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The family of learner's bilingual mathematical dictionaries

The problem of vocabulary support of the educational process when teaching international students has long remained the focus of attention of specialists in this field, methodologists, and practical teachers. It should be noted that vocabulary support acquires special significance while teaching international students natural sciences in which terms and their precise translation equivalences are extremely important.

The staff of departments of International Education Faculty (IEF) of National technical university Kharkov Polytechnic Institute (NTU KhPI) for more than forty years of work with international students have accumulated considerable experience in creating vocabulary support for the educational process of international students including the compilation of terminological dictionaries [1–2]. At the same time, the conditions of teaching and globalization of educational process, constantly changing nowadays, force teachers to

revise the accumulated experience, to make adjustments to the existing developments. The expansion in recent years of a significant number of students from many countries of the world necessitates the creation of vocabulary support to suit their requirements. In particular, a large-scale project to create a family of learner's bilingual mathematical dictionaries including Russian-English, Russian-Turkmen, Russian-Chinese, Russian-Arabic, Russian-French mathematical dictionaries [3–7] has been launched at the Department of Natural Sciences of IEF NTU KhPI.

The purpose of this article is to present a conceptual model of a learner's mathematical dictionary, based on the Learner's Russian-English Mathematical Dictionary [3], and to give an idea of methodological possibilities it implies for practical teaching.

The proposed mathematical dictionary is intended for teachers of Mathematics working with international students, as well as for independent work of international students studying Mathematics at universities of Ukraine.

When creating the dictionary, the authors set themselves the task of the most complete and comprehensive implementation of the principle of visibility. In accordance with this, the mathematical terms, presented in the dictionary, are accompanied by numerous examples, the purpose of which is to reveal the meaning of the given term as concretely as possible, as well as to show its compatibility. A number of terms are provided with relevant illustrations. The task of the illustrations is to associate the image of the term being represented directly with its name in Russian.

The dictionary includes the basic lexical minimum necessary for understanding the courses of mathematics of the middle and higher level which international students study at the preparatory stage in order to enter higher educational institutions, as well as during the first and second years at the university. The dictionary contains the most necessary terms reflecting the basic mathematical concepts, their most frequent compatibility, as well as some mathematical definitions.

The dictionary is an attempt to help teachers and international students to organize a systematic work on the consolidation of terminological vocabulary in Russian used in the study of courses of Mathematics and Higher Mathematics. In the dictionary, teachers can find necessary materials to illustrate the meaning and use of words, which are primarily subject to active consolidation. The dictionary can also be used to control international students' command of terms and their compatibility both in mathematical classroom and during the independent work of students. For this purpose, parallel illustrative examples (in Russian and in English) are covered with a sheet of paper and alternately pronounced by students.

The principle of building a dictionary allows a teacher to use it as a textbook with a wide variety of techniques for working with scientific speech. So, brief definitions and rules, accompanying basic mathematical terms, can be used as language structures for the initial work on the technique of translation from Russian into English and vice versa. A teacher can apply text accompaniment not only to demonstrate the specifics of the meaning and use of certain mathematical terms, but also to acquaint students with the specific features of syntax of modern Russian. Since the mathematical micro-definitions, offered in the dictionary in Russian, can be expounded in other form, the teacher can organize students' work so that they would be able to give their own versions of translation from English into Russian and to develop their scientific language skills in general.

In appendix to the dictionary, there is a translation of mathematical terms from English into Russian including basic terminological units given in the dictionary. Its purpose is to help students with the translation of math terms from English to Russian. This appendix is designed to help users find in the main dictionary the term they need in case they know it only in English.

The described options for working with a dictionary are far from exhausting all its methodological possibilities. As it seems, in practical work, teachers and students will probably be able to find many more new techniques.

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