CONTENT AND LANGUAGE INTEGRATED LEARNING - A WAY FORWARD IN ENGINEERING EDUCATION

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ABSTRACT
The approach known as the Content and Language Integrated Learning (CLIL) presents a significant teaching practice in modern European education. The aim of such an approach is to utilize available teaching resources to best advantage but also to bring students (in a relatively fast and satisfactory manner) to desired educational outcomes that refer to the both: the content of a specific subject and the foreign language proficiency. In an attempt to find out a possibility for CLIL in Bosnia and Herzegovina a model was designed at technical faculties in Zenica. It was tested during a research project, within the English language classes. The pertinent subject area was reverse engineering. While working on their English language assignments, students were mastering the very content of the subject area.
Key words: English language, CLIL, language for specific purposes, language acquisition

1. INTRODUCTION

It is an unquestionable fact that English is the world's *lingua franca* of education and certainly a *sine qua non* of any engagement in science and technology. The largest part of the overall scientific sources is written exactly in this language or translated into it. In other words, the English language proficiency, especially in the field of profession, poses one of the most important conditions necessary for the acquisition of the latest scientific and technical knowledge.

In Bosnia and Herzegovina, the importance of the English language for profiling quality engineers was recognized primarily at technical colleges in Zenica. Considering the very poor and extremely uneven quality of knowledge of the English language with which students come from high schools to the universities, the management of these faculties decided to introduce general English classes in the first two years of studies and thus solve this kind of problem. The final two years are reserved for technical English (i.e. English for Specific Purposes- ESP).

2. ENGLISH FOR SPECIFIC PURPOSES

Number of approaches to English teaching is quite large today. It is a true challenge to identify the approach that can provide the best results in the given circumstances.

As already mentioned, English for Specific Purposes (hereinafter: ESP) is carried out at the technical colleges in Zenica in the final two years of undergraduate studies. The aim of this course is to enable students to independently use textbooks in English, to write short to medium long texts and summaries, as well as to make public presentations in English. Unfortunately, two hours of instruction per week does not allow for more. Through various discussions with graduates of our technical colleges, I have found out that many of them easily got a job (sometimes even leading positions in companies!) thanks to the knowledge of the ESP i.e. technical English.

However, there are other possibilities for learning English at this level of education. One of them is foreign-language-medium instruction (FLM). In our country, this type of instruction is offered by some private universities (Sarajevo School of Science and Technology, International Burch University, International University of Sarajevo). All lectures are delivered in English. Teachers are

either strangers or local people with excellent knowledge of English. A very good knowledge of English is a prerequisite for enrolling such faculties.

This is not the case with students enrolling other universities in Bosnia and Herzegovina, especially those of technical provenance. Most of them often come from rural areas or schools that failed to provide a high quality output when it comes to foreign language (vocational and some technical schools). In this regard, it is important to highlight that the latest research carried out at the world renowned universities showed that students with basic or elementary knowledge in a foreign language yield best results through language teaching which is entirely based on the content of the subject matter material (Content-based Language Teaching, hereinafter: CBLT). Indeed, a motivation factor has the decisive role here. ESP as practiced at technical colleges in Zenica falls in CBLT classes. Nevertheless, considering the need to fit into the latest European trends in education, and at the same time bearing in mind the stated requirements of the European Union for mobility, technical colleges of the University of Zenica considered the possibility of implementing yet another aspect of CBLT, and that is Content and Language Integrated Learining (CLIL).

3. CONTENT AND LANGUAGE INTEGRATED LEARNING AT THE UNIVERSITY OF ZENICA

CLIL is an acronym of Content and Language Integrated Learning. It is an approach which is rather favoured in European educational circles. It aims at a simultaneous development both in profession and in foreign language. There are numerous interpretations of CLIL. They are the result of a diversity in the ways of CLIL implementation, its target groups, types of research, etc.

One of the most commonly used definitions is the one that describes CLIL as an approach with the dual focus, where the foreign language is used for teaching and learning as much the content of a subject matter as the language itself.

Relying on the experience gained through *Public lecture* projects[1] at our technical colleges, we conducted a research during the academic 2012/ 21013 and thus came to a CLIL model, which has shown excellent results.[2]

Having combined ESP and CLIL, the model represents a sort of transitional solution appropriate for the educational circumstances in Bosnia and Herzegovina. Among other things, it determines the time for CLIL implementation, its cyclic structure where three language focuses are alternately turned within five cycles (each cycle last three weeks), and finally – the model determines ways of cooperation between the professors involved (the technical subject matter professor and the English language one).

When it comes to the time of implementation of this model it is reserved for the final semester of study, i.e. after the courses in ESP were attended. The importance of teaching ESP prior to CLIL was evident from the results of the first control group[3]. The results were extremely poor in comparison to the ones obtained from the experimental group. Also, they were significantly lower than the results of the other control group[4].

Within the said time frame, our model defines three focuses i.e. three levels of language interest: lexical, grammatical and functional. The last level icludes mainly the work on rethorical functions but also on some other issues related to language use, such as: language skills (reading, writing, speaking and listening).

According to this model of CLIL, collaboration between professors/teachers implies primarily the identification of the common reading list in English. The list is shared by the teachers in such a way that the English teacher's classes and activities in teaching language supplement the activities conducted by the professor of a technical subject (hereinafter: subject matter teacher/professor). Another form of cooperation relates to regular consultations regarding the implementation of certain phases of the teaching process and its monitoring through testing.

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[1] *Public lecture* presents one semester long students' activities on preparing and implementing a lecture in which they present certain technical content in English, answer questions from the audience and thus "defend" their presentations.
[2] The model was followed through an experimental group. The research included two control groups as well.
[3] This group has never attended ESP classes.
[4] This group attended only ESP classes.

It is important to notice that the first word in CLIL is *content*, i.e. technical subject matter. Basically, it means that a slight priority is given to the content. The English kanguage activities follow the demands of the technical text. Therefore, students must adopt certain language skills and knowledge to be able to translate texts related to the subject matter, discuss given issues and expose their views in English.

This primarily refers to the following:

1. improving reading skills and reading comprehension
2. constantly practicing speaking skills as productive language skills
3. expanding vocabulary in the chosen field of the profession
4. focusing on writing as another productive skill

The above mentioned skills and knowledge, as well as another important issues which were further identified in the course of the research (mostly during a detailed, close reading of selected chapters within the previously determined reading list) were our main guidelines in selecting the activities for our CLIL classes, more precisely - for its linguistic part.

By using the language identified as necessary for the translation of texts in the chosen field of profession, our goal was to facilitate adoption of the subject matter. For this reason, our classes included those parts where the language is the most common and therefore most suitable for acquisition.

The term *language* implies three main issues here: the vocabulary which is closely related to our field of interest, the grammar related to the most frequent structures in the texts, and language functions that are recognized as the most necessary for the discussions on topics of our field.

In order to use the limited time of one semester as better as possible, we divided the period of fifteen weeks into five thematic cycles. Each of three weeks within a cycle was reserved for work on one of the focuses (vocabulary, grammar and language functions). In this way, despite the time shortage and limited resources (there were no teaching aids needed for this type of instruction) we sought to achieve the best results possible.

By regularly repeating the crucial vocabulary, frequent and hence important language structures and functions each three weeks, we made sure that the previously acquired knowledge was slowly but certainly expanded. In other words, we rendered repetition to achieve a certain level of automation required for the language acquisition (Rauto, 2008:27).

It is important to emphasize that throughout the research we did our best to maintain the proper measure and balance in language input. This primarily relates to the degree of complexity of the content matter material. Thus, for example, in situations where students were supposed to adopt more complex structures (e.g. complex noun phrases) we used examples with simpler vocabulary and vice versa.

In order to better use the allocated time, homework made a significant portion of our model. Also, the students were acquainted with the basic strategies of building a technical text, as well as with the importance and use of various rhetorical functions (Šestić, 2002: 379). The selection of functions that we worked on in our classes depended on the degree of their frequency in the given texts, as well as on the importance that some of them had for the chosen subject matter.

4. CONCLUSION

By testing knowledge of the both: the English language and the subject matter[5] we got results that were exceptionally good in the experimental group. Also, according to the information received from the subject matter professors, there was a certain rise in turnout of students for the exams, which is another indicator of effectiveness of this type of instruction. In other words, such results prove efficient utilization of classes where this model was employed. While aiming to solve language problems by using carefully selected subject matter sources and engaging students in interviews and discussions on relevant topics, English classes became an important part in students' professional development. The surveys conducted at the end of the research indicated the great satisfaction among the students with such an approach.

The existing CLIL model which, in the current circumstances, relies on two hours of English a week, can be upgraded by lectures and other pertinent activities carried out by subject matter professors.

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[5] These findings were a result of cooperation with subject matter professor.

That would create important preconditions for students' mobility, including a possibility of us being hosts to foreign students and professors, which presents not only an exceptional reference for the Faculty evaluations and accreditations but a possibility of many other benefits as well.

5. REFERENCES

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