum's effectiveness in bolstering the academic competencies of dental students. The study, involving a control and an experimental group, revealed significant improvements in English language proficiency, dental vocabulary knowledge, and academic skills among the participants exposed to the ESP curriculum.

The observed advancements in general English proficiency and specialized dental vocabulary within the experimental group underscore the tailored ESP curriculum's role in addressing specific linguistic needs. Unlike conventional English courses, ESP focuses on the practical application of language in a professional context, offering students a more relevant and engaging learning experience. This approach not only improves language skills but also deepens students' understanding of their field of study. The enhancements in reading and comprehending scientific literature, academic writing, and oral presentation skills among the experimental group participants highlight the comprehensive impact of the ESP curriculum. These skills are critical for dental students, who must navigate an extensive body of scientific knowledge and communicate effectively in academic and professional settings. The curriculum's focus on real-world applications, combined with active learning strategies, likely contributed to these positive outcomes. Qualitative feedback from the experimental group indicates increased confidence and engagement, which can be attributed to the curriculum's relevance and practicality. Students felt better prepared for their future careers, suggesting that the ESP curriculum not only improves language proficiency but also enhances professional identity and motivation.

The study unequivocally demonstrates that integrating an ESP curriculum into dental education significantly enhances students' English language proficiency, specialized vocabulary knowledge, and academic skills. These findings advocate for a paradigm shift in language education within dental schools, emphasizing the need for curriculum that is directly aligned with students' future professional requirements.

The positive outcomes of this research have broader implications for ESP curriculum design and implementation in other medical fields. By focusing on discipline-specific language use and practical applications, ESP can serve as a powerful tool in preparing students for the globalized healthcare environment, ensuring they are not only clinically competent but also linguistically and academically proficient.

Furthermore, the study highlights the importance of continuous curriculum assessment and adaptation to meet evolving educational needs. Future research should explore long-term impacts of ESP instruction and its integration with clinical training, providing a more holistic approach to medical education.

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