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## СУЧАСНІ ПЕДАГОГІЧНІ ПІДХОДИ В НАВЧАННІ ПРОФЕСІЙНО ОРІЄНТОВАНОГО ПИСЕМНОГО МОВЛЕННЯ СТУДЕНТІВ ІТ-СПЕЦІАЛЬНОСТЕЙ

Статтю присвячено розгляду особистісно орієнтованого підходу в навчанні професійно орієнтованого писемного мовлення. Мета статті – проаналізувати підхід та передбачити організацію навчального процесу з урахуванням індивідуальних особливостей студентів ІТ-спеціальностей (мислення, пам'яті, сприйняття, уваги, інтелекту, інтересів), мотиваційних, інтелектуальних та інших загальних і особливих здібностей студентів, факторів професійної підготовки. Використовувалися методи науково-експериментального рівня: опитування викладачів іноземної мови для професійних цілей, викладачів фахових дисциплін, спеціалістів ІТ-компаній для з'ясування професійних потреб студентів та їхніх психологічних особливостей, а також опитування студентів із метою виявлення їхніх якостей, психологічних та професійних характеристик. Зазначено, що студенти ІТ-спеціальностей мають логіко-математичний тип інтелекту, абстрактно-логічний тип мислення, творчий, критичний, раціональний, концептуальний, операційний, комплексний характер мислення, алгоритмічний стиль мислення, наочний тип пам'яті. Розглядають особливості сприйняття навчального матеріалу студентами ІТ-спеціальностей, як-от аналіз сприйнятого матеріалу, сприйняття на основі диференціації ознак, установлення логічних зв'язків між елементами, систематизація вивченого матеріалу в ієрархії. Розглянуто специфічні професійні особливості студентів ІТ-спеціальностей (професійні особливості, цінності в освіті). Професійні особливості описують як здатність аналізувати та виправляти свої професійні помилки, уважність, самостійність, індивідуальна відповідальність, здатність ухвалювати рішення в обмежений час, здатність до модифікації, здатність самостійно вирішувати проблеми в різних видах діяльності та навчання. Описано цінності в навчанні студентів ІТ-спеціальностей. Психологічні та професійні якості студентів, характерні для ІТ-спеціалістів, були класифіковані в таблиці, що становить новизну роботи. Зроблено висновок, що результати аналізу свідчать про необхідність розроблення методики навчання професійно орієнтованого писемного мовлення студентів ІТ-спеціальностей з урахуванням психологічних та професійних якостей, використання елементів дистанційного навчання, що має здійснюватися з використанням особистісно орієнтованого підходу.

**Ключові слова:** особистісно орієнтований підхід, професійно орієнтоване писемне мовлення, логічне мислення, студенти ІТ-спеціальностей, пам'ять, інтелект.

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## MODERN PEDAGOGICAL APPROACHES IN TEACHING ESP WRITING STUDENTS OF IT-SPECIALTIES

*The paper is devoted to the consideration of a learner-centered approach in teaching ESP writing. The aim of the article is to analyze this approach and foresee the organization of learning process with taking into account individual characteristics of students of IT specialties (thinking, memory, perception, attention, intelligence, interests) and the motivational, intellectual and other general and special abilities of students, factors of professional training. The methods of scientific and experimental level were used: polls of ESP teachers, teachers of professional disciplines, specialists of IT companies to find out the professional needs of students and their psychological characteristics, as well as polls of students to identify their qualities, psychological and professional characteristics. It is noted that students of IT specialties have logic-mathematical type of intelligence, abstract and logical type of thinking, creative, critical, rational, conceptual, operational, complex nature of thinking, algorithmic style of thinking, visual type of memory. Features of educational material perception of the students of IT specialties are examined: analysis of perceived material, perceptions based on the features' differentiation, establishing logical connections between elements, systematization of the studied material in a hierarchy. The specific professional features of the students of IT specialties (professional features, values in education) are considered. Professional features are described as the ability to analyze and correct their professional mistakes, attentiveness, independence, individual responsibility, ability to make decisions in a limited time, the ability to modify, the ability to independently solve problems in different activities and learning. Values in education of students of IT specialties are described. The psychological and professional qualities of students that are typical for IT specialists were summarized and classified in the table and this is the novelty of the paper. The conclusion is made that the results of the analysis indicate the need to develop a methodology for teaching ESP writing students of IT specialties taking into account their psychological and professional qualities, the use of e-learning elements and this should be done using learner-centered approach.*

**Key words:** learner-centered approach, ESP writing, logical thinking, students of IT specialties, memory, intelligence.

**Actuality.** As the vast majority of international contacts, which are constantly growing, are made through English written language, and due to the fact that English has acquired the status of an international language, one of the modern requirements for an IT specialist is to master English for Specific Purposes (ESP) writing. Awareness of the role of ESP writing for future professional activities of future IT professionals necessitates the search for new constructive ideas to solve the problem of effective organization, optimization and intensification of teaching ESP writing students of IT specialties in technical universities.

**The aim of the study** is to analyze the learner-centered approach in the field of teaching ESP writing and foresee the organization of learning process with taking into account individual characteristics of students of IT specialties (thinking, memory, perception, attention, intelligence, interests) and the motivational, intellectual and other general and special abilities of students, factors of professional training.

**Analysis of recent research and publications.** Of particular importance in ESP writing is the learner-centered approach well-grounded by

Ukrainian scientists: S.L. Rubinstein, I.O. Zymnya, L.S. Vygotsky, B.G. Ananiev, O.M. Leontiev. The learning process should be based on the person of learning and his/her independent, self-directed, productive learning activities.

Peculiarities of psychological characteristics and specific professional qualities of IT specialists at different times were studied by psychologists M.L. Smulson, E.A. Orel, A.E. Voiskunsky, Yu.D. Babayeva, Ya.V. Bulakhov, T.S. Ruzhentseva, F. Brooks, N. Wirth, E. Dijkstra, S. McConnell, B. Schneiderman and other.

Learner-centered approach involves organizing the learning process taking into account the individual psychological characteristics of students of IT specialties (thinking, memory, perception, attention, intelligence, interests), and the motivational, intellectual and other general and special abilities of students, factors of professional training in order to develop a system of exercises for teaching ESP writing.

Student age (18–23 years) is a special period in human life, a time of the most difficult structuring of intelligence. Most psychologists claim that a number of mental functions (thinking,

perception, attention, memory, etc.) reach their highest development during the student age. Ananiev B.G. identifies this age period as the central period of active development of sensor-perceptual, mnemonic, psychomotor functions and thinking functions as well as a time of intensive formation of special abilities in connection with professionalization.

Students have complex mental operations (analysis, synthesis, comparison, generalization, systematization, abstraction, concretization), have a fairly rich conceptual apparatus. During the student age (18–23 years) a number of different mental functions (thinking, memory, perception, attention) act as a chain of connections.

Let's look at each of these mental functions and their role in the learning process of the students of IT specialties.

Smulson M. L. characterizes the thinking of young people capable of mastering IT specialties as creative, logical with the advantages of conceptual, reflexive (conscious), flexible, strategic, operational (Smulson, 2003). Osmolovska I. M. notes that individuals with logical thinking, prone to natural sciences and mathematics, and students with figurative thinking, prone to the humanities, possible to teach in the same way, but it will reduce the level of educational process (Osmolovska, 2002).

In the work of Bondar L.V. students' learning styles are considered and the type of intelligence of technical specialties' students are defined. The results of her research are that students of technical specialties have logical and mathematical type of intelligence, and analytical learning styles dominate (methodical, reflective and methodical pragmatist). Due to this the thinking of students prone to programming is characterized as logical and abstract (Bondar, 2011, p. 9, p. 200). Logical thinking is a process of indirect and generalized reflection in the human brain of reality objects in their essential properties, connections, and relationship in order to obtain truth. That is, logical thinking is comparing and connecting thoughts to make certain conclusions. Abstract thinking is a mental process of distraction from certain properties of objects, sensory data of reality and phenomena in order to know and operate only ideal formations – concepts, ideas, imaginary images.

Technical specialties' students are characterized by the predominance of abstract approach in

the perception, processing and re/production of educational material, excessive detailing during the perception of the text, they have the tendency to memorize on the basis of differentiated features, contrastive analysis, establishing logical connections between elements of the language (Bondar, 2011).

Students of IT specialties have an algorithmic or analytical style of thinking. Scientists understand the ability to think algorithmically to be able to solve problems of different origins, which requires drawing up a plan, for example an algorithm of actions to achieve the desired result. Algorithmic style of thinking is a system of mental actions and techniques aimed at solving both theoretical and practical problems, the result of which are algorithms of actions' sequences as specific products of human activity. This style is characterized by accuracy, certainty, formality and is usually associated with theoretical activities. Meanwhile, the algorithmic style of thinking allows you to solve problems that arise in any field of human activity, not just theoretical, such as programming or mathematics. It is not just about computing, because the very concept of algorithm, although intuitive, originated long before the advent of the computer. In solving most of the problems, a person, to some extent, uses an algorithmic approach, but some stages of this process may be associative. In addition, considering the works of B. Schneiderman, E. Dijkstra, E. A. Orel and M. L. Smulson, we adhere to their view that the algorithmic type of activity is important not only as a powerful type of human activity, but also as one of the effective form of his/her work.

Taking into account the type and style of thinking of students of IT specialties, we offer a method of teaching ESP writing in the form of an algorithm for writing different types of documents needed in their specialty.

The development of thinking is closely related to the development of memory: at the age of 19 mnemonic functions are developed faster than logical ones, while at the age of 20 the opposite process is observed. So the highest memory activity is observed during the student age, but there is a contradiction between mnemonic and logical development. As our methodology is designed for 4th year students of IT specialties (age – 20-21 years), the ability to logically transform the learned material is increased, and the ability to memorize for a long time is temporarily weakened.

Thus, fourth-year students are trying to turn mechanical memorization into logically organized mnemonic activity. The effectiveness of students' memorization depends on how the material to be memorized is organized, how they have mastered the methods of remembering.

The American scientist Reinert G. identifies four main types of memory: visual, auditory, kinesthetic and figurative, which influence the choice of methods and means of learning. Ananiev B. G. argues that in student age, visual memory is somewhat stronger than auditory and aesthetic. Therefore, most students of IT specialties consider the most convenient form of presentation of written material, which creates visual support.

The more possibilities a student has to receive visual, auditory, textual information, re-apply to them, repeat, the more information is read into the figurative (iconic) memory.

Image memory is the storage of visual impressions. It is fleeting – a few milliseconds. It is accurate, has photographic clarity, the ability to summarize information. It is the figurative memory that allows the student to memorize educational information in pictures, images, diagrams and tables, to select the necessary information for further processing. Therefore, teaching ESP writing with the use of remote technologies will facilitate students' logical memorization of material, will develop figurative memory.

Distance learning technologies help to increase the perception of information. Perception is understood as the ability of a person to find and interpret sensory stimuli (auditory, visual). Channels of perception are based on physical methods or styles of perception – visual perception (visuals), auditory perception (audials), motor (kinesthetics). There are no clear visuals, audials or kinesthetics. We always use all kinds of senses. Just only one way of perception is the most convenient for an individual.

The use of e-learning elements makes it possible to influence all kinds of senses. It should also be noted that students of IT specialties have a special tendency to structural perception. Structuring is manifested in all spheres of life of programmers. Any professional, and a programmer in particular, is “a whole person who reflects the structure of the profession in the structure of his own experience and sees the world through the prism of professional vision and professional structures”.

The attention factor plays an important role in student age, but the stability of attention is increased only from the age of 22, which indicates the importance of purposeful work on the organization of students' attention in the educational process. Elements of distance learning attract the attention of students because they have a wide range of multimedia use (captivate the student), support quick feedback from the teacher, it is easy to use them.

Our observations of the educational process show that students of IT specialties have a special tendency to a structured perception of information. Structuring comes out in all spheres of life of IT professionals. Any IT professional is a person who reflects the structure of the profession in the structure of his own experience and perceives the world through the prism of professional vision and professional structures (Smulson, 2003). In the work of Bondar L. V. are highlighted the features of the perception of educational material by students of technical specialties, which undoubtedly apply to students of IT specialties, namely: analytical perception of the material, based on differentiated features, establishing logical links between learning elements, hierarchical method of systematization of the studied material. In the exercise subsystem we used a structural way of presenting the material. Each stage has its own structure.

In order to create an effective methodology of teaching ESP writing students of IT specialties using learner-centered approach, it is necessary to highlight not only the individual psychological characteristics of students, but also their professional qualities.

Professional activity leaves its mark on a person, forming special professional features and values in education.

We concluded that the nature of thinking of IT professionals as creative, critical, rational, conceptual, operational, comprehensive is cropped out in the skills and abilities of students of IT specialties: the ability to analyze and correct their professional mistakes, attentiveness, independence, individual responsibility, ability to make decisions in a limited time, the ability to modify, the ability to independently solve problems in different activities and learning. It is this nature of thinking that shapes the technological approach to learning. Students of IT specialties use at a high level the means



Table 1

**The psychological and professional qualities of students of IT specialities**

№	Classification feature	List of qualities
1	Type of intelligence	• Logic-mathematical
2	Type of thinking	• Abstract, logical
3	The nature of thinking	• Creative, critical, rational, conceptual, operational, complex
4	Style of thinking	• Algorithmic
5	Type of memory	• Visual
6	Features of educational material perception	• Analysis of perceived material • Perceptions based on the features' differentiation • Establishing logical connections between elements • Systematization of the studied material in a hierarchy
7	Professional features	• Ability to be accurate • Ability to analyze and correct their own professional mistakes • Carefulness, autonomy, individual responsibility • Ability to make decisions in a limited time • Ability to modify • Ability to solve problems of activity and learning independently • Ability to study throughout the period of professional life
8	Values in education	• Using a computer as a means of professional activity • Focus on professional activities • High motivation

of professional activity – computer, Internet. The use of technical means in English classes helps to increase the level of motivation to study.

After analyzing the psychological and professional qualities of students that are typical for IT specialists we summarized and classified these features in the table. 1.

From the above it can be concluded that during the student years such functions as memory, thinking, perception, attention are at the peak of their development, so influencing them and developing them creates an opportunity for students to learn the material better. And the use of distance learning elements allows us to do so.

Learner-centered approach will fit the individual-psychological peculiarities of the IT professionals as individuals in the process of their professional activity.

**Conclusions and prospects for further research.** The use of learner-centered approach, in our opinion, is necessary because the process of mastering ESP writing is aimed at meeting students' educational needs as individuals of this activity and professional needs in the process of the professional activity. The organization

of classroom and extracurricular work of students of IT-specialities in the context of learner-centered approach involves: focus on the student's personality, goals, motives, interests, as well as building learning based on individual characteristics of IT students, cooperation between teachers and students, creative nature of tasks aimed at developing self-control, self-regulation, self-assessment of their own activities. Thus, the theoretical analysis of the scientific literature allowed to determine the psychological and pedagogical preconditions for creating a method of teaching ESP writing, namely: taking into account the psychological and professional qualities of students of IT-specialities – type of intelligence, type, style and nature of thinking, the peculiarities of the perception of educational material, professional features, values in education.

The results of the analysis made in the paper indicate the need to develop a methodology for teaching ESP writing students of IT specialties taking into account their psychological and professional qualities, the use of e-learning elements and this should be done using learner-centered approach.

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