

*effectively use language norms to achieve certain goals and objectives, in accordance with specific professional speech situations. The main ways to increase the motivation of future bachelors of social work in the formation of professional speech competence are outlined. Further scientific investigations concerning the improvement of the pedagogical model of formation of professional speech competence of students in a technical institution of higher education have been clarified.*

**Key words:** *motive, motivation, speech, interest, need, stimulus, professional speech competences, future bachelors of social work, social work specialists.*

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## **LEARNING TO READ IN ENGLISH AS A MEANS OF DEVELOPING THE ANALYTICAL SKILLS OF FUTURE IT SPECIALISTS**

*The article describes the preliminary results of developing a pedagogical system to form analytical skills of students – future specialists in computer technologies. Professional studies allow us to identify the abilities that ensure the success of professional activities. Based on the results of the study, contradictions have been revealed which actualize the necessity of updating the content of professional education and searching for effective means of improving the quality of professional training of computer security specialists in higher education institutions. Implementation of the system of forming analytical skills among future computer security students in a foreign language course allows to make preliminary conclusions that the process of foreign language teaching will contribute to the formation of analytical skills necessary for professional growth, successful self-improvement based on the analysis of their activities (reflexive component), improvement of knowledge (cognitive component), obtaining and processing information (informative component), efficient use of information resources (information component). Development of analytical skills determines readiness of a computer security specialist for professional activity and provides the ability to effectively solve various professional tasks.*

**Key words:** *analytical skills, foreign language, English language, reading, types of reading, IT technologies, working with text, stages of work with text.*

**Introduction.** Information technology is developing rapidly. Information is an important factor in social life. Ubiquitous computerization and a considerable increase in the volume of information and information resources have increased the importance of the profession of a computer scientist.

IT specialists are increasingly in demand. Training specialists in this field at a higher educational establishment is a responsible and multifaceted process. Today, the idea of shaping the competence of a future specialist is not just a reflection of global trends; there is an understanding that training specialists in accordance with global qualification requirements will ensure their successful self-realization and allow them to effectively solve professional tasks in the future.

**Analysis of relevant research.** The problem of developing analytical skills in students of different specialties in higher education institutions is considered by many scientists: E. Belous, P. Galperin, S. Ginne, Y. Dementieva, N. Kuzovlev, T. Medvedeva, E. Passov, V. Slastenin, P. Tarasov, I. Khruleva, V. Chirkova, J. Cowan, R. Heneman. Scientists (O. Kisliakova, L. Kurilenko) have proved that the system of higher professional education helps to form the skills necessary for future professional activities. The achievement of the goals in training, education and development of a person is facilitated by a pedagogical system (S. Batashev, V. Bepalko, N. Kuzmina), which is an ordered set of interrelated elements that form an integral unity (Sadovsky, 1974).

**The aim of the article** is to reveal the principles of analytical skills formation that contribute to the effective solution of professional problems of students – future IT specialists and determine their readiness for professional activities.

**Research Methods.** The methods of research that contribute to the achievement of the goal and solving problems were identified: analysis of literature on research; synthesis and generalization; method of description in the development of a pedagogical system for the formation of analytical skills of students – future IT specialists.

**Results.** The specific nature of the professional activity of a modern computer specialist requires formation of analytical skills for the competent solution of professional tasks, readiness for analytical activities. Professional studies allow us to identify the abilities that ensure the success of professional activities. Logical thinking, the ability to analyze a situation (analytical skills), flexibility and dynamism of thinking are the first on the list of qualities of computer specialists (Romanova, 2003). Professional activity of computer security specialists requires analyzing one's own and others' actions, observation results, studying a considerable volume of technological information, and writing analytical reports. The ability to compare and contrast data, to analyze, synthesize and evaluate information, to make cause-and-effect relationships, to draw conclusions, and to distinguish between relevant and unimportant data is an integral part of one's professional activity. Consequently, development of analytical skills is very important for computer security specialists.

Any system is characterized by a set of its constituent elements. The principle of consistency allows us to identify the main elements of the process under study, consider them from the perspective of systemic relationships, structural characteristics and hierarchical relations. Thus, we understand the system of forming analytical skills of students – future computer specialists as a

set of interrelated methodological, methodological and content foundations, reflecting the context of professional activity of computer specialists and having a hierarchical structure.

The system we have developed includes target, activity, content, process, and outcome elements. The aim of the system is to form analytical skills in students – future computer specialists. The aim of the system determined the research objectives: to determine the structure of the system of forming analytical skills of future computer specialists; to select the content, methods and means of their formation.

The activity element of the system of forming analytical skills of students – future IT-specialists is represented by the operations of professional activity of practical orientation. Thus, the professional activity of a computer specialist is characterized by constant analysis of actions performed, observation results, and technological information. An important part of professional activity is mastery of logical thinking techniques, represented by analytical operations: comparing and contrasting data, analyzing information, making assessments, establishing cause-effect relationships. Before solving a professional task in the course of his/her activities, a computer specialist should determine and specify an objective, identify ways and means of achieving it, select the most effective of them, assess risks, and, when summarizing the results, analyze the effectiveness and efficiency of the activities performed. This suggests that analytical skills are essential to the professional tasks of IT-specialists.

By analytical skills we mean actions aimed at the conscious implementation of analytical operations of analysis, synthesis, comparison, generalization, classification in accordance with the rules on the basis of knowledge and experience. We assume that analytical skills will ensure qualitative changes in the learner's personality and contribute to his/her professional development.

The content of professional training is determined by curricula developed on the basis of qualification characteristics. The main educational program of computer training includes humanities, social and economic study cycle; mathematics and natural sciences cycle; professional cycle.

The content analysis of the disciplines of the above-mentioned cycles showed that analytical skills can be implemented in the study of disciplines of professional and mathematical cycle, however, the disciplines of humanities cycle, in particular English, can contribute to the formation of analytical skills. The selection of educational content suggested that foreign language becomes significant in this process, as it develops logical and systemic thinking, develops memory, the ability to analyze, the ability to compare.

Taking into account employers' requirements, specifics and peculiarities of computer security specialists' professional activities, it is noted that a future computer security specialist needs a high level of formation of analytical skills, as they are a tool for qualified performance of professional duties. Thus, the process of professional training of future computer security specialists should contribute to the formation of analytical skills of computer specialists.

Analytical skills are an expression of intellectual, transformative activity. According to researchers, analytical skills belong to the specialization of the left brain hemisphere and are responsible for logic and fact analysis (Tarasov, 2010). Analytical skills form the basis of professional skills, which reflect readiness for activity. Analytical skills are expressed in a person's ability to analyze, to translate information from one sign system to another. Analytical skills are required for the successful performance of a person's gnostic function and are defined by "individual psychological qualities such as, for example, observation, criticality of mind, analyticity" (Zimnia, 1991). Analytical skills are general human intellectual skills that allow the independent acquisition of knowledge and its effective use, as well as provide the ability to solve production tasks in an unconventional and creative way. They are particular skills (see table 1), which are expressed in operations.

*Table 1*

**Skills building through private operations**

<i>Skills</i>	<i>Operations</i>
Information comprehension (identify the main idea, summarize what you have read, separate the main information from the secondary information)	Getting an overview, extracting general information, making an initial generalization
Ability to analyze information (ability to relate individual parts of the text and establish links between them, group the main facts of individual semantic parts)	Establishing cause and effect relationships, searching for key words, classifying, comparing, contrasting information and facts
The ability to think critically about information (assess and interpret text content, make assumptions about its development)	Highlighting important information, making logical arguments, evaluating the facts presented, drawing conclusions and conclusions

However, as practice shows, the students who have entered the university have a poor command of the methods of analysis, synthesis, classification, comparison. Absence or weak formation of analytical skills is revealed when solving certain tasks in foreign language lessons (on the example of working with foreign language texts): analyze, summarize, classify the received information, compare facts, choose key words, argue their opinion, draw conclusions.

We believe that the level of analytical skills formation will increase if specially organized work aimed at mastering analytical skills, in particular in such type of speech activity as reading, is carried out in the process of learning at university. In this regard, we note the need to specifically organize the process of foreign language education using reading of professionally oriented texts to form such a new quality in students as analytical skills, developing and improving the language base of students.

Scientists argue that formation of analytical skills occurs in stages (N. Gress, M. Kochumanova, A. Usova). Based on the concepts of skill formation (P. Galperin, N. Talyzina), we have identified four stages of forming analytical skills in terms of development levels and leading qualities of activity: receptive, reproductive-integrative, productive, independent.

Each of the stages of text work could be aimed at forming specific skills. For example, determining the purpose of reading was part of the motivational stage and was characteristic of the receptive stage of analytic development. In the analytic stage of textual development the skills of analyzing information and identifying the main idea of the text are developed.

*The outcome element* of the system is represented by the formed analytical skills in the components of readiness for professional activity. The model of computer security specialist readiness for professional activity includes the following interrelated components: cognitive, informative, technological, and reflexive.

*The cognitive component* implies knowledge of the theory of basic thought operations of analysis, synthesis, comparison, classification, generalization, abstraction, and the ability to apply them in practice. The cognitive component ensures that the accumulated knowledge is updated, expanded and incremented.

*The informational component* includes the ability to acquire and process large amounts of new information, the ability to use different information sources, both printed and electronic. Reading is an important skill in the information component. Different types of reading (exploring, browsing, searching, reading) contribute to the development of information competence, as it allows navigating in the information space in order to obtain the necessary data.

*The technological component* implies the ability to use analytical operations in professional activities: analyze, classify, summarize facts, draw conclusions on the basis of available data, predict development of the situation, make judgments about the obtained facts. Presence of a technological component in the model of readiness for professional activity

defines analytical skills as the basis of computer security specialists' professional activity.

*The reflexive component* implies that computer security specialists should be able to analyze their own and other people's actions, evaluate their actions and activity results, analyze the experience gained, and reflect on the situation. The reflexive component, therefore, contributes to the evaluation of the results of actions and self-improvement through the analysis of one's own activities.

"The study of linguistic material in foreign language lessons improves the ability to compare, generalize, synthesize, analyze, and abstract from individual facts" (Shcherba, 1974). Scientists (V. P. Kuzovlev, A. I. Novikov, E. I. Passov, G. V. Rogova, T. S. Serova, K. D. Ushinsky, L. V. Shcherba) note that learning a foreign language provides an opportunity to compare and analyze lexical and grammatical phenomena of foreign and native language, improve thinking operations, highlight the main content of texts, analyze their linguistic form, establish cause-effect connections, study and structure the information obtained (Menshenina, 2013).

The procedural element of the system of forming analytical skills is implemented in the process of teaching different types of reading in a foreign language. Reading is the most important element of learning technology. Researchers prove that «the ability to read authentic foreign language texts has a great educational and developmental potential» (Romanova, 2003, p. 39). "Reading as a type of speech activity is perceptual and thinking activity, which is aimed at extracting information from the printed text and the procedural side of which is analytic-synthetic in nature, predetermined by the specific purpose of the reader" (Folomkina, 1987, p. 22). The function of reading is to provide access to a variety of information sources, which is extremely important in the context of working with information. Through reading a person satisfies his or her cognitive needs. Reading is a kind of guide to the information environment.

Reading is one of the most important speech activities in a foreign language. Reading provides information in a modern, constantly changing and expanding space of information. The ability to understand the essence and importance of information in the development of modern society, to process large volumes of information, to conduct purposeful search in various sources of information in the profile of activities in global computer systems, networks, library collections and other sources of information are important requirements for computer security specialist nowadays.

The essence of the reading process is to acquire information and decode it in order to make sense of it. In the process of reading, mechanisms

such as comparison, analysis, synthesis, generalization, and abstraction are developed (Veyze, 1985).

The general skills that the reader uses in all situations are aimed at understanding, comprehending and processing the content and are related to analytical operations: the ability to highlight the main idea (important facts, data) – comparison, generalization; the ability to summarize what has been read, to separate the main from the secondary information, to highlight the new – generalization, analysis; correlate and connect individual text units and group the main facts of each meaningful text unit – abstracting, classifying, comparing; being able to assess the intention of the text and its further development – analysis, generalization; the ability to clarify the understanding of the text content with the help of analysis (exploratory reading) and synthesis (exploratory, searching reading) – analysis, synthesis; the ability to evaluate and interpret the content of a text – analysis, abstraction.

Researchers point out that reading in a foreign language implies not only understanding the text read, but also the ability to navigate through it, analyze and highlight information useful for professional activities. The tasks students perform after reading a text – summaries, abstracts, descriptions, comparisons, assessments – aim to carry out such operations as analysis, generalization, comparison, classification, and form the basis of analytical skills. Working with authentic texts on specialty, solving problem situations, answering posed questions, classifying and searching for required information in a text are tasks that contribute to the formation of analytical skills – a quality necessary for successful activity in the future specialty.

The gradual acquisition of reading skills in a foreign-language text in the field of study can follow the principle from simpler to more complex tasks.

At the first stage the ability to understand the grammatical structure of a sentence, read in semantic groups, understand words expressing connections and relations between text elements is formed, as a result of which the ability to independently overcome language difficulties during text reading and the skill of semantic prediction are formed.

In the first stage, the texts should be long, but not difficult from a lexical-grammatical point of view. The students read the text without translation once in the time allocated by the teacher. Only the basic information is checked. Step one prepares the reader to be able to predict the content of a text from its title. At this stage the following tasks are suggested: find equivalents of English words and expressions; write key words and word combinations; find antonyms/synonyms to words; write text output data; make assumptions about text content based on its

title; confirm assumptions by reading the text. The tasks of this type are based on thinking operations of analysis and classification.

At the next stage semantic analysis of the text takes place. The main task performed at this stage is to divide the text into meaningful parts, search for the main information of each meaningful part of the text. At this stage, in order to form analytical skills, it is recommended to perform the following tasks: select the necessary sentence according to the text content; translate separate word combinations; translate sentences taking into account certain grammatical phenomena; select Ukrainian sentence equivalent to English; finish sentences according to the text content; determine which paragraph is generalizing; divide the text into logical parts; titulate text parts; select main sentence of each semantic part; make an outline of the retelling; draw conclusions; confirm or refute your own assumptions about the content of the text. Such tasks are based on the specific skills of analysis, comparison and generalization.

The aim of the third stage is to develop the ability to analyze the conceptual apparatus and learn the terminology within the framework of the specialty.

The aim of this stage is to prepare students to make an independent statement on the topic, determine the composition structure of the text, form the skills of abstracting and annotating the text. At this stage, the following learning tasks can contribute to the formation of analytical skills: find facts in paragraphs that complement the topics of other paragraphs; complete the content of sentences; establish a cause-effect relationship between the judgments; replace a complex sentence with a simple one; using your own judgments, answer questions; compose a text message; arrange items in accordance with the logical structure of the text; prepare a message on the topic; identify the introduction, main part, conclusions in the text; write an abstract; prepare problematic discussion questions; retell the text using key words, expressions, clichés.

In these types of textual work, the skills of analysis, classification and synthesis are practiced.

At the fourth stage, professional expression is taught using the system of language tools that are involved in the process of scientific communication. At this stage the following learning tasks are performed: to summarize the content of the text according to the scheme: title, main idea, author's conclusions; to summarize the content of paragraphs, presenting each in one sentence; to find sentences that are the conclusion of the whole text; to select the sentences necessary for inclusion in the abstract; to write an abstract of the

text; to write an abstract, using clichés such as: *The problems ... are considered in the text; The text deals with...*; present the results of research on the problem; compose a special report for a conference on the problem raised; find additional material on the topic of the text and expand its content.

The operations of generalization, systematization, abstraction, and analysis are practiced through similar tasks.

In the process of reading and further work with the text in the foreign language lessons, the particular skills and general analytical skills of future computer specialists are improved.

**Conclusions.** Knowledge of English is an indispensable characteristic of a qualified computer professional. Specialists note that English is the language of terminological origin of computer science, the boundaries of international cooperation are expanding, and there is a growing demand for specialists who are practically fluent in a foreign language. The professional activities of an IT specialist require the ability to use databases, use a foreign language to create computer programs, conduct information search, obtain constantly updated information on the specialty.

The professional activity of an IT specialist requires using databases, using a foreign language to create computer programs, performing information retrieval, getting constantly updated information from original sources in a foreign language, continuing his/her education independently and improving professional skills. Hence, formation of analytical skills of students – future computer specialists in the educational process in a foreign language is of great importance and contributes to the successful implementation of the specialist professionally.

Analytical skills are significant for each component, as they are used to extract knowledge from practice. Implementation of the system of forming analytical skills among future IT-specialists in a foreign language course allows to make preliminary conclusions that the process of foreign language teaching will contribute to the formation of analytical skills necessary for professional growth, successful self-improvement based on the analysis of their activities (reflexive component), improvement of knowledge (cognitive component), obtaining and processing information (informative component), efficient use of information resources (information component). The development of analytical skills determines the readiness of a computer security specialist for professional activity and provides the ability to effectively solve various professional tasks.

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### РЕЗЮМЕ

**Косович Ольга.** Обучение чтению на английском языке как средство формирования аналитических навыков будущих специалистов по ИТ-технологиям.

*В статье описываются результаты развития педагогической системы для формирования аналитических навыков студентов – будущих специалистов в сфере ИТ-технологий. Исходя из результатов исследования, были обнаружены противоречия, которые актуализуют необходимость обновления содержания профессионального образования и поиск эффективных средств повышения качества профессиональной подготовки специалистов компьютерной сферы в высших учебных заведениях. Раскрывается взаимодействие этапов работы с текстом в процессе обучения чтению и этапам формирования аналитических навыков. Сделано заключение, что формирование аналитических навыков способствует эффективному решению профессиональных проблем и определяет готовность к профессиональной деятельности.*

**Ключевые слова:** аналитические навыки, иностранный язык, английский язык, чтение, виды чтения, ИТ-технологии, работа с текстом, этапы работы с текстом.

### АНОТАЦІЯ

**Косович Ольга.** Навчання читанню англійською мовою як засіб формування аналітичних умінь майбутніх фахівців з ІТ-технологій.

*У статті описуються розробки педагогічної системи для формування аналітичних навичок студентів – майбутніх фахівців з ІТ-технологій. На підставі результатів дослідження було виявлено протиріччя, які свідчать про необхідність оновлення змісту професійної освіти та пошуку ефективного засобу підвищення якості професійної підготовки фахівців у сфері комп'ютерних технологій у закладах вищої освіти. Виявлено взаємозв'язок етапів роботи з текстом під час навчання для читання та етапи формування аналітичних навичок. Підсумовано, що формування аналітичних навичок сприяє ефективному вирішенню професійних проблем і визначає готовність до професійної діяльності.*

*Доведено, що знання англійської мови є невід'ємною характеристикою кваліфікованого фахівця з комп'ютерної техніки. Професійна діяльність ІТ-фахівця вимагає вміння користуватися базами даних, використовувати іноземну мову для створення комп'ютерних програм, проведення інформаційного пошуку, отримання інформації за спеціальністю, яка постійно оновлюється.*

*Професійна діяльність ІТ-спеціаліста вимагає використання баз даних, використання іноземної мови для створення комп'ютерних програм, здійснення пошуку інформації, отримання інформації з першоджерел іноземною мовою, продовження самостійної освіти та вдосконалення професійних навичок. Отже, формування аналітичних умінь студентів – майбутніх комп'ютерних фахівців у навчальному процесі іноземною мовою має велике значення та сприяє успішній реалізації фахівця професійно.*

*Аналітичні навички є важливими для кожного компонента, оскільки вони використовуються для вилучення знань із практики. Упровадження системи формування аналітичних умінь серед майбутніх ІТ-фахівців у курс іноземної мови дозволяє зробити попередні висновки, що процес навчання іноземної мови сприятиме формуванню аналітичних навичок, необхідних для професійного зростання, успішного самовдосконалення на основі аналізу їх діяльності (рефлексивний компонент), удосконалення знань (когнітивний компонент), отримання та обробки інформації (інформативний компонент), ефективного використання інформаційних ресурсів (інформаційний компонент). Розвиток аналітичних навичок визначає готовність фахівця з комп'ютерної безпеки до професійної діяльності та забезпечує здатність ефективно вирішувати різні професійні завдання.*

**Ключові слова:** *аналітичні навички, іноземна мова, англійська мова, читання, види читання, ІТ-технології, робота з текстом, етапи роботи з текстом.*

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## **HIGHER EDUCATION IN THE MODERN WORLD: THEORIES, CONCEPTS, APPROACHES**

*The article is devoted to outlining the theories, concepts and approaches underlying higher education provided by modern universities that are research innovation centers playing an important role in economic, social and cultural development of society. The results of the analysis of the scientific literature on philosophy, linguistics, psychology, social anthropology have been presented.*

*The aim of the article is to present the results of research of the scientific literature devoted to highlighting the theoretical and methodological basis of modern higher education.*

*To carry out scientific research of theoretical and methodological bases of higher education we have used a set of research methods: analysis and synthesis to study the sources of research, comparison and contrast of scientific works dealing with theories, concepts and approaches to higher education in philosophy, linguistics, psychology, and social anthropology, generalizations to formulate conclusions and predicting further investigation on the research problem.*

*The research highlights the results of the survey by R. Willwood, who proposed a classification of theories and concepts underlying modern education; the educator D. Kolb, who proposed the paradigm of experiential learning, P. Honey and A. Mumford, as well as N. Fleming; the philosopher and educator P. Freire, who is a representative of critical pedagogy; and D. Hergreaves – a developer of the concept of interpersonal relations. The ideas of J. Dewey (1938), who worked on the theory of experiential learning, as well as supporters of constructivism: E. von Glasersfeld, J. Piaget, and L. Vygotsky have been pointed out. Scholars studied constructivism from a social (L. Vygotsky), cognitive (J. Piaget) and radical (E. von Glasersfeld) perspectives. The article highlights the classification of pedagogical goals proposed by D. Bloom.*