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STRATEGIES FOR DEVELOPING STUDENTS' PROFESSIONAL VOCABULARY IN CLIL LESSONS

Abstract

This article examines the effectiveness of content and language integrated learning in the development of students' professional vocabulary in English lessons at school. Special attention is paid to the development of communicative competence, professional vocabulary and skills of practical use of the English language. In the course of the research, lessons were developed and conducted using pedagogical support strategies, interactive teaching methods, collaboration, digital technologies and elements of artificial intelligence. The training sessions included discussions, role-playing, project activities, problem-solving tasks, group work, as well as the use of glossaries, visual diagrams, and digital educational platforms. Qualitative and quantitative research methods were used to collect data, including questionnaires of 9th grade students before and after lessons. The results of the study showed that the use of these strategies helps to increase the motivation of students, their activity in the classroom and confidence in the use of professional vocabulary. The students noted improved speaking skills, understanding of subject terminology, and more active participation in communicative situations. In general, the results confirm the effectiveness of integrated learning in the development of professional vocabulary and communication skills of students.

Key words: *content and language integrated learning (CLIL); professional vocabulary; communicative competence; scaffolding; collaborative learning; digital technologies; artificial intelligence; interactive teaching methods.*

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СТРАТЕГИИ РАЗВИТИЯ ПРОФЕССИОНАЛЬНОЙ ЛЕКСИКИ УЧАЩИХСЯ НА CLIL-УРОКАХ

Аннотация

В данной статье рассматривается эффективность предметно-языкового интегрированного обучения в развитии профессиональной лексики учащихся на уроках английского языка в школе. Особое внимание уделяется развитию коммуникативной компетенции, профессиональной лексики и навыков практического использования английского языка. В ходе исследования были разработаны и проведены уроки с использованием стратегий педагогической поддержки, интерактивных методов обучения, совместной работы, цифровых технологий и элементов искусственного интеллекта. Учебные занятия включали обсуждения, ролевые игры, проектную деятельность, задания на решение проблем, групповую работу, а также использование глоссариев, визуальных схем и цифровых образовательных платформ. Для сбора данных применялись качественные и количественные методы исследования, включая анкетирование учащихся 9 класса до и после проведения уроков. Результаты исследования показали, что использование данных стратегий способствует повышению мотивации учащихся, их

активности на уроках и уверенности при использовании профессиональной лексики. Учащиеся отметили улучшение навыков говорения, понимания предметной терминологии и более активное участие в коммуникативных ситуациях. В целом результаты подтверждают эффективность интегрированного обучения в развитии профессиональной лексики и коммуникативных навыков учащихся.

Ключевые слова: предметно-языковое интегрированное обучение; профессиональная лексика; коммуникативная компетенция; педагогическая поддержка; совместное обучение; цифровые технологии; искусственный интеллект; интерактивные методы обучения.

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CLIL САБАҚТАРЫНДА ОҚУШЫЛАРДЫҢ КӘСІБИ ЛЕКСИКАСЫН ДАМУ СТРАТЕГИЯЛАРЫ

Аңдатпа

Бұл мақалада мектептегі ағылшын тілі сабақтарында оқушылардың кәсіби лексикасын дамытудағы пән мен тілді кіріктіріп оқыту әдістемесінің тиімділігі қарастырылады. Коммуникативтік құзыреттілікті, кәсіби лексиканы және ағылшын тілін практикалық қолдану дағдыларын дамытуға ерекше назар аударылады. Зерттеу барысында педагогикалық қолдау стратегияларын, оқытудың интерактивті әдістерін, бірлескен оқытуды, цифрлық технологияларды және жасанды интеллект элементтерін пайдалана отырып сабақтар әзірленіп, өткізілді. Оқу сабақтарына пікірталастар, рөлдік ойындар, жобалық тапсырмалар, мәселелерді шешуге арналған тапсырмалар, топтық жұмыс, глоссарийлер, визуалды схемалар және цифрлық білім беру платформаларын қолдану кірді. Деректерді жинау үшін сапалы және сандық зерттеу әдістері қолданылды, соның ішінде сабаққа дейін және одан кейін 9-сынып оқушыларына сауалнама жүргізілді. Зерттеу нәтижелері көрсеткендей, бұл стратегияларды қолдану оқушылардың мотивациясын, сабақтағы белсенділігін және кәсіби лексиканы қолданудағы сенімділігін арттыруға көмектеседі. Оқушылар сөйлеу, пәндік терминологияны түсіну дағдыларының жақсарғанын және коммуникативтік тапсырмаларға белсенді қатысатынын атап өтті. Жалпы, нәтижелер оқушылардың кәсіби лексикасы мен коммуникативтік дағдыларын дамытуда пән мен тілді кіріктіріп оқыту әдістемесінің тиімділігін растайды.

Кілт сөздер: пән мен тілді кіріктіріп оқыту әдістемесі; кәсіби лексика; коммуникативтік құзыреттілік; педагогикалық қолдау; бірлескен оқыту; цифрлық технологиялар; жасанды интеллект; оқытудың интерактивті әдістері.

Introduction

The modern education system is focused not only on the formation of students' linguistic knowledge, but also on the development of their communicative and professional competence. In the context of globalization, English is becoming an important tool for international communication, academic mobility and professional development. In this regard, the CLIL (Content and Language Integrated Learning) method, integrated teaching of a subject and a foreign language, is becoming increasingly popular in educational practice. According to the definition of Marsh and Langé, CLIL is an educational approach in which a foreign language is used simultaneously to study educational content and develop language skills (Marsh, D. and Langé, G., 1999).

The CLIL methodology is actively used in Kazakhstan for effective language learning. This approach, known as content-based language integrated learning, involves simultaneous learning

of educational material and a foreign language (most often English). The main objective of CLIL is to develop students' critical thinking skills, creativity, key competencies, and effective learning strategies. CLIL technology covers all levels of education (Zhetpisbayeva, 2017).

The researchers emphasize that learning through subject content allows students to use a foreign language in real-world communication situations and form intercultural interaction skills. A particularly important aspect of CLIL is the development of professional vocabulary, as knowledge of special terminology helps students understand the content of subjects and apply the language in an academic environment.

Professional vocabulary includes terms and expressions related to a specific field of knowledge. The use of thematic texts, projects, presentations and group assignments contributes to a more effective assimilation of professional vocabulary. Research shows that students of CLIL programs demonstrate a higher vocabulary level compared to students of traditional language programs.

In addition, in the context of digitalization of education, CLIL lessons are becoming more interactive through the use of digital platforms, multimedia materials and online services. This allows you to create a communicative environment in which students actively use a foreign language to solve learning problems.

Thus, the development of professional vocabulary in CLIL lessons is an important condition for the formation of language and subject competence of students. The purpose of this study is to study the effectiveness of strategies for developing students' professional vocabulary in CLIL lessons at school.

Methods

The CLIL (Content and Language Integrated Learning) methodology is an educational approach based on the integration of subject content and a foreign language in a single educational process. The main goal of CLIL is to simultaneously develop students' subject knowledge and language competence. This approach was proposed by David Marsh and has become widespread in the European educational system due to its effectiveness in developing academic and communication skills (Coyle, 2007).

One of the key principles of CLIL is the "4C" concept proposed by Coyle, which includes four interrelated components: content, communication, cognition, and culture. According to this model, training should provide not only the assimilation of subject material, but also the development of language skills, critical thinking and intercultural competence. Within the framework of CLIL, a foreign language does not act as a separate object of study, but as a means of cognition and interaction (Coyle, Hood, Marsh, 2010).

Of particular importance in CLIL training is the development of professional and subject vocabulary. Professional vocabulary refers to a set of terms and specialized linguistic units used in a particular subject area. Mastering such vocabulary is necessary for understanding the educational material, completing assignments, participating in discussions, and developing students' academic literacy. The authors emphasize that language in CLIL is considered as a learning tool and a means of mastering subject content (Snow, Met, Genesee, 1989).

The researchers note that the formation of professional vocabulary is most effective in the context of contextualized learning. Unlike traditional rote memorization of words, CLIL involves the use of terminology in real-life communicative situations, which contributes to a deeper understanding and long-term assimilation of vocabulary. Students perceive new words through subject content, visual support, collaborative activities, and practical application of knowledge (Met, M., 1998).

Various pedagogical strategies are used for the successful development of professional vocabulary in CLIL lessons. One of the most common is scaffolding, which is step—by-step support for students in the learning process. This strategy includes the preliminary introduction of key terminology, the use of visual diagrams, tables, glossaries, as well as modeling speech constructions. Scaffolding helps to reduce language difficulties and promotes more confident use of new vocabulary. This approach is based on the concept of the zone of immediate development of L. S. Vygotsky's theory, according to which learning becomes most effective if there is support

from a more competent participant in the educational process (Vygotsky, 1978). In the context of CLIL, such support allows students to gradually master both the subject matter and professional terminology (Coyle, Hood, Marsh, 2010).

Interactive learning methods such as group work, project activities, discussions, debates, and problem-solving tasks play an important role (van Lier, 1996). Such forms of work create conditions for the active use of subject vocabulary in oral and written speech, and also contribute to the development of students' communication skills. In the process of joint activity, students learn to argue their point of view, analyze information, ask questions and use professional terminology in real learning situations. In addition, the use of authentic materials — scientific texts, videos, diagrams, and digital resources — contributes to the expansion of vocabulary, the development of academic language skills, and the formation of the ability to work with professional information in a foreign language (Byram, 2008).

Modern research also highlights the importance of digital technologies and artificial intelligence in the CLIL learning process. Online platforms, interactive applications, and digital resources make it possible to personalize learning, provide prompt feedback, and increase student motivation. As noted by Coyle, Hood and Marsh, modern generations of students are increasingly focused on the principle of "learn as you use, use as you learn", which reflects the need to integrate technology into the educational process. The use of digital learning tools contributes to a more active involvement of students in learning activities and makes the process of learning language and subject content more flexible and interactive (Coyle, Hood, Marsh, 2010)

In addition, modern technologies create conditions for collaborative learning, as students can participate in joint problem-solving tasks, exchange ideas and interact in a digital educational environment. The authors emphasize that new technologies motivate students to use communication tools "across languages and often borders", thereby expanding the possibilities of intercultural interaction and authentic communication in a foreign language. The use of international online projects, digital platforms, and networking contributes to the development of not only professional vocabulary, but also academic communication skills, critical thinking, and intercultural competence (Coyle, Hood, Marsh, 2010).

Despite the numerous advantages of the CLIL approach, the researchers also note certain difficulties in its implementation. Among the main problems are the insufficient level of foreign language proficiency among students, the complexity of subject terminology, a limited number of adapted materials and a high workload for teachers. As noted by Coyle, Hood, and Marsh, under CLIL conditions, the "language level of the learners" often does not correspond to their cognitive level, which can lead to difficulties in assimilating the subject matter. In this regard, Otten emphasizes the need for a subject-oriented teaching methodology that would help "bridge the gap between the learners' conceptual and cognitive capacities and the learners' linguistic level." The authors also note that if the language level is too high, "effective learning cannot take place," while insufficient cognitive complexity limits student development (Otten, 1993).

In addition, the implementation of CLIL requires a thorough analysis of the language and cognitive needs of students, as well as strategic planning of the educational process. The researchers note that the successful practice of CLIL involves the use of special methodological approaches, constant language support and cooperation between subject and language teachers. Teacher training is also essential, since "the CLIL teacher's own awareness of the vehicular language cannot be underestimated." The authors also emphasize that the implementation of CLIL requires time, pedagogical flexibility and professional support, since "there are no quick-fix solutions or formulas" for effective integration of language and learning content. The creation of a favorable language environment, the use of scaffolding and a competent selection of materials are important conditions for the successful implementation of the CLIL approach (Coyle, Hood, Marsh, 2010).

Thus, CLIL is an effective approach to the development of students' professional vocabulary, as it ensures the integration of language and subject learning, promotes the formation of communicative competence and the active use of terminology in real learning situations.

Methodology

The methodology of this study is based on an experimental and practical approach. The study was conducted using qualitative research methods in order to study the effectiveness of professional vocabulary development strategies in CLIL lessons at school. Qualitative research is aimed at understanding students' experiences, perceptions, classroom interactions, and language development processes, rather than measuring variables using numerical data alone.

The first stage of the study included a questionnaire consisting of 10 questions. The questionnaire was designed to identify students' previous learning experiences, attitudes towards CLIL lessons, confidence in using professional vocabulary, and perceptions of interactive learning strategies such as scaffolding, TBLT, CLT, PBL, discussions, role-playing, group work, and digital technology. The collected responses were later analyzed to assess the effectiveness of these strategies in developing professional vocabulary during CLIL training.

Research results

Participants

Quantitative data were collected using a preliminary survey conducted among 20 9th grade students of a secondary school enrolled in the CLIL methodology. The students' English language proficiency corresponded to the Intermediate level. The purpose of the survey was to identify previous experiences of learning English, to introduce students to interactive teaching methods and their attitudes towards the use of professional vocabulary in English lessons.

Instruments

The study used two main tools to collect data: questionnaires and CLIL-oriented training materials. The main tool was a structured questionnaire conducted before and after the implementation of CLIL strategies. The questionnaire included 5 main criteria aimed at determining the level of students' confidence in using professional vocabulary, activity during discussions and group work, the effectiveness of scaffolding strategies, the impact of interactive tasks on speaking skills, as well as the role of digital technologies and AI tools in the learning process.

The second tool was educational materials developed based on the CLIL approach. Materials included scaffolding activities, glossaries, visual organizers, TBLT, CLT, PBL, role plays, discussions, problem-solving tasks, and collaborative learning activities. In addition, digital technologies and elements of artificial intelligence were used in the lessons.

Procedure

Each CLIL assignment was accompanied by scaffolded tasks aimed at developing the understanding and use of professional vocabulary in communicative situations. Students participated in discussions, role plays, project-based activities, and group work. All tasks were adapted to the language level of the students and were carried out during several training sessions.

Data Analysis

The results of the preliminary survey showed that the students had limited experience using professional vocabulary and participating in CLIL-oriented activities. Only 35% of students said they felt confident when using professional terminology in English, while the majority felt insecure during speaking activities and classroom discussions.

The level of classroom participation also turned out to be relatively low. Only 40% of students reported that they actively participate in discussions and communicative tasks in English. This indicates the predominance of traditional grammar-based instruction in the previous experience of learning English.

As for scaffolding strategies, 50% of students noted that visual aids, glossaries, tables, and other support materials help them better understand professional terminology. In addition, only 45% of students believed that interactive tasks such as role plays, discussions, and problem-solving activities contribute to the development of speaking skills.

The use of digital technologies and AI tools was also limited. Only 55% of the students indicated that digital technologies make lessons more interesting and help in learning professional vocabulary.

In general, the results of the pre-survey showed that the students had insufficient CLIL-oriented learning experience and needed additional language support, the development of communicative skills and more active use of professional vocabulary in classroom interaction.

In addition, to the question "What difficulties do you usually encounter when using professional vocabulary or participating in CLIL assignments in English?" the majority of respondents replied that they have problems with pronunciation, understanding of subject terminology and are afraid to make grammatical mistakes while speaking. Since this study was aimed at studying the effectiveness of professional vocabulary development strategies in CLIL lessons, the questionnaire also included questions related to the usefulness of the teaching methods used.

The majority of respondents (65%) noted that interactive CLIL tasks, real-life communication situations, and collaborative learning make lessons more practical, interesting, and motivating. All students responded positively to the question of whether these strategies help to improve their English level and expand their professional vocabulary.

The respondents identified the following main difficulties during CLIL lessons:

1. The fear that their English level is insufficient to use professional terminology;
2. Difficulty expressing your thoughts during discussions and role plays;
3. The need to speak fluently in the context of communication tasks;
4. Difficulties in understanding rapid speech and subject-oriented vocabulary;
5. Feeling of insecurity and lack of preparation during group work and presentations.

After a series of CLIL lessons, a post-intervention survey was conducted among 20 9th grade students to determine the effectiveness of professional vocabulary development strategies. The students' responses were analyzed quantitatively to identify the main changes after the introduction of CLIL-oriented activities, scaffolding strategies, interactive methods, digital technologies and AI tools.

The general perception of the CLIL lessons turned out to be positive. 18 out of 20 students (90%) noted that CLIL-lessons were interesting, motivating and practical through the use of discussions, role plays, collaborative learning and real-life communicative situations. Only 2 students (10%) reported initial insecurity during speaking activities.

The results of the post-survey showed the positive impact of CLIL strategies on the development of professional vocabulary and communication skills of students. After conducting CLIL lessons, 16 out of 20 students (80%) noted that they feel more confident when using professional vocabulary during classroom discussions and communicative tasks.

A high level of classroom participation was also recorded after the introduction of CLIL-oriented activities. 17 students (85%) reported that discussions, group work, pair work, and problem-solving tasks helped them participate more actively in lessons and express their thoughts more freely in English.

Understanding subject-specific vocabulary through scaffolding strategies has also proved effective. 18 students (90%) noted that visual aids, glossaries, tables, and scaffolding materials helped them better understand and memorize professional terminology.

In addition, 18 students (90%) indicated that interactive tasks, including role plays, discussions, and communicative activities, improved speaking skills and communicative confidence. The students noted that using real communication situations made the lessons more practical and interesting.

Particularly high results were recorded in relation to motivation through digital tools and AI. 18 students (90%) reported that digital technologies, AI-based activities and interactive platforms increased their interest in learning English and made CLIL-lessons more engaging and motivating.

Despite the positive results, some students continued to experience certain language difficulties. 6 students (30%) noted difficulties in expressing complex thoughts and choosing appropriate vocabulary during presentations and discussions. In addition, 5 students (25%) reported difficulties in understanding rapid speech and using subject terminology in spontaneous speaking situations.

In general, the results of the post-survey showed that scaffolding strategies, interactive methods, collaborative learning, digital technologies and AI tools had a positive impact on the development

of professional vocabulary, speaking skills, classroom participation and communicative confidence of students in CLIL lessons.

The bar chart shows significant differences between the survey results before and after the introduction of integrated subject and foreign language learning strategies (Table 1). Before the start of the study, only 35% of students (7 out of 20) felt confident when using professional vocabulary in English. After the lessons, this indicator increased to 80% (16 out of 20), which indicates a significant increase in students' confidence in the communication process.

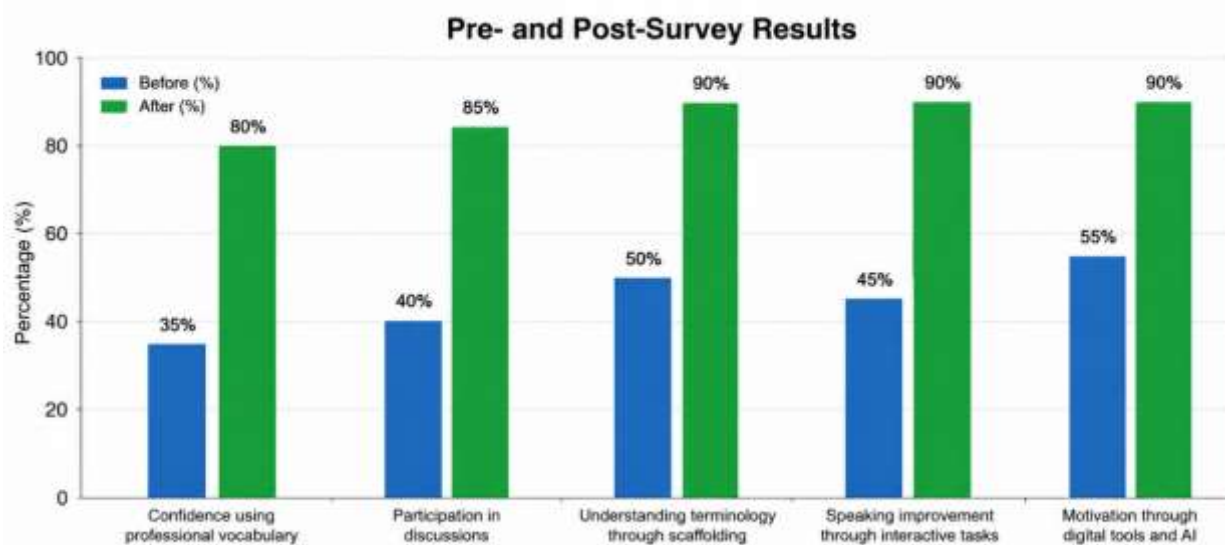
The level of student participation in the discussions has also increased significantly. Before the strategies were introduced, only 40% of students (8 out of 20) actively participated in discussions and communication tasks, whereas after the lessons, this figure increased to 85% (17 out of 20). This confirms the positive impact of discussions, role-playing, collaborative learning, and problem-solving tasks on student interaction in the classroom.

The understanding of professional terminology through pedagogical support strategies has also improved significantly. Before the start of the study, only 50% of students (10 out of 20) considered visual diagrams, glossaries, tables and additional materials useful for understanding the subject vocabulary. After the lessons, this indicator increased to 90% (18 out of 20).

In addition, the improvement of speaking skills through interactive tasks increased from 45% (9 out of 20) to 90% (18 out of 20), which confirms the effectiveness of communicative and project-oriented tasks in the development of students' oral speech.

Students' motivation has also significantly increased when using digital technologies and artificial intelligence elements. Before the start of the study, only 55% of students (11 out of 20) positively assessed the use of digital resources, whereas after the lessons, this figure increased to 90% (18 out of 20).

Table 1. Comparison of Pre- and Post-Survey results



In general, the results of the study showed that integrated learning strategies had a positive impact on the development of professional vocabulary, speaking skills, student participation in the educational process and their motivation to learn English.

Discussion

The results of this study show that using CLIL strategies is an effective approach to developing students' professional vocabulary in English lessons. The analysis of the results of the post-survey demonstrated the positive impact of scaffolding strategies, interactive methods, collaborative learning, digital technologies and AI tools on the development of students' speaking skills, communicative confidence and classroom participation.

One of the most significant results of the study was an increase in students' motivation and activity during CLIL lessons. Most of the participants noted that discussions, role plays, problem-solving tasks, and project-based activities made the lessons more interesting and practice-oriented.

These results confirm the position of Coyle, Hood, and Marsh, who note that CLIL promotes the integration of subject content, communication, and cognitive skills by creating a meaningful learning environment for students.

The results of the study also showed that scaffolding strategies have a positive effect on the understanding and assimilation of professional vocabulary. The use of glossaries, visual organizers, and guided support helped students better understand subject-specific terminology and use it more confidently in communicative tasks. This conclusion corresponds to Vygotsky's theory of the zone of proximal development, according to which learning becomes more effective with pedagogical support and collaborative interaction (Vygotsky, 1978).

Interactive methods, including TBLT, CLT, and PBL activities, were of particular importance in the study. Students noted that group work, discussions, and role plays helped them reduce speaking anxiety and increase communicative confidence. Similar findings are presented in the van Lier study, which highlights the importance of interaction and collaborative learning in the language learning process (van Lier, 1996).

In addition, the results of the study demonstrated the positive impact of digital technologies and AI tools on student motivation. The use of interactive platforms and AI-based activities increased students' interest in learning English and contributed to learner autonomy. These results are consistent with Cummins' research, which argues that information technology creates the conditions for academic language learning and active student involvement in the learning process (Cummins, 2005).

Despite the positive results of the study, certain difficulties were identified in the process of CLIL-learning, primarily related to the language aspects of learning. Some students continued to have difficulty using subject-specific vocabulary during classroom discussions, role plays, and presentations. The most common problems were insufficient vocabulary, difficulties in choosing appropriate vocabulary, as well as uncertainty about spontaneously expressing their thoughts in English. In addition, some students had difficulty understanding rapid speech, complex instructions, and domain-specific terminology during communicative tasks.

These results confirm the conclusions of Dalton-Puffer, who notes that the effectiveness of CLIL education largely depends on the level of language training of students, the quality of instructional support and properly organized scaffolding. The researcher emphasizes that students may have difficulty simultaneously mastering the subject matter and a foreign language, especially in conditions of limited vocabulary knowledge and insufficient experience of communicative interaction. According to Dalton-Puffer, successful implementation of CLIL requires careful planning, gradual language support, the use of visual aids, glossaries, and structured communicative tasks, which help reduce language stress and increase student confidence in classroom interaction (Dalton-Puffer, 2007).

In general, the results of the study confirm that CLIL-strategies are an effective means of developing students' professional vocabulary, speaking skills and communicative competence. When used correctly, scaffolding, interactive methods, collaborative learning, and digital technologies create a supportive environment for active and practice-oriented English language learning.

Conclusion

This study was aimed at studying the effectiveness of CLIL strategies in developing the professional vocabulary of 9th grade students in CLIL lessons. The results of the study showed that the use of scaffolding strategies, interactive methods, collaborative learning, digital technologies and AI tools had a positive effect on students' motivation, classroom participation and confidence when using professional vocabulary in English.

The results demonstrated that CLIL-oriented activities, including discussions, role plays, TBLT, CLT, PBL, and problem-solving tasks, create meaningful communicative situations that promote more active use of English in classroom interaction. The students showed a marked improvement in speaking skills, understanding of subject-specific vocabulary and communicative

confidence. The use of glossaries, visual organizers, and guided support also contributed to a more effective assimilation of professional terminology.

At the same time, the study revealed a number of difficulties associated with expressing complex thoughts, understanding rapid speech, and spontaneous use of professional vocabulary during communicative activities. These results highlight the importance of careful scaffolding, vocabulary support, and structured communicative practice in the context of CLIL learning.

In general, the results of the study confirm that CLIL-strategies are an effective approach to the development of professional vocabulary and communicative competence of students in English lessons. The prospects for further research may be related to studying the long-term impact of CLIL learning, as well as the wider use of digital technologies and artificial intelligence in the process of learning foreign languages.

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