

APPLYING DIDACTIC TEACHING PRINCIPLES TO PROFESSIONAL ENGINEERING EDUCATION IN MILITARY HIGHER EDUCATION INSTITUTIONS

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The article deals with the application of the didactic principles of engineering training in military higher education to the professional education process. The purpose of the study is to investigate the effective application of the didactic principles of the didactic design of the engineering training program in the higher military educational institutions of Azerbaijan to the process of professional education and to emphasize the possibility of new pedagogical opportunities in this direction. The article emphasizes that the didactic basis of teaching exercises in military higher education is an effective approach for improving the professional education process. This method is based on the principles of active learning and emphasizes the importance of learner-centered approaches. This approach involves using a variety of teaching strategies to engage learners and encourage their acquisition and application of new knowledge and skills. It includes interactive lectures, case studies, group discussions and hands-on activities. The article also discusses the theoretical foundations of the didactic approach in the process of military higher education and its practical application to the process of professional education. As a result of the conducted research, the didactic approach in professional military education as the main method in the training of modern military engineer personnel and in the process of engineer training education has a number of advantages, such as the development of practical skills and the increase of military knowledge, critical thinking, improving teamwork, improving information retention and promoting lifelong learning and new opportunities are identified. Emphasizing the advantages and difficulties of this method, the article provides theoretical and practical recommendations for the design, application and practice of effective didactic training approaches in their teaching, scientific-methodical activities, and teachers studying in military institutions.

Key words: military engineer training, didactic principles, professional education, didactic approaches.

1. INTRODUCTION

Military higher education, its efficient organization and management, the application of

didactic principles of teaching to the professional education process is a priority as one of the strategic areas of improvement and development of the military power of individual countries

[1]. The method of didactic approach is based on the principles of active learning and stipulates the importance of student-centered approaches. This method involves the use of various teaching strategies to engage students and encourage their acquisition and application of new knowledge and skills. These include interactive exercises, case studies, group discussions and hands-on activities. The didactic method provides students with the theoretical knowledge required for teaching the subject. It encourages the establishment of basic professional knowledge and the formation of worldviews, in addition to creating meaningful and substantial opportunities for educators and learners both in scientific-pedagogical activity and in their future careers [2]. Emphasizing the importance of effective selection and application of educational content, the discussion of the difference between didactic and pedagogical principles, it is noted that their respective focus is on practical application and strategic planning in education [3]. As one of the teaching methods still widely used in higher education classrooms, lectures are the main teaching method that offers a framework of concepts and theories. However, since students' attention during lectures is short-lived and distracted due to low, passive participation, analysis shows that for effectiveness in training, the didactic approach should be supplemented with interactive, interactive and didactic learning strategies aimed at students on a regular basis [4]. Among the didactic principles that will be applied in the didactic process in military higher education institutions in order to increase the level of mastery of knowledge and skills on subjects and exercises, the teachers' use of real world examples and extensive use of practical activities should be included. The application of the mentioned basic didactic principles can help learners connect new information with their existing knowledge and experiences, and form knowledge, skills and habits, which makes the learning process more meaningful, engaging and effective for learners. In addition to the previous points, the didactic approach is also based on the theoretical framework of constructivism. According to this theory, learning is the process of building new knowledge and understanding based on existing knowledge and experiences. Thus, student groups and audiences involved in the educational process during the exchange of information, instead of being passive receivers of information, actively participate in the process of building this knowledge by becoming interactive and mutually active [5]. In addition, the didactic approach stipulates the importance of socialization and interaction in the learning process. According to social constructivism, learning is a collaborative process that occurs through social interaction and dialogue. In the didactic approach,

teachers encourage students to work together in groups, to quickly absorb knowledge and concepts, to develop a critical approach to establish theoretical and practical connections in specific areas, and to engage in discussions and debates.

It is clear from the theory that the didactic approach emphasizes the importance of feedback in the learning process. As one of the main objectives, teachers provide feedback from the findings of the process to learners to identify areas for improvement and strengthen areas where they are good. This feedback can take many forms, including written comments, verbal comments, and grades.

Finally, the didactic approach stipulates the importance of motivation in the learning process. Thus, teachers use a variety of strategies to motivate students, including activities such as creating a positive classroom environment, challenging and challenging assignments, and promoting student achievement. By motivating students, teachers can help them become more engaged in the learning process and achieve better results.

Summarizing the above, the didactic approach is based on a rich theoretical framework that emphasizes the active construction of knowledge, social interaction, feedback, and motivation in the learning process. Using this approach, teachers can get students more involved in the learning process and achieve better results.

2. THEORETICAL BASICS OF THE DIDACTIC APPROACH IN MILITARY HIGHER EDUCATION

2.1. Principles of didactic approach

Another key aspect of the didactic approach method is its focus on principles that guide teaching and learning.

The first of these principles is the importance of providing simple, open and clear explanations of concepts and activities. According to the study, "teachers should be simple, open and clear in their speech and explanations, so that students understand what is required of them, what to learn, where, when, and how to do it, and accordingly, they can develop the necessary skills and knowledge" [6]. It also involves breaking down particularly complex scientific ideas into smaller, more explainable parts, making it easier to master, and using a variety of examples and analogies to help students understand.

The second principle of the didactic approach is the use of scaffolding-source materials. The materials in these resources refer to the process of supporting learners as they learn new concepts and skills and gradually removing this support as they become more experienced [7]. This can include providing prompts, modeling and feedback, and breaking tasks down into smaller, more manageable, solvable steps.

The third principle of the didactic approach is the importance of engaging students in active learning. This involves providing learners with opportunities to participate in practical activities, group work, and problem-solving tasks rather than simply listening to lectures [8]. As expected from the application of this principle, it has been found that active learning results in "increased engagement, motivation and retention" of learners.

The fourth principle of the didactic approach is to use formal (written) assessment. Formal assessment involves providing continuous feedback on learners' progress in order to improve their learning outcomes [9]. This can include a variety of strategies, such as quizzes, tests, and peer assessments tailored to the group's area of expertise.

Finally, the fifth principle of the Didactic approach emphasizes the importance of differentiation. It involves adapting instruction to meet the needs of individual learners, taking into account their prior knowledge, learning styles, and interests [10]. By differentiating training, teachers can enhance the professional skills of all learners and ensure that they can independently access, work with, and engage with the specialty course and curriculum.

The didactic approach is based on several basic principles that guide teaching and learning. These principles and their disclosures include:

➤ Active training - Learners are encouraged to actively participate in the learning process through hands-on activities, discussions and problem-solving tasks.

➤ Compatibility - Learning experiences are tailored to learners' majors, lives and interests, helping them connect new knowledge with their existing understanding.

➤ Differentiation - Teachers differentiate the form of instruction to meet the different needs and abilities of learners, creating subject support models and example (problem) exercises when needed.

➤ Evaluation - Assessment is an ongoing process used to monitor student progress, provide feedback, and obtain information on the extent to which learning has been mastered.

➤ Cooperation - Students are encouraged to work together in groups to build knowledge and understanding through social interaction and dialogue.

➤ Motivation - Teachers use a variety of strategies to motivate students, including outcomes such as creating a positive classroom environment, challenging assignments, and recognizing student achievement.

➤ Reflection - Learners are encouraged to reflect on their own learning and identify areas for improvement, helping them to become more self-directed learners.

Studies have shown that a didactic approach can be effective in improving student learning outcomes.

For example, a study by Borko, Jacobs, Koellner, and Swackhamer (2011) found that teachers who used a didactic approach in mathematics classrooms saw significant improvements in student achievement [11]. Another study by Kunter, Klusmann, Baumert, and Richter (2013) found that a didactic approach was particularly effective in promoting learner engagement and motivation [12]. The study found that learners who were taught using a didactic approach reported greater interest and enjoyment in their learning and more persistence in completing challenging tasks.

Overall, the didactic approach is a powerful teaching framework that can help teachers create engaging and effective learning experiences for students. Using this approach, teachers can help students become more active, motivated, and successful learners by deviating from traditional teaching methods.

3. APPLICATION OF THE DIDACTIC APPROACH IN PROFESSIONAL EDUCATION

The didactic approach is widely used in professional education, including in fields as diverse as economics, law, and engineering. Professional education focuses on preparing students for the complex and demanding tasks they will face in their future careers. A didactic approach can be particularly effective in this context, as it focuses on the

development of theoretical-practical skills in a specific field of specialization and the integration of theory and practice.

One of the main aspects of the application of the didactic approach in professional education is the use of case-based learning. It involves presenting learners with real-world scenarios and problems and applying their knowledge and skills to find solutions. Case-based learning can be particularly effective in professional education because it allows learners to develop problem-solving skills in a realistic context relevant to tasks and responsibilities they may encounter in their future careers.

Another important aspect of the application of the didactic approach in professional education is the use of experiential learning. This involves providing learners with opportunities to engage in hands-on activities such as simulations, role-plays and experiments to develop practical skills [13]. Experiential learning can be particularly effective in professional education as it allows learners to apply their theoretical knowledge in practical settings and also receive feedback from experts in the field.

The use of questionnaires is another key aspect of applying a didactic approach to professional education. Thus, it is important to use questionnaires to help learners identify areas for improvement and strengthen areas where they perform well [14].

Application of feedback in professional education is appropriate. This can be applied in many forms, including written comments, verbal feedback and performance appraisals.

A didactic approach encourages learners to be active learners, to take ownership and responsibility for their own learning [15].

In summary, the Didactic approach can be effective in professional education because it emphasizes the importance of lifelong learning in a specific field of specialization. At the same time, fields of professional education are constantly evolving, and there is a need for professionals to continue to develop their knowledge and skills throughout their careers.

3.1. Possibilities of applying the didactic approach in the context of professional military higher education

The didactic approach can also be effectively applied in military higher education. The main focus here is to prepare learners for the complex and demanding tasks they will face in future professional officer positions and service areas. The table below provides some examples of how the principles of the didactic approach can be applied in military higher education.

Table 1. Possibilities of applying principles of the didactic approach in military education

Principles of didactic approach	Possibilities of application in military education
A clear and clear explanations	Military operations, tactics and strategies, as well as the use of military equipment and technology in subject modules and subject exercises.
Auxiliary (Scaffolding) - materials	Break down complex military tasks in the subject into smaller, more manageable steps and support learners as they develop their skills. This may include training exercises, simulations and hands-on exercises.
Active learning	Engaging learners in practical activities such as field exercises and team building activities to develop practical skills and teamwork skills.
Formal assessment	Providing learners with continuous feedback on participation skills, including assessments, activities and performance reviews to identify areas for improvement and reinforce areas where they are working well.

Differentiation	It is the design of training and development programs to meet the needs of individual learners, taking into account their prior knowledge, learning styles and strengths. This may include personal development, practical training, development and training programs.
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By using a didactic approach in military higher education, students can develop the practical skills and knowledge necessary to successfully perform their duties, while also developing teamwork and effective communication in military institutions.

In addition, the didactic approach in military higher education emphasizes the importance of developing learners' decision-making skills. Learners are trained to make decisions under pressure and in rapidly changing situations, and a professional didactic approach can help them develop this skill by providing opportunities to practice decision making in real scenarios [16].

Research suggests that the use of modern technology in professional training is the most important aspect of the didactic approach in military higher education in the era of widespread informatization. The capabilities of computer technology and software, simulations and virtual reality training, as well as access to online resources and learning materials, are essential to enhance student learning experiences. This allows learners to develop and practice individual skills in a safe and controlled environment before

applying them in real-life situations [17]. The didactic approach can be applied not only in military educational institutions, but also in the future fields of service of graduates, as well as in the army, promoting a culture of lifelong learning and self-training. Military personnel are often required to adapt rapidly to new technologies, new armaments, military operations and tactics. The didactic approach encourages learners to become active learners who take responsibility for their own development and seek new scientific, technological and military knowledge and skills.

In summary, a didactic approach can be effectively implemented in military education by emphasizing open and clear explanations, support with supporting materials, active learning, formal assessment, differentiation, decision-making skills, use of technology, and lifelong learning. By using this didactic approach, learners can develop the skills and knowledge needed to perform their duties effectively and adapt to new challenges throughout their careers.

Some research data on the effectiveness of the didactic approach in military education highlight the

following in relation with the effectiveness of didactic approach in military education:

- a didactic approach in professional education can be effective in promoting learner learning and development [18].
- the use of experiential learning, a key aspect of a professional didactic approach, is effective in improving learners' teamwork skills [6].
- the use of case-based learning, another key aspect of the didactic approach, is effective in developing learners' critical thinking skills [8].
- the use of technology, another important aspect of the didactic approach, is effective in enhancing learners' learning experiences [9].
- the use of formal assessment and feedback, which are also key principles of the didactic approach, can be effective in improving learners' performance and skills [19].

Overall, a didactic approach can be a model for an effective approach to higher military education that helps learners develop practical skills and knowledge, and promotes teamwork, critical thinking, and lifelong learning.

4. ADVANTAGES OF THE DIDACTIC APPROACH IN PROFESSIONAL EDUCATION

The application of the didactic approach in professional military

higher education offers a number of advantages:

➤ *Development of practical skills;* The didactic approach emphasizes the development of practical skills through hands-on activities, simulations and role plays. This approach allows learners to apply their knowledge to real-world situations and develop practical skills essential to success in their military careers.

➤ *Promotion of critical thinking skills;* The didactic approach encourages learners to think critically and solve problems by presenting real-world scenarios and problems. Learners learn to analyze situations, make decisions, and evaluate the effectiveness of their actions, which are essential to success in the military.

➤ *Strengthens teamwork;* The didactic approach encourages teamwork by allowing learners to work in groups and participate in collaborative activities. Learners learn to communicate effectively, support each other, and work toward a common goal that is essential to success in joint military operations in the Army.

➤ *Improves memorization of information;* The didactic approach uses a variety of teaching methods, such as active learning and formal assessment, which have been shown to improve retention. Learners are more likely to remember and apply what they have learned when they are actively involved in the learning

process and receive feedback on their progress.

➤ *Promotes lifelong learning:* The didactic approach promotes a culture of lifelong learning by encouraging learners to take responsibility for their own development and seek new knowledge and skills. This approach helps learners quickly integrate new technologies, adapt to techniques, tactics and challenges throughout their careers.

In summary, a didactic approach to professional military education offers several advantages, such as the development of practical skills, the promotion of critical thinking, the improvement of teamwork, the improvement of information retention, and the promotion of lifelong learning. Using this approach, military personnel can acquire and develop the knowledge and skills necessary to successfully perform their duties and adapt to new challenges throughout their careers.

5. DIFFICULTIES OF THE DIDACTIC APPROACH IN PROFESSIONAL EDUCATION

Although the didactic approach offers a number of advantages in professional military higher education, there are some problems and difficulties that need to be solved, which can be listed as follows:

➤ *Limited time:* Military training programs are often constrained by time constraints, which can make it

difficult to fully implement a didactic approach. The focus on practical skills and experiential learning requires more time than traditional lecture-based approaches, which may not be possible in all cases.

➤ *Limited resources:* Implementation of a didactic approach requires resources such as highly trained academic staff, special training tools and equipment. The cost and various challenges of providing these resources can be difficult for some military educational institutions and organizations.

➤ *Adapting to different learning styles:* The didactic approach emphasizes the importance of tailoring instruction and training programs to meet the needs of individual learners. However, learners in military settings come from diverse backgrounds and may have different learning styles, which can make it difficult to tailor instruction to meet everyone's needs.

➤ *Maintaining consistency:* A didactic approach requires a consistent approach to teaching and assessment, but ensuring this across different faculty, instructors, and the same training programs can sometimes lead to variation and difficulty.

➤ *Adaptation and resistance to change:* The introduction of a new approach to military education may be met with resistance by some faculty accustomed to traditional approaches, especially academic and administrative staff who have worked in the field for a long time.

Overcoming this resistance and getting buy-in from all stakeholders can be difficult.

In summary, although the didactic approach offers a number of advantages in professional military education, there are also some challenges that need to be addressed.

These include limited time and resources, accommodating different learning styles, maintaining consistency, and overcoming resistance to change. By addressing these challenges, military organizations can maximize the benefits of a didactic approach and ensure that learners are well prepared to perform their duties.

In conclusion, the article proposes a theoretical framework and guiding principles for the didactic approach that can be effectively applied in professional education, including military education. This approach emphasizes the development of practical skills, critical thinking, teamwork and lifelong learning through the use of teaching methods such as hands-on activities, case-based learning and formative assessment. However, the didactic approach also presents some challenges, including limited time and resources, accommodating different learning styles, maintaining consistency, and overcoming resistance to change. Addressing these challenges is essential to ensure that the benefits of a didactic approach to professional education are maximized.

6. CONCLUSION AND ANALYSIS

A didactic approach is a valuable approach to professional education that can help learners develop the skills and knowledge they need to succeed in their future careers. Applying this approach to military higher education can better prepare students for the complex and demanding tasks they will face in their future careers and develop the knowledge and skills needed to succeed throughout the service. It is important to note that a didactic approach is not a one-size-fits-all solution and must be adapted to meet the unique needs of different pedagogical contexts and learners. In practice, the didactic approach in military higher education may be required to be proportionately adapted to the specific requirements of different units, fields and specialties. Along with these, the didactic approach should be complemented with other approaches such as problem-based learning, flipped classroom, and blended learning to create a comprehensive and effective educational experience. Integrating different approaches can help overcome some of the challenges of the didactic approach, such as limited time and resources, and promote a more flexible and responsive approach to professional education.

By using the didactic approach in conjunction with other methodological approaches, teachers can create a flexible and effective educational

experience that meets the diverse needs of learners and prepares them for success in their future careers. The didactic approach is a valuable approach to professional education that emphasizes the development of practical skills, critical thinking, teamwork, and lifelong learning. Although this can present some challenges, it is possible to ensure that the benefits of the approach are maximized by addressing these challenges.

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