EFFECTIVENESS OF A TRAINING PROGRAM FOR ENGLISH-LANGUAGE PROFESSIONAL COMMUNICATIVE COMPETENCE IN A MULTI-LEVEL GROUP OF MATHEMATICS APPLICANTS

Abstract. The relevance of the article is due to the fact that the skill of communicating in a foreign (English) language is becoming more and more in demand in the labor market among graduates of non-philological specialties. However, it is worth considering the fact that applicants in this field have different levels of proficiency in a foreign language due to a lack of motivation to study it, which causes difficulties in learning. The purpose of the study is to substantiate the effectiveness of the developed program for teaching English-language communicative competence to mathematics applicants in a multi-level group. The main reasons for the poor preparation of applicants in a foreign (English) language in this specialty are formulated, which should be taken into account when constructing a training plan. A program for the development of English-speaking professional communicative competence is offered, which improves communication skills in a foreign (English) language. It has been proven that after implementing the training program for one academic year, the level of English language proficiency of mathematics applicants was improved. The practical significance of the study lies in increasing the level of English language proficiency among mathematics applicants in a multi-level group. The
developed program made it possible to increase the level of English language proficiency in a multi-level group. The formation of the ability to acquire new knowledge and the ability to solve non-typical professional tasks by means of traditional education is ineffective, and therefore the pedagogical and scientific community is constantly searching for progressive technologies and methods. Thus, the prospects for further pedagogical research in this direction are to conduct additional research on the implementation of the training program in multi-level groups with a higher level of language proficiency in order to substantiate the effectiveness of the developments presented in the study in a more universal aspect.

**Keywords:** English-language professional communicative competence, mathematics applicants, multi-level groups, multi-level tasks, training program.

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**ЕФЕКТИВНІСТЬ ПРОГРАМИ НАВЧАННЯ АНГЛЮМОВНОЇ ПРОФЕСІЙНОЇ КОМУНІКАТИВНОЇ КОМПЕТЕНТНОСТІ В РІЗНОРІВНЕВІЙ ГРУПІ ЗДОБУВАЧІВ-МАТЕМАТИКІВ**

**Анотація.** Актуальність статті зумовлена тим, що навик спілкування іноземною (англійською) мовою стає все більш затребуваним на ринку праці серед випускників нефілологічних спеціальностей. Однак варто враховувати той факт, що здобувачі цього профілю мають різний рівень володіння іноземною мовою через відсутність мотивації до її вивчення, що викликає труднощі в навчанні. Мета дослідження – обґрунтувати ефективність розробленої програми навчання англомовної комунікативної компетенції здобувачів-математиків у різношільцевій групі. Сформульовано основні причини неякісної підготовки здобувачів з
іноземної (англійської) мови за цією спеціальністю, які необхідно враховувати при побудові плану підготовки. Пропонується програма розвитку англомовної професійної комунікативної компетенції, яка вдосконалює навички спілкування іноземною (англійською) мовою. Доведено, що після реалізації програми навчання протягом одного навчального року рівень володіння англійською мовою здобувачів-математиків покращився. Практична значущість дослідження полягає в підвищенні рівня володіння англійською мовою здобувачів-математиків в різnorівневій групі. Розроблена програма дала змогу підвищити рівень володіння англійською мовою в різnorівневій групі. Формування вміння здобувати нові знання та вміння вирішувати нетипові професійні завдання засобами традиційної освіти є малоефективним, тому педагогічною та науковою спільнотою відбувається постійний пошук прогресивних технологій і методик. Таким чином перспективи подальших педагогічних досліджень у цьому напрямі полягають у проведенні додаткових досліджень щодо реалізації програми навчання в різnorівневих групах з вищим рівнем володіння мовою з метою обґрунтування ефективності наведених у дослідженні розробок у більш універсальному аспекті.

**Ключові слова:** англомовна професійна комунікативна компетентність, здобувачі-математики, різнорівневі групи, різнорівневі завдання, програма навчання.

**The problem statement and its relevance.** In the modern world, English is one of the most common languages of communication in business and the scientific community. Job vacancies for workers and employees require not only knowledge of their specialties, but also the ability to communicate in English. According to a study by the well-known job search site “HeadHunter” and the online language school “SkyEng”, conducted in 2022, the number of jobs requiring knowledge of English is growing every year by an average of 22% [1]. Considering the role of English as a language of international communication, the educational system promotes its study, expands public access to global economic, social, educational and cultural opportunities that knowledge and use of the English language opens up, ensuring the integration of Ukraine into the European, political, economic, scientific and educational world space. Work in this direction is reflected in our state policy, in particular, in the Law of Ukraine “on Education” [2], the Strategy of Ukraine 2030 [3].

Thus, the relevance of this research topic is due to the fact that English language proficiency is a key factor for the successful competition of future teachers of mathematics in the labor market.
Analysis of recent studies and publications. The analysis of the scientific literature on the problem of the formation of English-speaking professional and communicative competence has revealed approaches that involve the participation of employers, designed to help in the formation of a social order for a graduate who has a certain set of competences, including English-speaking ones [4; 5; 6]. The issue of the formation of communicative, language, and professional competences has been revealed in scientific studies by N. Bidiuk, R. Hryshkova, S. Nikolaieva and others [7; 8; 9]. Scientists and methodologists studying methods of teaching English-language communicative competence to applicants of non-linguistic specialties, single out concepts that cover differences in approaches to teaching educational material and creating motivation, since applicants of a professional direction are more focused on specific goals – increasing the level of professional competence; emphasize that the main difference between general English and professional English lies directly in the purpose of learning: applicants are, as a rule, adults who are already familiar with the English language and study it in order to form a certain set of professional skills related to work. Teaching English for work focuses more on understanding the language in context than on teaching grammar and language structures; also this section of English covers a wide range of topics – from everyday topics, accounting or computer science to tourism, education, and business management [10; 11; 12].

Professional English language teaching is characterized by flexibility of thinking, the ability to set long-term and short-term learning goals and deadlines, create an interesting learning environment, as well as support applicants and provide them with feedback.

But, unfortunately, there are practically no works that focus on the fact that applicants of non-linguistic specialties have different levels of proficiency in a foreign language due to a lack of motivation to study it, which causes difficulties in learning.

The purpose of the article. The purpose of the study is to substantiate the effectiveness of the developed program for teaching English-language communicative competence to mathematics applicants in a multi-level group. To achieve this research purpose, it is necessary to solve the following problems: 1) to reveal and describe the peculiarities of teaching a foreign language (English) to mathematics applicants; 2) to develop a program for teaching mathematics applicants English-language communication in a multi-level group; 3) to check the effectiveness of the developed program for increasing the level of English-language competences of mathematics applicants.

The study uses the following methods: analytical, empirical, experimental statistical.
**Presentation of the basic material.** The experimental study was conducted in a group of applicants studying the discipline “Foreign Language (for Professional Purposes)” (16 + 24 hours) during the first and second semesters of the 2022–2023 academic year. The group consisted of 12 people studying in Specialty 014 Secondary Education (Mathematics) in the State Higher Educational Institution “Donbas State Pedagogical University”. The experimental training to develop professional communicative competence in English was implemented in 3 stages: 1) the diagnostic-search stage (2 hours); 2) the main stage of training (36 hours); 3) the final stage of training (2 hours).

At the diagnostic-search stage of experimental training, the authors determined the level of foreign language proficiency of applicants using distance learning technologies (Dialang website) [13], and conducted surveys of applicants to identify the difficulties that applicants face in the process of mastering the language. In addition, the testing was conducted, which included an interview to identify problems associated with learning a foreign (English) language. The above actions were carried out with the aim of forming the most appropriate content of the developed program for teaching English-language communication to non-linguistic applicants. Based on the results of testing and interviews (which included questions on the topics: “My Family and Me”, “Hobbies”, etc.), the applicants were distributed into two corresponding subgroups in accordance with their level of English proficiency. Thus, 44% of applicants speak English at level A1, the remaining 56% of applicants showed level A2.

To identify the reasons for the poor knowledge of English among applicants of the selected focus group, a survey was conducted at the diagnostic and search stage of the experimental study. The survey was open-ended, with fairly specifically formulated questions. The subjects were asked to answer the questionnaire based on their subjective assessments. The survey results showed the following main reasons for poor preparedness in English: a) most students have a low level of language due to poor preparation at school; the main reason for poor preparation was the subjects for the External Independent Assessment, the list of which did not include a foreign language; b) 88% of applicants noted difficulties in listening to the text; c) 81% of applicants find it difficult to formulate oral statements but the greatest difficulty (almost all of the group, 94% of applicants) is the correct use of tense forms of verbs; d) insufficient vocabulary was noted in 75% of applicants; e) misunderstanding of the text when reading – 69% of applicants.

As a consequence, in the process of forming “foreign” subgroups at a university, the fact that the groups are different in terms of their level of foreign language proficiency becomes inevitable. Thus, foreign-language
lecturers are faced with the problem of different levels of language proficiency among applicants of the same subgroup. What is important to consider when working with such groups is to ensure that each applicant has the opportunity to acquire knowledge of the program at least to a basic standard, and also to organize training so that applicants can make the most of this opportunity [14].

When teaching a foreign (English) language to subgroups of different levels, the most popular and effective methods are debates, discussions, as well as projects, which are aimed at communication with a partner and solving the task [15; 16]. In the situation of a multi-level group, the use of universal textbooks is impossible. Therefore, as a solution, one can use a thematic strategy based on the thematic content of the lesson. At the same time, different assimilation of educational materials is possible when working with one textbook, but with differentiation of tasks. It is also possible to use multi-level textbooks of the same line. We used the following authentic teaching aids – Badger I. English for Work. Everyday Business English [17] and Jones L. New International Business English [14]. The program consists of the following stages: 1) Meeting People; 2) A Person’s Description; 3) My Working Day; 4) Hobbies and Leisure Time; 5) Employment Opportunities.

“Meeting People” is an introductory stage aimed at filling gaps in grammatical knowledge and listening comprehension of English. For this purpose, appropriate tasks have been developed. Due to the fact that applicants have certain language gaps, mastering lexical and grammatical material served as the first stage in the training of specialists. The material was introduced using interactive platforms (WordWall, LearningApps) [18, 19], as well as videos on relevant topics, after which applicants completed tasks in a group or communicated with the lecturer. The applicants of group A1, upon completion of mastering the new material, must independently enter into a simple dialogue with a classmate or lecturer. In case of difficulties, applicants are advised to consult reference materials. Simultaneously with the applicants of level A1, the applicants of group A2 perform more complex tasks with the preparation of statements based on visual material, break into pairs and enter into dialogue with each other. The applicants of group A2 are not recommended to consult reference materials, entering into English-language communication from memory, using the simplest structures to get to know the interlocutor. At the same time, within the framework of stage 1, the applicants were offered texts with interactive tasks to test their comprehension of what they read. The tasks for levels A1 and A2 were different. Thus, the applicants at level A1 completed a simplified version of the text that was presented to the applicants at level A2. Level A1 texts include basic information that
facilitates the mastery of monologue foreign language communication. The lecturer’s task is to stimulate communication between applicants of both the same level of foreign language proficiency and different ones for greater practice. A1 level applicants used a limited number of words and simple syntactic structures. The speech of level A2 applicants was characterized by greater variability of sentences and a wider vocabulary.

“A Person’s Description” stage involves the development of listening skills. The purpose of this stage was to train students to recognize lexico-grammatical structures and the necessary information to complete a task in order to control the quality of the material they understand. The tasks had the following focus: a) filling in gaps with missing data; b) listening and subsequent answering questions; c) discussing the completed task and communication exchange with the lecturer. As part of this stage, the applicants were offered oral and written translation of the text they heard for both levels, however, at level A1, the completion of this task was more concise, using fewer words and phrases than at level A2. The task of level A1 applicants was to insert the missing words in writing into a fragment of text identical to the one they were listening to. They were also asked to describe their relatives and friends using phrases heard in the text. The tasks for level A2 were somewhat more difficult: a) comparison of text fragments in accordance with what was heard; b) description of their classmates or famous people using phrases heard in the text; at the same time, the applicants from group A1 had to guess who their fellow applicants were describing; c) selection of synonymous expressions from the audited text.

“My Working Day” is designed for group work. The applicants of both levels of study were distributed mainly into pairs or small groups (3–4 people) to perform various creative tasks jointly. The tasks were based on a thematic text and, accordingly, differed in difficulty levels for groups A1 and A2. The tasks for level A1 were as follows: a) to determine the veracity of a statement (True or False); b) to put phrases in the correct order; c) to look at the pictures provided and talk about what one saw. For level A2 the following tasks were offered: a) to find relevant information in the text; b) to answer questions like “What do you usually do?”; c) to draw a table according to the proposed model and distribute their actions into columns. The second half of the stage is devoted to writing an essay about everyday student life, following the example of the proposed text. Students of both levels were also divided into groups and wrote essays collectively, which contributed to the exchange of experience and replenishment of vocabulary. The second half of the stage is devoted to writing an essay about everyday applicant life, following the example of the offered text. The applicants of both levels were also divided
into groups and wrote essays collectively, which contributed to the exchange of experience and replenishment of vocabulary. The essays written by the applicants of group A1 were distinguished by their smaller volume, simpler structures and phrases, and sparser vocabulary. Also, in the essays written by the applicants of group 1, there were a number of grammatical and logical errors, which were also worked on collectively.

“Hobbies and Leisure Time” also involves working in pairs and small groups, but already includes the development of dialogic speech. Before studying this stage, the applicants at both levels are encouraged to learn new words. They performed the retelling of the text. The applicants’ task from both groups was to read and translate the text “Hobby and Free Time”, after which the lecturer conducted a cross-questioning on the following questions: What is currently the most popular hobby? What do you like to do in your free time? Do you prefer to spend your free time with friends or alone? And why? What would you do if you had more free time? The questions were addressed to the applicants of two levels, but the answers from level A2 were more extensive and detailed. Next, the applicants of the two levels were divided into small groups (3–4 people) and filled in the table with words/phrases denoting various hobbies in accordance with the types of activities. Then the applicants focused on differentiated tasks: more complex ones for level A2 and simpler ones, respectively, for level A1. The tasks were also completed in small groups. Dialogue exercises also varied in difficulty. For group A2 it was necessary to compose and conduct three different dialogues using certain phrases; for group A1 it was necessary to put the dialogue phrases in the correct order and reproduce them in pairs.

As part of the “Employment Opportunities” stage, the applicants from both groups had to write a resume and also apply for a vacancy. The A2 level applicants were required to develop written job descriptions for the following professions: a teacher of mathematics, an IT specialist, a shop assistant, a manager. Professions were distributed by random selection; vacancies were described in accordance with the plan. The applicants of group A1 had to submit resumes written according to the offered sample. The peculiarity of this stage was inter-level communication: the applicants of group A2 created job descriptions addressed to the applicants of group A1. They, in turn, responded to the proposed vacancies with written resumes. The applicants of a higher level, in case of difficulties on the part of their A1 level groupmates, gave them explanations regarding incomprehensible phrases and word combinations, tense forms of verbs, prepositions; made the appropriate clarifications. As a result, the intergroup communication stimulated the independence of applicants, encouraged them to think in a foreign language, and helped fill gaps in grammar and vocabulary.
Thus, the developed program included 5 stages aimed at: eliminating gaps in grammar and listening comprehension of the English language; mastering and improving speaking skills, stimulating and motivating English-language thinking, group communication. The main difficulties in implementing the program were the limited vocabulary of level A1 applicants and the imperfect grammatical preparation of the participants at both levels. The group work contributed to the cohesion of the applicant team, the exchange of experience, and the joint search for solutions.

The final stage of experimental training for the applicants involved solving the following problems: 1) to assess the level of development of applicants’ English-language communicative competences after the implementation of the developed multi-level program; 2) to conduct repeated testing using the Dialang system [13] and conduct a final survey of the applicants to evaluate the effectiveness of the developed program.

The control testing of knowledge and skills using the Dialang system [13] showed the following results: 1) 38% of applicants (4 persons, initial level A1) increased their level of the English communicative competence to level A2; 2) 50% of applicants (6 persons, level A2) increased their level of the English communicative competence to level B1; 3) 12% of applicants (2 persons, level B1) increased their level of the English communicative competence to level B1+.

The level of mastery of English-language communicative competence by the future teachers of mathematics after the implementation of the developed program for teaching English-language communicative competence indicates the effectiveness of its use. The results of the diagnostics carried out at the final stage of the experimental study allow drawing a conclusion about the effectiveness of the developed program and the feasibility of its implementation in a multi-level group of future teachers of mathematics. From the position of a lecturer, it can be noted that the results of tests, assignments and exercises throughout the entire program make it possible to monitor the dynamics of the development of applicants’ communicative competencies, timely adapt the training program and adjust the group and individual focus of educational tasks. When implementing the developed English-language communicative competence training program, it is worth considering the following factors – the pace of applicants’ work varies significantly, and the applicants show quite a noticeable contrast in their English language proficiency. However, the diversity of levels cannot be ignored in any case, otherwise training will be ineffective and extremely ineffective, both for applicants with a lower level and with a higher level of knowledge. Too complex material will lead to applicants’ losing motivation.
and interest in learning, and learning activity will be reduced quite quickly. If
the material is too easy, the results will be similar: stronger applicants will
dominate weaker ones. Therefore, in a multi-level group, it is important to
organize the learning process properly, taking into account individual and
differentiated approaches.

Conclusions. The practical significance of the study lies in increasing
the level of English language proficiency among mathematics applicants in a
multi-level group. The developed program made it possible to increase the
level of English language proficiency in a multi-level group.

In modern conditions on the labor market, a qualified specialist with the
ability to acquire new knowledge and the ability to solve non-typical
professional tasks is of particular value. The formation of such skills by
means of traditional education is ineffective, and therefore the pedagogical
and scientific community is constantly searching for progressive technologies
and methods. Auditory training and self-education are integral components in
the system of learning a foreign language, where it is necessary to develop
productive skills. It is easier to achieve the desired result by involving
applicants in systematic participation in conversation clubs, communication
with native speakers, watching films in the original language, listening to
audio files and podcasts, etc. Under such conditions, the lecturer is perceived
as a mentor, a coordinator who evaluates the applicant’s individual requests
and coordinates his/her general system and approach to learning a foreign
language.

The prospects for further pedagogical research in this direction are to
conduct additional research on the implementation of the training program in
multi-level groups with a higher level of language proficiency in order to
substantiate the effectiveness of the developments presented in the study in a
more universal aspect.

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