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DIFFERENTIATION IN THE PROCESS OF LEARNING ENGLISH BY FUTURE SHIP ENGINEERS

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Abstract. Traditional methods of teaching English do not always allow us to consider the individual characteristics of future ship- engineers, their learning pace, cognitive styles and level of training, which can lead to the loss of motivation to learn and failure to master the material in full. The article substantiates the basic principles of differentiated learning (variability of tasks, frontal work, pair/group, and independent assignments). The research describes multi-level tasks for groups, considering different levels of English language proficiency. It is emphasized that differentiated learning contributes to the development of various skills important for ship's engineers, such as critical thinking, solving professional problems, high-level English for communication in an international crew, teamwork, etc. The author emphasizes the need to plan tasks for each stage of the lesson for groups with different knowledge bases and levels of training. It is important to anticipate possible difficulties that students may encounter in mastering the material and to use differentiated individual tasks in the classroom system. The advantages of differentiated learning are revealed: considering the individual characteristics of students, increasing motivation to learn. The disadvantages are also pointed out, since differentiated learning requires considerable effort and time from the teacher to plan classes, prepare various materials and tasks. Criteria for assessing the knowledge and skills of future specialists are proposed, since students of different groups perform different tasks and study according to different programs when learning maritime English. It is emphasized that the systematic use of different types of exercises for a particular group, taking into account the topic, stage of study and didactic goals, is optimal for improving the assimilation of knowledge of students.

Keywords*:* multilevel learning of English, individualised tasks, differentiated approach, testing.

1. INTRODUCTION

Modern higher education faces the challenge of growing diversity of future specialists. Their cultural, social and academic backgrounds differ significantly, making traditional teaching methods less effective. The purpose of higher education is not just to impart knowledge, but also to promote deep and interesting learning that will prepare graduates for their future careers (Fomin, Budnyk, Matsuk, et al., 2020). Students, even of the same age, have different preferences, basic knowledge and level of training. The difference in cognitive development, learning strategies and information perception leads to the fact that they learn the material at different speeds. Traditional methods often do not pay enough attention to the development of practical skills such as speaking, listening, reading and writing. These findings may result in learners not being able to use English in real situations, even if they have good knowledge of grammar and vocabulary (Pham, 2011). This makes it impossible to use a single approach to teaching and learning methods. Therefore, the introduction of differentiation of education is one of the key directions of the work of educational institutions aimed at ensuring the availability and quality of

education and can become an effective tool for learning English by future ship engineers.

The purpose of this research is (1) to investigate the effectiveness of differentiated learning in the process of teaching English in the professional training of future ship engineers, (2) study the theoretical and empirical aspects of implementing multi-level tasks for groups, taking into account various levels of students' English skills.

2. LITERATURE REVIEW

Many scientists of the late 20th and early 21st centuries paid attention to the issue of differentiated education, who studied the theoretical foundations of differentiated education, relying on psychological, pedagogical and social concepts (O. Bratanych, A. Burma, G. Vaskivska, Yu. Gilbukh, V. Kizenko, A. Kirsanov, N. Kovchyn, O. Savchenko, P. Sikorskyi, I. Unt, etc.); the expediency of using differentiation of education is noted by such scientists as L. Berezivska, O. Bugayov, R. de Groot, M, Guzik, P. Husak, E. Rabunsky, A. Tereshchuk, V. Firsov, I. Unt and others.

There are many definitions of differentiated learning (DL). I. Unt believes that this means dividing students into groups for learning according to different curricula and programs. Yu. Oleksin (2015) defines it as a form of organization of the educational process in which the teacher works with groups that have common qualities for learning. O. Kotykova (1998) understands DL as a process that involves an in-depth study of the individual characteristics of students, their division into groups and the organization of the work of these groups on the performance of tasks that contribute to their development. O. Yaroshenko defines DL as a training system that gives each student the opportunity to adapt to changing life conditions and focus on the subjects that interest him most. S. Honcharenko (1997) defines DL as the distribution of curricula and programs in senior high school classes. O. Savchenko (1997) believes that this is the organization of work in class, when the teacher offers students tasks of varying complexity, which contributes to their development and learning. P. Sikorskyi (2001) defines DL as a specially organized educational and cognitive activity that takes into account the age and individual characteristics of the students, their experience, inclinations and interests, and is aimed at their development and assimilation of knowledge and skills according to various curricula and programs.

Considering various aspects of consideration of the concept by scientists, it is possible to conclude that differentiated learning is a form of organizing the process of educational activity, in which the study of the same material is divided into levels that take into account the individual characteristics of future graduates and differ in the pace and depth of its assimilation.

The main task of differentiated education, according to S. Logachevska, is to find the most productive type of activity for each student, both at work and at home, because differentiation does not exclude individual work, but consists in determining didactic ways of eliminating gaps in knowledge, use of multivariate tasks, adjustment of activity (2005, p. 14).

3. RESEARCH OBJECTIVE, METHODOLOGY AND DATA

The study of the problem of differentiation in the process of learning English by future ship engineers has not been given enough attention by national scientists. Therefore, this article aims to consider approaches to differentiation in the process of learning English by future ship engineers.

Students of the Maritime Applied College of the Kherson State Maritime Academy took part in the study. At the initial stage, it was important to assess the level of English proficiency of each student. Therefore, after passing the test, they were divided into three groups:

- the first group with a high level (who are able to quickly learn the material, communicate freely, work independently and need tasks of increased difficulty);
- the second group with an average educational level (who have the skills of independent work; need correction of their work, periodic control of their educational activities);
- the third group with a low educational level (with a slow pace of knowledge acquisition and low

motivation to study needs an individual approach from the teacher).

The study aimed to increase the success in learning English through differentiated English language training of future ship engineers.

In the research, we used empirical methods: observation, testing, theoretical analysis, comparison.

4. RESULTS AND DISCUSSION

Differentiation of learning is implemented through different organizational forms, the use of various educational tools and at different levels. Researchers who studied the differentiation of education distinguish two types of differentiation: external (profile) and internal (level). Profile differentiation involves training in certain directions or profiles, while level differentiation is focused on the training of each student according to his individual capabilities and level of training (Deinichenko, 2006). Level differentiation is particularly important, as it allows taking into account different levels of readiness and abilities of future specialists. This helps to increase their motivation and involvement in the educational process. At the same time, professional differentiation allows future ship engineers to focus on those subjects that correspond to their interests and future professional plans, which significantly increases the effectiveness of training (Hudovsek, 2016). Differentiation in pedagogy is interpreted as a flexible approach to the organization of the educational process, which considers the individual characteristics of each student. This means that they are grouped according to different criteria, for example, knowledge level, learning style, learning rate, interests and inclinations. Within the framework of differentiated learning, the teacher uses different methods and means of learning, as well as tasks of different complexity, in order to help everyone as effectively as possible and promote their effective learning (Tomlinson, 1999). Training is adapted to the needs, learning style and pace of each student. Differentiation in the educational process is inextricably linked to the individualization of learning and is based on it. According to S. Logachevska (1998), differentiated education not only takes into account the individual characteristics of students but also actively influences their development, maximally revealing their positive traits, inclinations and abilities. The essence of differentiation lies in the determination of methods that will help eliminate gaps in the knowledge of students, use a variety of tasks and adjust the educational process.

Differentiation of training can be carried out in different directions, in turn, this allows for taking into account the individual characteristics of each student as much as possible:

- by learning goals: compensatory learning groups, creative groups, groups for working with gifted children, groups for pre-university training, groups for mastering a specialty;
- according to the content of education: special classes, groups, schools with in-depth study of subjects, groups of special programs, groups of additional educational services;
- by methods and technologies: groups of developmental training, groups that work according to the author's methods, groups that use computer technologies, groups that use socio-game methods, groups of compensatory training;
- by the level of education: groups of basic educational standard, groups of advanced level, groups of compensatory and adaptive level, and special groups.
- according to the pace (time) of learning: classes (groups) of anticipatory learning, classes (groups) of accelerated learning, and classes (groups) of delayed learning.

Orientation of education on the “average education acquirer” does not justify itself because the potential of “weak and strong” acquirers is used differently. The latter, in turn, are presented to themselves, they generally “drop out” of the educational process, which can lead to a loss of interest and motivation to study.

Differentiated education should prepare future graduates for a smooth transition from the world of science to the world of work with the help of a new model of education that not only considers their diversity but also meets high social requirements. Various tasks and training methods stimulate future

ship engineers to analyze information, compare and evaluate different points of view, and form their conclusions. Thanks to working with professionally oriented texts and situational tasks, ship engineers learn to formulate problems, find ways to solve them, and choose optimal methods and tools. The use of authentic materials and the practice of communication in classes contribute to the development of oral and written business communication skills in English, and the ability to express one's thoughts clearly and succinctly. Working in groups on projects and joint performance of tasks teaches future ship engineers to effectively interact with each other, distribute roles and responsibilities, and achieve common goals.

Based on the methodology of S. Logachevska, work in the class should be organized in such a way that each student receives appropriate tasks that correspond to his characteristics. A teacher who implements differentiated education must take into consideration the general readiness of future specialists for educational activities and the individual readiness of each learner to learn specific material. It is important to anticipate possible difficulties that they may face while learning the material and to use differentiated tasks of an individual nature in the system of classes. It is also necessary to make a prospective analysis: determine what the tasks are planned for, why they need to be used at this stage of the lesson, and how to continue the educational process in the next lesson.

At the preparatory stage, we conducted testing aimed at establishing the actual state and level of training of future ship engineers according to the previous module (Fig. 1). The written part of the test consisted of 30 tasks (18 tasks for "2" points, 10 – for "5" points, and 2 tasks for "7" points, a total of 100 points) and was calculated for one hour and twenty minutes. The oral part consisted of answers to the test questions of the module. The work of the applicants was evaluated according to the following criteria:

- correct use of tenses, complex grammatical structures and vocabulary;
- skills of aural perception of messages of various levels of complexity;
- mastery of professional vocabulary within the framework of the module;
- understanding of the material/text, its analysis, selection of the main idea and key points, answers to questions;
- ability to speak fluently and correctly in English on topics related to professional activity;
- express your thoughts, argue your position, and ask questions.

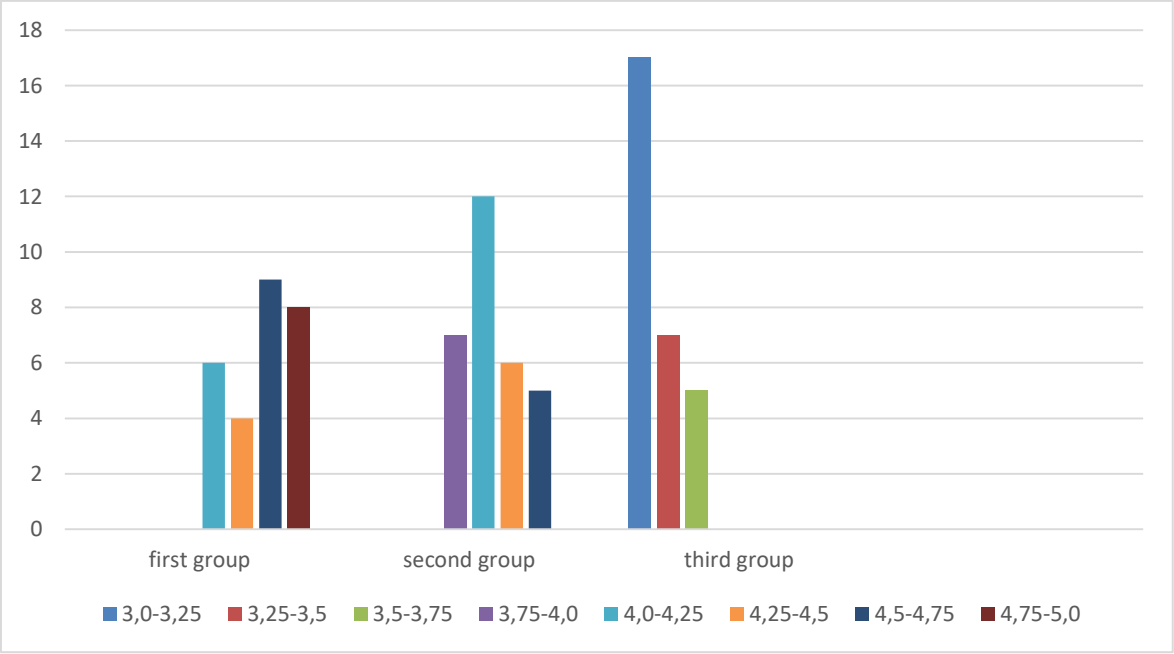

Fig. 1. The results of preliminary testing

Source: by the author

According to the results of preliminary testing, it was found that the first group, which had a high level of preparation, coped with almost all the tasks of the test, demonstrating good knowledge of theory and practical skills, having some difficulties. Thus, 8 students received "4.75-5.0" points, 9 students received "4.5-4.75" points and 4 students received "4.25-4.5".

The second group mostly coped with the test tasks, but made some mistakes that indicated incomplete knowledge of certain topics, and needed additional time to complete tasks and help from teachers, 5 students received "4.5-4.75" points, 6 students received "4.25-4.5", 12 students received "4.0-4.25" points and 7 students received "3.75-4.0" points.

The third group faced significant difficulties in completing the test tasks, not having a sufficient base of knowledge and practical skills. It needed much help from teachers to complete the tasks, 5 students received "3.5-3.75" points, 7 students received "3.25-3.5" and 17 students received "3.0-3.25" points.

According to three groups in percentage: "excellent" received 9% of students, "good" received 47% of students and "satisfactory" received 29% of students.

For successful differentiated teaching of the English language to future ship engineers (according to S. Logachevska), the teacher must have a deep knowledge of the age and individual characteristics of the students, develop their thinking, form an interest in learning, stimulate independence, constantly monitor knowledge, offer tasks according to the level of complexity, help the weaker ones, and give more difficult tasks to the stronger. Thus, three groups of students worked on the module "Maintenance of marine engines and troubleshooting", which consists of 12 practical lessons and a final test in the discipline "English for Specific Purpose". All groups used the online textbook and had access to video materials. Practice tasks at different levels, such as 2 points, 5 points and 7 points have been developed and uploaded to Moodle. Future professionals had the opportunity to pass the exercises according to the levels of their choice (if they passed correctly only the first level – score "3", the first and second levels – score "4", all levels – score "5"). Also, each test had two attempts, and if a student didn't get enough points on the first attempt, he could take it a second time.

According to S. Logachevska, the idea of differentiated learning is based on the fact that all learners are different, and each of them has their own pace of learning and level of knowledge acquisition. Therefore, instead of offering the same tasks to all groups, S. Logachevska suggests using a system of tasks of varying complexity. This allows each learner to work at their level, feel successful and feel motivated to learn. Therefore, different teaching methods were used for each group, considering their needs and interests. Also, all groups were given clear instructions on how to complete the tasks, set deadlines for the exercises, and provided feedback on their work.

Thus, in the first group, we made the transition from a collective form of work (brainstorming, snowball, role-playing, discussion) to partially independent tasks (performing exercises according to the training manual, composing a dialogue, preparing a presentation) and completely independent tasks (make a list of actions during bunkering, write an essay or letter, plan actions in case of a fire in the engine room) within one class and system of classes. Working with videos, for example, on the topic "Starting the engine", the future ship engineer had the task of watching the video and answering the questions (work in pairs); describing the process of starting the engine (independently, check in pairs); draw up instructions for starting the engine (work in a group); create a poster (must have a clear logical structure) with information about the lesson topic and present (the poster) in front of the class.

Also, the group analyzed examples of situations of a professional nature during the class, which helped motivate students to actively participate in discussions and debates, rather than passively receiving knowledge. Such examples from practice present students with tasks of practical importance and encourage them to independently analyze information, discuss and jointly solve problem situations. After reading and analyzing the "case", they had to think about the decisions that should be made to prevent the situation in the future. Such professional situations allow you to develop critical thinking, teamwork, and responsibility.

Tasks for the second group (intermediate level) in English were performed in pairs, and subgroups

and checked by the whole group together. The exercises consisted of reading the text; highlighting keywords and phrases in the text; answering questions after it; drawing up a plan for the text; essay writing, etc. Working with the video, the future mechanics had the task of viewing the video and putting the sentences in the correct sequence; watching the video again and removing the extra item from the plan; giving answers to questions (work in pairs, check in a group); describe the process of starting the engine (work in a group); compose and act out a dialogue (second engineer and a cadet); create a poster (must have a clear structure) with information about the lesson topic and make a presentation in front of the class.

During the classes, students took part in business games (which simulate real situations that ship engineers may encounter), in working on a joint project (develop new technologies or improve existing ones, analyze the operation of ship systems and mechanisms or solve specific production problems), in research jobs (learn new technologies, analyze data or look for ways to optimize the operation of ship systems) that makes learning interesting and relaxed and motivates learners to take an active part in learning.

As for the task for the third group (low level), the students also had the opportunity to work with the student`s book and watch the video, but worked more as a whole group, performing everything according to the model first. For example, they performed such tasks as read the text and underline new words; match the word with the picture(s); work in pairs: complete sentences or text with keywords; answer simple questions to the text; put the pictures in the correct order, label them using information from the text; complete the dialogue using words from the topic of the lesson and act it out; make a poster (should have a simple structure, the information should be simply and clearly explained, for example, picture-word, name the function, work in a subgroup of 3-4 applicants).

Thanks to the systematic practice of various exercises and tasks (at different levels), students actively worked in classes, and even weak students experienced an improvement in knowledge acquisition and became more involved in the learning process. Important attention is paid to training applicants in the techniques of analysis and synthesis, comparison, abstraction and generalization. These skills are key to successful problem-solving in any industry.

While performing practical tasks, future ship engineers had to pass the topic of the module orally. The requirements for the oral topics of the module for each group, considering their characteristics and level of preparation, were adjusted. A list of topics was provided for the first group. Future ship engineers had to speak confidently and clearly, using marine technical vocabulary and build grammatically correct structures; and concisely answer the questions of the teacher and other group members.

The second group (intermediate level) could choose topics to answer. But students must speak clearly and clearly, using marine vocabulary and build grammatically correct constructions, answer simple questions from the teacher and other group members.

The third group (low-level) had a list of elementary questions for the module. Requirements for applicants: speak at a basic level, using simple words and correct grammatical constructions.

Regarding the homework, which we consider important for repeating what was learned in class and for independent work skills, the first group (high-level) students had to prepare a presentation on the topic of the module or write an essay/letter. create your development project (for example, a new method of bunkering that will be more ecological and efficient, form arguments “for” and “against” the use of different types of fuel for ships). The students performed such tasks in pairs or independently.

The second group (intermediate level) had to perform exercises according to the electronic textbook or prepare a message on the topic of the module, for example, “Types of bunker fuel and their characteristics”, write a letter, answer the questions of the test task, create a presentation (in pairs/groups) on topics related to their specialty, which will allow them to use English in the context of their future profession, etc.

The third group (low level) had to learn new words and use them in sentences related to the topic of

the module (for example, on the Quizlet platform), answer simple questions, perform consolidation tasks, retell the topic in their own words, etc.

After passing the module, we conducted a final test to compare the results.

According to the results of the final test, it was found (Fig. 2) that the first group, which had a high level of preparation, completed all the tasks of the test, demonstrating deep knowledge of the theoretical material and practical skills (listening, reading, writing). When passing the oral competency, the first group demonstrated a high level of oral language proficiency, and a few grammatical errors. All applicants confidently answered the teacher's questions and other students. Thus, 19 students received "90-100" points, and 9 students received "75-89" points.

The second group coped with the tasks of the written test and made some mistakes, which indicates incomplete knowledge of some topics, and sometimes needed help from teachers. Grammatical and lexical mistakes were made when passing oral competence, sometimes they were not confident in answering questions. So, 10 students received "90-100" points, 18 students received "75-89" points, and 2 students received "60-74" points

The third group still had significant difficulties in completing the tasks of the test. Needed a lot of help from teachers, 9 students received "75-89" points and 20 students received "60-74" points. The third group has a low level of oral language proficiency, grammatical and lexical errors were made when answering elementary questions.

According to three groups: "excellent" received – 22% of students, "good" received 41% of students, and "satisfactory" received 25% of students.

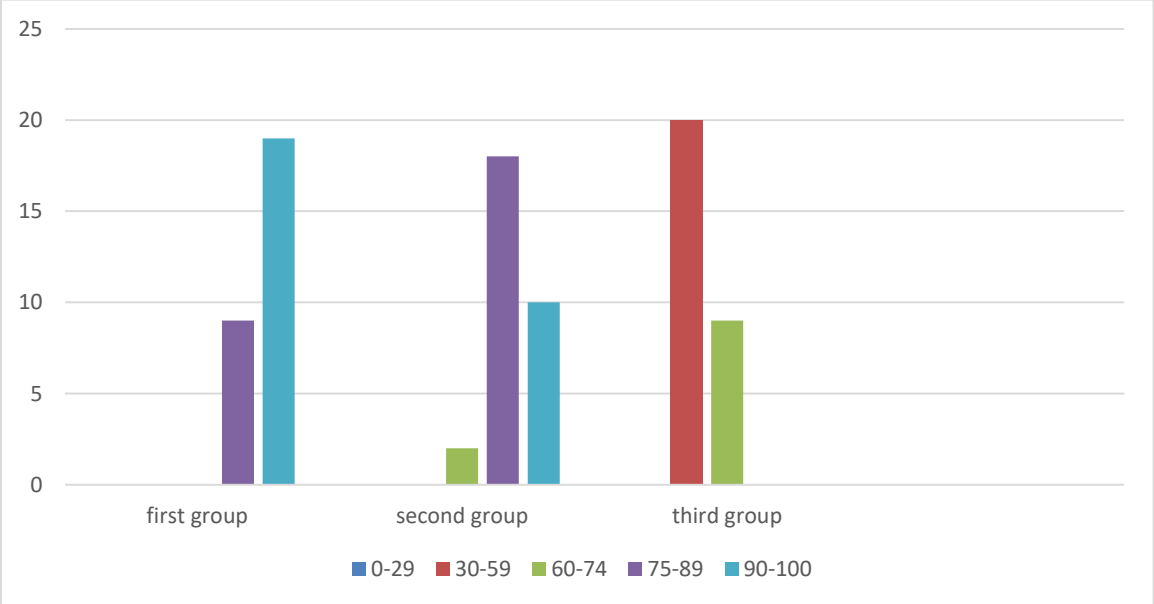

Fig. 2 The results of the final test

Source: by the author

Comparing the two passed tests (preliminary and final), it can be emphasized that because differentiated training allows considering the individual characteristics of each student, the learning pace, cognitive styles, level of preparation, and interests, several significant advantages are achieved:

- increasing the level of educational achievements: students of education demonstrate better results in tests and exams because the material is presented to them in a format that meets their individual needs and capabilities;

- improvement of independent learning skills, which teaches them to set goals, choose learning strategies, evaluate their progress and take responsibility for their results;

- unlocking the potential of each student, achieving maximum success and developing their strengths, and this applies not only to academic abilities but also to creativity, communication and other

skills.

The advantages of differentiated training include increased motivation: when future specialists are trained in a program that meets their needs and capabilities, they are more interested and motivated to study. Also, differentiated learning promotes the development of critical thinking, creativity, collaboration and other skills that are important for success in today's world (Budnyk, Mazur, Matsuk, et al., 2021).

As for the disadvantages, differentiated learning requires considerable effort and time to plan classes, and prepare various materials and tasks that should match the capabilities of the learners. Evaluating the knowledge and skills of future specialists in the system of differentiated training can be more difficult because they perform different tasks and study according to different programs.

5. CONCLUSIONS

Differentiated training is an effective approach to improve the quality of training of future ship mechanics. The use of various methods and techniques, taking into account the level of readiness of the learners, as well as taking into account cultural characteristics, will contribute to the improvement of their language training and overall academic success.

The use of the platform in the process of search and research activities (for example, identifying problems, clearly defining the sequence of actions when starting the engine, and establishing a connection between a malfunction and its cause) enables students to combine theoretical knowledge with practice, which guarantees the effectiveness of training.

The implementation of the principles of differentiated education in higher education is not just a new method, but also a change in the paradigm of education. This requires careful planning, effort on the part of teachers and readiness for change. However, differentiation results in more flexible, inclusive, and effective learning that empowers all students to succeed.

Further research should be directed to the study of the experience of successful practices for the development of criteria and indicators for evaluating future graduates.

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Традиційні методи викладання англійської мови не завжди дозволяють врахувати індивідуальні особливості майбутніх суднових механіків, їхній темп навчання, когнітивні стилі та рівень підготовки, що може призвести до втрати мотивації до навчання та нездатності засвоїти матеріал у повному обсязі. У статті обґрунтовано основні принципи диференційованого навчання (варіативність завдань, фронтальна робота, робота в парах/групах, самостійні завдання). У дослідженні описано різнорівневі завдання для груп з урахуванням різних рівнів володіння англійською мовою. Наголошено, що диференційоване навчання сприяє розвитку різних навичок, важливих для суднових механіків, таких як: критичне мислення, вирішення професійних проблем, володіння англійською мовою на високому рівні для спілкування в інтернаціональному екіпажі, робота в команді тощо. Автор наголошує на необхідності планування завдань для кожного етапу заняття для груп з різним базовим багажем знань і рівнем підготовки. Важливо передбачити можливі труднощі, з якими можуть зіткнутися студенти при засвоєнні матеріалу, і використовувати диференційовані індивідуальні завдання в класно-урочній системі. Виявлено переваги диференційованого навчання: врахування індивідуальних особливостей студентів, підвищення мотивації до навчання. Вказано також на недоліки, оскільки диференційоване навчання вимагає від викладача значних зусиль і часу на планування занять, підготовку різноманітних матеріалів і завдань. Запропоновано критерії оцінювання знань і вмінь майбутніх фахівців, оскільки при вивченні морської англійської мови студенти різних груп виконують різні завдання і навчаються за різними програмами. Акцентовано увагу на тому, що систематичне використання різних типів вправ для конкретної групи з урахуванням теми, етапу навчання та дидактичних цілей є оптимальним для покращення засвоєння знань студентів.

Ключові слова: різнорівневе вивчення англійської мови, індивідуалізовані завдання, диференційований підхід, тестування.