

Content and language integrated learning as a new educational approach in engineering education

Content and Language Integrating Learning (CLIL) as a flexible and dynamic approach providing value-added educational outcomes for the engineering students is increasingly applied at the National Research Tomsk Polytechnic University (TPU). This kind of pedagogical approach has been chosen as an effective one for the teaching of both subject content of a professional discipline and English as a foreign language in the engineering graduate and undergraduate programmes. The dual focus on content and language allows a foreign language and non-language subjects to integrate in some kind of mutually beneficial way. It is obvious that content and language integrated teaching is not the same as a simple integration of English language and content of any professional discipline. The new methodology needed to improve the interdisciplinary educational process.

There is now a lot of interest in CLIL in higher education in many countries in the world. CLIL is of particular interest to the authors of this paper, because some TPU postgraduates are planned to be involved in content language integrating teaching after language training at Southampton University. Thus, the aim of this paper is to articulate how the content subject teachers of TPU realize CLIL approach in engineering educational programmes. It results from selected interviews given by the CLIL teachers. The study, which was lasted for this academic year, was conducted in the Institute of High Technology Physics, where various professional subjects are offered in English for the third course undergraduate students and the first course graduate students. 9 CLIL teachers of the professional subjects participated in the study. Their teaching experience differed and varied from 5 years to 30 years. All of them were fully qualified teachers with university degrees in technical sciences. Some of them completed the training courses in English and passed TPU certificate exams allowing them to teach a subject through English. All the teachers were interviewed. The questions were open-ended and combined in two groups; all of them were connected with CLIL teaching. The questions and their discussion presented below are the most common ones provided by the CLIL teachers.

The first group essential interview questions was about the role of CLIL teacher and especially they concerned the problem, if the CLIL teacher should be responsible for teaching content of professional discipline through the English language or responsible for teaching the English language through the discipline content, and how this should be done.

Three types of answers were obtained from the interviewees. These were:

1. ACLIL teacher should be responsible only for content instruction.
2. ACLIL teacher should bring both the English language and content matter to their students in their classrooms.
3. A language teacher should be responsible for bringing content matter to their classes, where CLIL teacher should bring the foreign language to their classes.

An analysis of the first two approaches to CLIL teaching indicates that both language and the nonlanguage content on a continuum implying dominance of one over the other. The third approach concerning the role of a CLIL teacher tends to the model existed at TPU before 2008 academic year, when a foreign language teacher and a subject teacher worked together to form pairs called 'tandem'. It was a model of ESP team teaching of undergraduate and graduate students created an evidence base for successful not only teaching, but also learning. Such a range of approaches suggests a continuum from language focus to subject content focus with team-teaching approach between them. The team teaching approach could be useful as an introduction to interdisciplinary work by encouraging teachers to experiment according to the demands of their own settings.

The analysis of the literature on content language integrating teaching has showed that there is no single recipe for CLIL and its success depends on a range of aspects, such as an analysis of context, an evaluation of needs, the students contingent, the teaching and learning resources, and material which are available[1–5].

The second group interview questions were about the methodology of CLIL applied in a classroom. We asked the interviewees if any methodological changes were required in CLIL teaching or not.

The interviewed teachers have remarked that they are unsure about the way they should perform in the CLIL classes. The reasons are the following:

1. The methods of CLIL differ from the way they apply in professional discipline teaching.
2. The content teachers should have sufficient linguistic and methodic competences as well as depth knowledge of their own subject to perform in CLIL classes.

Thus, there are two main problems for the content teacher in the use of CLIL methodology.

The first one is that the lack of a high level of linguistic competence and language methodology could lead that the subject lessons conducted in the English language become those that “summarize” content of a professional discipline, which has already been studied by the students in Russian (native) language. A second problem is that a content teacher may want to help students improve their knowledge of the English language by providing a lot of linguistic exercises, which result in the content subject lesson becoming a language lesson. The international teaching practice experience showed that it may be wrong to assume that a traditional teaching of the language based on teaching structures and grammar in general should be part of the teaching of subject content. It means that CLIL lessons will become traditional language lessons.

When we were exploring ways of giving CLIL in international practice [3, 5]we concluded that CLIL is not just ‘teaching in a foreign language’. CLIL involves doing this using specific methodology. Cooperation and teamwork of language teacher and a content subject teacher can lead to CLIL outcomes. This is what will take the language competence of a content teacher to a new ‘pedagogic’ level. And, obviously, training programmes should be designed to take into consideration the linguistic and methodic competences that will adequately prepare content teachers for CLIL teaching. It is also very important for those teachers who know that their linguistic skills are limited to adapt their content and methods accordingly. The essential is that both a content teacher and a foreign language teacher can work together towards the common objective – content and language successful integrated learning outcomes.

References

1. D. Coyle, “Content and Language Integrated Learning: Motivating learners and Teachers”. The CLIL Teachers Toolkit: a classroom guide. Nottingham: The University of Nottingham, 2007.
2. T. Dudley-Evans and M.J. St. John, “Developments in ESP: A multi-disciplinary Approach”, Cambridge, UK: Cambridge University Press, 1998.
3. P. Mehisto, D. Marsh, and M. Frigols, *Uncovering CLIL: Content and Language Integrated Learning in Bilingual and Multilingual Education*. Oxford: Macmillan Books for Teachers, 2008.
4. P. Strevens, “The learner and the teacher of ESP”, *ESP in the Classroom: Practice and Evaluation: (ELT Documents 128)*. London: Modern English Publications in association with British Council, 1997, p. 39–44.
5. S. Stryker and B.L. Leaver, “Content-Based Instruction in Foreign Language Education”, Washington D.C.: Georgetown University Press, 1997.

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