

# **SOCIO-CONSTRUCTIVIST APPROACH AS THE BASIS FOR CONTENT AND LANGUAGE INTEGRATION IN TEACHING FUTURE ENGINEERS**

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## **Abstract**

Nowadays there comes a necessity to teach students – future engineers – who are able to communicate both orally and in a written form in their professional sphere. The following can be done on the basis of Content and Language Integrated Learning (CLIL). Simultaneous learning of content and target language is the core idea of CLIL. This integration of content and language implies constant collaboration between teachers of both subject and language that is aimed at improving the quality of teaching.

The article describes the criteria of efficient integration of target language and subject content in teaching future engineers. They are usage of authentic and meaningful material and web 2.0 services as the basis for artificial target-language environment; usage of scaffolding techniques aimed at reducing cognitive and linguistic load; active usage of meaningful context and gap-principle; development of critical thinking and abilities to verbalize complex thinking processes in teaching both content and language; promotion of students' long term memory; implementation of cultural issues in content; improvement of teachers' language, subject and CLIL-methodology skills.

The article highlights CLIL's socio-constructivist approach. According to the latest research, socio-constructivist approach constitutes theoretical basis of CLIL as it explains the mechanisms of human comprehension and cognition. Cognition is the key component in learning a foreign language. In terms of CLIL and socio-constructivist approach, active usage of a target language integrated with a meaningful content creates favorable conditions for target-language acquisition.

**Keywords:** Content and Language Integrated Learning (CLIL), socio-constructivist approach, professionally-oriented teaching.

## **1 INTRODUCTION**

The system of Russian higher education performs in the globalizing world with constantly growing trade and economic relations. As a result, there comes a necessity for specialists with the knowledge of foreign languages especially English as it is considered to be the language of international communication in professional sphere. In the last few decades there has been going on a process of gradual integration of Russian higher education into the world's educational environment. That can be explained by a constant need for highly qualified specialists who have a good command of General English and English for Specific Purposes.

## **2 METHODOLOGY**

The most active changes in terms of integrating foreign languages and subject content can be observed in technical universities. As practice shows, in Russian universities a foreign language as a curricular subject is rather isolated from teaching/learning subject matter of professionally-oriented curricular subjects.

At the same time Content and Language Integrated Learning (CLIL) is widely used in the world's leading educational establishments. According to D.Marsh [5], CLIL is a dual-focused approach when some disciplines or topics within these disciplines are taught in a foreign language. Being dual-focused, this approach presumes learning both subject content and a foreign language. The core idea of CLIL is constant collaboration between subject and language teachers that enables creation of interdisciplinary communities aimed at enhancing the quality of education. CLIL is not a new phenomenon, but it has been lately gaining popularity. Starting from 1960-es a wide variety of

educational programmes, basing on CLIL ideas, has been implemented in Canada, the USA, Spain and other countries with two or more state languages.

Many researchers showed interest in implementing Content and Language Integrated Learning in professionally-based language teaching. For instance, D.Marsh, Marshland and Stenberg, D.Wolf [5-7] state a series of reasons for using CLIL in academic and professional environment.

They include:

- getting practically-oriented knowledge and skills;
- developing interpersonal communicative skills;
- developing intercultural communication;
- getting high-quality education in a particular professional area;
- market competitiveness;
- considering the subject area from different viewpoints.

Researchers [2-7, 9] distinguish the following didactic conditions of efficient content and language integration in teaching students – future engineers.

They are the following:

- usage of meaningful authentic teaching materials, video clips, web-quests, podcasts and other interactive materials from authentic English Internet resources. This is a valuable resource of highly-motivating visuals. Web 2.0 services and tools are used for creating artificial foreign language environment and cognitively demanding tasks aimed at developing students' creative thinking;
- active scaffolding that reduces cognitive and linguistic load of the studied content. The tasks are supplied with explanations that will help students to cope with difficulties. A teacher uses authentic materials that are not meant for language teaching. These materials contain more unknown words and collocations than any foreign language text book. The amount of scaffolding reduces when students' language competencies develop.
- intensive collaboration of all the participants of the educational process and productive use of the language. According to the so-called «gap principle», authentic communication happens in case of some communication gaps (information gaps presuming explanation, reasoning, giving personal opinion or conclusions);
- inserting cultural component into content teaching that enables students to consider different topics from various cultural viewpoints;
- developing high order thinking skills while learning the language. The ability to verbalize complex thinking processes is formed through gradual training and repetition in both native and foreign language;
- sustainable learning that means long-term memory activating;
- teacher training in foreign languages and content acquisition. Teacher universality is a key success factor in Content and Language Integrated Learning.

Researches like D.Marsh, D.Wolff, etc. [5,9] highlight socio-constructivist essence of Content and Language Integrated Learning. The same researchers claim that socio-constructivist nature of CLIL is rarely mentioned in academic literature. Constructivism as a cognitive theory and a theory of knowledge development is a core element in terms of Content and Language Integrated Learning as it explains the mechanisms of human comprehension and cognition. These notions are the key elements in understanding the complex nature of language and content integration.

Several theories of human comprehension were developed within constructivism. Their basic idea is that comprehension is a constructive process. Cognitive psychology, being a part of constructivism, considers comprehension to be a cognitive process where human knowledge interacts with external stimuli. This interaction results in forming an individual cognitive construction that will be kept in a human memory in case it is considered important. This theory can be applied to second language acquisition: human knowledge consists of two parts – knowledge of the world and language component that interact with each other to construct the idea of the incoming stimuli. The incoming

stimuli (it can be either a sound wave or letters) need to be transformed into a cognitive and meaningful notion.

In socio-constructivist theory the core idea of constructing and comprehending is transferred from human mind into social environment where communication takes place. Socio-constructivism, based on Bakhtin's ideas [1], considers that participants of communication mutually construct a notion in the process of interaction. By no means, the individual knowledge of the world and the language - personal constructs - are very important.

All constructivist theories highlight the importance of information inputting. Inputting information is important for successful comprehension but it is also valuable for the recipient/ comprehender. Cognitive psychologists think that a comprehender can successfully process information in case he connects it with his background knowledge. This idea was developed by socio constructivists. According to social constructivists, only meaningful knowledge can be processed in a proper way. As a result this would lead to a meaningful construct formation that will be used later on. So constructivist theory underlines the meaning of inputting knowledge and the way it correlates with personal experience and knowledge of the comprehender.

Constructivists emphasize that human comprehension and cognition are constructive processes organized individually by the learner. Students can only comprehend and use knowledge that he or she can correlate with the knowledge and experience already available. Human comprehension depends on personal experience and background knowledge of every particular person. Consequently, the result of learning will be different in every particular case. Constructivists integrated human emotions into their theory. According to them, emotions are constructive items influencing cognitive processes and personal understanding of the world. Representatives of socio-constructivism underline the importance of social context where learning takes place. In socio-constructivism comprehension is a complex constructive process activating numerous human cognitive functions. A comprehender receives external stimuli, transforms them into information that can be kept in his memory. During this process a person needs to activate his language knowledge and skills, his experience of the world; he makes conclusions and processes partner's uttering.

Comprehension is a constructive process that requires a high degree of mental activity. It is the key to understanding the process of second language acquisition. Language acquisition occurs when a student actively participates in a constructive process of comprehension. In case a student does not activate his constructivist potential, but just perceives external stimuli second language acquisition will not occur. This is the case with modern secondary schools and universities when students believe that they will learn the language if they formally work through grammar exercises. Practical language usage, constructively integrated with content, creates a great potential for foreign language acquisition. Comprehensive language learning occurs when students try to understand the meaning of what was read or heard. The process of language acquisition happens due to the fact that a meaning was constructed. That is true for both first and second language acquisition.

### **3 RESULTS**

Comprehension is a key component in learning a foreign language. Unfortunately this does not explain why CLIL students show better results in language acquisition than their non-CLIL counterparts. Here the content should be mentioned. In traditional classroom content is usually predefined, classified and simplified. It contains stereotyped ordinary situations. Almost all materials are created for learning purposes and are not authentic; they are intended for linguistic and communicative purposes. In CLIL classroom the situation is different. Content integration leads to substantial changes. Any curricular subject (radio technology or avionics, for instance) provides content for discussion as it is motivating, meaningful and connected with future profession. Subject content is professionally- and academically-oriented and is more elaborate than pseudo real situations of the language classroom.

Subject content that a student learns during a CLIL classroom is more motivating than that of a traditional language classroom. CLIL classroom materials are rich in content and more challenging and engaging. Information technology (IT) usage including web 2.0 tools like educational social networks/groups, learning platforms like Moodle and Blackboard [4-8] presuming learners active engagement in creating the content gives additional opportunities for developing high order thinking skills and better content and language acquisition.

## 4 CONCLUSIONS

To sum up, Content and Language Integrated Learning provides intensive and efficient learning process in comparison with traditional English language classroom. Motivation and active participation are the driving forces for comprehension mechanisms enhancing the processes of content and language integration.

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## REFERENCES

- [1] M. Bakhtin, "The Dialogic Imagination: Four essays," Austin, TX: University of Texas Press, 1981, 478p.
- [2] H.H. Clark, *Using Language*. Cambridge: Cambridge University Press, 1996, 446 p.
- [3] K.S. Grigorieva, L.L.Salekhova, "Realizacija principov predmetno-jazikovogo integrirovannogo obochenija s pomoshju tehnologii web 2.0 v tehničeskom vuze," *Vestnik Rossijskogo universiteta druzhby narodov*, no. 2, pp. 11–19, 2014.
- [4] K. Grigorieva, L. Salekhova, "Social Networks in Teaching English for Specific Purposes" //Inted 2017: 11th International Technology, Education And Development Conference, pp.500-502, 2017.
- [5] D. Marsh, *Using Languages to Learn and Learn to Use Languages*. Jyvaskyla: University of Jyvaskyla, 2000. 156 p.
- [6] D. Marsh, B. Marsland, K.Stenberg, *Integrating Competencies for Working Life*. Jyvaskyla: University of Jyvaskyla, 2001. 262 p.
- [7] O. Meyer, "Introducing the CLIL-pyramid: Key-strategies and Principles for Quality CLIL Planning and Teaching", Basic Issues in EFL-Teaching and Learning. Heidelberg, pp.11-29, 2010.
- [8] A. Syunina, I. Yarmakeev, D.Shechter, T. Pimenova, A. Abdrafikova, "Authentic Video Materials As A Means Of Speech Fluency Development In EFL Class" Modern Journal of Language Teaching Methods (MJLTM). Vol. 7(2), Issue 9, pp. 034–040, 2017.
- [9] D. Wolff, "Integrating Language and Content in the Language classroom: Are transfer of knowledge and of Language Ensured?" ASp, pp.35-46, 2003. Retrieved from URL://asp.ruviews.org/1154.