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SCAFFOLDING STRATEGIES AS AN EFFECTIVE TECHNOLOGY IN TEACHING ESP

In today's world of integration and globalization, the English language learning has become an integral part of professional tertiary education. Learning English by non-language students has a professional-oriented nature and is aimed at expanding the vocabulary of special and professional terminology, intensification of students' actions in relation to general language competence, application of their knowledge in oral and written contacts of professional communication.

The article focuses on the problem of teaching ESP in higher school as an integral part of professional training of future specialists. The study considers the notion of scaffolding and efficiency of scaffolding strategies related to education process, particularly ESP. The article determines the role of scaffolding schemes in developing students' speaking skills in the situations of general and professional communication, individualizing the learning process and reducing students' anxiety level, as well as considers the problem of selecting special scaf-

olding technologies for developing and activating ESP students' grammar skills.

Strategies that facilitate the learning process for students and contribute to its effectiveness are of macro- and micro-level. Macro-level strategies include organizational ways to prepare students for the discipline English for Specific Purposes (Profession-Oriented English) and optimize this process. Thus, macro-level scaffolding strategies are based on the General English language competence acquired by students in high school, and the study of special professional subjects in higher school. Micro-level strategies relate directly to the stages of the learning process and include techniques that will facilitate more effective input of professional-oriented vocabulary, comprehension, memorization and output, i.e., reproduction in the situations of professional communication, development and activation the students' grammar skills, taking into account the needs of ESP students and the level of their foreign language proficiency.

Keywords: *English for Specific Purposes; profession-oriented English; scaffolding strategy; scaffolding scheme; speaking skills; grammar skills; visual aids; student performance; individualizing the learning process; the level of anxiety.*

Formulation of the problem. Since English as a foreign language is not a future specialty for non-language students and sometimes, their language competence does not meet the requirements of the appropriate level, the learning process should include special strategies and ways to help students effectively perceive, understand, memorize, and reproduce the content of the subject. The problem of methods that facilitate the learning process of students, help them overcome certain difficulties of perception or reproduction, encourage and promote the optimization of the learning process, has always been considered by educators and methodologists as an important issue in the learning process. The peculiarities of English for Specific Purposes (ESP) or profession-oriented English provide specific strategies for assistance, support and encouragement for the students of various specialties. In the last decade, the idea of “scaffolding” has become a key educational problem, which educators pay special attention to and consider as a learning approach.

Analysis of recent research and publications. The metaphorical meaning of scaffolding comes from psychology and is related to the socio-cultural theory of L. Vygotsky on the influence of social interactions on cognitive development and the area of proximal development. Problems of facilitating the learning process for students and effective scaffolding technologies of scaffolding approaches to teaching and learning have been studied by many scholars, including Mahan K.R., Hogan K., Pressley M., Walqui A., Van de Pol J., Volman M., Beishuizen J., Lombardi P., etc.

The purpose of the proposed study is to analyse the problem of scaffolding, in general, and scaffolding strategies in education, in particular, considering the technologies of scaffolding in learning English for Specific Purposes; to develop scaffolding schemes and determine their role in the development of students’ speaking skills, individualizing the learning process and reducing students’ anxiety level; to select relevant scaffolding technologies for developing ESP students’ grammar skills taking into account the ESP students’ needs.

Presenting main material. The term “scaffolding” is directly related to construction and is considered in dictionaries as “a

structure that helps workers stand when they want to reach high parts of the building” [1] or as “pillars and boards joined together to make a structure on which workers can stand when they work high on the outside wall of a building” [2]. The metaphorical meaning of scaffolding comes from psychology and is related to the socio-cultural theory of L. Vygotsky on the influence of social interactions on cognitive development and the area of proximal development as the difference between the current level of cognitive development and its potential level [2]. Scaffolding is considered as a broad concept due to its flexible nature [3].

In education, scaffolding refers to a variety of learning technologies that help students move towards deeper understanding and greater independence in the learning process. That is to say, the metaphorical meaning of this concept is the temporary support of the teacher, which helps students achieve higher levels of understanding and skills that they will be able to achieve without help and support. [4].

Scholars interpret the scaffolding approach differently, considering it as “a learning style that provides students with intellectual support to function at the forefront of their individual development” [5] or as mentoring behaviour that is conditional (the action depends on the influence or other actions affect it), shared (the final result is achieved through joint action) and interactive (includes the activities of two or more people who interact) [6]. At the same time, educators point to various sources of scaffolding, i.e., support or assistance may come from an expert (e.g., teacher), cooperation with other students, the help of a student with a higher basic level of training, independent work (internal speech, etc.) [6]. Thus, scaffolding in education refers to a variety of instructional techniques used to move students progressively towards stronger understanding and, ultimately, greater independence in the learning process.

Although studies of the scaffolding approach are not numerous, however, scientists emphasize that the results of such supportive techniques are quite effective [7]. The effectiveness depends on a number of factors, including the time allotted for independent work of students, as well as the efforts of students to complete the task [8].

Strategies that facilitate the learning process for students and contribute to its effectiveness can be divided into two groups: macro- and micro-level. Macro-level strategies include organizational ways to prepare students for the discipline English for Specific Purposes (Profession-Oriented English) and

optimize this process. Micro-level strategies relate directly to the stages of the learning process and include techniques that will facilitate more effective input of professional-oriented vocabulary, comprehension, memorization and output, i.e., reproduction in the situations of professional communication, taking into account the needs of students. Thus, macro-level scaffolding strategies, i.e., organizational methods of preparing students for learning profession-oriented English is based on the General English language competence acquired by students in high school, and the study of special professional subjects in higher school.

Strategies that will facilitate the learning process for students at the micro-level cover various forms of scaffolding. Among the methods of supportive action, methodologists mention the following tools: division of tasks into smaller parts, thinking aloud while performing tasks (verbalization of thought processes), joint training (team work), specific tips for completing tasks or solving a problem, survey, coaching (helping students achieve a specific goal in a way that students need to understand on their own), special cards (which help students remember or memorize information with notes, pictures, diagrams, etc.), modeling (providing clear examples to students to understand the task or requirement), activation of basic knowledge, etc. [9]. The educators and practitioners distinguish the following techniques among a variety of scaffolding tools: “show and tell” (demonstrating to students what they are expected to do), “prior knowledge” (launching the learning process from the prior knowledge and using this as a framework for further lessons), “visual aids” (using graphic organizers, charts, schemes, pictures, etc.), “pre-teach vocabulary” (introducing the words or word-combinations in pictures or context), “time to talk” (providing time for students to think and process new ideas, organizing discussions), “pause, ask question, pause, review” (sharing a new idea from discussion or reading, making pause, providing time to think, asking questions, and making pause). Each method of scaffolding is selected individually, taking into account the needs of students, determining how students think to identify misconceptions and individualize the learning process. Crucial to successful scaffolding is understanding students’ prior knowledge and abilities when introducing new knowledge in order to increase motivation for the learning process [9].

We consider that throughout the educational process of teaching English for Specific Purposes, the following kind of support

should be provided: focus on content, focus on language and focus on learning process. The following techniques of scaffolding can be applied: connecting to prior knowledge (based on knowledge and skills acquired in the students’ native language), using L1 (as a resource for helping students to understand concepts in L2), applying supportive materials (visual aids: photos, pictures, schemes, tables, non-verbal tools, musical instruments, surrounding objects, laboratory equipment, gestures, etc.), the condition of using students’ own words in describing terminological expressions, repeating some patterns after the teacher (in groups and individually), providing the students with the examples.

Since the purpose of our study is to develop scaffolding schemes and determine their role in the development of students’ speaking skills, we analyse the students’ performance on the basis of two characteristics of the learning process, namely, the indicator of the learning success (positive marks in the assessment) and learning quality (“good” and “excellent” marks in the assessment). We assume that scaffolding schemes increase the efficiency of the educational process and the level of reactive anxiety of students. In our study, we adhere to the assumption that the development of speech skills of students majoring in “Sport Rehabilitation”, using scaffolding schemes, will be effective if: 1) the role of visual aids and innovative methods of their application in the educational process is determined; 2) a model of scaffolding schemes is developed for activating students’ speech skills; 3) methodological support for the study is developed [10]. We define the lexical scaffolding scheme as a table of lexical units at the level of a word-combination and a phrase, which helps students build monologue speech at the stage of the prepared speech as another step towards unprepared speech, which is the ultimate goal of the foreign language learning process [10].

The lexical scaffolding scheme to a topic can include key terms, terminological expressions, specific word-combinations and phrases. The study of the topic includes several stages: introduction of new lexical material, automation of students’ actions with new lexical units and practical application of the acquired knowledge. During all stages, students of the experimental group perform a system of exercises using the scaffolding scheme. At the final stage, students who need it depending on the level of their foreign language competence can use the scheme in the process of speaking (dialogic and monologue speech on the topic).

In addition, the use of scaffolding schemes acts as a means of individualization of learning. Since student groups are often multi-level, students with different basic levels of foreign language competence study in one academic group. In this case, scaffolding schemes provide an opportunity to individually adjust the time of the schemes use both at the stage of introduction of new lexical material (input) and at the stage of its reproduction (output).

We tested two academic groups of 20 students in each (four subgroups) of the Sport Rehabilitation Specialty. The success rate was determined by the results of modular control. The results of students' performance (Fig.1) of the topic "Exercise Physiology" in the control group (without the use of scaffolding schemes) show the following indicators: success of the educational process (90%), however, the quality of education (40%). The results of the same module (Fig.2) in the experimental group (using scaffolding schemes) show the following indicators: success of the educational process (100%) and the quality of education (75%). Thus, after the use of lexical scaffolding schemes, student achievement in this group increased by 10% and the quality of education - by 35%.



Fig. 1. Student Performance in Control Group



Fig. 2. Student Performance in Experimental Group

Lexical scaffolding schemes help students construct sentences and develop the skills of the prepared speech as a preparatory stage for the unprepared speech in the situations of professional communication. Lexical scaffolding schemes, as visual aids for the development of speaking skills, create conditions for the practical application of the acquired material and provide an incentive for students' speaking and writing while preparing for the lesson or during their independent work.

In addition, we consider scaffolding schemes to be an effective way of reducing students' anxiety level when learning profession-oriented material in English both at the stages of input and output. Reducing anxiety is an important aspect for the students of non-language specialties, since students have different level of the English language competence and, sometimes, negative stereotypes about learning a foreign language. The use of scaffolding schemes as a means of developing students' speaking skills can change these stereotypes and create a comfortable atmosphere of support at the level of reproducing or applying the acquired knowledge in practice. Therefore, we were interested not only in the level of student performance, but also in the diagnosis of their mental state, namely, self-assessment of anxiety at a given time (reactive anxiety as a condition). This test is performed using the self-assessment scale of Ch. Spielberg and Y. Khanin, which determines three levels of reactive anxiety (low, medium and high). Reactive anxiety is characterized by anxiety and nervousness. We believe that experimental data on certain indicators are important because a very high level of anxiety causes attention deficit disorder. Personal anxiety characterizes the constant tendency to perceive a large number of situations as a danger and respond to such situations with a state of anxiety [11].

Therefore, these groups of students were tested according to this method to determine the level of their reactive anxiety during the learning process without the use of scaffolding schemes (Fig.3) and with their use (Fig.4). It is the state of a student that shows his/her excitement and emotional tension. If we consider each formative or summative assessment as a stressful situation to some extent, we can assume that emotional stress can be reduced by using scaffolding schemes. The results of the study show that the number of students in experimental group with a high level of anxiety decreased by 10% compared to the students in the control group, i.e., students felt calmer and more balanced using scaffolding schemes. It should be noted that a low level of anxiety may indicate a lack of motivation of the students or disinterest in the learning process.

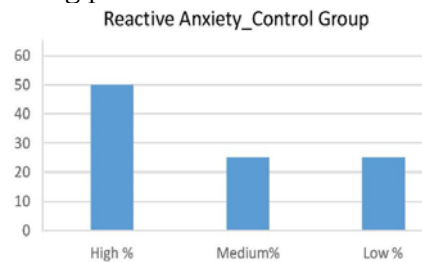


Fig. 3. Reactive Anxiety of Students in Control Group

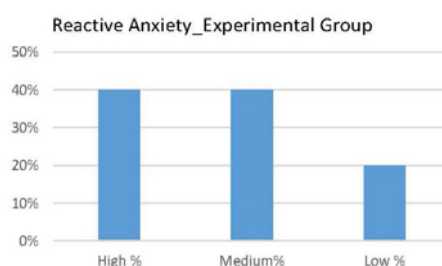


Fig. 4. Reactive Anxiety of Students in Experimental Group

Learning English for Specific Purposes is primarily associated with the profession-oriented vocabulary, specific terms and terminological expressions acquired by students in order to communicate in the situations of general and professional communication. In addition to sometimes insufficient basic level of foreign language proficiency, we should note the different level of development of receptive and productive skills of non-language students and the lack of sequence between these two kinds of speech skills. Our practice shows that ESP students' productive skills does not match their receptive skills. Insufficient level of development of grammar skills or the lack of mastery in students' grammar skills causes difficulties in reproducing content associated with their specialty even with sufficient level of development of students' lexical skills related to profession-oriented vocabulary. Such inconsistency affects the motivation to study the discipline, the results of assessment of students' learning activities, the overall satisfaction with the results of the educational process.

The knowledge of students obtained in special disciplines becomes a kind of scaffolding in the organization of the semantic side of speech design. At the same time, the student's grammar skills also need some support to consolidate grammar knowledge and apply this knowledge in practice. Regarding the use of scaffolding technologies to consolidate and develop students' grammar skills, we consider the use of native language to interpret specific grammatical aspects of a foreign language (especially those absent in the native language) as a necessary scaffolding technology for teaching English for Specific Purposes. The technology of connection with previous knowledge (which is based on knowledge and lessons learned in the study of grammatical phenomena of the native language) will be appropriate with the common grammatical phenomena of native and foreign languages, based on the approach of comparison for deeper understanding of the phenomena. We consider it appropriate to use such scaffolding technology as the use of visual aids, namely, grammatical schemes and tables, which are necessary for students

of non-linguistic specialties to systematize the tense forms of verbs in English. Our practice shows that one of the effective technologies of acquiring knowledge and mastering skills especially grammar skills is team work. The "turn and talk" technology (giving students an opportunity to discuss a key concept with their partners) and "small group discussion" technology (providing students an opportunity to discuss in groups some open-ended grammar exercises) can be helpful for better awareness and deeper understanding for the students with different levels of foreign language proficiency. The technology of "think-pair-share" provides an opportunity for the students to think about their own variant for e.g., open-ended exercises and compare their variants with a partner.

Conclusions. Thus, learning English by non-language students has a professional-oriented nature and is aimed at expanding the vocabulary of special and professional terminology, intensification of students' actions in relation to general language competence, application of their knowledge in oral and written contacts of professional communication. Scaffolding refers to a variety of learning technologies that help students move towards deeper understanding and greater independence in the learning process; it is the temporary support of the teacher, which helps students achieve higher levels of understanding and skills that they will be able to achieve without help and support. Crucial to successful scaffolding is understanding students' prior knowledge and abilities. Using scaffolding schemes are especially helpful for students with low and medium level of foreign language proficiency helping individualize the learning process. This technology promotes higher performance of the students and decrease the level of their personal anxiety during the learning process and assessment.

Due to the insufficient level of grammar skills development, we consider it appropriate to use various scaffolding technologies for the development and automation of students' grammar skills. We consider the most relevant technologies to be "the use of L1" to interpret specific grammatical aspects of L2, "the connection with previous knowledge" (which is based on knowledge and lessons learned in the study of grammatical phenomena of the native language), the use of visual aids, namely, grammatical schemes and tables, the team or group work ("turn and talk", "small group discussion", "think-pair-share").

Further study of the problem will involve other scaffolding strategies for input and output of profession-oriented material as well as grammar material in English for the students of various specialties.

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СТРАТЕГІЇ СКЕФОЛДІНГУ ЯК ЕФЕКТИВНА ТЕХНОЛОГІЯ ВИКЛАДАННЯ
ПРОФЕСІЙНО-ОРІЄНТОВАНОЇ ІНОЗЕМНОЇ МОВИ

Анотація. У сучасному світі інтеграції та глобалізації вивчення іноземної мови, взагалі, та англійської мови, зокрема, стало невід'ємною частиною професійної підготовки у вищій освіті. Вивчення іноземної мови студентами немовних спеціальностей має професійно-орієнтований характер та спрямоване на розширення словникового запасу спеціальної та професійної термінології, інтенсифікацію дій студентів щодо іншомовної компетентності, застосування їх знань в усних та письмових контактах професійного спілкування.

Стаття присвячена проблемі викладання іноземної мови професійного спрямування як невід'ємної складової фахової підготовки майбутніх спеціалістів. Дослідження зосереджується на понятті скефолдингу

та ефективності його застосування в освітньому процесі, а саме, у викладанні іноземної мови професійного спрямування. В статті визначається роль опорних схем, як однієї з технологій скефолдингу, у розвитку навичок говоріння в ситуаціях загального та професійного спілкування, в індивідуалізації навчання та зниження рівня реактивної тривожності студентів. Практика показує, що технології скефолдингу сприяють розвитку та автоматизації не лише лексичних, але й граматичних навичок студентів, враховуючи як різний рівень рецептивних і репродуктивних навичок студентів, так і недостатній рівень автоматизації граматичних навичок у студентів немовних спеціальностей. Підбір відповідних технологій скефолдингу сприятиме більш вивченому оформ-

ленню мовлення засобами іноземної мови, базуючись на змісті фахових дисциплін, які вивчаються студентами, та знання термінологічного складу іноземної мови, який засвоюється при вивченні іноземної мови професійного спрямування.

Стратегії, які сприяють ефективності навчального процесу студентів розглядаються на макро- та мікрорівні. Стратегії макрорівня охоплюють організаційні способи підготовки студентів до вивчення навчальної дисципліни «Іноземна мова професійного спрямування» та оптимізують цей процес. Тобто, стратегії скефолдингу на макрорівні базуються на вивченні іноземної мови у середній школі та вивчення фахових дисциплін у закладі вищої освіти. Стратегії мікрорівня безпосередньо стосуються етапів навча-

льного процесу вивчення даної навчальної дисципліни та включають технології, які сприяють більш ефективному введенню професійно-орієнтованого лексичного матеріалу, розумінню, запам'ятовуванню, відтворенню в ситуаціях загального та професійного спрямування, враховуючи потреби студентів.

Ключові слова: іноземна мова професійного спрямування; англійська мова спеціального призначення; стратегія скефолдингу; опорна схема; навички говоріння; наочність; індивідуалізація навчання; рівень реактивної тривожності.

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