ISTRAŽIVANJE GOVORNIH VJEŠTINA NA ENGLESKOM JEZIKU U INŽENJERSKOJ CLIL NASTAVI

A RESEARCH INTO THE ENGLISH LANGUAGE SPEAKING SKILLS IN ENGINEERING CLIL INSTRUCTION

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REZIME

U doba narastajuće svjetske potrebe za višejezičnošću nužno je propitati sve mogućnosti bržeg i efikasnijeg načina podučavanja stranih jezika. Umjesto pasivnih korisnika, potrebni su nam inžinjeri koji aktivno koriste strane jezike. CLIL je pristup koji insistira na ekonomizaciji vremena potrebnog za usvajanje stranog jezika. On to čini integriranjem nastave stranog jezika i nejezičkih nastavnih predmeta, što kod studenata povećava interesovanje i motiviranost. Rad istražuje govorne vještine na engleskom jeziku u inžinjerskoj CLIL nastavi.

Short original scientific paper

SUMMARY

In the time of the world's growing need for multilingualism it is necessary to examine all possibilities for teaching foreign languages in a faster and more efficient manner. Instead of passive users, we need engineers who actively use foreign languages. CLIL is an approach that insists on economization of time needed for foreign language acquisition. It does so by integrating a foreign language instruction into a non-linguistic subject matter, which increases students' interest and motivation. The paper investigates English language speaking skills in an engineering CLIL classroom.

1. INTRODUCTION

Modern era engineers are in a constant urge to translate various professional texts either from or into English. At the same time, they are supposed to be fluent in different speaking situations which, owing to the global digitalization and online communication, have become an everyday need.

For a long time, foreign language teaching praxis at engineering faculties utilized methods of *English for Specific Purposes* (ESP). This approach is language focused. The only connection to engineering is the fact that it uses specialized engineering vocabulary to exemplify grammar phenomena. Bearing in mind that the number of classes allocated for such type of instruction is usually insufficient, little time is left to communication and development of language skills.

When the method of *Content and Language Integrated Learning* (CLIL), which prefers development of language skills to grammatical accuracy, came into prominence, the Faculty of Mechanical Engineering in Zenica considered the possibility of its implementation. A pilot project and subsequent research was carried out. One of their phases addressing oral activities is the focus of this paper.

The next chapter presents some of the main features of CLIL, special attention being paid to speaking skills.

2. THEORETICAL BACKGROUND

2.1. Content and Language Integrated Learning – CLIL

CLIL is an approach in which a foreign language is used as a tool for mastering a non-language subject [1]. It emerged in 1990s and the idea behind was promotion of bilingualism and cross-curricular competencies [2]. Nevertheless, there are some other approaches which also promote similar values. The most popular ones are *immersion method* and *English for Specific Purposes.* Distinction among them arises from the fact that CLIL is the only one

that puts the same focus on the both: foreign language and the content of the non-language subject. Therefore, it can be said that CLIL is dual focused.

On the other hand, ESP and *immersion method* have only one focus each. ESP uses the content of non-language subject exclusively for its prime goal – foreign language acquisition, whereas *immersion method* subjects foreign language to the content of a non-language subject. In our country, immersion method is used predominantly in international schools where students are taught different subjects in a foreign language (usually English), the fluency of which is a precondition for enrollment into such schools. In other words, foreign language is only a tool for transferring knowledge related to different non-linguistic subjects.

In CLIL, however, foreign language has the same value as any other subject, and deserves equal attention and elaboration. The relation between them is not subordination but complementation, that is: foreign language is not only the means for transferring the content of a particular subject but also an additional and equally important curricular goal. CLIL is organized in such a way that a content of a certain subject is addressed through the use of those language forms and structures which are inevitable for its comprehension. In this process, it is important to keep the learning environment as natural and spontaneous as possible.

The language acquisition theory highlights two main types of environment: natural/spontaneous and artificial/guided [3]. While the traditional, *ex cathedra* language instruction is carried out in artificial/guided environment, where a teacher is the main source of foreign language, CLIL offers natural conditions in which students are exposed to ample foreign language iput from various sources and, as a consequence, master foreign language much more efficiently [1].

It should also be highlighted that CLIL presents a vivid, interactive approach which enables students to constantly apply and, if necessary, format their acquired knowledge during their mutual communication, thus providing yet another significant dimension to this approach. During the process, CLIL teachers are observers and guardians who incite students to work autonomously. This fact is highly important in developing speaking skills.

2.2. Oral activities in CLIL

Teaching speaking skills in a CLIL classroom is based on theoretical framework [4] which is largely drawn from empirical studies and underpinned by the central notions of second language acquisition such as *communicative competence, comprehensible input, negotiated interaction, input processing and communication strategies*. These notions have huge relevance in understanding oral language instructional practice and, as such, should stand behind each CLIL lesson preparation. Talking about oral practice, we should distinguish between oral production and oral communication activities. Oral production relates to formal speeches, presentations, lectures, etc. On the other hand, oral communication is an interactive process where an individual takes the role of a listener as well as of a speaker, e.g. conversation, discussions, debates, etc. Both activities are important in CLIL, but oral communication is the one that is usually first addressed before the students get self-confidence enough to independently produce longer chunks of language. CLIL actually stands on four, so called 'pillars', one of them being communication [1]. The very use of foreign language to communicate meaningful content enhances not only language acquisition but also the content comprehension, which is the main idea behind this approach. Language and content are intertwined in a way that all language objectives are derived from the content. Thus, rather than using social and everyday conversational language functions, speaking activities in CLIL use content matter specialized language and fulfill content matter specialized language functions.

There are two simultaneous processes going on during speaking activities in a CLIL classroom. The first one is negotiation of meaning, which is oriented towards the resolution of communication problems caused by specificities of content. The second process is *negotiation of form***,** which is oriented towards linguistic issues resolution. In the process of *meaning negotiation*, CLIL calls for the interactive teaching style where students actively engage in communication with teachers and other fellow students. This leads to settling possible misunderstandings related to content, and to monitoring students' progress. At the same time, in the course of *form negotiation* students become aware of the formal features of

the message they are conveying. This process relies on peer and teacher's feedback as well.
Achievement of the above-mentioned goals poses many challenges before CLIL learners who are often reluctant to speak because they do not like to be under the classroom spotlight. There are many other reasons for their reluctance to speak in a foreign language such as, for example:

- Students feel uncomfortable while speaking a language in which they know they are making mistakes.
- It feels odd for them to communicate with classmates in a foreign language.
- It is very tiring to concentrate on producing a foreign language, especially when proficiency level is low.
- They often do not understand the point of speaking English all the time in class.
- Speaking English is not fun.

Therefore, especially in a traditional foreign language classroom, teachers usually talk most of the time, leaving students' talking time a very small percentage of the total class time. On the occasions when teachers initiate interaction, they normally get either one-word (yes/no) or a very simple, straightforward factual answers.
In order to overcome the challenges, CLIL finds necessary for teachers to provide certain spoken activities which enhance students' thinking skills and thus increase the amount of students' talking time in class. Thinking skills that proved to be the most efficient in that sense are *analyzing, comparing, problem solving* and *persuading*. It was the reason why we decided to include these skills in our research.

3. METHODOLOGY

3.1. Time, venue and participants

The research took place at the University of Zenica, in the period from 2009 to 2012. The participants were fourth-year students from two engineering faculties.
The experimental cohort that was exposed to CLIL classes (20 students) was from the Faculty of Mechanical Engineering (ME) and the control cohort that was not exposed to CLIL was from the Faculty of Metallurgy and Materials Science (FMM). Both were previously exposed to classes of English for Specific Purposes (ESP) for a period of an academic year.

3.2. Instruments

Instruments used in the research were as follows:
1. Textbooks in engineering (automatization)
2. Classroom material that was *ad hoc* prepared for the CLIL instruction.
3. Tests
4. Questionnaires

3.3. Preliminary research

To establish which language skill is the one that our participants were mostly interested in during the CLIL course, we asked them the following question:

As future engineers, which skill you find important to develop?

Students were given the possibility of giving multiple answers. Table 1 shows the distribution of their answers:

Table 1. Students' responses in terms of importance of language skills

Language skill	Experimental	Percentage	Control cohort	Percentage
1. Speaking skill	20	100%	20	100%
2. Reading skill	18	90%	14	70%
3. Writing skill	10	50%	6	30%
4. Listening skill	16	80%	12	60%

The highest number of students' responses in both cohorts (experimental and control) was given to speaking skill (100%) which was chosen to be the focus of this paper. Both cohorts recognised the importance of other skills as well, and they were an inevitable part of the research. Table 1 illustrates only students' preferences, in line with their needs.

Considering the fact that, in this paper, we aim to show only achievements related to speaking skills, results pertaining students' grammar knowledge and translation (test results) as well as the ones related to other skills will not be displayed here. In other words, we will present only that part of a research which addresses teaching speaking skills via development of students thinking skills which was already mentioned in the previous chapter. In that respect, it is necessary to provide a brief information on further research implementation.

3.4. Teaching speaking through thinking

The thinking skills that we wanted to develop in order to trigger students' speaking skills were *analyzing, comparing, problem-solving and persuading.* Those skills are inevitable in engineering praxis and, as such, familiar to our students. The principle used during the course was that the students were offered certain task (e.g. describe the process of designing new automation equipment). While analyzing the process and discussing it, students were using useful vocabulary that, along with some phrases, was given to them as scaffold. Scaffolding is important in this CLIL because students are not worrying about how to express themselves. Their thoughts are primarily occupied with the task (analyzing the given process) rather than with the language which comes in spontaneously. Thus, during the discussion, some of them showed that they knew additional words, some of them asked the professor for an unknown word, some of them looked up the word they needed in dictionaries. Speaking was not impeded by any need to be exceptionally precise in a linguistic sense, which made them free to speak and relaxed to acquire a new language. In other words, language acquisition was facilitated in a natural environment (see Chapter 2). Thinking skills, along with speaking skills, were constantly practiced during the course. Table 2 provides some of the instructions for activities used to incite conversation among the students in a CLIL classroom:

Table 2. Thinking skills in facilitating speaking and language acquisition

Skill	**Sample task**	**Scaffold vocabulary**	**Scaffold phrases (Some of examples)**	**Language acquired**
Analyzing	Analyze the auto-regulation stages	Analyze, break down, elements, aspects, components	a) the stages of auto-regulation are b) the process is divided into five main stages c) this stage takes about... hours d) the component plays a role of	a) listing b) classifying and passive c) phrasal verbs (to take about) d) illustration
Comparison	Compare and list differences between hydraulic and pneumatic drive	compare, in comparison, similar, analogy, same, like	a) despite these similarities, the two differ in b) It is important to distinguish between c) The two differ because one... while the other	a) markers of contrast, markers of similarity, b) regular and irregular comparison, c) complex conjunctions
Problem solving	Solve how to transmit digital signal in an environment with strong electromagnetic field	solve, possible solution, issue, hypothetically, chances are, likely, challenge, obstacle	a) The main problem is b) There are different ways to solve it c) I think the answer is... because... d) If we do...problem can be solved	Cause-effect markers, Conditionals

Skill	Sample task	Scaffold vocabulary	Scaffold phrases (Some of examples)	Language acquired
Persuading	Persuade your audience in necessity of using optical sensors rather than mechanical	persuade, convince, on the other hand, argue, claim, maintain, reason, (dis)advantages	a) I have several reasons for arguing this point of view b) Although not everybody would agree, I claim that c) These strongly suggest that d) It's also vital to consider	Concessive clauses

4. RESULTS AND DISCUSSION

At the end of the research students filled out a questionnaire in which they expressed themselves in terms of the achieved competencies (Table 3).
In experimental cohort (which attended CLIL classes) 50% of students stated that they succeeded to lead a short professional conversation in English as well as to make a short oral production on professional topics. In control cohort (the one that did not attend CLIL classes), such answers were given only by 15% of students.
The difference between these two groups (35%), showing progress in oral skills development, is on the side of experimental group (see Fig.1).

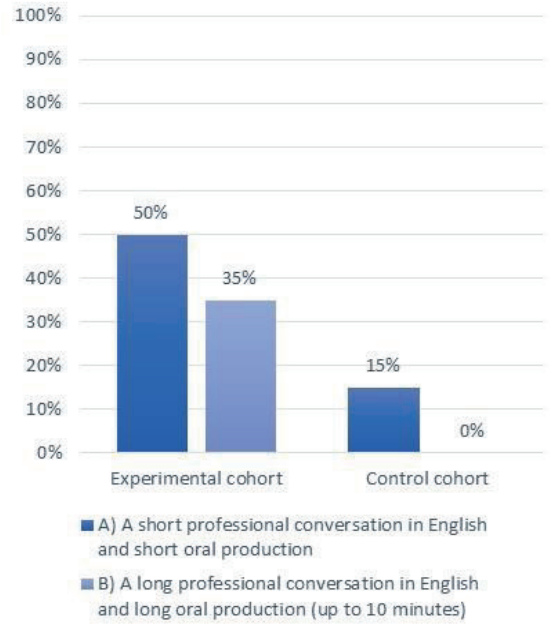

Fig 1. *Students' responses as to their speaking skills*

Table 3. Students' responses as to their speaking skills

I am capable of	Experimental cohort	Control cohort	Difference
	a	b	a-b
A) A short professional conversation in English and short oral production	50 %	15 %	35%
B) A long professional conversation in English and long oral production (up to 10 minutes)	35 %	0 %	35%

In case of students' leading a longer professional conversation or making longer oral production in English (over 10 minutes) 35% of students from the experimental cohort felt capable of leading such conversation, whereas nobody from the control cohort (the one that did not attend CLIL classes) stated to be able to lead longer conversation or to make longer oral production (Fig. 1).
A relatively huge difference in percentage which is, in any case, on the side of students who attended CLIL classes, confirms an important role of this approach in developing speaking skills.
The questionnaire included some other questions related to CLIL approach in general. In one of them, students were asked if they liked the instruction in which teaching of English is integrated with teaching a non-linguistic subject.
All of the students from experimental cohort were positive and here are some comments:

- *Yes, I like it. We study such English that we need in our engineering praxis.*

- *There was a lot of conversation and I like it.*
- *We can learn two subjects at the same time.*
- *In this approach even the students who are not excellent in English could successfully participate.*
- *I like it because it helped me to pass the exam in Automation.*
- *In this way we learn faster.*

Finally, it should be noted that the questionnaire included a question related to the time which the students spent during the both types of instruction. No big difference between the cohorts was identified in this respect. This means that a possible introduction of CLIL in the current university curricula would not require corrections in ECTS credits, at least when foreign language instruction is concerned.

5. CONCLUSIONS AND RECOMMENDATIONS

The research has proven that CLIL at the tertiary level of education can have significant results in developing speaking skills. Application of this method can transform students from being passive observers (who do not dare to speak) to active speakers and learners. Also, CLIL students show satisfaction, not only in terms of the foreign language proficiency advancement, but also in terms of mastering the non-linguistic subject which was also included in CLIL.
Therefore, we feel free to recommend this type of instruction to other higher education institutions.

6. REFERENCES

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