

## INTERACTIVE WEB2.0. TOOL SINCONTENT AND LANGUAGE INTEGRATED LEARNING (CLIL)

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### ABSTRACT

In modern world, teachers and educators have to work in the linguistically inhomogeneous audience of pupils and students, most of whom are bilinguals. Various models of bilingual education have their own specifics related to the peculiarities of the country, its history, culture, economic status, language status and mentality of the nation. In the past 20 years the technology of Content and Language Integrated Learning (CLIL) has become widespread in the European Union, which is used for teaching bilinguals. In the Republic of Tatarstan high school graduates with the Tatar language of education, after having entered higher education institutions, are faced with cognitive and linguistic difficulties, so the use of the technology of CLIL for bilingual education in universities of the Republic of Tatarstan is actual. Studying the experience of the application of CLIL in European universities of technology led to the conclusion that the most difficult in its realization is the development of teaching materials. The aim of the study was to develop teaching materials for use in the process of learning the Tatar-speaking students with the help of educational technology CLIL at university. We have developed the educational materials in computing based on Wikia and conducted educational experiment how to use them. The students of the Department of Tatar philology and culture of the Kazan Federal University took part in the experimental and control groups. The educational experiment was attended by 50 students, the experimental group - 25, control group - 25 learners. The educational experiment was carried out for one semester of the academic year 2015/16. In teaching of the subject "Informatics" (36 hours) in the experimental group there were used the technology of CLIL and Web 2.0-based teaching materials. Informatics teaching in the control group was realized in Russian by means of traditional methods. The students were tested at the final stage of educational experiment. Processing of the results with the help of statistical methods led to the conclusion that the positive changes in the experimental group are due to CLIL-assisted training using teaching materials developed on the basis of Web 2.0 technologies.

**Key words:** CLIL, Web 2.0, the Tatar language, the Russian language, adoptive language, learning content, content

### 1. INTRODUCTION

Two opposite tendencies have been developed in modern world, on the one hand - integration and globalization occurring everywhere, on the other hand - the desire of the peoples to preserve their national identity, and, therefore, their native language. There are many countries on our planet where citizens speak lots of different languages and dialects. Let us give the data of UNESCO in support, Papua New Guinea is in the first place, its residents speak 830 languages in the United States - 364, in China - 296, in Russia - 135. The systems of education in these countries encounter the same problem: how to teach children speaking different languages in class? In many countries, the government policy concerning the use of languages in education in schools and universities adheres to the same principle - the principle of a single language in education. If the English language in the USA is the language of learning in many educational organizations, in Russia - it is the Russian language. This unified trend is dispersing all over the world. Thus, the teacher or the lecturer has to work with the linguistically inhomogeneous audience of pupils or students, most of whom are bilingual, that is, know native language and adoptive language of learning in a varying degree. M. Siguan and U. F. Mackey [Siguan, Mackey, 1987] offer to refer bilingual to a person who is competent in a comparable degree in the other language in addition to his first language, is able to effectively use one or the other of them in any circumstances. This is the ideal model of bilingualism, which defines the "reference point" to determine the degree of bilingualism of one or another individual, depending on the degree of remoteness from him. The majority of bilingual learners face two major challenges: firstly, they have to learn the subject or discipline in a second language, and secondly, in parallel with the study of the subject, they are learning a second language as a separate discipline. The learners must grasp the content of the studied subject through the "filter" of adoptive language, which implies simultaneous concentration on both the content and the form. How to plan the educational process so that bilingualism to stimulate the development of human cognitive abilities rather than to hinder them? The answer: to apply the technologies for learning using a foreign or a second language

with regard to the level of bilingualism of the learners. Many scholars deal with this issue, among them are D. Cummins [Cummins, 1987], K. Baker [Baker, 2011], E. M. Vereshchagin [Vereshchagin, Kostomarov, 1983], and others. There are different models of bilingual education, and many of them have their own specifics related to the peculiarities of the country, its history, culture, economic status, language status and mentality of the nation. In the past 20 years the technology of Content and Language Integrated Learning (CLIL) has become widespread in the countries of the European Union.

One of the main ideologists and developers of the technology of CLIL is D. Marsh. According to his definition, CLIL is an "educational approach in which the disciplines or their branches of individual actions are taught in a foreign language, thus pursuing a dual purpose: studying the content of the discipline and at the same time learning a foreign language" [Marsh, 2001]. It is worth noting that the word "content" or "object" in the abbreviation of CLIL is in the first place. The idea of object-language integration in the process of learning has a high motivating potential. Thus, the need to examine the content of the discipline motivates the students to improve their knowledge of a foreign language; the lexical approach is used, thanks to which the students take notice of and analyze linguistic structures and lexical units, for example, during reading the text; immersion in verbal environment takes place; particularly important is the content of the discipline, while in other techniques of bilingual learning the content of the discipline serves only to illustrate the studied linguistic structures [Coyle, 2011].

The Republic of Tatarstan, being a part of the Russian Federation, is a multinational republic. According to Article 8 of the Constitution of the RT, the state languages of the Republic of Tatarstan are Tatar and Russian. In the Republic of Tatarstan there are Tatar-language schools, Russian-language schools and bilingual Russian-Tatar and Tatar-Russian schools. High school graduates from Tatar-language schools after having entered higher education institutions, are faced with the above cognitive and linguistic difficulties, so the use of the technology of CLIL in bilingual teaching at university of the Republic of Tatarstan is actual [Zaripova, 2015; Salekova, 2014]. The study of CLIL application experience in European countries led to the conclusion that the most difficult in its realization is the development of educational materials.

## 2. MATERIALS AND METHODS

The aim of the study was to develop learning aids to use them in the process of teaching the Tatar-speaking students via the educational technology of CLIL at University in Russian.

To achieve the purpose of the study, it was necessary to analyze the different Web 2.0 resources for use in the process of CLIL, to develop learning aids on the Web 2.0 platform and to carry out the experiment on their application in the educational process of the university.

Web 2.0 is a way of creating the content on the Internet, in which information on the Internet is produced, filled up and edited by the users of this resource. Moderators and administrators of the Internet resources in this case provide a service and technical platform, but do not participate in the process of filling it with the content [Batrova, 2014]. Web 2.0 resources have been firmly entrenched not only in everyday life but also in education. According to Tim O'Reilly, "Web 2.0 is a technique of designing systems that, with account taken of the network interactions, are becoming the better the more people use them".

When developing CLIL-based educational materials, the principles proposed by Peter Mehisto, the author of the book "Uncovering CLIL", were used [Mehisto, 2008]:

- make learning outcomes visible for the student;
- systematically improve students' academic language;
- stimulate the development of learning habits and skills and form self-dependence;
- include self-estimation, assessment of the work done and progress in learning;
- help create "a safe learning environment", which is characterized by cognitive development and lack of students' overstudy;
- further collaboration skills;
- contain not only adapted but also authentic texts;
- develop thinking skills of highest order;
- use support technology ("scaffolding") for the students not to have cognitive and linguistic difficulties in learning a second language;
- transform learning into student-important process.

The analysis of various Web 2.0 services showed that the following ones fully meet the above requirements: wiki-projects, the constructors of interactive tasks, specially created services for CLIL. Let us describe them in brief.

### *Wiki-Projects.*

According to Wikipedia, wiki-project is a site operating on wiki technology, it is developed at the expense of the collective work of the community of authors to be, as a rule, unpaid and voluntary. The participants of wiki-projects can create the content on a selected topic and improve the already existing information. Wiki-projects are quite popular, mainly used for putting up the articles, documentation and training materials. There are many open-resources on the Internet, providing the ability to create wiki projects: Wikia, Babylon, Wikidot and others.

*Constructors of Interactive Tasks.*

A distinctive feature of interactive tasks and exercises is their focus on the broader interaction not only between the students and the teacher, but also between each other and on students' activity. Currently, the Internet provides a wide range of services, allowing to develop interactive tasks. For example, Learning Apps service provides a set of templates with which you can create interactive tasks of various types: memory development games, quiz games, crossword puzzles, ленты времени timing belts, match tasks, sequencing tasks, puzzles, tasks such as "fill in the gap", etc. The use of such tasks in the process of subject and language integrated learning favors the development of reasoning skills of higher order (analysis, synthesis, evaluation), students' self-dependence and motivation.

There are also special Web 2.0 resources developed for use in CLIL. For example, CLIL Store, which is a repository of open educational materials in different languages, which everyone who wishes can fill up. This project is supported by the European Commission.

Wikia was chosen to develop the training materials. The resource is a site on the Media Wiki platform. This platform has rich technical capabilities for the creation and location of content - as formatting and layout of the text material, location and work with multimedia (images, audio- and video-information), it allows you to integrate content from off-site popular services (eg., YouTube). Important feature of the service is its interactivity. This resource has been used to create and publish laboratory works on "Informatics" in Russian for the Tatar-speaking students of the first year of studying who receive training in CLIL technology.

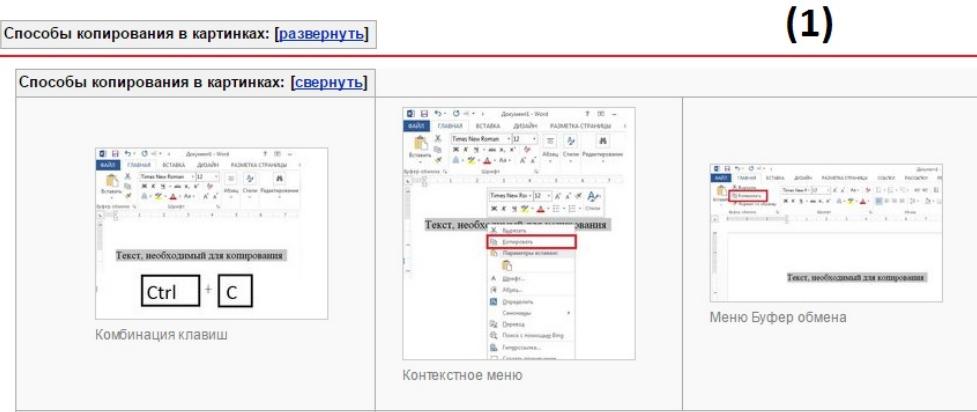
The process of creating educational material on Wikia resource includes several steps. The first step was to prepare the content of the laboratory work, model the structure of the material and develop the tasks.

The second step consisted in forming the page of Wiki project. To generate and edit the pages, Wikia resource has two modes of operation:

- lite mode of operation (vision editor), in which editing the content is similar to editing the text - to modify the fragment, it is necessary to allocate a variable area and click on the corresponding icon;
- enhanced mode (source code editor), providing ample opportunities for customizing the appearance of the page. In this mode, to set up a design of a fragment the participants should use the elements of the wiki-markup. Editing the page in the enhanced mode is much more complex, to facilitate the operation in the mode of source code Wikia site provides background information. During development different design elements were used - numbered and bulleted lists, tables, formatting of the text fragments, etc.

It was necessary to visualize the laboratory works, which helps to minimize the cognitive and linguistic difficulties encountered by the students when learning a second language. The training materials comprised gif-animation based on screen casting technology [Danilov, 2014]. Using wiki markup language we have designed complex visual elements:

- collapsible tables, in the cells of which there are illustrative data. In order to view the contents of the table cells, the student must click on a certain button, after which the content of the table unfolds. At any moment one can "fold" the table (Figure 1). This solution conserves visual space on the screen (the mobile device), as well as improves the visibility of the material.



**Fig.1. The process of working of an element «Collapsible tables»:  
latent content of the table (1) unfolding (2)**

- "acronyms", this element is a piece of text which, when putting the cursor over, displays "hint" (Figure 2). It was used to highlight the Russian-Tatar translation of the terms and combinations. This technical solution is an alternative of using a terminological dictionary, to translate a term, one is to put the cursor over the word, the translation of the word-combination from Russian to Tatar is displayed.

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- набор текста,
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(1)

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(2)

*Fig.2. The process of working of the visual element «acronym»: the text is dotted (1), when putting the cursor, the translation is displayed (2)*

The feedback technology has been realized in educational materials. With the help of this technology the users of the resource can comment the published material. In this case, the students used the comments to communicate with the teacher and other students in a situation when they needed to have explanation how to fulfill the laboratory work. At the same time, the students often answered their comrades' questions. The feedback technology allowed to create a virtual communications environment, where the students used Russian for academic communication and solving educational problems in terms of "Informatics".

### 3. SUMMARY

The participants of the experimental and control groups on the application of CLIL technology with the developed teaching materials were the students of the Department of Tatar Philology and Culture of the Institute of Philology and Intercultural Communication named after Lev Tolstoy, Kazan Federal University. In the educational experiment there took part 50 students, in the experimental group - 25 learners, in the control group - 25 learners. Before the start of the experiment, to determine the level of knowledge of the students specializing in computer science, they were tested. Based on the results processed, the empirical value of the test for homogeneity was determined  $\chi^2_{\text{emp}}=5,22$ . For  $L=3\chi^2_{0,05}= 5,99$ . That is,  $5,22 \leq 5,99$ , which means that,  $\chi^2_{\text{emp}} \leq \chi^2_{0,05}$ . As a result, it was concluded that initial states of the experimental and control groups coincided.

The educational experiment was carried out for one semester of the academic year 2015/16. "Computer science" (36 hours) used CLIL and Web 2.0 tools-based teaching materials in teaching the experimental group. Learning in the control group was traditional in Russian. The students were retested at the final stage of the educational experiment (Table 1).

**Table 1.** The levels of knowledge in computer science at the end of the experiment

Level	Experimental group before the experiment.(%)	Control group before the experiment (%)	Experimental group after the experiment.(%)	Control group after the experiment (%)
Low 0-50%	48	60	42,3	59,3
Average 51-74%	36	30	37,7	30,7
High 75-100%	16	10	20	10

### 4. CONCLUSION

Based on the results of testing after experimental learning, the empirical value of the test for homogeneity for  $\chi^2_{\text{emp}}$  is 9,97. For  $L=3\chi^2_{0,05}= 5,99$ . The empirical value of the criterion is strictly greater than critical:  $9,97 \geq 5,99$ . Therefore,  $\chi^2_{\text{emp}} \geq \chi^2_{0,05}$ . That is, the significance of differences of characteristics of the experimental and control groups after the end of the experiment is 95%. It can be concluded that the positive changes in the state of the experimental group are due to training on the basis of CLIL technology and Web 2.0 based teaching materials.

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