

Reznik S. M., Kuznetsova H. A. Peculiarities of the perception future engineers teaching of the higher mathematics teaching at the higher educational school

The peculiarities of the perception of future engineers of higher mathematics as a discipline that is the basis of any engineering specialty and significantly affects the formation of basic professional competence of the future engineer are considered. The analysis was conducted using a questionnaire conducted among students in the first two years of study. The differences in the perception of this discipline between the first and second years of the first level of higher education, which indicate that second-year students are more conscious in the study of higher mathematics, understanding its importance. Conclusions are made on improving the organization of work during classroom (lectures, practical and additional) classes. It is determined that not all students perceive higher mathematics as a compulsory subject for future engineers, a very large percentage believe that mathematical knowledge will not be needed in the future profession of engineer. Based on this observation, it was concluded that the development of intrinsic motivation to study, so that the discipline of "Higher Mathematics", which is mandatory, was studied not only because the program requires it, but also because it is interesting, useful, mathematical knowledge is the development and improvement of analytical, engineering, logical thinking, and so on. Also, with the help of this observation, it was found that the current generation is very positive about different forms of training, namely – a significant number of respondents do not mind conducting online classes using different platforms (Teams, Moodle). Prospects for further research are to conduct a similar questionnaire in the third or fourth year of bachelor's and master's degrees, and in their comparative analysis to improve the process of mathematical training of future engineers in the higher education.

Key words: higher mathematics, teaching, specialty, future engineers, future specialists, professional competence.

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METHODS OF OVERCOMING COMMUNICATIVE BARRIERS IN THE PROCESS OF LANGUAGE TRAINING OF FOREIGN STUDENTS¹

The article is dedicated to the investigation of the ways of communicative competence formation. Existing psychological and pedagogical approaches to the definition of language psychological barriers are analyzed. An explanation of the concept of "communication barrier" and the reasons for its occurrence are given. The causes of speech anxiety are considered. The factors that determine the difficulty in producing spontaneous foreign language and the causes of language psychological barriers in students of higher technical institutions are revealed. It is noted that the causes of the language barrier are closely linked to low self-esteem, fear of having to speak a foreign language, negative previous experience of learning a foreign language, lack of motivation to learn a language; unwillingness to overcome language difficulties independently, unwillingness to make mistakes in front of the group; fear of causing laughter or disapproval, inability to apply knowledge in real communication situations, etc. The leading role of the teacher in overcoming obstacles in learning a foreign language is emphasized. The process of learning a foreign language in technical universities has its own specificity and requires constant student motivation. The recommendations on the organization of the educational process in a foreign language, taking into account the factor of the language barrier are given: systematic support by the teacher of a favorable psychological atmosphere, taking into account the individual characteristics of students, improving their self-esteem, choosing the right educational strategy, etc. The possibilities of using communicative games, speech formulas, technology of edutainment, as a means of overcoming the communicative barrier in learning a foreign language are also considered. The author concludes that overcoming language barriers is an important prerequisite for students to successfully acquire a foreign language competence.

Key words: language barrier, psychological barrier, foreign students, motivation, speech anxiety, communicative game, problem-based learning, pedagogical technology.

The educational process in modern conditions of reforming the education system requires constant improvement. This is primarily due to a change in priorities and social values: today, integration processes are beginning to be perceived as a means of achieving such a level of education quality that would most closely meet the satisfaction of a person's needs and the development of his spiritual wealth. Training of specialists for all branches requires a radical change in the strategy and tactics of education in higher educational institutions of Ukraine. The main requirements for a university graduate are not only the ability to learn, but also the availability of professional knowledge, skills and abilities, competence and mobility. That is why the emphasis in teaching academic subjects and disciplines is transferred from the moment of formation of knowledge, skills and abilities to the process of cognition itself, the effectiveness of which largely depends on the cognitive activity of students. The new socio-economic conditions of modern society and the gradual integration of Ukraine into the European and world community put forward higher requirements for teaching languages. If earlier it was about a simple mastery of a set of certain lexical and grammatical skills, now of great importance is the ability of students to extract information from written and oral sources in a foreign language.

¹ Статтю подано мовою оригіналу.

The mastery of such a skill is relevant in modern society, and its absence hinders the satisfaction of the individual's need for new information. The problem is that students receive a significant amount of linguistic knowledge, while they do not always master a foreign language, that is, they cannot read and understand oral and written messages fluently enough, express themselves on the proposed topic, without encountering difficulties, including psychological ones. The effectiveness of the language training of foreign students in the process of educational and professional activities in higher education, as well as in practical life in general, largely depends on the psychological readiness of a person to learn and apply a foreign language, on the ability to overcome the prevailing stereotypes and on the idea of their capabilities.

Practical experience shows that students of technical higher educational institutions experience difficulties in producing a spontaneous foreign language to a greater extent. These difficulties are due to various reasons: fear of public speaking, increased anxiety, fear of mistakes, internal expectations of criticism, insufficient vocabulary, and so on. All these facts confirm the existence of the so-called language barrier, which hinders the effective communication of students in other languages.

The effectiveness of mastering a foreign language in the process of learning in the higher educational institution, as well as in practical life in general, depends largely on the psychological readiness of a person to learn and use a foreign language in communication, the ability to overcome stereotypes and psychological difficulties. This requires resolving the contradiction between the requirements of modern society for the training of future professionals capable of communicative actions in situations of professional foreign language communication and the existing system of foreign language training in higher educational institution, which would take into account the language barrier when learning a foreign language.

The language training of foreign students in technical university has a number of features and requires consideration of many factors. Unlike students of linguistic faculties or native speakers, who choose languages as their main specialty and pay maximum attention to it or use the language in every day communication, foreign students of technical specialties often do not see the point in mastering the language of the country of study, have very low motivation to learn the language. The aim of modern language teachers in technical educational institutions is to find new effective ways of learning a foreign language, which is a separate problem that can be solved by developing and implementing new learning technologies.

In view of the above, we formulate **the purpose** of the article, which is to develop methods of overcoming language barriers in the process of language training of foreign students.

Prominent psychologists such as S. Freud, K. Jung, A. Adler, K. Rogers, E. Byrne, etc. addressed the study of the essence of psychological barriers in the context of the main directions of different schools (psychoanalytic theory of personality development, cognitive, humanistic psychology). Different types of psychological barriers are considered in the works of modern scientists depending on the understanding of its nature, essence, methods of analysis: meaningful (L. Bozhovich, M. Neymark), emotional (M. Balinskaya, E. Ilyin, L. Filatov), innovative (L. Podimova, A. Safina), cognitive (N. Marakhovskaya, A. Pilipenko), communicative (V. Galigin, G. Kish-Vaida, Z. Noliu, E. Tsukanova), barriers in communication (N. Volkova, V. Kan-Kalik, B. Parigin, N. Obozov), in creative self-realization of students (K. Karamov), in pedagogical activity (I. Glazkova, A. Markova, N. Podimov), barriers that arise in the process of studying the subject (O. Barvenko, N. Gubareva). Psychological barriers that prevent communication in other language are called "language barriers". Research by L. Aronina, O. Bondarenko, M. Kasparov, G. Kitaygorodska, N. Naenko, O. Ovchinnikova, G. Pishcheva, A. Royak and others are devoted to the disclosure of the peculiarities of learning a foreign language in higher educational institutions, where students as subjects of educational activities are characterized by a number of specific parameters that, depending on the learning context, may be either reserves or obstacles to learning. However, the reasons for the emergence of psychological language barriers in foreign students of technical institutions in language training classes and ways to overcome them are still relevant.

The language barrier manifests itself as an individual, subjective inability to use existing knowledge. This is a kind of psychological barrier to speech, which is the inability to express own thoughts and own point of view [1]. N. Yakovleva offers an interpretation of this phenomenon in the process of learning foreign languages as a psychological phenomenon that arises due to lack of motivation, inadequate self-esteem, unfavorable psychological atmosphere in the study group and lack of skills needed to provide communication and leads to blocking effective communication, process of joint activity [4].

In domestic psychological and pedagogical science, the psychological component is often indicated as the dominant cause of the language barrier (O. Barvenko, T. Verbytska, O. Vysotska). Foreign scholars use slightly different terms to describe this phenomenon. Thus, the word "barrier" is used by them for such concepts as poverty, inaccessibility of education, personal attitude and society's attitude to the need to learn a foreign language, age, motivation, linguistic distance between native and foreign languages. The closest to the "language barrier" in the foreign scientific literature are the concepts of "mental block", "foreign language anxiety". The language barrier is considered by scientists (N. Bekleyen, J. Cope, E. Horwitz, H. Luo, M. Tallon, L. Woodrow) as situation-specific barriers related to the learning a foreign language, especially speech reproduction, and is a constant stressful situation, because the probability of making mistakes is much higher due to the need to create speech in a language that is insufficiently mastered.

The reasons for the language barrier are closely related to low self-esteem and fear of having to speak in a foreign language. From a psychological point of view, it is based on various fears associated with temperament, low levels of emotional stability and low self-esteem of the student. This can be self-doubt due to mistakes and blunders; unwillingness to make mistakes in front of the group; fear of causing laughter or disapproval; awkwardness in a situation of conversation paired with a “strong” (those who speak the language well) interlocutor; inability to apply knowledge in a situation of real communication, etc. Sometimes there is a reason such as students’ insecurity in the level of knowledge of a foreign language, which they consider imperfect, and therefore do not want to participate in communicative activities in the classroom. Negative previous experience of learning foreign languages, lack of motivation to learn a language can also be the reasons for the appearance of a psychological language barrier; unwillingness to overcome language difficulties on their own.

O. Kotelnikova and I. Shportko, in addition to psychological difficulties that cause the appearance of language barriers in language learning, also pay attention to linguistic difficulties [3]. According to researchers, the linguistic barrier is easier to overcome because it is associated with objective difficulties (lack of vocabulary, lack of grammar, difficulty in understanding a foreign language by ear due to poor listening skills, etc.).

Some scholars also regard the teacher’s personality as a reason for obstacles to language learning. Thus, S. Krashen argues that this happens when the teacher dominates the audience, talks too much or constantly instructs, corrects every mistake, comments on students’ statements, often believing that otherwise he will lose control over the learning process.

The practice of teaching Ukrainian to foreign students of technical universities allows us to argue that the language barrier in this category of students is the main obstacle to effective communication. It causes emotional breakdowns of students, self-doubt, negatively affects their success, reduces motivation to learn the language, contributes to the misinterpretation of the interlocutor’s behavior. A number of students come to the conclusion that they are not “naturally” endowed with the abilities without which it is impossible to overcome the language barrier.

Researchers who have studied the issues of overcoming language difficulties in learning a foreign language agree that to solve this problem requires the following conditions: recognition of the barrier and awareness of the causes of its occurrence; the presence of strong motivation to overcome it; conditions and resources to eliminate this obstacle, including professional assistance [4].

N. Yakovleva as a means of overcoming language barriers proposes the creation of a favorable psychological climate in the student group (emphasis of the teacher on students’ success, achievements in mastering foreign languages, creating communication situations in which the student is convinced that his success is a manifestation of his abilities); corrective influence on the inadequate level of aspirations and self-esteem (increase of educational motivation by including students in collective creative activity, structural organization of the group goal and its correlation with personal tasks); formation of communication skills by activating the reserve capabilities of the individual and the use of social experience of students (organization of collective activities, during which group members determine their communication skills and master the technique of communication) [5].

Supporting the researcher’s suggestions, let us note that creating an emotionally favorable atmosphere in the classroom helps to attract even the least active students to classes, allows overcoming existing fears in students, including the teacher, fear of making mistakes and more. An effective way to reduce stress is to start with a joke or a small language game. A possible trick is also a “deliberate mistake” that the teacher makes on the board and asks students to correct it. This technique demonstrates that the teacher is tolerant of mistakes, is not afraid of them, and therefore students should not be ashamed of them, most importantly – to correct them. Also important is the support of students’ desire to express themselves, listening to their opinions, because it helps to improve students’ self-esteem, causes them a sense of security. Thus, the level of language proficiency and possible mistakes of the student are attributed to this character, which significantly reduces the fear of public speaking and optimizes the process of foreign language communication.

O. Vysotska draws attention to the important role of the teacher in overcoming the language psychological barriers of students [1, p. 287], defining as favorable factors his high psychological and professional competence; knowledge and application of innovative teaching methods and modern methods of learning intensification; formation of the necessary individual personality traits; constant purposeful work on improving the course; focus on the formation of students’ stable positive motivation and interest in learning the language; creating the necessary language environment; application of individual approach in teaching, etc.

The most difficult part of learning a foreign language is the grammatical aspect, which is also the most important, because full-fledged communication cannot take place without a grammatical basis. However, modern communicative-oriented programs on the Ukrainian language as a foreign language in higher technical educational institutions do not provide for a thorough study of grammar. In addition, as practice shows, students often know grammar rules, do not make mistakes in exercises, but do not know how to apply this knowledge in situations of real communication. In our opinion, when selecting grammatical material in technical educational institution, the emphasis should be on an active productive grammatical minimum. With regard to vocabulary, it is appropriate for students to focus on learning new words and expressions in context. Under these conditions, the teacher’s task is to teach students the most effective methods of memorizing vocabulary with maximum involvement of all types of memory: visual, auditory, motor, logical (e.g., the method of mnemonic associations, selection of antonyms and synonyms, etc.).

For the development of speech skills is an effective method of studying clichéd expressions, speech formulas that help get rid of tension in the language and make it more alive. Such words-substitutes of pauses in language help to keep confident in conversation, allow to reach fast and necessary effect in communication and provide the student with time for searches of the corresponding words for thought expression. Speech formulas can speed up the mental processing of information, so, from the point of view of psycholinguistics, the human brain seeks to minimize analytical resources, and if it is only guided by a system of rules, it will experience additional load because it has to use all possible linguistic resources.

To the above-mentioned means of overcoming language difficulties we will also add the maximum approximation to the communication in real life, the organization of group, pair and individual work of students by planning as many communication situations and encouraging attempts to participate.

At the present stage of higher education development, mastering a foreign language is considered to be the acquisition of communicative competence on the basis of the formed linguistic competence. For free command of the language it is not enough to teach students the means of expression, i.e. lexical and grammatical structures, although the level of communicative competence is directly related to the level of lexical and grammatical aspects of language, awareness of rules, words compatibility. The study of such material leads to the enrichment of speech not only quantitatively but also qualitatively. It is necessary to reconcile the use of language units with their internal content, student must understand the internal laws of foreign language reality, the semantic world of the language being studied. The task of the language teacher is to help the student to include in his individual consciousness a new semantic world represented by a foreign language, to make sure that the student is interested in the process of learning a foreign language so that he can improve knowledge, understanding internal laws of another language. It must be recognized that the study of language should be meaningful, addressing the system of ideas at the level of cognitive consciousness of the people. In the modern system of teaching language training in higher educational institutions, the essential components of the content of education are the culture and literature of the studied language, and in teaching methods cognitive orientation is put forward, while the emphasis shifts from communicative to intercultural communication. Oral communicative competence involves the ability to listen, understand, speak. Communicative competence is the goal and result of learning, but this result becomes real only in the presence of formed linguistic competence and high motivation of students. The principle of communicative orientation determines the content of learning – selection and organization of linguistic material, specification of areas and situations of communication, puts the teacher in need of appropriate organization of the educational process, the use of various organizational forms for communication that increase learning motivation.

One of the effective methods of removing the language barrier is edutainment – pedagogical technology, which is a set of modern technical and didactic teaching means and is based on the concept of learning through entertainment. The essence of edutainment is that knowledge should be transferred in a clear, simple and interesting way, as well as in a comfortable environment for the student. The specifics of this technology is the emphasis on enthusiasm (important for the educational process is the interest, which with competent development will lead to the accumulation of student knowledge) and motivation through entertainment (pleasure in learning, which helps to reveal the student and form a lasting interest in the learning process). The use of modern means of edutainment in the practical work, such as comics, videos, educational games, electronic textbooks and simulators, TV programs, online versions of museum exhibitions and tours, workshops, etc. confirm their positive impact on overcoming the language barrier in students.

Overcoming language barriers that negatively affect the effectiveness of foreign students' learning activities, hinder the implementation of their acquired knowledge, skills and abilities, inhibit the disclosure of creative abilities is an important condition for their successful acquisition of foreign language competence. The process of language training of foreign students has its own specifics and requires constant motivation of students, which contributes to the systematic support by teachers favorable emotional and psychological atmosphere, taking into account individual psychological characteristics of students, improving their self-esteem, positive assessment of academic achievement, immersion. correct learning strategy.

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Рязанцева Д. В. Методи подолання комунікативних бар'єрів у процесі мовної підготовки іноземних студентів

Стаття присвячена дослідженню шляхів формування комунікативної компетентності. Проаналізовано поширені психолого-педагогічні підходи до визначення мовно-психологічних бар'єрів. Визначено поняття “комунікаційний бар'єр”, причини його виникнення. Розглянуто причини мовленнєвої тривоги. Виявлено чинники, що визначають складність формування спонтанної іноземної мови та причини мовно-психологічних бар'єрів у студентів вищих технічних закладів. Зазначається, що причини мовного бар'єра тісно пов'язані з низькою самооцінкою, страхом перед необхідністю володіння іноземною мовою, негативним попереднім досвідом вивчення іноземної мови, відсутністю мотивації до вивчення мови; небажанням самостійно долати мовні труднощі, небажанням робити помилки перед групою; страх викликати сміх або несхвалення, невміння застосувати знання в реальних ситуаціях спілкування тощо. Підкреслено провідну роль учителя в подоланні перешкод у вивченні іноземної мови. Процес вивчення іноземної мови в технічних вишах має свою специфіку і потребує постійної мотивації студентів. Надані рекомендації щодо організації навчального процесу іноземною мовою з урахуванням чинника мовного бар'єра, як-от: систематична підтримка вчителем сприятливої психологічної атмосфери, урахування індивідуальних особливостей студентів, удосконалення їхньої самооцінки, позитивна оцінка та створення позитивного навчального іншомовного середовища, вибір правильної освітньої стратегії тощо. Розглянуто можливості використання комунікативних ігор, мовленнєвих формул, технологій навчання як засобу подолання комунікативного бар'єра у вивченні іноземної мови. Автор доходить висновку, що подолання мовних бар'єрів є важливою передумовою успішного набуття іноземними студентами іншомовної компетенції.

Ключові слова: мовний бар'єр, психологічний бар'єр, іноземні студенти, мотивація, мовна тривожність, комунікативна гра, проблемне навчання, педагогічна технологія.

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ФОРМУВАННЯ ІНКЛЮЗИВНОЇ КОМПЕТЕНТНОСТІ МАЙБУТНІХ ПЕДАГОГІВ ПРОФЕСІЙНОГО НАВЧАННЯ

У статті розкрито сутність понять “професійна компетентність”, “психолого-педагогічна компетентність”, “інклюзивна компетентність”. Проаналізовано нормативно-правову базу України з питань упровадження інклюзивного навчання на рівні професійної (професійно-технічної) освіти.

Здійснено аналіз наукових досліджень із питань формування компетентнісного підходу в майбутніх педагогів професійного навчання. Визначено, що інклюзивна компетентність є складником психолого-педагогічної професійної компетентності. Уточнено зміст поняття “інклюзивна компетентність”, характеризується структура її змістових компонентів. Розкривається значення формування інклюзивної компетентності педагогів у контексті реформування системи освіти та підвищення якості підготовки педагогів для системи професійної освіти. Показано, що проблема формування інклюзивної компетентності майбутніх педагогів професійного навчання не була досить вивчена в сучасних дослідженнях.

Розглянуто процес формування інклюзивної компетентності під час вивчення вибіркової навчальної дисципліни “Основи інклюзивної освіти”, що викладається на інженерно-педагогічному факультеті Національно-педагогічного університету імені М. П. Драгоманова за освітньо-професійною програмою 015 “Професійна освіта (за спеціалізаціями)” у студентів першого освітнього рівня вищої освіти. Охарактеризовано змістові модулі навчального курсу щодо особливостей формування програмних результатів навчання відповідно до вимог освітньо-професійної програми. З метою реалізації індивідуальної освітньої траєкторії кожного студента пропонуються додаткові навчальні завдання та курси за вибором щодо формування інклюзивної компетентності, які дозволяють забезпечити відповідність фахової підготовки вимогам національного ринку праці та змін, що відбуваються в державній освітній політиці.

Ключові слова: професійна освіта, педагог професійного навчання, професійна компетентність, інклюзивне навчання, інклюзивна компетентність, компоненти інклюзивної компетентності, навчання студентів, основи інклюзивної освіти, програмні результати навчання.