

УДК 378.1

DOI: 10.26140/anip-2021-1002-0084



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## ЦИФРОВИЗАЦИЯ И ИНТЕРНАЦИОНАЛИЗАЦИЯ УЧЕБНОГО ПРОЦЕССА КАК ВАЖНЫЙ АСПЕКТ ПОДГОТОВКИ БУДУЩИХ СПЕЦИАЛИСТОВ СЕЛЬСКОГО ХОЗЯЙСТВА

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**Аннотация.** Процесс цифровизации затронул весь образовательный процесс в высшей школе, и преподавание иностранного языка не является исключением. Особую актуальность приобретает поиск новых, эффективных способов профессионально-ориентированного обучения иностранному языку для подготовки конкурентоспособных специалистов. Данная статья посвящена методологической модели предметно-языкового интегрированного обучения (Content and Language Integrated Learning), которая очень популярна в европейской системе языкового образования на различных уровнях от школы до университета, а также модели английского языка как средства обучения. В российском образовательном процессе эти методологические модели только начинают свой путь и реализуются в основном при подготовке специалистов неязыковых специальностей. В глобализирующемся мире CLIL и EMI методики становятся перспективными направлениями высшего образования и эффективным способом приобретения и совершенствования языковых и коммуникативных компетенций, обеспечивающих дальнейшую успешную специализацию студентов и способствующих их карьерному росту в выбранной ими сфере деятельности. Красноярский государственный аграрный университет, являясь участником проекта, продемонстрировал готовность использовать английский язык в качестве средства обучения для подготовки будущих специалистов сельского хозяйства с использованием цифровых технологий.

**Ключевые слова:** цифровизация, глобализация, высшее образование, иностранный язык, студент, специалист, сельское хозяйство, магистерская программа.

## DIGITALIZATION AND INTERNATIONALIZATION OF LEARNING PROCESS AS AN IMPORTANT ASPECT OF TRAINING FUTURE AGRICULTURAL SPECIALISTS

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**Abstract.** The process of digitalization has affected the entire educational process in higher education, and teaching a foreign language is not an exception. The search for new, effective ways of professionally oriented foreign language teaching for training competitive specialists is becoming particularly relevant. This article is devoted to the methodological model of subject-language integrated learning (Content and Language Integrated Learning), which is very popular in the European system of language education at various levels from school to University and the model of English as a medium for Instruction. In the Russian educational process, these methodological models are just beginning their way and are implemented mainly in the training of specialists of non-linguistic specialties. In the globalizing world, CLIL-didactics and EMI are becoming promising areas of higher education and an effective way to acquire and improve language and communication competencies that ensure further successful professionalization of students and facilitate their career advancement in their chosen field of activity. Krasnoyarsk state agrarian university, being a participant of the project, showed its readiness to use English as a medium for Instruction for training future agricultural specialists using digital technologies.

**Keywords:** digitalization, globalization, higher education, foreign language, student, specialist, agriculture, Master's degree program.

### INTRODUCTION

In modern, contemporary globalized society, more and more people from various linguistic and cultural backgrounds meet and interact in formal and informal situations. For these interactions to be smooth and successful, it is indispensable to involve all linguistic resources and knowledge. English has been acting as a global language for a long period of time. It is spoken by 320-380 million native language speakers; 300-500 million ESL speaker; 1.6 billion EFL speakers. So, the number of non-native speakers is larger than native speakers by a ratio of approximately 6 to 1. No wonder that it is English that is used for preparing learners for communication with native speakers, for their successful learning in the framework of education globalization and digitalization. Faculty members working in higher education

institutions (even not being English language teachers) use English for different purposes: to read scientific papers, to write scientific books and/or articles especially indexed in Web of Science and Scopus databases, to present their achievements and results at conferences, to take part in scientific meetings without interpreters, to talk to international students coming from foreign countries and to teach classes at the university in the framework of Bologna Declaration provisions implementation. So, strengthening of the regional cooperation in the field of training specialists for agriculture and forestry through the internationalization of Master's programs and the development of inter-institutional partnerships becomes relevant.

### METHODOLOGY

FSBEI HE "Krasnoyarsk state agrarian university"

has joined the Erasmus+ project "IMPROVE AGRO" in 2020. The main purpose of this project is to familiarize participants with a number of benefits of living in a society with a rich linguistic and cultural diversity, to promote the modernization, quality improvement and accessibility of higher education in Kazakhstan, Mongolia and Russia through the internationalization of Master's programs in agriculture and forestry by bringing them to EU quality standards, using English as the language of instruction, and introducing the Blended learning format. The project involves quite a large number of participants: EU Partners from Freiburg University of Education, Germany; Aston University, Birmingham, UK; Aristotle University of Thessaloniki, Greece; as well as universities in partner countries: Tyumen State University, Tyumen (Russia) (non-EU partner coordinator); Altai State Agricultural University, Barnaul, RF; Krasnoyarsk State Agrarian University, RF; Kazakh National Agrarian University, Almaty, Kazakhstan; S. Toraighyrov Pavlodar State University, Kazakhstan; Mongolian University of Life Sciences, Ulaanbaatar, Mongolia; National University of Mongolia, Ulaanbaatar, Mongolia; LLC "Centre for Molecular and Cellular Bioengineering", Tyumen, RF; Tobolsk Complex Scientific Station, Tobolsk, RF.

General objectives of the project are quite ambitious:

1. The new model development for internationalization of Master's programs.

2. The teaching opportunities expansion in higher education institutions through staff retraining and modernization of educational resources.

3. The creation of an opportunity for multilingual e-learning for undergraduates in order to improve their access to educational resources at the international level.

4. The new modules development and implementation in the Master's degree programs of higher education institutions in the EU partner countries, which will be taught in English (EMI) in a mixed learning format and in accordance with EU quality standards.

5. The creation of the potential for internationalization through increased international academic mobility.

The implementation of the project will contribute to the development of a new model for internationalizing Master programmes in the area of Agriculture and Forestry based on English Medium Instruction (EMI) and blended learning delivery. It will allow to enhance teaching capacities via re-training staff and modernizing teaching resources using a multidisciplinary approach as well as to design a trans-institutional e-platform for Master students to improve access to teaching/learning resources internationally.

#### RESEARCH RESULTS

The implementation of the project in authors' opinion is ambivalent. On the one hand, the project forces to train the academic staff. Faculty members that are Language educators or English language instructors should be trained in innovative approaches, i.e. by integrating EMI and CLIL (Content and Language Integrated Learning) into designing and teaching of Agricultural and Forestry modules. Agricultural and Forestry lecturers and practitioners are obliged to undertake language improvement courses, get acquainted with relevant and innovative approaches in course design, online methodologies and EMI/CLIL. So, the aim is to bring together language specialists and Agricultural and Forestry specialists for improved communicative skills and competences in teaching English for Specific Purposes and English for Academic Purposes.

On the other hand, innovative educational technologies such as flipped classroom and blended learning, that have become particularly important in the conditions of COVID-19 pandemic, should be used for students' training.

The theoretical foundations of content and language integrated learning were developed by a group of scientists from European universities such as David Marsh, Do Coyle, Oliver Meyer, Teresa Ting, Victor Pavon, Philip Hood, and others. The concept of "Content and Language

Integrated Learning" was first introduced in 1994 by David Marsh. According to the author, this method implies "subject-language integrated learning", which refers to any educational context focused on two subjects, i.e. it refers to a process that is focused on both subject and language acquisition.

We should highlight the works devoted to the investigation of CLIL by L. L. Salekhova, E. K. Vdovina, N. V. Popova, M. S. Kogan, K. M. Inozemtseva, E. N. Bondaletova, T. D. Borisova, D. Yu. Burenkova and S. A. Gudkova, E. Yu. Tokareva, E. G. Krylov, T. V. Sidorenko, S. V. Rybushkina, Ya. V. Rozanova [1-7].

The following works analyze in detail the problem of EMI around the world, the problems associated with the implementation of EMI in Russian universities, as well as the requirements for EMI teachers: N. Solovova, Z. A. Kozlova, K. N. Volchenkova, A. F. Bryan, N. G. Kondrakhina, O. N. Petrova, O. Mironova [8-11].

The difference between EMI and CLIL should be vividly understood by the faculty members. EMI is the use of English language to teach academic subjects in countries where English is not Language 1, while CLIL (Content-Language Integrated Learning) is an approach to education that integrates language and content learning. The use of the English language to teach academic subjects in countries does not mean that lecture notes are simply translated into English – the idea is to develop language proficiency and content knowledge at the same time. Consequently, the project will help to support Agriculture and Forestry lecturers to adapt their curricula and make the transition to teaching through English understanding the principles of curriculum development according to European standards, analyzing the practical and pedagogical implications when implementing English Medium instruction and flipped classroom scenarios, comparing the experiences in curriculum design of European partners with participants' own experience.

As for future students who are going to be taught according to new developed Curriculum a modern technique as the flipped classroom as a part of blended learning is introduced. Blended learning is everywhere, so much so that many people don't even realize that they are taking part in blended learning programs. By definition, a blended learning program is learning that mixes both traditional in-person training along with some digital components. The flipped classroom is most often used to describe a class format that incorporates pre-recorded lectures followed by in-class activities. "The value of a flipped class is in the repurposing of class time into a workshop where students can enquire about (...) content learned outside of class, test their skills in applying knowledge, and interact with one another in hands-on activities. During class sessions, instructors function as coaches or advisors, encouraging students in individual enquiry and collaborative effort".

The flipped classroom has the following stages: Before (Out of class) – students prepare to participate in class activities; During (In class) – students practice applying key concepts with feedback; After (Out of class) – Students check their understanding and extend their learning.

Having analyzed a number of scholars O. D. Fedotova, E. A. Nikolaeva, E. A. Krylova, V. A. Shterenzon, S. A. Khudyakova, M. V. Voronina, V. E. Zhukovsky [12-16], the authors found it possible to identify key characteristics of flipped learning:

- Students and learners gain exposure to new material and concepts outside of class by watching videos or accessing other resources, such as Internet for example.

- Class time is dedicated to hands-on learning and emphasizes higher-level cognitive activities to deepen understanding through active learning strategies.

- During class students are supposed to engage in collaborative and cooperative activities.

- Ongoing formative and summative assessment is implemented to monitor students' progress.

- Media and technology support in-class and out-of-class

learning (often associated with hybrid learning).

The Four Pillars of F-L-I-P are as follows:

- F: Flexible Learning Environment. When you eliminate traditional lecture, you also lose the static rows of seating in favor of flexible arrangements. Furniture should be modular and allow for a variety of group and individual work. Likewise, the timing of lessons needs to be flexible to allow for students to fully explore a topic and understand it at their own pace.

- L: Learning Culture. Instead of traditional teacher-centric learning, the flipped classroom puts students at the center of the lesson. Students guide the pace and style of learning, and instructors play the role of the “guide on the side.” Instructors will help students through an experiment or guide them through a practice set when they need assistance applying new information.

- I: Intentional Content. Instructors who embraced the flipped learning model are always on the lookout for ways to maximize their classroom time so that students are actively engaged in learning and hands-on practice. This approach requires prioritizing lessons that work in such a model and figuring out ways to encourage learners to work independently.

- P: Professional Educator. The flipped model requires instructors to constantly monitor their students in order to identify who needs help with what and why. Instructors need to be responsive and flexible, and they must understand that this highly active style of teaching takes great pedagogical skill. Despite being less visible, instructors need to be at the top of their game to nurture students in a flipped classroom. The role of the teacher transforms from the sage on the stage to the guide on the side.

The example of the flipped classroom was conducted by the authors of Krasnoyarsk SAU in the training direction 35.03.03 on the topic “Environmental issues and ways of ecological protection”. Before class the following ideas were brought to the students:

“The learning of this topic will help you:

- to gain an insight about the essence of the environmental issues and ecological protection;

- to distinguish between regional and global environmental issues;

- to understand the fundamentals of environmental philosophy of three R-s “Reuse, Recycle, Reduce”;

- to realize the ways of ecological protection.

To reach these goals you are expected to:

- watch the video lecture presenting main ideas about environmental issues and ecological protection;

- read about environmental philosophy of three R-s “Reuse, Recycle, Reduce”;

- check your knowledge and understanding with an activity after the reading part;

- analyze a video”.

According to the above-mentioned stages of the flipped classroom the students were involved into the following types of activities: before class: watching pre-recorded video lectures, reading, activities, quizzes; during class: questions & answers session (students are asked to prepare questions), summary of main points, further activities to deepen knowledge, group work activities, discussion; after class: additional materials and activities on learning management system; providing student feedback; evaluating effectiveness of learning process based on module.

After having conducted this type of a class the authors identified the benefits and challenges. The benefits are as follows: more time is given for meaningful communicative activities (including student to student interaction); peer learning through collaborative projects is supported; activities requiring critical thinking can be done together during class; authentic materials made more accessible; opportunities for learner and instructor reflections are provided. At its best, a flipped classroom offers students the benefit of greater control over their learning. They steer class discussion to ask instructors for clarification, so their needs guide class

time. When conducting hands-on experiments and practicing new skills in class, students can have more autonomy. They can explore new concepts in their own way, at their own pace, in a controlled and supportive environment. When done well, this makes flipped learning highly efficient, since differentiation occurs naturally and students are more likely to remain engaged. Another benefit is the fact that instructors don't have to flip their entire class to benefit from pedagogy. You can instead flip a single lesson to introduce your students to the concept, see how it works out, and go from there [17].

As for the challenges: it is time consuming for instructors to create and curate materials; more work outside of class for students; increased student accountability for students can be positive but relies on students preparing outside of class. The downside to flipped learning is that it relies heavily on technology, with students needing to access the internet for at-home learning. This can make the digital divide between wealthy students and their poorer peers very obvious, and students without access to technology will struggle.

#### CONCLUSIONS

In conclusion the authors can give the following recommendations for the flipped class learning implementation. It is wise to start slow – flip a lesson or a unit before flipping an entire course and incorporate new technologies little by little. A good idea is to engage in backwards design: What should students be able to do by the end of the lesson, unit or course? The faculty member should ask himself which activities and materials will work best in and outside of class. It is advisable to use in-class and outside of class activities as opportunities to build community, especially when teaching remotely. The teacher can create some of your own materials but it's necessary to take advantage of available resources for creating and curating materials. It is indispensable to survey students frequently and if the adjust is needed it should be done.

And as a result of the project implementation 8 modernized curricula in Agriculture and Forestry will be developed; 24 new modules with supporting teaching materials designed to be delivered in English (EMI) will be designed; 12 modules adapted for distance learning; a user guide developed for educational online platforms are supposed to be developed and a corpus of specialist texts in English will be written. The multidisciplinary approach will bring together language specialists and Agriculture and Forestry specialists from a variety of disciplines in diverse departments. This will not only promote transboundary cooperation in agriculture and forestry, but also internal cooperation.

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Статья поступила в редакцию 15.12.2020

Статья принята к публикации 27.05.2021