Designing Of Content Of The Bilingual Elective Course "Information And Communication Technologies (Ict)"

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Abstract

The article describes the results of the research work devoted to the designing of content of the bilingual elective course "Information and Communication Technologies" for high school students by means of Russian and English languages. According to the Concept of profile education at the senior stage of general education in the Russian school (2003) elective courses are associated with the satisfaction of individual educational interests, needs and inclinations of each student. Content and Language Integrated Learning (CLIL), that has become widespread in Europe, was taken as the bases of bilingual education. Thus, the use of a foreign language (English) along with the Russian language becomes a way of comprehending knowledge from different subject areas. The introduction of bilingual elective course by means of Russian and English languages allowed students to form additional linguistic and information competence. It was formed at a sufficiently high level in 35% of students during the first year of study and during the second year in 26% of students. Also, mathematical processing of the results of experimental work showed that for the first and second academic years CLIL had provided the necessary quality of knowledge and skills of students in the field of information and communication technologies and simultaneously had improved their knowledge and skills in English. The presented research work expands the theoretical views of the pedagogical science on the actual problems in the field of bilingual education, the solution of which will open new opportunities for the development of Russian education.

Keywords: bilingualism, bilingual education, information and communication technologies, Content and Language Integrated Learning (CLIL), linguistic and information competence, elective course

Introduction
The development of the theory and practice of bilingual education provides important impulses for an intensive innovative search in this direction in Russian schools. It is a question of deep comprehension and application of the most productive foreign ideas of bilingual education in similar socio cultural conditions and the use of the national historical and pedagogical experience of bilingual education in schools with the teaching of a number of subjects in foreign languages [1, 2].

The relevance of these ideas for Russia is linked to its desire to interact with the world community in solving global human problems, in implementing humanitarian projects and in other areas of international cooperation. Such interaction caused the emergence of a "language boom", which affected the status of a foreign language as an object, which makes it possible to take the advantages of an open society.

Usage of foreign language is a way to comprehend the world of special knowledge, to familiarize the culture of different peoples, to dialogue various cultures, which contributes to the comprehension by people of belonging not only to their country, a certain civilization, but also to the planetary cultural community, is of great importance for the modern Russian schools. However, teaching of a foreign language as an academic subject in the school keeps remaining to be isolated from the subjects of the non-linguistic cycle. In this regard, one of the ideas laid down in the Federal State Educational Standard for Basic General Education (2010) is to use a foreign language as a means of obtaining information that would allow students to expand their knowledge in other subject areas and gain benefits in the course of socialization and adaptation in modern conditions. In our work, the possibilities of Content and Language Integrated Learning (CLIL) are revealed, when the content of the subject is the leading, while in other methods of teaching a foreign language the content of the academic discipline serves as an illustration of language structures studied [3].

MATERIALS AND METHODS

As the subject area for bilingual education was chosen Informatics and Information and Communication Technologies (ICT). Why? The terminology, symbols, methods of studying are international. Our daily speech is supplemented by many anglicisms: Internet, website, blog, interface, account, etc. Many English words are used in professional slang: to google; software; user (a user), etc. In addition, for example, we use a keyboard that contains commands in English. To download a web page on the Internet, you need to write its address (URL) using the English keyboard layout. No matter how well the operating systems and software are adapted, there are often cases when a computer program generates a message in English. There are a large number of online programs with the English-language interface in the Internet,.

 Moreover, school Informatics and ICT subject curriculum can't include all the variety of information that make up the content of the actively developing area called Computer science.

We developed a questionnaire for high school students to determine student's usage of ICT in their daily lives and educational activities. The results are presented in Table 1.

Table 1 The results of the survey

Questions	Variants of answers	2009-2010	2010-2011
How often do you use the Internet?	Every day	55%	83%
	2-3 times a week	40%	12%
	Once a week	0	5%
	Very rarely	5%	0
Do you have an email address?	Yes	89%	92%
	No	11 %	8%
Did you use MS Power Point for presentations?	Yes	64 %	76%
	No	36 %	24%
What dictionaries do you use when translating unfamiliar English words?	Paper	87 %	80%
	Electronic	13 %	18%

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	Online	5 %	2%
Did you work with the English interface of the program?		90% answered negatively	95% answered negatively
Which operators of programming languages (in English) do you know?		13% could name several operators of the programming language	8% could name several operators of the programming language

While having conversations with the students, it was revealed a stereotype in relation to a foreign language as a general educational discipline that is taught at school "in a load" to important subjects, and the students lack on a clear idea of the demand of a foreign language in cognitive and educational activities. According to the results of a survey among students on what general subjects they could learn in English, it was revealed that preference is given to ICT, history and social studies.

According to the Concept of profile education at the senior stage of general education (2003) elective courses are associated with the satisfaction of individual educational interests, needs and inclinations of each student. Their introduction is aimed at the realization of the personality-oriented educational process. Therefore, we developed bilingual elective course "Information and communication technology (ICT)".

Bilingual education at school was based on general principles, as well as on the private principles of bilingual education, had developed by Salekhova L.L. [2], that in our case were adapted for ICT. But the main principle was CLIL [1, 4, 5, 6]. CLIL allows focusing on the content of the subject, while in other approaches of teaching a foreign language, the content of the academic discipline serves only as an illustration of the language structures studied.

As the guide for designing of the content of the elective course we used textbooks "Basic English for Computing" and "Oxford English for Information Technology" [7, 8]. They are basically cover key computing functions, and especially targeted on developing learners' competence in all four skills in language. For our elective course we developed special textbook, which includes exercises and tasks on main elective course modules [9].

The strategic (integrative) educational goal of teaching was the formation of student's additional linguistic and information competence (LIC). LIC is understood as the willingness and ability of students to use foreign language along with the Russian language to implement information activities (collecting, processing, storing, reflecting, replicating and transmitting any amounts of information in various forms using ICT tools) effectively [10] .

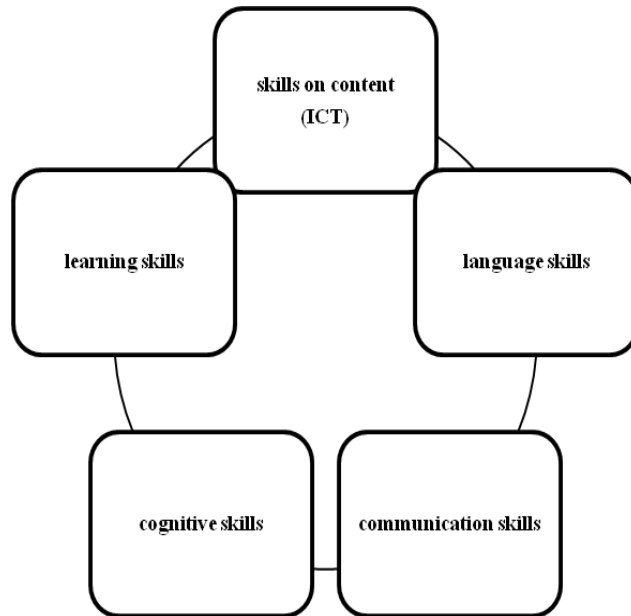Figure 1 shows the structure and criteria of the formation of student's LIC

Figure 1 Structure and criteria of the formation of student's LIC

In accordance with the goal the main tasks were:

— to form student's knowledge on the subject in English and Russian languages, namely, the types and structure of computer equipment, skills in using software, etc .;

— to familiarize students with the widest possible range of ICT concepts and terms in English and Russian;

— to develop listening skills, reading skills (e.g. reading authentic texts with a general content coverage, with detailed understanding, understanding of specific information in English) etc.;

— to compare, present, express own opinions in English and Russian;

— to trace how CLIL contributes to the realization of the educational purpose of mastering subject knowledge, improves student's skills on English language and their personal development etc.

Such modules as types of computers, networks, The Internet, application software package (MS Office), career in IT and others were included to the content of the elective course. Themes were combined into blocks. Each module assumed the study of terms and concepts in English, the performance of oral and / or written tasks (exercises), as well as the making and performance of laboratory work (lab) / independent work.

Labs and independent works allowed students to master skills in solving practical problems. Students practiced definitions (terms and abbreviations) on the subject area, so that the content of the basic terms, connections and relations between them are assimilated. Both during preparation for classes and directly on lessons, students actively used bibliography, online and offline dictionaries for performing tasks. The last could be used both for direct work with them as for the information base of the course. Thus, the purpose of lab was to increase awareness of the main problems of EC, to form (improve) the skills of working with various sources of information, to transform information and present it in various forms (theses, plan, citation, etc.).

Tasks for independent work included work with recommended literature, solving proposed problems with subsequent analysis of solutions, analysis of their activities, etc.

There were carried out general lessons in the form of a test after studying block of topics. Test included checking of knowledge on concepts and terms on ICT in English, working with text or dictation, questions on the topics studied, and performing lab on ICT by means of Russian and English. For example, on the general lesson "MS Office"

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students had to complete the following tasks:

1. Translate terms / phrases from Russian into English or vs. For example: font, bold, database, search, condition, cell, formula, save, plus, multiply, divide, equal, to drag etc.

2. Answer questions online [11]:

3. Fill in the table, answering the questions.

4. Make a lab on PC (e.g. solve the problem using the main functions of the table processor; perform text formatting according to the sample etc.).

Specificity of making lab was that student had to solve the proposed tasks, primarily, analytically, and then formalize it in electronic form.

In the process of practical implementation of CLIL the most appropriate form of training, which harmoniously combines with the existing forms of organization of the educational process and corresponds to the tasks of personal developing education, was project works. The purpose of student's project work was to develop projects (individual or paired) on various topics of Informatics and ICT subject area. Working languages for developing the project were Russian and English. The presentation on project work was created using PowerPoint or Prezi software, and then performed orally by means of Russian and English languages. At the stage of project organization and planning, the teacher presented the compositional diagram of the project construction, requirements, structure. Note that during project work students closely interact on native and foreign languages (work with information, analyze of concepts, prepare speeches, etc.).

After studying the elective course students had to:

—   know basic terms and concepts on subject on English and Russian,

—   own computer skills that will be used in the future for mastering other disciplines,

—   know and be able to use software,

—   be able to represent their knowledge with the help of ICT and use these skills in preparing bilingual reports and speeches

RESULTS

The educational experiment was carried out for five years (2008 - 2013) and included three stages: ascertaining, formative and controlling. Experimental work was aimed at the formation of student's LIC and analysis of obtained results. In total, 108 students participated in the experiment.

At the ascertaining stage of the pedagogical experiment, we revealed:

1) not a high level of knowledge of ICT and English in the experimental (EG) and control (CG) groups;

2) low level of ICT use in educational activities in EG and CG;

3) a misunderstanding of the relationship between ICT and English;

4) a positive attitude in using English for studying elective course;

5) the coincidence of the initial state of knowledge on ICT and the English language in EG and KG with a significance level of 0.05.

Based on the results obtained, the tasks of the formative stage were:

1) to implement ICT teaching by means of Russian and English;

2) to select, adapt and structure the educational material in accordance with the constantly increasing level of student's LIC;

3) to organize educational activities based on the extensive use of ICT;

4) to conduct ongoing monitoring of students' knowledge.

In order to characterize the quality of forming student's LIC, a general average score was established, formed from three averaged assessments for the performance of checking of knowledge on concepts and terms on ICT in English, bilingual lab on ICT, and bilingual project on ICT.

We had identified three levels of mastering LIC (low, medium and high). We had received that the LIC was formed at a rather high level in 35% of students in the first year of studying and in the second year of studying in 26% of students. Also, the mathematical processing of the results of experimental work had shown that for the first and second year of studying and for the first year of the second academic year, CLIL provided the necessary quality of knowledge and skills of students on ICT and simultaneously improved knowledge and skills of students on English. With the help of the Spearman correlation criterion, it was proved that there was a pronounced connection between the foreign language and information components of student's LIC [3].

In general, the research showed the reliability of the results. It was ensured for all of the indicated criteria by the representativeness of the samples and the rigor of the applied mathematical apparatus. Also, it was revealed a positive impact of CLIL on the personal qualities of students, such as the development of speech-thinking mechanisms, thinking, general educational skills, creativity, a sense of confidence in communication in a foreign language, etc.

CONCLUSION

The current stage of development of society, characterized by the tendencies towards globalization, stimulates the need for students to use the English language for information activities. Knowledge of ICT, a foreign language and the ability to use them make it possible to strengthen information exchanges based on free access to information, create conditions for equal access to quality education, and strengthen the capacity of communication tools on the basis of innovative projects that make it possible to realize students' potential most effectively.

Teaching of ICT using CLIL is becoming topical, as a result of which students develop a linguistic and information competence. In this regard, one of the most important components of the preparation of students of high school is the introduction of bilingual elective courses. Mathematical processing of the results of experimental work made it possible to establish the formation of the linguistic and information competence of students in the experimental group without loss of quality of knowledge in Informatics and information and communication technologies.

DISCUSSIONS

The overall results show the practical importance of the study. Research materials can be successfully used in the practical work of high school teachers, in institutions of secondary vocational education, in the system of training and professional retraining of educators.

It should be noted that great importance for the effective organization of bilingual education has the skill of the teacher to stimulate the motivation of students, as well as the development of their general educational skills. The process of differentiation of schools, profile education, bilingual medium of instructions present new requirements to the quality of the training of subject teachers, deeper knowledge of the subject and a foreign language, the best methodical training, which includes knowledge of a professionally-oriented foreign language. Currently, for subject teachers who are proficient in English and speak English at the level of B1, there is an opportunity to be trained in one of the Teaching Knowledge Test (CLIL) models that checks knowledge necessary for the teacher to teach one or more academic subjects by means of English language, as well as the ability to plan and conduct a lesson, use certain methods and types of educational activity during the lesson, and also control the mastery of the subject.

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