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BILINGUAL AND INTERACTIVE EDUCATION ACROSS CULTURES THROUGH THE INTACT PROJECT

Abstract:

The use of ICT in European Schools has increased over the last decade but there is still room for improvement. [1] „Incorporating mobile learning into educational activities adds additional value for the learning programmes provided by higher educational institutions.”[2]

Teachers from 6 universities from Europe are working as a consortium in a 3 year-project and develop teaching materials for bilingual, interactive education in the INTACT Comenius Project. INTACT project brings together experts from different areas of the education and teachers in secondary and primary schools to develop a variety of pedagogically qualitative interactive teaching and learning resources.

Kecskemét College as a partner of INTACT project is involved in the joint work and has developed two teaching and learning resources in the area of foreign language teaching. This article introduces the project - based on materials, they were already presented correlate with the process of the implementation of the project. [3]

Keywords:

bilingual educational settings, international cooperation, interactive teaching and learning resources

Introduction - pedagogic approach and international organisation of the project

The project INTACT - Interactive teaching materials across culture and technology - develops cooperative and collaborative teaching and learning resources that can be applied for CLIL (Content and Language Integrated Learning) instruction and, through the use of an online platform, are made available over cultural borders. [4]

The scientific approach in INTACT is based on educational research or action research. The experts develop based on current – scientifically approved – educational approaches specific learning scenarios and materials. These scenarios and materials are tested in 'real life' classrooms, evaluated and improved. The continuing peer review processes of all involved partners ascertain the quality of the scenarios and materials as well.

The project addresses the secondary schools' need for reliable interactive resources, to be used in Science, Mathematics and Social Science classrooms in CLIL educational settings. Environmental issues and intercultural questions are also focal points for the development of the interactive resources.

The main requirements for the development of the interactive teaching resources are as follows: interactivity, compatibility and independence from specific technology, easy access, bilingual and intercultural aspects, social and collaborative learning as well as flexibility and adaptability.

The members of the consortium are teachers and researchers of higher educational institutions from different European countries and pilot teachers from primary and secondary schools. A very innovative team of university professors and assistants from the University of Education in Ludwigsburg (Germany) initiated the project. Innovative professors and assistants from the Universidad Complutense Madrid (Spain), Kecskemét College (Hungary), St. Patrick's College (Ireland), the Politechnic Institute Braganca (Portugal) and the Institute for German Methodology of the Babeş Bolyai University Cluj (Romania) are working in them. All members have got experiences on the field of working together in international projects. [5], [6], [7]

Methods and Objectives of the work

The scientific approach in INTACT is based on educational research or action research. Experts in their fields i.e. science education in primary schools develop based on current – scientifically approved- educational approaches specific learning scenarios and materials. These scenarios and materials are tested in real life classrooms, evaluated and improved. After the evaluation proves the scenarios and materials are working well, they will be published and made available for everybody to use.

The continuing peer review processes of all involved project partners ascertain the quality of the scenarios and materials as well.

Interactive, CLIL teaching and learning resources for various subjects are created during the project's duration. Educational resources are developed for the following disciplines: Biology, Geography, Civilization, German as a Second Language, Mathematics and Engineering. A wide spectrum of cooperation for schools by communication and collaborative work with the use of interactive materials will be achieved on regional, national and international levels facilitated by an INTACT online platform.

The main topics/requirements for the development of the interactive teaching resources are as follows: interactivity, compatibility and independence from specific

technology, easy access, bilingual and intercultural aspects, social and collaborative learning as well as flexibility and adaptability.

Target groups and users of the interactive teaching and learning resources are teachers and students in primary and secondary schools with bilingual instruction (CLIL). Each partner cooperates with at least one pilot school. Researches of the partner institutions and teachers of the pilot schools develop the concepts for the teaching and learning resources cooperatively. In a subsequent phase the resources will be tested at the pilot schools and, with consideration of the results, will be revised accordingly.

The project is divided into four main working areas. Each area corresponds to one of the project's main themes and consists of individual working packages. Essential and comprehensive project decisions are discussed in the steering group, which includes the national leaders of each partner. In addition to the entire project's project management and the steering group, three other project groups exist. One or two project partners, so called group leader, manage each of the groups. The group leaders are also responsible for the included work packages.

Group 1 (WPs 3 & 4): All aspects of dissemination and exploitation of project results are assigned to the first group. This includes design and implementation of the logo, website, flyer, and advertising materials for the project. In a further step, the results, among other things, will be provided in the form of an e-book, handbooks and glossaries as well as presented and distributed to events and conventions. The Polytechnic Institute of Bragança (Portugal) is responsible for this area of operation and the corresponding project group (Group 1).

Group 2. (WPs 5, 7 & 9): The second project group is responsible for three work packages. These three work packages correspond to three work phases during the duration of the project. The project group work includes all aspects that have to do with teaching and learning resources. This concerns conceptualization and implementation of teaching and learning resources. This part is managed by both St. Patrick's College, Dublin (Ireland) and the Babes-Bolyai University Cluj (Romania). Later on there will be tests with follow-up evaluations and, resulting from this, a revised version of the implemented teaching and learning resources. Responsible partners for these activities are Kecskemét College (Hungary) and the Universidad Complutense Madrid (Spain).

Group 3 is responsible for the developing on online platform for the project.

Results and outcomes

The development of the INTACT teaching and learning resources as well as the educational requirements for the online platform were sequentially processed in a stepwise, collaborative procedure:

- Deduction of a theoretical framework for the INTACT teaching and learning resources and activities.
- Construction of templates for the description of the INTACT learning objects, lessons and learning units.
- Description of the intended goals and the expected learning outcomes as fundament for the evaluation.

The first step for the development of the INTACT teaching and learning resources and for the online platform was an intensive discussion to find a common understanding of (i) the educational setting for the introduction of the INTACT approach, (ii) the theoretical, evidence-based framework for the development of interactive and collaborative learning/teaching resources.

A result of this first work package was a short-paper as review of the theoretical background and a template for the theory-based development of the diverse INTACT resources in the different related subjects on a primary or secondary school level. The second step, the construction of a common template for the description of the INTACT resources, was the result of an intense and partially contentious discussion due to the different cultural and scientific background of the partners in group 2.

The description of the INTACT resources is threefold:

a) Learning objects (LO): As basic component of the INTACT resources, the LOs are single digital objects to foster one specific aspect of a topic, e.g. an interactive animation of the human circulatory system, a simulation of the human visual perception under different light conditions or a hypermedia learning environment to discover the life of nocturnal mammals including different format like video, interactive maps or audio-files for primary education. Each learning object is described based on the LOM standard.

b) Lessons: The LOs are included into a lesson. Within the INTACT framework, the lessons are based on a socioconstructivist understanding of learning which fosters a dialogic knowledge and active construction. The description of the lesson plans follows an international standard.

c) Learning units: in most of the cases the lessons are part of a learning unit. The description outline, the intentions of the learning unit, its goals and central educational approaches.

The INTACT teaching and learning resources are developed to be used as learning units, but teachers can also use single LOs as part of their teaching.

All resource descriptions allow setting up a database on the INTACT platform that allows an easy access to the materials including a powerful search engine. Furthermore the INTACT platform will allow a teacher to organize the LOs individually to create, for instance, different micro-modules for heterogeneous classes to provide resources for different abilities.

A further challenge is the determination of which subjects to include in the materials. Two aspects play a role here. On the one hand, the various partners and partner schools have equally varying interests. On the other hand, there are diverse educational plans within the participating EU countries, and therefore the same class level in different countries requires varying teaching and learning resources. On a related note, another challenge is developing bilingual teaching and learning resources. Along with an appropriate difficulty level of content, the material must also be at an appropriate level regarding the students' language abilities.

The following concepts for INTACT resources have been described and realized:

- Biology: Immune System; Circulatory System
- Civilization: Legends and Heroes (To be a knight in King Arthur's Court)
- Geography: Climate elements and factors
- German as a second language: Mozart als Kind und seine Reisen
- Engineering: Technical Drawing

The current stage of work is the work with an online platform. The online platform's conceptualization and development for the distribution of resources present some challenges. The requirements for this platform are closely related to the resources and the underlying concepts. Because both are developed parallel to one another during the course of the project, a close integration of both areas is necessary.

During the project so far the partners have noticed that the focus of the project goes more and more to the online platform and the aligned functional requirements. An important requirement is that teachers can modify and reuse teaching and learning resources, not being forced to use produced ones that might not suite in the curricula or the classroom situation concerning the student's skills and knowledge. Therefore this will be an important issue for the implementation of the online platform.

The INTACT online platform and the teaching and learning resources will be formatively evaluated with partner schools at all participating countries. Recently the task for the group 2 leaders is to coordinate the schedules for testing and evaluating the INTACT resources dealing with different national curricula and school holidays.

The outcomes of the project

The outcomes of INTACT support the following skills and competencies in: communication in a foreign language in the bilingual education, digital competence using digital technologies for the teaching and learning resources, learning to learn

by working collaboratively and sharing the learning outcome with other students, social and civic competences as well as cultural awareness and expression by cooperating with other students from other countries when using the teaching and learning resources.

Working collaboratively in a heterogeneous group using a foreign language and sharing the learning outcome with other students beyond cultural borders advocate social and civic competences as well as cultural awareness and understanding for different cultures.

INTACT addresses the following specific objectives and priorities of EU's Lifelong Learning Programme (Comenius) for enhancing bilingual learning with ICT-based content in schools across Europe:

To promote language learning and linguistic diversity. One important aspect in the project is the bilingual education. Several partners of the consortium are well experienced in bilingual education (e.g. Germany, Hungary) and thereby the bilingual aspects are essential considered in all teaching and learning materials.

To support the development of innovative ICT-based content, services, pedagogies and practice for lifelong learning. The projects implements on the one hand interactive teaching and learning materials in different subjects embedded in bilingual settings. On the other hand the project develops and implements an online platform where the teaching and learning materials can be used across cultural borders.

To develop knowledge and understanding among young people and educational staff of the diversity of European cultures and languages and its value. The interactive teaching and learning resources aim to initiate the collaboration between schools in the region and also across borders,

While teachers and students work together on the interactive teaching and learning resources they get to know other countries and learn about country-specific issues.

To help young people acquire the basic life-skills and competences necessary for their personal development, for future employment and for active European citizenship. Learning with the teaching and learning resources in a collaborative situation will be a normal learning setting for students. Students will get into this way of learning while using the interactive teaching and learning resources. The aspects of

bilingual education improve the skills of the students in the foreign language, and working together with other countries in Europe will enhance the cultural understanding of the students.

To enhance the quality and European dimension of teacher training. The interactive teaching and learning resources will be spread in the national institution like the Ministry of Education in each country and institutions like Instituto de Tecnologías Educativas in Spain, National Centre for Technology in Education in Ireland, etc.

Conclusions and view for the future

According to the Europe 2020' strategy the education and training systems in Europe must upon other terms allocate an adequate mixture of skills and competencies, advocating the progress of transversal competences, teach how to use digital technologies and ensure that the citizens have basic skills and that they are motivated and capable of learning (Council conclusions on the role of education and training in the implementation of the 'Europe 2020' strategy, (2011/C 70/01), p. 2).

Within this project teachers and students have the possibility to improve their knowledge in all these areas. From the eight suggestions for key competencies for the lifelong learning of the European Parliament and Council, six key competencies will be touched on in this project. The following six competences will be discussed in detail: foreign language competency, (2) mathematical competency and basic physics competency, (3) computer competency, (4) learning competency, (5) social competency and civil competency as well as (6) cultural awareness and cultural expression ability.

(1) The foreign language competency will be fostered by bilingual instruction in English and German as well as the different mother tongues.

(2) Mathematical and basic physics competencies will be reached through the development and adaptation of learning materials for the mathematics and science-subject courses.

(3) Computer competency will be facilitated through the application of digital technology for learning materials.

(4) By working in heterogeneous groups and by the exchange of educational findings from pupils outside of the classroom and school organizations, learning competency will be addressed.

(5) Both social competency and civil competency as well as cultural awareness and cultural expression ability, two other key components, will be applied through the communication and cooperation of pupils from various countries and cultural backgrounds.

(6) The project will particularly benefit from cooperation throughout Europe. The development of materials for the lessons especially within the science subjects can be improved with a multi-perspective, international approach.

Combining the teaching of different subjects with bilingual education and the use of digital technologies allows to enhance the skills in a foreign language as well as to improve the digital competencies.

Aside from the usual value of cooperation with international partners this project benefits immensely from the European cooperation. Developing materials for science education incl. environmental and social science issues always improves if different points of view from different nations are considered. The cooperation of the different institutions with their partner schools will help to establish a European network of schools based on the common interest in modern ways of teaching (using interactive technology, bilingual education, and collaborative learning scenarios). Also by working

together of educational researchers and pilot teachers the observation of intercultural differences help to sharpen the own viewpoint.

Thank and respect

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