Designing Coursebooks for ESP: English for Mathematicians

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ABSTRACT

A foreign language as an academic subject has a number of features, such as interdisciplinary, multilevel and polyfunctionality, which affect the allocation of the training content. A foreign-language professionally oriented training implies mastering foreign-language communicative and professional skills and abilities, which significantly distinguishes training at the stage of higher education and general secondary education. The main goal of modern foreign language teaching is to develop the ability and willingness of students to carry out interpersonal and intercultural foreign language communication with native speakers. In this regard, the paper briefly mentions current educational trends that help to nurture a secondary language personality. The importance of using cross-cultural, activity-based, communicative, and person-centred approaches when selecting educational materials for foreign language teaching is emphasized. The importance of creating modular structure tutorials is argued. The features of forming foreign language competence of students learning mathematics in technical universities are discussed in detail. The author's approach to the development of a textbook on a foreign language is proposed, taking into account the peculiarities mentioned above. Special attention is paid to the selection of textual information and the formation of grammatical competence. The study is based on both the longstanding teaching experience of the authors in technical universities and a clear understanding of the needs of the being created textbook target audience due to the mathematical education of one of the authors.

Keywords: current educational trends, foreign language textbook for nonlinguists, ESP, peculiarities of undergraduate mathematicians growing

1. Introduction

The main goal of modern foreign language teaching, namely the development of secondary language personality traits, is forming communicative competence, that is, the ability and willingness to carry out interpersonal and intercultural foreign language communication with native speakers.

The communicative language competence consists of linguistic, sociolinguistic and pragmatic components, each of which, in turn, includes pieces of knowledge, skills and abilities. Communicative competence is implemented by users in various types of speech activity related to perception, generation, interactive actions and mediation. A person speech activity is carried out in various spheres of communication, which, in relation to the practical goals of language learning, can be subdivided into social, everyday, educational and professional ones (see Common European competencies of Language Proficiency).
2. Research Problematics

The higher education adapting to the needs of modern life and the signing of the Bologna Educational Convention by the Russian Federation has led to a significant change in the main goals of language education for non-linguistic universities students in Russia over the last decades. In addition to the communicative approach, the activity-oriented and the person-centred ones came to the foreground. At present, to teach efficiently, it is necessary to clearly understand students needs to use the foreign language, priority communication tasks for certain majors, psychological characteristics typical for students at various stages of their development and fields of their study.

The globalization of processes and the mobility of people, as well as changes in the content of school education, which is a step prior to higher education, have increased the language level of entrants not only in linguistic but even in non-linguistic universities. Nowadays, it is common to meet in the same classroom of a technical university, both a student who can nothing but read and a student who is fluent in a spoken foreign language. And it is quite unevident to decide in this case, who of them is easier to teach: the former needs much time and motivation to be taught everything, but sometimes it is more efficient than modifying knowledge already existing, the latter is often too self-confident in their abilities and superiority to accept new information. It is often worth a lot of effort to convince students that the foreign-language professionally oriented training involves mastering both foreign-language communicative and professional skills and abilities. This is a significant difference between training at the stage of higher education and general secondary education.

The development of modern information technologies has long implied an interactive orientation of all educational materials used in any educational process. What is more, it is this aspect that has been much more developed in technical universities in general and when training students-mathematicians in particular. It is no wonder since the technical orientation of training always meant the active use of a variety of technical means to acquire professional skills. In their turn, students mastering technical specialities use modern technical capabilities easily, comprehensively and with interest. It is increasingly difficult to convince students of the need to use a traditional textbook, and laptops, e-books, tablets, and mobile phones are more and more replacing their heavier, inconvenient and short-lived paper predecessors. Supposing we cannot avoid this – then let us do our best to strive to use all the advantages and opportunities of these information sources.

In addition, the psychological perception of the material by modern society has greatly changed: if earlier it was enough to get information from a textual source, then recently visual channels, such as illustrations, diagrams, and tables, have increasingly influenced the effectiveness of perception. It is the location of various blocks of material on the page and their design that are of great importance. According to statistical surveys and psychological studies, modern youth rather look at visual information than read the content of the text. The importance of infographics, memorable presentation of the material, and the effectiveness of information have significantly increased. The structure of the information of the past was linear, "unidirectional". That is, the readers perceived the text sequentially, from its beginning to its end. The presence of illustrations and comprehensive information slides made us perceive the facts on the slide plane integrally.

Moreover, even a professionally composed presentation without animation gradually becomes an obstacle to the effective assimilation of the content by the audience. Nowadays, visualization, which played a negligible part in the past, is rapidly coming to the fore and growing to become "three-dimensional" rather than "two-dimensional", acquiring a multi-layered nature, forcing the viewer to follow the author's idea mindlessly. It would be extremely imprudent to neglect it when creating learning materials.

Moreover, the researchers emphasize that under current conditions of avalanche-like growth of the information volume, pieces of knowledge are rapidly devalued. The ability to constantly receive, process, and use information necessary for productive life activity is becoming increasingly important. Therefore, one of the tasks of modern education is to teach a person to adapt and act confidently under changing socio-economic conditions (Afoninova, 2003, p. 80). This means to be sensitive to changes and understand how to use them in their favour, which is possible only if a person is holistically developed, i.e. with a large baggage of comprehensive knowledge, aware of his place in time and space, capable of creative and unexpected decisions.

The modern competency-based approach requires the forming of students' information culture in the process of learning a foreign language. This implies enhanced development of communicative and cognitive skills, which is reflected in the training content that should provide conditions for the development of such skills as:
- to independently and motivationally organize their cognitive activities from setting goals to receiving and evaluating results when working with foreign and bilingual (at the profile level) materials;
- to participate in project activities, in organizing and conducting educational and research work;
- to search for the necessary information on a given topic in foreign-language sources of various types;
- to extract the necessary information from foreign-language sources of various sign systems (texts, tables, graphs, diagrams, audio-visual series, etc.);
- to translate information from one sign system to another;
to separate the main information from the secondary information;
- to critically evaluate the reliability of the information received;
- to transmit the content of the information adequately according to the goal (concisely, fully or selectively);
- to choose sign systems that are adequate to the cognitive and communicative situation;
- to fully substantiate judgments, to give definitions, to provide evidence (including from the opposite) and to illustrate them with examples;
- to choose the type of reading in accordance with the goal (introductory, viewing, search);
- to work productively and purposefully with texts of different styles, to understand their peculiarities, and to adequately perceive the language of the mass media;
- to create material for oral presentations by using multimedia technologies (Bim, 2006, pp. 112-113).

The use of information and communication technologies in the process of foreign language learning, according to I. L. Bim, should develop the communicative, speech and cognitive abilities of students, create conditions for their self-educating and promote:
- gaining the students real experience of cross-cultural communication in the foreign language;
- enriching their humanitarian knowledge (in particular, about the history and culture of the countries of the studied language);
- developing the skills to navigate in the modern foreign-language information environment by using multimedia resources and computer technologies for processing, transmitting, systematizing information and creating databases, presenting the results of cognitive and practical activities;
- searching, systematizing and generalizing the received information;
- developing the foreign language skills to communicate in the virtual space (Bim, 2006, p. 113-114).

Thus, we can say that nowadays, person-centring, activity-orienting and multiculturalism in foreign language teaching define the requirements for training content in general and learning materials in particular, which in turn should provide conditions for the development of students’ interest, motivation, activity, interactivity, creativity, increased independence; the increment of skills, knowledge and abilities; the maturing in the spiritual realm; socialization, self-realization of students; they receiving real speech products (Bim, 2005).

3. General Features of a Modern Textbook on a Foreign Language

All the aspects mentioned above are more or less relevant to all types of foreign language higher education in Russia. A foreign language as an academic subject has a number of features that affect the allocation of the training content. These features include:
- interdisciplinary (the content of the foreign language speech can contain the information from various fields of knowledge);
- multilevel (the need to master both different language tools that relate to aspects of the language and skills in four types of speech activity);
- polyfunctionality (a foreign language can be the learning goal and a means of acquiring information in other areas of knowledge) (Bim, 2006, p. 110).

This makes researchers annually think about creating new, effective and, preferably, universal language learning materials that meet modern requirements. One of the tools that contribute to this is creating a modular textbook since modern university curricula are written according to this principle.

For the sake of certainty, we denote that we suggest the module to be a unit of training content selected and didactically processed to achieve a certain level of pieces of knowledge, skills and abilities, set by the target program of actions and equipped with input and output assessment. The goals, content, methods, means, forms of training, and assessment are supposed to be holistic and dynamic (Tsaregorodtseva, 1994).

The analysis of the technology of modular training allows us to identify the following advantages of the organization of the students training system: a) splitting the training content into completed parts (modules and its elements), which allows to narrow and specify the goals of each module; b) maximum individualization of progress in training, which involves the widespread use of self-organization and self-control methods; c) ease in creating any training computer programs based on existing modules due to the limited and narrowly focused content of the module; d) guaranteed achieving the goals and training results due to the awareness of them as a perspective of cognitive and practical activity; e) autonomy and independence of the students cognitive activity; f) a high degree of flexibility and adaptation to specific socio-economic and organizational conditions; g) the possibility of continuous improvement of the modular system without changing the overall structure of the curriculum.

Modular training corresponds to a person-centred educational approach since when practising the modular principle, the student has the freedom to choose the training content which is known in advance. Due to the personal and activity-oriented approaches, modular training can act as one of the means of forming the ability to update knowledge in the professional field constantly. Modular training shifts the focus from the teaching activity of the teacher to the cognitive activity of the student. It involves increasing the personal activity of both the student
and the teacher.

Modular training is based on certain principles, the combination of which allows us to declare modular training one of the most effective approaches to professional training. At the current stage, the main principles include modularity; flexibility, the subject role of the student; conscious perspective; individualization; feedback, completion of training.

The process of modular training includes: setting goals and their maximum refinement; a strong orientation of the whole course of study to the training goals; the focus of training goals and the whole course of study on guaranteed results achieving. Setting the training goals in the framework of a modular curriculum is characterized by hierarchy and reducibility of goals, the instrumentality of goals; specification and identification of goals; the ability to modify goals.

An important element of modular training is the assessment system. In order to measure the level of educational elements assimilation, each module is provided with means of input, current, intermediate and output assessment. The assessment should be carried out on the basis of mandatory input assessment, intermediate (current) and output assessment; exact (in terms of content) coincidence of assessment tasks with the training goals formulated before the start of the module; validity and objectivity of the assessment, guaranteed by the presence of a developed standard of training quality for this module.

Almost all the principles of modular training can be covered to a greater or lesser extent by a modular textbook if taking into account the above requirements. Creating a separate training textbook volume for each training module simplifies the process of upgrading the material from an organizational and economic point of view. It is also important to note that this approach allows increasing the permissible amount of material in each module textbook, and, accordingly, in the module, and therefore to increase the freedom of choice of material by students and teachers and personal cognitive activity, which we mentioned above. We also add that according to the principle of the subject role of the student, the importance of which is emphasized by T. I. Tsaregorodtseva (Tsaregorodtseva, 1994), the student should be not an object. Still, a subject of the training process, that is, be a carrier of purposeful and selective activity. The option of this activity, the pace, time, methods and means of training are parameters that the student should be able to choose independently and freely. It increases the student’s motivation and responsibility for the training process. The student knows and accepts the general training goals and specific tasks implemented by him in the activity.

4. Features of a Modern Foreign Language Textbook for Mathematicians

Our work is more concerned with the features of creating an ideal language textbook for a non-linguistic university that, according to researchers, should meet peculiar demands and have a number of features determined by the limited amount of hours allocated for teaching a foreign language, as well as the professional orientation of the foreign language course (Musnitskaya, Kuznetsova, 2006). What is more, our direct interests cover not all non-linguistic but only mathematical specialties. We think it is important to draw the attention of readers to some deep aspects of the textbook development, which at first glance may seem insignificant. Unfortunately, ignoring them completely or partially violates the principles formulated in the 1970s by I. L. Bim (Bim, 1975) and can significantly reduce the effectiveness of the developed educational material, and consequently, the entire educational process.

In all non-linguistic universities, it is necessary to combine both professional and business and socio-cultural orientations since they are interrelated components of the intercultural communication of a non-philologist.

Socio-cultural orientation involves familiarizing the students with those features of a particular culture that are important for the successful implementation of contacts with its representatives. Such elements include cultural and linguistic facts and phenomena that most clearly and reliably characterize the country of the language being studied, traditions, nature and customs, as well as behavioural stereotypes, value systems, tastes, interests, preferences and other ethnopsychological characteristics of a particular nation.

Familiarization with a certain amount of country-specific information optimizes the achievement of general education and educational goals, increasing the level of the general culture of future specialists.

Professional and business orientation involves the introduction of a future specialist to the world of knowledge/advances in specific areas, including familiarization with elements of linguo-professional component of a specific activity that allow to expand the possibilities of achieving and maintaining a certain level of professional competence, to enhance the chances of employment in the integrated world of modern mobile European and global labour market, and also to form a willingness to join the direct foreign language professional communication with colleagues - native speakers.

Professional and business orientation in training intercultural communication is also designed to stimulate the motivation of non-linguistic university students to master the foreign language.

The content of the foreign language course also takes into account the interests of the learners as members of today’s younger generation (their pragmatic life attitude, social attitude to the perception of the modern world picture, etc.), resulting in the selection of certain informative materials, the use of active forms and types of learning
activities, the use of modern learning technologies.

Simultaneously, many specialists in the humanities traditionally believe mathematics to be the most abstract and incomprehensible science. For this reason, compilers of textbooks on a foreign language usually experience significant difficulties when selecting educational material, trying to find general theoretical popular science texts on topics included in the students' professional course curriculum. The texts, as conceived by the authors of the textbook, should be informative for students and accessible for further classroom discussion by students and the teacher (do not forget that all the mathematics was studied by the foreign language teacher at school, and the school mathematics differs from the university mathematics just as much as English differs from Latin!). There is no doubt that this approach to the selection of materials has a number of disadvantages.

Firstly, the interdisciplinary nature of university education implies that any academic subject, including a foreign language, should contribute to expanding the students' horizons in their professional field, allowing them to improve their professional competence. However, popular science texts on topics that students are already familiar with at the professional level are not able to improve their professional competence. They could improve the language competence of students by allowing them to get acquainted with a set of new vocabulary of the language being studied. Unfortunately, it is better to use other texts even for this purpose since the features of the popular science genre require the use of general everyday terminology instead of narrowly professional ones. The grammatical structures of sentences adopted in such texts are also often simplified compared with scientific articles. The content of articles introductory to any topic is usually quite formalistic, relevant, not interesting. It is not problematic to make students analyze the information.

Secondly, despite the last statement, the proposed texts would be possible to rely on to improve the communication skills of students in the classroom. Still, it is hardly worth doing since the teacher, unlike the students, not knowing the proposed topic, often finds himself in a situation where it is difficult for him to manage a fruitful discussion. A possible way out for the teacher could be to redistribute roles in the audience: to take the role of "an amateur who needs the help of specialists" and to ask one of the active students to play the presenter role. This is acceptable, but occasionally, because a) it quickly gets boring; b) it can lead the discussion in an undesirable or inconvenient for the teacher direction; c) it does not allow the teacher to be a full participant and control the content of the discussion; d) it reduces the teacher's authority in the sight of his students.

Thirdly, the authenticity of texts in question and their ability to introduce students to various professional text genres to demonstrate their features and differences are often absent as well. Therefore, such a choice of educational material is not motivating for students, and often, they are frankly bored.

There exists, however, another approach (opposite to the approach above) to the choice of text sources. In this case, the authors of the textbook tend to get away from boring presentation and choose texts that are more figurative and abstract, contain an artistic component and philosophical reasoning. This often leads to even worse results since not only the teacher but also the students stop understanding the essence of the narration. It is obvious, however, that this contradicts all possible requirements for the training content selection: even such a long-traditional type of activity as translating a text into a native language implies a deep understanding of the topic if a high-quality result is required (Sakaeva, 2021).

Moreover, from a philosophical point of view, Yu. Babansky emphasizes that the training content and, therefore, the learning materials should be the means of the intellectual development of students, and not a goal in itself; include moral and ethical aspects; promote deep assimilation of the material (Babansky, 1983).

From the standpoint of psychology, they distinguish the requirements that state that the content should: be carefully integrated to avoid fragmentation and, as a result, superficial assimilation; be selected so as to provide favourable opportunities for the development of high-level intellectual skills; establish a connection with actions and with the development of attitudes and values (Babansky, 1983).

Yu. Babansky also emphasizes the importance of human or so-called "student" criteria for selecting the content, according to which the content should: be selected to reflect the needs and interests of students; take into account the intellectual level of students, the social maturity of students, different life experiences; be attractive and not suffer from monotony.

All this can be taken into consideration at ease if remembering that mathematics, unlike other sciences, does nothing but describes the reality around us as strictly, abstractly and accurately as only it can do. Therefore, as the textual content for the textbook on a foreign language for mathematicians, we find it necessary to choose texts on topics that are accessible to both students and teachers from their everyday activity and consider them from the standpoint of strict mathematical approaches. Such an approach allows the teacher to understand the topic in general terms and students to learn new information since specialized courses are not often suitable to discuss the applications of strict mathematical theory provided, to get acquainted with professional terminology if the texts are scientific, to demonstrate their already existing professional knowledge and ability to analyze the information received to the audience.
The person-centring educational approach to foreign language training considers the student as a creative person interacting with other subjects of the educational process. The educational process as an environment in which the student develops, self-actualizes, accumulates the necessary experience of communicative and educational activities in the field of the foreign language and culture (Koryakovtseva, 2009, p. 22). This is hindered by the fact that students learning mathematics are mostly introverts by their psychotype. It is difficult to provoke them to a lively group discussion, and it is merely useless to expect that they retell something having just been read pretending it is that they really think on their own: to pronounce aloud the fact they have read in the text most often seems stupid or unnecessary to students, as it is already obvious. However, when there appears a piece of information that only a particular student owns, he is happy to share it with the entire audience in detail. It helps to achieve the training goals outlined above. Moreover, it is important to remember that in line with the new educational paradigm, as promising for the modern theory and practice of foreign language training, the acquisition of a foreign language should be based on developing the productive learning activities of the student and have a reflexive and creative character (Koryakovtseva, 2009, p.30).

The more unexpected and common the topics of the texts selected for discussion are, the greater the educational and motivational ability they contain. Our teaching experience allows us to declare that not only teachers of the humanities, but surprisingly many of the students learning mathematics do not know what mathematics can be used for. Some of them chose their future speciality, as it is a kind of their family tradition, a certain percentage of students could not have chosen a specific narrow focus of the specialization, the expectations of some students were initially misleading. Most students cannot even imagine the field they could use their so hard-earned pieces of knowledge, assuming only that the latter are universal enough to help them to be fully developed personalities. This "decadent attitude" is largely formed at school since the school curriculum in mathematics is aimed at long-term drilling certain automatic skills without the slightest understanding of its essence and disclosure of the true beauty of the subject. If it were possible to increase the professional motivation of students partially, at least in the framework of the university language course, it would be above the expectations and enough to consider the proposed approach to the training material selection worthwhile.

However, there is a number of other important points to consider when writing a textbook for math students. Let us look at some of them in more detail.

One of them is the approach suitable to the formation of students' grammatical competence. We strongly recommend covering any grammatical topic in a concentrated manner, without "stretching" the material into several sessions, but systematically and in detail.

Many of the teachers prefer to avoid the detailed presentation of grammar material to students of non-linguistic universities, considering it a waste of time. They believe that students studying a language for special purposes do not need to know minor details and exceptions since they are rarely found in practice. However, the scientific language, whose features are the subject of interest of the foreign language for special purposes course studied by math students, is characterized by long, complex sentences with many auxiliary and subordinate clauses. The more we limit students' grammar background, the more difficult it is for them to navigate in a foreign language text, as well as to formulate their thoughts in the foreign language.

In addition, it is important to take into account the psychology of students of technical universities. They do not tend to automate the proposed patterns unconsciously. Almost any technically-minded student expects a system of knowledge formulated concisely, logically and fully (as a system of axioms, a set of which is necessary and sufficient for further formulation of the theory based on them). Only a complete system of knowledge, but not a limited set of facts, will allow a student to find the answer to his question without spending time, to analyze the available information and to use knowledge and logic, rather than memory, to formulate his idea.

It is worth remembering as well that students come to the university with their own individual levels of foreign language competence. Introducing only a core of grammar in the course will not allow the advanced students to improve their grammar competence.

In order for students to have no doubts about the importance and necessity of acquiring grammatical skills, we suggest supplying the theoretical material with authentic examples of a particular grammatical phenomenon use and statistical data on the frequency of its use in texts of various genres. Such examples, in addition to their main illustrative purpose, will allow us to compare features of different genres of texts, to learn new socio-cultural and professional information, and to add variety to the educational process.

Let us briefly note a few more characteristics of a textbook for training a professional foreign language, which sometimes does not attract enough attention.

Modern students of technical universities have a very vague idea of the phonetic features of the sounds of the language and the system of phonetic notation used in dictionaries. Without knowing the pronunciation of a certain word, students turn to electronic dictionaries where they try to listen to the pronunciation offered by a native speaker. This often leads to the substitution of the required sounds with the heard ones and, consequently, incorrect pronunciation of words. To save students from the fear of having to read the transcription, it seems
necessary to repeat and to discuss the features of the sign phonetic system in the textbook developed. It would be very useful to add to the training materials some exercises on comparing similar "by ear" words, writing down unknown audio information with the transcription sign system and its subsequent decoding, and examples of sentences that acquire a distorted meaning in case one or more words are mispronounced, that is, materials that demonstrate the importance of the skill under discussion.

Students' knowledges of how to present the material to the audience during mini-conferences, round tables, business games, etc., are also very uneven. The structure of their reports on the proposed topic, as well as the quality and the content of their presentations illustrating the report, usually require correction. Unlike grammar skills, the skill of creating presentations is very creative and subjective. Apart from the necessary software tools to create them, students need a desire, a sense of style and an understanding of goals for them to create a particular presentation. None of the mentioned above can be taught in a framework of the foreign language course - today, there exist specialized semesters-long training courses in these disciplines - but we can use memorable and vivid examples that will affect the emotions and have an educational benefit. Note that requiring students to follow certain algorithms and rules when preparing presentations strictly is a mistake. It is also unwise to evaluate the ability to create presentations equivalent to the foreign language competence - this may reduce the motivation of some students to learn the language, which should undoubtedly be the main goal of the course.

We consider it important to mention the skill of brief abstracting. It is absolutely necessary for mathematicians who regularly write scientific articles and foreign language abstracts of them. During foreign language classes, it is important to pay attention to forming this skill. Similar to the case of presentations, it seems right to shift the emphasis of training from theoretical to practical direction, accompanying the rules of making abstracts with authentic examples. The accumulated experience allows us to conclude that teachers sometimes consider some formal rules formulated to help to create an abstract to be a priority, neglecting the meaning. You must convey to the students the idea that writing a true meaningful abstract is possible only if deeply understanding the meaning and purpose of the article that you want to abstract. Therefore, keeping in mind the strict recommendations about the form of the abstract, first of all, it is necessary to clearly assess the correspondence of the essence of the primary text and the abstract of it.

According to the authors, there are still a number of psychological factors that can significantly increase the effectiveness of the textbook for math students. These include not only the competent graphic design of the textbook, which was mentioned in Section 2 but also the logical and closed narrative, the diversity of the material and the authority of the textbook in the students' sight. All these factors make creating the perfect textbook a difficult task, which may not be possible in real-world conditions. But the effectiveness of the learning materials will significantly increase even if only some of the proposed aspects are taken into account.

5. Conclusion

The main goal of modern foreign language teaching is forming communicative competence, that is, the ability and willingness to carry out interpersonal and intercultural foreign language communication with native speakers.

In addition to the communicative approach, the activity-oriented and the person-centred ones to training based on interculturalism have come to the foreground.

A foreign language as an academic subject has a number of features, such as interdisciplinary, multilevel, polyfunctionality, which affect the allocation of the training content.

The foreign-language professionally oriented training involves mastering both foreign-language communicative and professional skills and abilities. This is a significant difference between training at the stage of higher education and general secondary education.

The development of modern information technologies has long implied an interactive orientation of all educational materials used in any educational process.

In addition, the psychological perception of the material by modern society has greatly changed: if earlier it was enough to get information from a textual source, then recently visual channels, such as illustrations, diagrams, and tables, have increasingly influenced the effectiveness of perception.

Under current conditions of avalanche-like growth of the information volume, pieces of knowledge are rapidly devalued, and the ability to constantly receive, process and use information necessary for productive life activity are becoming increasingly important.

The modern competency-based approach requires the forming of students' information culture in the process of learning a foreign language.

Person-centering, activity-orienting and multiculturalism in foreign language teaching define the requirements for training content in general and learning materials in particular, which in turn should provide conditions for the development of students' interest, motivation, activity, interactivity, creativity, increased independence; the increment of skills, knowledge and abilities; the maturing in the spiritual realm; socialization,
self-realization of students; they receiving real speech products

One of the means to use effective and universal modern learning materials in the classroom is to create a modular textbook. A separate training textbook volume for each training module simplifies the process of upgrading the material and allows to increase the permissible amount of material in each module textbook, and, accordingly, in the module, that to increases the freedom of choice of material by students and teachers and personal cognitive activity. It will also allow the student to be not an object, but a subject of the training process, that is, to be a carrier of purposeful and selective activity.

In all non-linguistic universities, it is necessary to combine both professional and business and socio-cultural orientations since they are interrelated components of the intercultural communication of a non-philologist.

As the textual content for the textbook on a foreign language for mathematicians, we find it necessary to choose texts on topics that are accessible to both students and teachers from their everyday activity and consider them from the standpoint of strict mathematical approaches. Such a choice will be a means of the intellectual development of students, promote deep assimilation of the material, as well as reflect the needs and interests of students, take into account their intellectual level, social maturity and different life experiences, be attractive and not suffer from monotony. It will also allow students to master a foreign language on the basis of developing the productive learning activities of the student and having a reflexive and creative character.

To present grammar material in the textbook for math students, we recommend using a systematic, detailed, scientific approach, applying the principle of necessity and sufficiency of data that is close to mathematicians.

Among the minor but important points that are important to consider when creating the textbook, we declare the need to repeat and discuss the features of the sign phonetic system, to give memorable and vivid examples of presentations on the proposed topic that will affect the emotions and have an educational benefit, to pay attention to forming the skill of brief abstracting.

There are also a number of psychological factors that can significantly increase the effectiveness of the textbook for math students, which, if possible, should be taken into account when creating an effective textbook for students of university mathematical specialities.

References