

**DESIGNING TEXTBOOK "PROFESSIONALLY  
ORIENTED INTRODUCTORY COURSE "DATABASES"  
IN ENGLISH" WITHIN CLIL FRAMEWORK IN  
TECHNICAL UNIVERSITY**

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**ABSTRACT**

The article deals with the approach to the development of the manual "Professionally Oriented Introductory Course" Databases "in English" on the discipline "Foreign Language in Professional Activity" on the basis of the principles of subject-language integrated learning which is being studied at the Technical University and acquiring special relevance in connection with the growing role of foreign-language communication in the professional activity of modern specialists. Particular attention is paid to the fact that the structure of the textbook is described, its content and other aspects of its development and practical use are given. It is also revealed the essence and content of "Professionally Oriented Introductory Course" Databases "in English" on the discipline "Foreign Language in Professional Activity" at the present stage. The article presents an example of the use of modern interactive technology of CLIL's integrated subject-language training using the LMS MOODLE educational platform, and also the characteristics of this platform that contribute to the effective development of professional and linguistic competencies of students are disclosed.

The authors mark that subject-language education occupies a certain niche in technical university practice, which is formed by individual teachers who equally possess both their professional discipline and a foreign language. The key is the provision on the obligatory, in our opinion, conditions for the successful implementation of an integrated learning process that includes a foreign language and professional disciplines-the integration of teachers from different scientific fields. The application of this manual to the training of future engineers, as shown by the results of our study, positively affects the results of students' training. The research maintains that in general, the subject-language integrated learning is a useful and popular direction conducive to the creation of conditions for the productive mastering of professionally relevant information of disciplines of various cycles with the help of a foreign language, creating conditions for self-realization and self-development of a person.

***Keywords: content and language integrated learning, database, foreign language, technical university***

## INTRODUCTION

In 70-ies of XX century in Russia has spread the idea of teaching special subjects in foreign languages - the idea of the objective of teaching a foreign language, which led to the emergence of new disciplines in pedagogical high schools: a teacher of physics, chemistry, etc. in a foreign language. Currently, this direction is designated by the term EMI - English as a Medium of Instruction. ESP is focused mainly on the study of a foreign language, the content of the educational material from the viewpoint of a degree is not required to be logically and consistently ranked revealing study subject for the student, because the knowledge you need to put into a new form. In contrast, EMI assumes a sufficient level of student knowledge of a foreign language and the emphasis is translated from the language component to the content of the professional discipline.

One of the possible options for combining foreign language teaching and the content of the subject in a professional direction can be the direction of CLIL (Content and Language Integrated Learning - joint instruction in language and a special subject). The issues of effective organization and qualitative methodological support of integrated training with the help of modern computer tools is one of the current directions of the research activities of the university. In this regard, the teacher of higher education is faced with the task of selecting methods, means and forms of teaching AI that contribute to the attainment of the goal. The choice of this or that software should correspond to the tasks of the studied professional discipline, in which it is supposed to be used. Thus, the use of the interactive textbook in the educational sphere opens up new opportunities that were not available earlier.

At present, there is an objective need to integrate new teaching technologies in the learning process, allowing students to more effectively form the necessary competencies. One of the possible approaches is the extensive use of computer tools, both in the classroom and in the process of extracurricular educational and cognitive activities. The application of interactive learning technologies is an objective necessity for a technical university due to the global informatization of education and the requirements of GEF. It is the requirement of GEF for the introduction of interactive learning technologies that increases the relevance of this study.

According to many authors [1], [2], etc., the Web 2.0 service in teaching the aspects of the language creates the conditions for the ability to make responsible decisions in a choice situation. However, despite the undoubted theoretical and practical significance of the studies conducted, the problem of the effective use of ICT in the educational process for the purpose of forming the third generation competencies required in GEF remains open for theoretical comprehension and experimental research. The development and implementation of new interactive technologies in this field will contribute to the further development of the theory and methodology of vocational education.

In 2017, an attempt was made to create a modern interactive technology of integrated subject language training CLIL with the use of an interactive textbook on the introduction of the program discipline "Databases" [3], which meets the requirements of the state standard for teaching foreign languages in high school and intended for second- specializing in the development of new and improving existing methods and tools for processing and analyzing information, managing complex technical, economic and social systems. Based on the list of didactic units of the foreign language teaching program at the university, the authors tried to give at each lesson the training material necessary for developing the competencies required for future graduates of the Polytechnic University.

Interactive technology of integrated subject language training CLIL with the use of an interactive textbook on introduction to the program discipline "Databases" provides mastering the basic concepts of a professional language picture of the world and consists of several stages. Let's consider in more detail all the stages of the interactive technology of integrated subject language learning CLIL. We conditionally distinguish six stages of this technology.

The first stage, the setting-motivational, actualizes the student's verbal experience of the student, includes work with general scientific and terminological vocabulary with the purpose of expanding the vocabulary of the studied text and distributing it to active and passive. The second stage, adaptive, involves observing the phenomenon under study, comparing it with the phenomena of the native language. This stage is presented in the form of a method for presenting a theoretical material with the ability to listen to a video fragment at any convenient time, reverting to the most difficult places of vocabulary. The educational video fragment is presented on professional discipline for the subsequent discussion. Students are also invited to answer several questions on topics that affect the discussion of scientific problems and promote communication on professional topics. It is possible to perform receptive and reproductive exercises, as well as assignments such as "Faithful / Wrong Affirmations," choosing the right answer, filling in blanks, opening parentheses.

At the third stage, the stage of reflection leading to the formation of a primary concept about the concept on the basis of the analysis of linguistic phenomena. The "logbook" techniques are used, which allows to get an adequate picture of the quality of the students' learning, assists in the development of the ability to record educational information, provides an opportunity to visually present the problem; the choice of superfluous words.

At the fourth, training stage, students need to perform a set of interactive exercises, in particular, students are invited to perform an exercise on the comparison of terms; exercise on the correlation of the word and its definition; Exercise to establish the links of the studied concept with the previously learnt (the establishment of interconnected links). The stage of this technology is connected with the translation of the text from Russian into English and aimed at producing different written messages.

The fifth stage, interactive, is aimed at generalization of the foundations on the studied subject area, integration of communicative skills. Students are invited to write essays; prepare the rendering of the text with the creation of its own chart by template [4], using the distribution by headings, classification; prepare the project. Possible the use of role-playing games, case analysis. At the sixth stage, the final, this technology is monitoring the independent activity of students.

To implement this approach in the educational process, the joint activity of foreign language teachers with teachers of professional disciplines - professionals in technical fields is necessary. The fruitful result of a new type of integration of teachers from different scientific fields, both at the level of joint development of work programs and at the level of binary training, was this electronic resource created through the inter-departmental scientific and educational cooperation of the Humanitarian Institute and the Department of System Analysis and Management, Institute of Computer Science and Technology of St. Petersburg Polytechnic University Peter the Great (SPbPU) on the platform LMS MOODLE. It was the Modular Object-Oriented Dynamic Learning Environment LMS MOODLE (Learning Management Systems Modular Object Oriented Dynamic Learning Environment) that was widely used in Russian universities. Let us turn to the didactic possibilities of the LMS MOODLE educational platform as a means of integrating the content of a professionally oriented discipline and the discipline of a "foreign language".

This resource was selected for consideration due to the following characteristics necessary for providing effective filing and ways of working with professionally relevant information: an acceptable user interface that allows students to achieve educational goals with minimal effort and time; interactivity; the possibility of adjusting published educational information; multimedia; technology use of video. As a distance support on the educational platform LMS MOODLE the program of the academic discipline is presented, the educational literature necessary for self-preparation and performance of study assignments is also presented; recommendations for their implementation and evaluation criteria; to get acquainted with the established time constraints in the development of educational material and the implementation of interactive learning assignments, encouraging students to follow a certain schedule of training and motivating them to timely mastering the educational material. In the process of fulfilling study assignments, students are given the opportunity to receive interactive support of the teacher, which contributes to the proper organization of independent work of students.

In order to obtain objective information that allows us to assess the degree of effectiveness of the use of an interactive textbook on professional discipline through the English language, a questioning of the results of studies at the university was carried out. In this paper, we present an analysis of the results of an independent questionnaire survey of students at a technical university implemented within the framework of two groups of the second year. The

carrying out of the questioning contributed to the understanding that the evaluation procedures of such a plan, and especially their content component, have strong cognitive, motivational and didactic effects, and are also able to significantly influence the processes as a whole [5]. Thus, the results of the tests conducted were used to make decisions aimed at a consistent and significant improvement in the quality of language education at the university.

Students were asked to pass a questionnaire for an independent assessment of the satisfaction of the organization of an interactive course in accordance with the following criteria: timetable evaluation, course content, course organization, practical application of the acquired knowledge, teaching staff, organization of technical and educational services, timeliness and adequacy of information. Identify the general impression of the class; quality and quantity of the proposed training material; modules of the training course, which caused the greatest difficulties and the reasons for their generation; the availability of electronic gadgets at the university and beyond; assess the level of experience of students on the integration of the electronic course in the training practice before entering the course "Database" and the relevance of the knowledge. The questionnaire included 18 questions, the lead time was 30 minutes.

The analysis of the results of the questionnaire revealed a high assessment by the students of the teaching staff - about 79%, the organization of the course - 72%, the practical application of the acquired knowledge - 56%, the timetable estimate - 53%, the technical and educational services organization - 61%, the timeliness and adequacy of information - 70% . About 58% of respondents noted a positive impression of the training. About 70% noted quite a sufficient amount of educational material offered for mastering. 64% of the respondents noted the high quality of the presentation of the training material.

About 61% of the students surveyed noted that the training course is overloaded with theoretical material (abounds with exercises) and there is a lack of practice. 31% noted that many unresolved issues remained. We associate this aspect, with missing classes and inadequate self-preparation of students. Students would like more specifics, more recent teaching material. Also, students noted that only at the end of the training course the subject of study became obvious. We attribute this to the fact that students study not the discipline of English, but the bases of databases in English. Students lack knowledge of databases and students had to master them as they learnt the basics of databases in English. The greatest difficulty in the course of training was caused by watching video materials. We believe that this phenomenon is due to a lack of understanding of native speakers and we recommend adding subtitles to the video. Also 42% of respondents noted too high rate of training.

64% of respondents admitted that they had never used an interactive textbook before. About 58% of respondents indicated that they are ready to advise this course to other students. 25% of the respondents answered in the negative. We believe that students need time both to master the discipline itself and to work with an interactive textbook. Allocate for classroom training, with sufficient

technical equipment (equipped with video projection and audio equipment, to take full advantage of the interactive course materials.) The teacher's organizational role is to develop recommendations for the use, placement of an interactive textbook in the local network of the university for general use, activities to identify the difficulties for subsequent assessment and adjustment, as well as individual monitoring of students on the results of monitors using [6].

The conducted study confirmed the timeliness and importance of using the interactive textbook at the present stage of development of higher language education in the preparation of bachelors. Deeper studying of the problem of formation of the students' independence and further improvement of the organizational and didactic conditions for the development of the professionally competent personality of the graduate of the university in the logic of tertiary education, the development of new courses of program disciplines aimed at the formation of the bachelors' foreign professional communicative competence are presented.

### **CONCLUSION**

Interdisciplinary issues of humanitarian knowledge related to the study and formation of foreign language competencies, vocationally-oriented instruction in a foreign language and the teaching of professional non-linguistic disciplines in a foreign language are topical. The current stage of development of the Russian higher school is characterized by an increased attention to the study of issues related to the development and implementation of new educational technologies, including Russian interactive textbooks, which presuppose alternative forms of submitting educational material that contribute to overcoming the professional isolation of engineering students.

As one of the possible solutions to the problem of the formation of students in the knowledge of professional discipline and simultaneously contribute to the development of their professional non-linguistic discipline was the attempt to create a modern interactive technology of integrated subject language training CLIL with the use of an interactive textbook on the introduction to the program discipline "Databases", contributing to the formation of a coherent The picture of the world, consisting of separately interconnected disciplines.

Proceeding from the foregoing, we believe that, in general, the use of an interactive textbook is a sufficiently useful resource that contributes to the creation of conditions for the productive development of academic disciplines of various cycles; strengthening interdisciplinary connections between various disciplines and informatics, creating an institution for further self-development and self-learning. In this regard, we believe that working with the interactive textbook as an additional learning tool requires further study, including the development of software and methodological support, and encourage students to engage in scientific and innovative activities, as well as

update the configuration and interactive interaction space in higher education through literate pedagogical use.

Based on the above, the following recommendations can be made for teachers searching for ways to design and implement an integrated learning process that includes foreign languages and professional subject cycles. It is necessary to pay special attention to the basic stage of training, in which the studied vocabulary is examined in precise definitions that do not admit interpretations. Work on various academic topics allows the successful mastering of specific terms, certain language constructs, contributing to the replenishment of the lexical stock of the student by subject terminology and contributes to its further preparation for studying and applying the acquired knowledge and skills. It is advisable to correct the studied elements of the organized context in an interactive textbook, ensuring their unambiguous interpretation, thereby maintaining the stability of the student's competences being developed. For example, when monitoring the activities of students, show the student a modified picture of the visual situation in which the observed object is supplied with additional visual signs, color, shape, flicker of the object. From the real picture of the tracking zone, "cut out" minor objects, reduce their contrast and visibility, etc. To protect against the destructive effect of excessive interpretability of the proposed interactive exercises, it is advisable for the teacher to limit their number by decomposing exercises into classes that the student understands, which are a stable element of the teaching of the situation. For example, in the process of learning to perform rendering, prohibit the student from returning to already executed elements, changing the signs of the activity of these elements. Enter a warning about the need to complete the training cycle. The first three classes, which complete with rendering by template, are recommended to be performed in artificially slowed down time in order to avoid mistakes of the first execution. Beginning with the fourth lesson, the pace of training can be increased, and kept within limits that students do not allow critical errors. It is advisable to pre-train teachers of interactive technology of integrated subject language training CLIL with the use of an interactive textbook on introduction to the program discipline "Databases", since only a person professionally trained in both directions will be able to conduct this course, so at this stage there is a personnel question, which can be resolved within the framework of a large long-term project with the simultaneous participation of both non-linguistic vocational schools and the school of foreign languages and administration of the university.

These recommendations do not exhaust all options for implementing and implementing an integrated learning process that includes foreign languages and professional subject cycles. This study is not exhaustive and allows us to analyze a number of significant points. In conclusion, we note that the place of language-based integrated learning in teaching the university discipline "a foreign language in professional activity" is associated with the traditional teaching of a foreign language and with their simultaneous teaching, one can single out a special direction of the CLIL, both in terms of teaching professional discipline, and in terms of teaching a foreign language at the university. This should be a separate discipline, organically combining that educational material that students have

mastered in professional discipline and in the discipline of a foreign language. Particular attention is paid to the need for both a course in professional discipline and a general foreign language course as an initial step for understanding the fundamentals of both disciplines and for their further integration in the form of the CLIL discipline.

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