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APPLICATION OF CLIL METHODOLOGY IN TEACHING ECONOMIC DISCIPLINES AT UNIVERSITY

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The article presents the experience of CLIL implementation in teaching students of economic specialities. The research shows that CLIL offers a solution to improving subject and foreign language knowledge. Students of Management and Marketing Faculty of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (n=83) were involved in the experiment. 46 students of the experimental group studied the Statistic Course by applying the CLIL methodology. Before the experiment, the criteria and indicators for assessing the students' economic competence and the methods of evaluation were determined. The quantitative and qualitative results of the experiment represent the effectiveness of the methodology. The results indicate that students improved understanding of principles and methods of processing statistical data, and the ability to use statistical research in practice that positively influences professional development. Integrated learning improves interdisciplinary connections, intensifies motivation to study a foreign language, develops cognitive and practical skills. The results prove that CLIL allows increasing students' level of economic competence.

Keywords: CLIL; economic competence; Statistics; foreign language learning, motivation; assessment.

Introduction

One of the basic requirements for a modern professional is the ability to communicate in a foreign language. English is an international language known as the language of innovation technology, the language of progressive science, since more than 90% of the information in the world is provided in English. In teaching practice, there are new methods aimed at improving the quality of education. One of these techniques is the Content and Language Integrated Learning (CLIL). The basis of this method is the study of the subject by means of a foreign language and, conversely, teaching a foreign language through the subject.

The term CLIL is introduced as subject-linguistic integrated learning, the content of which focuses on two subjects (Marsh, 2016). Within this approach, the content is system forming; it defines the subject of learning, the purpose, the task, that is, the set of theoretical knowledge and skills (Ruiz de Zarobe & Coyle, 2015). The objective of the cognitive concept of the technique is to create an effective learning environment through which students develop critical thinking skills from knowledge and understanding to analysis, synthesis and evaluation (Grandinetti, Langellotti & Ting, 2016).

With regard to the content of CLIL, the scope of the subject and linguistic content can vary in one way or another, creating content-led and language-led models. When designing a course based on the CLIL method, a person must take into account 4 Cs: "Content – development and acquisition of new knowledge, skills, subject area skills; Communication – learning to use the language to acquire knowledge; Cognition – development of cognitive and mental abilities, solving problem situations; Culture – identification of a part of culture, with the awareness of the existence of an alternative culture, that is, the path to intercultural understanding" (Coyle, Hood & Marsh, 2010).

The features of implementing the CLIL technique depend on the chosen model (Leshchenko et al., 2018). The first model is considered as teacher-based learning with extensive English language medium instructions using active students' involvement into pair or group work. The second model is teacher-based learning with partial English medium instructions with limited students' involvement. There is an equal division of language amount during the process of teaching. This model is also subdivided into two types: single and dual-focused with a lot of switching between two languages. The third model is teacher-based instruction with limited English medium instruction. Native language dominates over English and there is a lot of switching. The subdivision into types is the same as in the previous two models. The fourth model combined learning model with specific English medium instruction. Both languages are used in the learning process.

According to the research on the implementation of CLIL in Ukraine (Leshchenko et al., 2018), there is no national-language language policy for universities. Therefore, universities develop their own language policy and most of them are trying to use at least some elements of CLIL but efforts and suggested classes are still in partial or pre-CLIL stage implementation. According to Martin de Lama (2015), "CLIL

methodology seems to be gaining prestige as a feasible model for university foreign language-led instruction valuable to effectively integrate the learning of the foreign language and the acquisition of the contents in subjects of a non-linguistic nature" (p.30). It is also important to develop foreign language competence as it is a part of students' professional competence (Stavytska, 2017).

Current research on CLIL shows that implementing this methodology improves students' extrinsic motivation for learning. For example, Ouazizi (2016) states that "CLIL education creates a highly motivational atmosphere for learning new mathematical concepts and terminology by making language a prerequisite step in the learning process of the subject matter"(p.129). Awan & Sipra (2018) point out a great strength of CLIL pedagogy because "motivation in learning is indeed the most valuable thing in education" (p.129).

The **aim** of the study is to examine the influence of the CLIL on the formation of economic competence of university students. The authors feature criteria, indicators and methods for assessing the economic competence of students. The **hypothesis** of the research is that using CLIL in the Statistics Course will improve the economic competence of the students that contributes to their professional development, language knowledge and motivation.

Methods

In order to confirm the effectiveness of teaching with the use of CLIL, a pedagogical experiment was conducted at the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" in 2016/2017 academic year. Four groups of the second year students of the Faculty Management and Marketing were chosen for the experiment. The essence of the pedagogical experiment was as follows: two groups in the first semester of 2016/2017 academic year were selected as a control (CG), and two groups in the second semester of 2017/2018 academic year were experimental (EG). The CG involved 37 students, and in the EG, there were 46 students.

For the experiment, the previously developed "Statistics" course was supplemented with handouts in English (presentation of lectures, tasks for computer workshops). Using the results of the SWOT-analysis of the implementation of CLIL in Ukraine (Leshchenko et al, 2018, p. 21), the specifics of the discipline chosen for the experiment, and the level of preparation of students in English, it was decided to use the third model of the implementation of the CLIL methodology, i.e. a teacher-based instruction with limited English medium instruction. At the lectures for EG students, the special economic terms were duplicated in English. Additional handouts were provided in English, and students also had the opportunity to consult both the statistics instructor and the English language teacher.

To assess the quality of the pedagogical experiment, the criteria for assessing the students' economic competence, the indicators for each of the criteria and methods of evaluation (Table 1) were determined.

Table 1

Criteria, indicators and methods for assessing the economic competence of students

Criterion	Indicators	Methods of evaluation
cognitive	• knowledge of scientific principles of organisation of statistics in Ukraine and abroad; • knowledge of the main implementation of statistical research; • knowledge of the principles and methods of processing the results of statistical observation; • knowledge of theoretical aspects and features of using statistical analysis methods; • ability to apply the results of statistical research in economics;	testing; problem-solving situations
motivational	• interest in the discipline; • interest in individual work; • awareness of the need to develop professional competence; • need for self-improvement;	questionnaire
reflexive	• ability to carry out self-assessment and self-examination;	self-esteem; monitoring

(to be continued)

Table 1

Criteria, indicators and methods for assessing the economic competence of students (continued)

Criterion	Indicators	Methods of evaluation
practical	• methods for calculating the main statistical indicators, their interpretation; • analysis of statistical data and the formation of relevant conclusions; • estimation of patterns, modelling and forecasting of the development of socio-economic phenomena and processes; • use of information technology for calculations; • using the results of statistical research in practice.	self-esteem; testing; expert evaluation

During the experiment, the methods of oral and written assessment using different types and forms were used (Fig. 1).

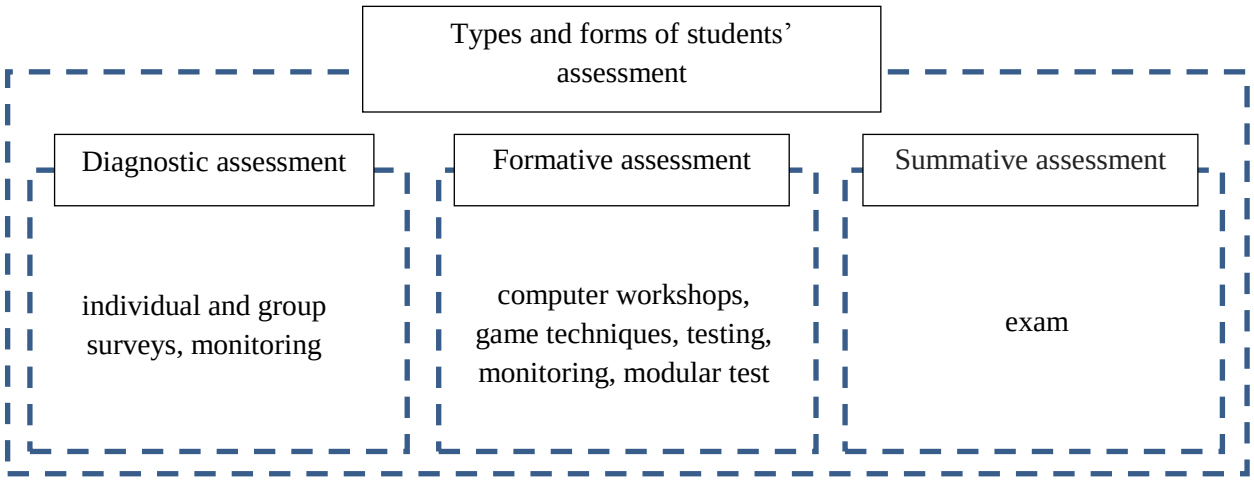

Figure 1. Types and forms of students' assessment

The assessment is carried out in accordance with the selected indicators for the 10-point scale while assessing the cognitive and practical criteria. The results of the exam were taken into account. The overall assessment of the student's economic competence was calculated using the formula:

$$R = 0,35R_C + 0,15R_M + 0,15R_R + 0,35R_P \quad (1),$$

where R_C – assessment by cognitive criterion,

R_M – assessment by motivational criterion,

R_R – assessment by reflexive criterion,

R_P – assessment by practical criterion.

Weighted coefficients for each criterion were determined by the method of pair analyses (The Analytic Hierarchy Process) (Saaty, 1994). The expert group included the teachers who worked on the experiment.

The experiment consisted of three stages.

Stage 1. Students who studied the course "Statistics" without applying the CLIL methodology (37 students of the speciality 051 Economics) were evaluated. General assessments of students' competence were calculated by the formula (1). For further analysis, the arithmetic average, the estimates within each criterion and the overall assessment of the control group were also calculated $(R_{C\,\text{contr}}, R_{M\,\text{contr}}, R_{R\,\text{contr}}, R_{P\,\text{contr}}, R_{\text{contr}})$.

Stage 2. A formative experiment was conducted: for the study of the Statistics Course, a third model of implementation of the CLIL method was used, i.e. a teacher-based instruction with a limited English medium instruction. The students of the experimental group (46 students of the speciality 051 Economy) took part in the experiment. At the lectures, the terms of the credit module were duplicated in English. The handouts in English were additionally provided and students had the opportunity to consult both the Statistics lecturer and the English language teacher. Communication was carried out in real time (teacher consultations) and by means of e-mail, Skype, Telegram, etc. The application of the proposed method greatly facilitated the students' search for statistical material on international Internet sources. The general student competence assessments were calculated using the formula (1). For further analysis, the arithmetic means, estimates for each criterion, and the overall assessment of the experimental group were also calculated $(R_{C\,\text{exper}}, R_{M\,\text{exper}}, R_{R\,\text{exper}}, R_{P\,\text{exper}}, R_{\text{exper}})$.

Stage 3. A comparative analysis of the results was carried out and conclusions about the research were drawn.

Results

An analysis of the results of the experiment (Figure 3, Table 2) shows the effectiveness of implementing the CLIL methodology (third model of implementation) in the educational process of students of economic specialities.

Table 2

Comparison of the levels of formation of economic competence of control (CG) and experimental (EG) groups of students after a formative experiment, %

Criterion	Group	Level			
		low (1-3,4)	average (3,5-6,4)	sufficient (6,5-8,4)	high (8,5-10)
cognitive	CG	15,1	30,8	31,7	22,4
	EG	7,8	11,9	32,1	48,2
motivational	CG	21,1	25,0	30,3	23,6
	EG	2,5	9,2	28,7	59,6
reflexive	CG	7,3	14,4	35,8	42,5
	EG	3,2	7,1	39,9	49,8
practical	CG	10,4	27,7	35,8	26,1
	EG	4,9	15,7	33,5	45,9

The analysis of the results of Table 2 indicates an increase in the effectiveness of the experiment for all criteria, the highest efficiency at high levels was observed in the cognitive and motivational criteria.

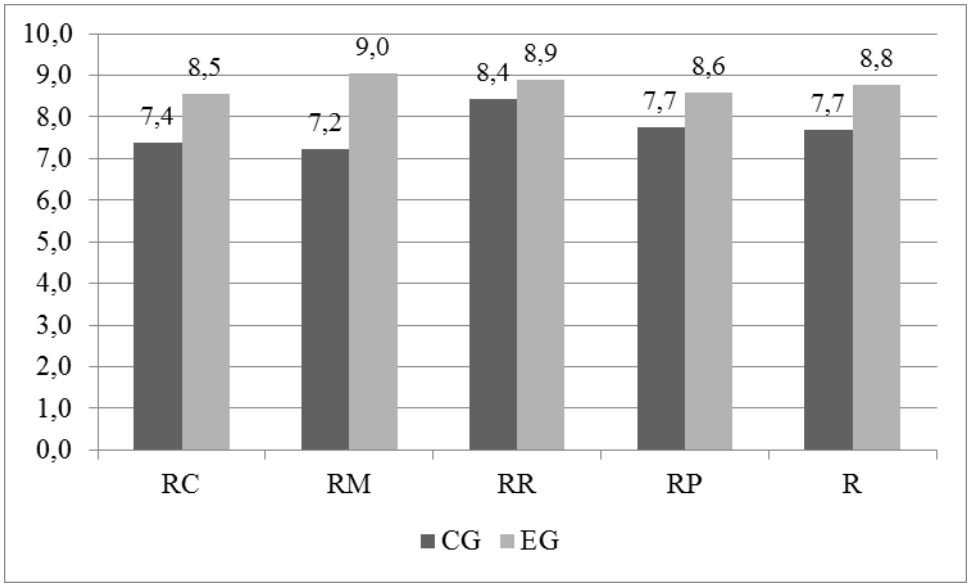

Figure 3. Comparative analysis of the average grades of the control and experimental groups

The comparative analysis of the mean scores confirmed the effectiveness of the implementation of the experiment: the application of the third model of implementation of the CLIL methodology, i.e., a teacher-based instruction with a limited English medium instruction, in studying the Statistics Course by students of economic specialities (Figure 1). The overall average score in the experimental group is higher than in the control group. An increase in the mean score was observed for each of the criteria selected for the study.

Discussion

The results of the experiment prove the effectiveness of the hypothesis that using CLIL in the Statistics Course improves the economic competence of the students that contributes to their professional development, language knowledge and motivation. New technologies seem to be more integrated into the CLIL class as they are used to understand concepts that are transmitted in a foreign language for knowledge development, as well as to create opportunities for collaborative work on the Internet and student-oriented activities (Nieto Moreno de Diezmas, 2018). The CLIL methodology seems to provide a more productive space for learning digital skills than traditional education since CLIL is a more student-oriented approach that encourages integrated, communicative and collaborative learning in a classroom.

An important implication of these findings is that integrated training develops students' cognitive skills, which is consistent with Sánchez (2018). It deepens the theoretical knowledge on the methods of statistical analysis as well as the ability to apply the results of statistical research in Economics.

Students' practical skills are enhanced as they can use the results of statistical research in practice that positively influences their professional development. The results of the experiment clearly show that students improve understanding of the principles and methods of processing the results of statistical observation, the ability to apply the statistical research in Economics. The data show that CLIL can influence cognitive development of students, their mental awareness. This knowledge can lead to a better understanding of Mathematics and Economics (Surmont et al., 2016).

There is a need to underline the main advantages of using CLIL in the classroom. The main focus is on the content where students have the opportunity to learn a foreign language in practice. The motivation to study the subject and a foreign language significantly increases. Students are more motivated to learn a foreign language by participating in CLIL programmes. Since motivation is one of the most influential individual variables, when it comes to studying a language, the benefits of the CLIL approach are foreseen. There is a lack of research that empirically confirms the differences in motivation when comparing traditional English as a foreign language and CLIL (Doiz, Lasagabaster & Sierra, 2014). Also, interdisciplinary connections increase learning efficiency. Students will be able to use the acquired knowledge in practice more actively in a globalised and internationalised society.

Conclusions

CLIL is a powerful tool that has many benefits, including increased motivation for learning and cognitive development. The results of the experiment prove that students increase their economic competence that positively influences their future professional development and knowledge of a foreign language. We still do not have enough knowledge on how to implement bilingual studying and there is a need to develop practical and theoretical skills. There is a lack of course books, authentic materials and other teaching resources. It is necessary to introduce this methodology in the educational process of universities. For this purpose, universities need to conduct training for teachers and students, increase the level of foreign language proficiency of students and teachers, and encourage the use of information and communication technologies for classes.

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