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ROLE AND FUNCTIONS OF DIFFERENT PEDAGOGICAL APPROACHES IN THE PROCESS OF PROFESSIONAL FOREIGN LANGUAGE COMMUNICATIVE TRAINING OF THE FUTURE SOFTWARE ENGINEERS

The article discusses different approaches in the organization of the process of professional foreign language communicative training of the future software engineers. Aim of the study consists in the analysis of different approaches to the process of professional foreign language communicative training of the future software engineers with the purpose of identification of the most suitable ones and interpretation of their specific tasks and functions in the facilitation and successful completion of the described process. In the process of the article writing, the research methods of systemic approach, content analysis of pedagogical, psychological and methodological sources, literature review, generalization, classification and syntheses have been applied. The article provides the definition of the concept of pedagogical approach, identifies different types of pedagogical approaches, depicts their characteristics and functions as well as justifies their choice in the professional foreign language communicative training of the future software engineers.

The article discusses four pedagogical approaches, which are of special value for the professional foreign language communicative training of students of technical majors. The integrative approach consists in the unity of contents of the learning subjects and interdependence of the shared pedagogical, methodological, didactical and specific principles, regularities, objectives and tasks of the learning process. The contextual approach emphasizes the importance of unity between the learning and professional components and takes into consideration peculiarities of both aspects in the education of students of technical majors. The interdisciplinary approach points to the necessity to conduct the described training within the boundaries of different disciplines. The systemic approach highlights the role of mental processes in learning and regards the educational process as the complex and holistic system.

It is concluded that these four pedagogical approaches can highly benefit the professional foreign language communicative training of the future software engineers and contribute to its high productivity and efficiency. The further researches should focus on the investigation of ways of optimization and improvement of the framework of professional foreign language communicative training and implementation of innovative pedagogical technologies and approaches.

Key words: *professional foreign language communicative competence, professional foreign language communicative training, integrative approach, systemic approach, contextual approach, interdisciplinary connections, future software engineers, professional education.*

Introduction. The information technologies (IT) sector tends to increase drastically, involving more professionals and posing new challenges and problems to solve. The demand for the IT specialists on the market inevitably finds its reflection in the system and structure of higher education, which aims at the quality preparation of the IT professionals and meeting the social requirements and expectations. With this purpose, there is a need in

qualitative renovation and improvement of the learning and studying processes of the future software engineers and suggestion of new efficient tools and technologies, aimed at the amelioration of their professional foreign language communicative competence.

The process of acquisition of professional foreign language communicative competence in the context of higher education is a complex and integrated issue, since it involves many structural components, aspects and subsystems to take into consideration. As a result, there is an immediate need for investigating the complexity of this process and identification of optimal ways to satisfy its efficient implementation and outcomes. It becomes obvious that different components of the professional foreign language communicative competence cannot be viewed in isolation or detachment, since they remain in the interdependent and interconnected relations [5; 6]. One of the efficient ways to provide high quality of this process is to apply suitable pedagogical approach on practice. This reason explains the significance of examining various pedagogical approaches and identification of their role and functions in the system of professional foreign language communicative training of the future software engineers.

The pedagogical literature distinguishes between numerous approaches to the organization of learning process in general and professional foreign language communicative training, in particular [4; 8]. Frequently, the choice of the optimal pedagogical approach depends on many factors, such as objectives of the studying process, context of its implementation, target audience, pedagogical preconditions and principles, methods and forms of teaching and available technological and material equipment. In many cases, the implementation of a certain process within higher education requires the combination of different pedagogical approaches for the sake of it efficiency and successful outcomes. This is particularly the case of the professional foreign language communicative training of students of technical majors, for this is a diverse and complex matter [9]. In these terms, the potential of several pedagogical approaches can be used to satisfy high quality and success of this process. Among them the integrative, systematic, contextual and interdisciplinary pedagogical approaches should be considered.

The topicality of the research consists in the insufficient investigation of the principles and mechanisms of the integrative, systematic, contextual and interdisciplinary pedagogical approaches in the context of professional foreign language communicative training of students of technical majors. There are many different opinions and thoughts, regarding the most suitable pedagogical approach to be implemented in this process. Therefore, this research will attempt to identify those four pedagogical approaches and define their value for the professional foreign language communicative training of the future software engineers.

Analysis of relevant research. Different pedagogical approaches comprise the sphere of scientific interest for many modern scientists and researchers. In particular, L. Fink investigates the role of the integrative approach in the designing and preparation of the college courses [8]. The scientist emphasizes the combining potential of this approach and its capacity to integrate the content, forms and methods of different subjects and disciplines into a holistic integrated system. Similar ideas have been found in the studies of A. Blum, who defines the value of the integrative approach in higher education and determines three different programs within this approach [7]. Among them, coordinative, combining and amalgam programs should be regarded.

The analysis of the systemic approach can be found in the works of G. Pahl and W. Beitz, who speak about implementation of this approach at technical universities with the purpose of consideration of the content of technical subjects as a holistic system [10]. This approach helps to structure and classify the given study materials and present it to the students in the complex form. Apart from that, O. Kustovska have made significant contributions to the theory of systemic approach [5]. The researcher investigates the concept of system, principles of the system, origin and modern trends in the theory of systemic approach and methodological recommendations of its practical implementation in education.

In the theoretical examination of interdisciplinary approach, a great role belongs to H. Jacobs and his classification of the interdisciplinary connections. The scientist divides the interdisciplinary connections into several types, known as crossdisciplinary, pluridisciplinary, multidisciplinary and transdisciplinary ones [9, 7-8]. In addition, the author researches the ways of practical realization of this pedagogical approach, particularly in the process of professional foreign language communicative training.

The critics of the contextual approach can be observed in the studies of S. Taneja Johansson, who discovers this approach in the light of inclusive education. According to his findings, contextual approach enriches the formation of the inclusive classroom environment and helps to prepare students to the actual performance of the study activities and requirements [13, p. 1220]. Besides, mentioning of the contextual pedagogical approach can be also noticed in the studies of American scientists, in terms of professional higher education.

Aim of the study consists in the analysis of different approaches to the process of professional foreign language communicative training of the future software engineers with the purpose of identification of the most suitable ones and interpretation of their specific tasks and functions in the facilitation and successful completion of the described process.

Research methods. In the process of preparing the article, the following research methods have been applied. First, it is based on the methods of literature review and content-analysis of the relevant scientific pedagogical, methodological and psychological resources. Secondly, the current study is based

on the methods of synthesis, classification, generalization and deduction. The practical examination of the efficiency of the described pedagogical approaches in the process of professional foreign language communicative training of the future software engineers have been conducted in the process of pedagogical observation, experimental research and statistical interpretation of obtained data.

Results. There are several distinct educational approaches, capable of sufficient fulfilment of the objectives and tasks of the professional foreign language communicative training of the future software engineers. Among them, the integrative, system, contextual and interdisciplinary approaches should be considered. Below, the in-depth analysis of those educational approaches is provided.

Integrative approach. The implementation of the integrative approach in the professional foreign language communicative training of the future software engineers consists in the unity of contents of the learning subjects and interdependence of the shared pedagogical, methodological, didactical and specific principles, regularities, objectives and tasks of the learning process [1]. The significance of the integrative approach in the process of professional foreign language communicative training of the future software engineers can be traced on the exhales of its specific capacities and possibilities. Thus, the integrative approach enables:

- the holistic development of the students' personalities with the focus on social norms and values;

- the combination of the content of education with the current needs of the civil, political, cultural and economic development of the Ukrainian society;

- integration of the pedagogical and social contributing factors of the higher education with the purpose of achieving high study outcomes;

- maintenance of the wholeness and consistency of the professional foreign language communicative training;

- establishment of connections between the practical and theoretical aspects of learning material;

- efficient combination of education and self-education of students, majoring in technical disciplines.

Notably, the very process of professional foreign language communicative training of the future software engineers bears integrative characteristics and can be implemented exclusively on the basis of the corresponding approach. The matter is that the professional foreign language communicative competence is an integrated and complex phenomenon, which comprises various structural components, the unity of which helps to achieve the desirable study outcomes. For example, the linguistic component of the professional foreign language communicative competence presupposes the acquisition of four individual types of activities, such as writing, speaking, reading and listening [3; 6]. The acquisition of communicative competence

takes place simultaneously and complexly, since it is the only way to master a foreign language and reach fluency in its actual utilization on practice.

The integrative approach in the process of professional foreign language communicative training of the future software engineers presupposes such an output of learning material, which is based on the hierarchy and consistency. For example, the study program of the course "WEB-software development" starts with the definition of the term "software development" and outlines of its basic notion and features. The second topic discusses the classification of types of software development practices and tools and compares and contrast them. Gradually, the students obtain basic understanding of the process of software development and investigate new characteristics and options. As a result, the integrative approach assists in the integration of the learning material through the principles of sequence, accessibility, interdependence. Respectively, it is supposed that this approach is the optimal way to arrange the professional foreign language communicative training of the future software engineers.

In total, professional foreign language communicative training of the future software engineers is the integrated process, since its aim lies in the complex and holistic development of students' knowledge, skills and capacities, regarding both social and professional activities [6]. Correspondingly, this approach plays a crucial role in the efficient implementation of the described process in the context of higher technical education.

Contextual approach. This approach emphasizes the importance of unity between the learning and professional components of the professional foreign language communicative training and consideration of the peculiarities of both aspects in the education of students of technical majors. The contextual approach suggests conducting the learning process of the future software engineers in the context of their professional fields, its requirements, interests and needs [12, p. 267]. The focus on the professional activities should find its reflection in the choice of forms, methods, principles and tools of learning, which would maximally benefit the results and outcomes of the professional foreign language communicative training.

The contextual approach in the organization of professional foreign language communicative training presupposes the assimilation of the learning process with the requirements and context of the professional field. For instance, this can be achieved through the combination of the traditional forms of learning (lectures, seminars) with the mandatory internship in the professional field, study visits and meetings with the representatives of IT companies. Such an organization of the learning process enables students to get a valuable insight into the operating and functioning of the chosen profession and realize its specifics and peculiarities. Moreover, the students also gain the unique opportunity to get involved in the professional activities, observe the working process and communication with the actual employees in the chosen field.

These reasons explain the importance of the contextual approach, as it suggests viewing the learning process of the future software engineers through the paradigm of professional field and specifics. Apart from that, the implementation of this approach helps to ascertain the interrelations between the learning and professional contexts and define the roles of both in the efficient organization of the professional foreign language communicative training.

The researcher P. Prior has developed the concept of contextual approach to the learning process, emphasizing the existed differences and contradictions in the content, forms, methods and tools of learning and professional activities, which create significant obstacles on the way of acquisition of professional communicative competence [12]. Correspondingly, there is an immediate need for the combination of both types of activities for the sake of productive and efficient professional foreign language communicative training of the future software engineers. The scientist suggests sticking to the idea of the contextual approach, which allows transforming the content of the study courses (which exists in the form of handbooks, lectures, glossaries, publicist information, etc.) into the conscious reflection of the reality, shaped by the demands and inquiries of the professional activities [12]. On the contrary, the isolation and detachment of the context of learning from the professional field is not justified, as it does not satisfy the need in complex and practical acquisition of required skills and competences.

In addition, the implementation of the contextual approach in the professional foreign language communicative training of software engineers enriches the process with valuable unique methods and forms of learning. Particularly, it introduces such forms as the problem lecture, case study, modelling of the future professional activity, individual research work of students, project methodology, etc. [13]. In other words, the contextual approach allows fully implementing professional activities into the learning process and engaging students in the practical and informative assignments. The contextual approach allows transforming the professional foreign language communicative training from exclusively educational into practical and professional, enriching it with practical tasks and exercises, which correspond to actual tasks in the professional field. Finally, this approach is estimated to have positive impacts on the growth of students' motivation and engagement, which benefits the learning process and serves as one of the preliminary pedagogical conditions of the successful implementation of the professional foreign language communicative training of students of technical majors.

Interdisciplinary approach. The process of professional foreign language communicative training does not take place exclusively within one discipline or learning course. It has been already mentioned that the integrative approach is used with the purpose of combining and uniting content and methods of various disciplines and subjects for the sake of higher efficiency and fruitfulness

of study outcomes. Similar results can be achieved through the interdisciplinary approach, which points to the necessity to conduct the described training within the boundaries of different disciplines. There is a need in investigating various forms and types of interdisciplinary connections, which can be found in the process of professional foreign language communicative training of the future software engineers.

According to the interdisciplinary approach, the essence of the learning subjects can be viewed as autonomous and open simultaneously. On the one hand, each discipline possesses its unique categorical and conceptual apparatus, tools, forms, research methods and objectives, which reveal its individual aim and functions. However, on the other hand, the content of each discipline is closely connected and related to others, considering the mutual influences and impacts within study courses and fields [9]. Correspondingly, the process of professional foreign language communicative training of the future software engineers should satisfy the proper establishment and usage of the interdisciplinary relations between different courses.

There are several types of interdisciplinary connections, which can be of high value in the professional foreign language communicative training of students of technical majors. These are:

1) crossdisciplinary connections, which suggest to learn one discipline through the paradigm of another [9, p. 7]. The example of such connections is the discipline "History of informatics", which helps to trace the development of informatics through the historical retrospective. The implementation of cross-disciplinary connections in professional foreign language communicative training of the future software engineers assists in deeper understanding of its specifics and complex acquisition of the respective competence;

2) multidisciplinary connections, which define the process of learning of the same object within different disciplines [9]. As a result, students obtain the possibility to learn about a certain object from different points of view and perspectives. It also promotes critical thinking, reflections and analysis of the achieved information through the enhancement of students' motivation and involvement. The example of practical usage of such connections is the course "Computer electronics, circuit engineering and software development". In this example students learn about software development from the point of view of computer electronics, circuit engineering and other related subjects. Respectively, the multidisciplinary connections encourage the prolific discussion and analysis of the professional terminology and phenomena;

3) pluridisciplinary connections, which are revealed in the process of contrast and comparison of the related disciplines, such as physics and mathematics, for instance. This type of connections let students realize the variety of methods of scientific research, used for the investigation of the learning concepts and terms [9, p. 8]. In terms of professional foreign language

communicative training of the future software engineers, the pluridisciplinary connections help to trace similar and different features in the usage of professional terminology as well as peculiarities of using terms and concepts in various contexts;

4) transdisciplinary connections, which consist in the removal of the learning object outside of the individual disciplines and courses with the purpose of focusing on the problem and defining its qualities [9, p. 8]. In the professional foreign language communicative training the object and result is the professional foreign language communicative competence, which is not limited in its usage to the boundaries of individual courses. On the contrary, it has a broad and complex meaning and sphere of utilization. The process of acquisition of the corresponding competence takes place permanently and constantly, since many subjects and disciplines use foreign language terminology and notions.

The application of the interdisciplinary approach to the process of professional foreign language communicative training of the future software engineers is essential for the complex, objective, diverse acquisition of the respective skills, knowledge and competences. In particular, the implementation of principles and forms of interdisciplinary connections stimulates intellectual and cognitive activities of students, optimize skills of generalization, classification, comparison and contrast, promote the development of the critical analysis of the learning objects within several disciplines.

Systemic approach. In the scientific literature, the concept of systemic approach to education was first developed and described by the psychologists V. Ganzen and D. Petrov. The approach meant to trigger the consciousness and cognitive activities of students and maintenance of such learning conditions, which would provide comfortable environment for the functioning of intellectual and logical processes [11, p. 11]. That is why this approach highlights the role of mental processes in learning and regards the educational process as the complex system.

According to the studies of O. Kustovska, in the context of systemic approach the learning process is viewed as a system, while its components are regarded as sub-systems [5]. Therefore, professional training of the future software engineers is a system, while the professional foreign language communicative training is the sub-system within the general process. The systemic approach provides several considerable assets. First of all, it considers the professional foreign language communicative training as a relatively individual and independent process, which possesses its specific categories, concepts, tools and methods [5]. On the other hand, this process is not isolated, as it is involved in the broad system of learning in the higher education institutions [5]. One can assume that it combines the peculiarities and features of the contextual and interdisciplinary approaches.

The systemic approach to the professional foreign language communicative training of the future software engineers emphasizes the wholeness and unity of this process, the efficiency of which can be satisfied with the help of appropriate functioning of its structural components. Analogically, it is surmised that the result of this training (the professional foreign language communicative competence) is also a complex, whole and systemic issue, for it depends on many factors [11]. Furthermore, this approach helps to realize the sophisticated character of all structural components of the professional foreign language communicative competence through their interdependence and interrelations. For instance, the linguistic component of the competence highly affects the socio-linguistic one, while being dependent on physiological, psychological and narrative aspects. Apparently, all of these components are interdependent, and their interconnection assists in reaching a whole outcome, in the long run.

In this context, it is important to consider the findings of O. Dubaseniuk, who emphasizes the systemic character of all learning elements in the professional foreign language communicative training of students [2, p. 5]. Thus, systemic approach is a valid and grounded approach to the professional foreign language communicative training of the future software engineers, which helps to view this process as a hierarchical unity of individual components.

Conclusions. To sum up, it is reasonable to apply the integrative, contextual, interdisciplinary and systemic approaches to the process of professional foreign language communicative training of the future software engineers due to such reasons:

- these approaches assist in forming logical, regular and structural connections between different study disciplines, which are of paramount importance for the complex acquisition of the corresponding competence. The combination of contents, forms and methods of different disciplines and subjects help students to acquire the professional foreign language communicative competence as a holistic issue;

- they satisfy the need in efficient combination of theoretical and practical studying material and diversification of learning and teaching strategies both in classroom and in individual work of students. Furthermore, the contextual approach, for instance, helps to maintain the favorable relations between learning and professional environment and combine the requirements and needs of tasks;

- they enable students to apply methods of critical evaluation and control over the outcomes of professional foreign language communicative training. As the thinking of students of technical majors can be described as logical and critical, it is important to satisfy the transparency and objectivity of the control and assessment methods. In this light, the implementation of the integrative approach allows combining not only contextual part, but also methods and forms of control as well as making students the active subjects of the proposed training;

- the above-mentioned approaches skillfully combine classroom and individual learning of students of technical majors, maintaining the regularity, sequence and hierarchy of the learning content, essential for the complex acquisition of the professional foreign language communicative competence [9]. For this competence is a diverse and elaborated process, it is reasonable and significant to apply the integrative approach for its efficient mastering.

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АНОТАЦІЯ

Микитишин Аліна. Роль і функції різних педагогічних підходів до організації процесу професійної іншомовної комунікативної підготовки майбутніх програмістів.

У статті описано різні підходи до організації процесу професійної іншомовної комунікативної підготовки майбутніх програмістів. Метою статті є аналіз різних підходів до імплементації вказаного процесу, визначення їх функцій і характеристик, а також обґрунтування їх вибору з позиції результативності та продуктивності. У процесі підготовки статті були використані методи системного підходу і контент-аналізу психолого-педагогічної, науково-технічної літератури. У статті визначено, що найбільш продуктивними підходами до організації процесу професійної іншомовної комунікативної підготовки майбутніх програмістів є інтегрований, контекстний, системний і міждисциплінарний.

Ключові слова: професійна іншомовна комунікативна компетентність, професійна іншомовна комунікативна підготовка, інтегрований підхід, системний підхід, контекстний підхід, міждисциплінарні зв'язки, студенти-програмісти, професійна освіта.

РЕЗЮМЕ

Микитишин Алина. Роль и функции различных педагогических подходов к организации процесса профессиональной иноязычной коммуникативной подготовки будущих программистов.

В статье описаны различные подходы к организации процесса профессиональной иноязычной коммуникативной подготовки будущих программистов. Целью статьи является анализ различных подходов к имплементации указанного процесса, определение их функций и характеристик, а также обоснование их выбора с позиции результативности и эффективности. В процессе подготовки статьи были использованы методы системного подхода и контент-анализа психолого-педагогической и научно-технической литературы. В статье определено, что наиболее продуктивными подходами к организации процесса профессиональной иноязычной коммуникативной подготовки будущих программистов являются интегрированный, контекстный, системный и междисциплинарный.

Ключевые слова: профессиональная иноязычная коммуникативная компетентность, профессиональная иноязычная коммуникативная подготовка, интегрированный подход, системный подход, контекстный подход, междисциплинарные связи, студенты-программисты, профессиональное образование.