



Executive Agency, Education, Audiovisual and Culture



INTACT – Interactive teaching materials across culture and technology

Final Report

Public Part

Project information

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Executive Summary

The project INTACT (**IN**teracve **T**eaching **M**aterials **A**cross **C**ulture and **T**echnology) is financed by *Lifelong Learning Programme* 527932-LLP-1-2012-1-DE-COMENIUS-CMP

Partners

Six universities are involved in the project; these are the University of Education Ludwigsburg (Germany), project coordinator, Universidad Complutense Madrid (Spain), Kecskemét College (Hungary), St. Patrick's College, Dublin (Ireland), Polytechnic Institute of Bragança (Portugal), and Babes-Bolyai University Cluj (Romania).

Aims

INTACT aims at the development of interactive teaching and learning resources for content integrated language learning (CLIL) in the areas of school subjects and second language learning. The INTACT-project fosters interactivity in a double sense – interactivity with digital learning resources and international interactivity connecting learning all-over Europe using a common INTACT platform.

Outputs

- Teaching scenarios and learning materials which are described in detail including pedagogical background and implemented in an online platform
- INTACT platform which contains interactive, bilingual and intercultural learning units, lessons and learning objects and allows classes from different countries to collaborate synchronously and a synchronously
- Dissemination and exploitation at national/international levels to spread project impact through:
 - Project web-site <http://www.intact-comenius.eu/> with e-book, templates, ...
 - INTACT platform <http://www.intactschools.eu/> incl. training videos, teaching resources and learning materials
 - Dissemination activities such as: meetings, seminars, symposia, papers and posters in conferences, articles in conference *Proceedings*, etc.
- Evaluation to ensure quality carried out in two levels: external and internal. Internal evaluation includes evaluations of team meetings and evaluation of the process of the project. Internal and external evaluation was done of teaching scenarios and learning materials as well as of the INTACT platform.

Target groups and impact

Four target groups are identified with different level of involvement in the project:

- Students at schools and teacher students at universities use the platform and the materials in all kinds of learning scenarios especially interactive and bilingual ones.
- Teachers and teacher educators use the platform for the development, testing, and implementation of innovative teaching scenarios incl. materials.
- Educational researchers use the teaching materials and the matching scenarios for their respective research.
- School administrations, who want to implement an online learning environment, get an easy access to a free online-platform.
- Developers of interactive platforms contribute to the open source solution or find examples for their own development.

Time: Three years: December 1, 2012 - November 30, 2015.

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1. Project Objectives

1.1. Project Objectives

The objectives of the project were the realization of learner-centered teaching scenarios and materials for i.e. natural science, geography, history and foreign language learning according to these criteria:

- *Interactivity*: The scenarios and materials are designed to enable interactivity with
 - the computer i.e. giving hints or feedback.
 - the audience i.e. collecting ideas in mindmaps or comparing solutions and distributing the collections electronically
 - other schools i.e. working together in writing wikis, collecting data in geography,...
 - experts from other countries i.e. in different languages.
- *Bilingual education*: The scenarios and materials are especially designed to support foreign language learning optimally in bilingual settings. The target language is mostly English and in some cases German or Spanish; adding other European languages is possible as well.
- *Social / collaborative learning*: The teaching scenarios and materials can be shared among the collaborating schools in the partner countries and can be used asynchronously or synchronously.
- *Independence from specific technology*: The materials are implemented in html5 to avoid limiting the use for specific whiteboards only. Other devices (tablets, smart phones etc.) can be used as well.

1.2 How the project benefits a specific community of users and how they are involved in the project

The objectives of the INTACT project – as can be seen above – address a variety of groups in the educational field. These groups profit in different depths from the processes and results of the INTACT project.

- *Students at schools and teacher students at universities* use the platform and the materials in all kinds of learning scenarios especially interactive and bilingual ones for learning.
- *Teachers and teacher educators* use the platform for the development, testing, and implementation of innovative teaching scenarios incl. materials.
- *Educational researchers* use the teaching materials and the matching scenarios for their respective research.
- *School administrations*, who want to implement an online learning environment, get an easy access to a free online-platform.
- *Developers of interactive platforms* contribute to the open source solution or find examples for their own development.

2. Project Approach

2.1 Project Structure, Cooperation and Collaboration, Methodologies, Fields of Activity

2.1.1 Project Structure

The INTACT project involved six partner institutions: University of Education Ludwigsburg (Germany), Universidad Complutense Madrid (Spain), Kecskemét College (Hungary), St. Patrick's College, Dublin (Ireland), Polytechnic Institute of Bragança (Portugal), and Babes-Bolyai University Cluj (Romania).

The project was divided into four main working groups. Each group was allocated responsibility for a main theme of the project, (sub-divided into work packages) and the group was then managed cooperatively by two paired partner nations. All groups were interlinked and worked collaboratively with one another under the direction of the Steering Group. (s. figure 1).

Steering group

Wide-ranging, across-the-board project decisions were made by the steering group which included the national leaders of each partner nation, the project manager and project coordinators. The steering group met online on a regular basis, about every two months or when required.

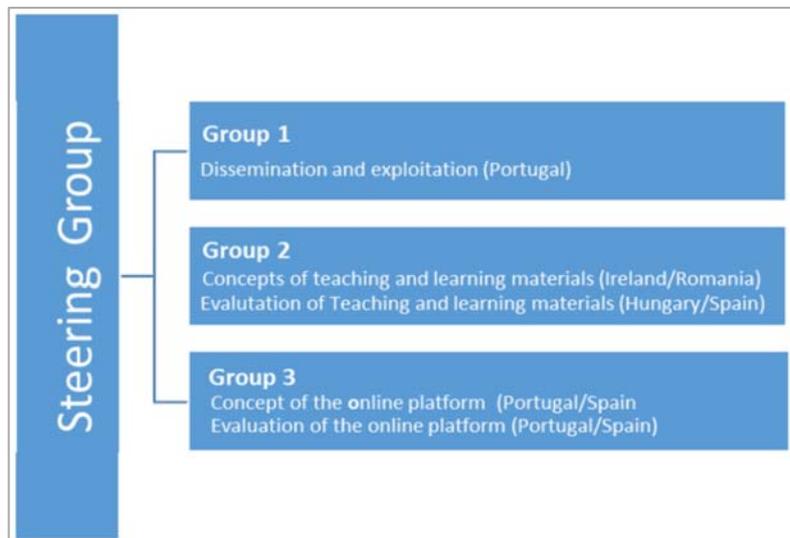


Figure 1 Project structure of INTACT

Group 1

All aspects of dissemination and exploitation of results were assigned to Group 1. Project members of the Polytechnic Institute of Bragança (Portugal) were responsible for this area of operation and for the overall coordination of Group 1.

Work Package 3: Project dissemination

Work Package 4: Exploitation of results

Group 2

All aspects of conceptualization, design, implementation and evaluation of teaching materials were assigned to Group 2. Project members of the St. Patrick's College, Dublin (Ireland) and of the Babes-Bolyai University Cluj (Romania) were responsible for coordination of Work Packages 5 and 7. Project members of the Kecskemét College (Hungary) and the Universidad Complutense Madrid (Spain) were responsible for coordination of Work Package 9.

Work Package 5: Conceptual design of the teaching materials for each subject

Work Package 7: Implementation of the teaching materials

Work Package 9: Testing and evaluation of the teaching materials

Group 3

All aspects of the design, implementation and evaluation of the online platform were assigned to Group 3. Project members of the Polytechnic Institute of Bragança (Portugal) and the Universidad Complutense Madrid (Spain) collaboratively managed these three work packages and took overall responsibility for coordination of Group 3.

Work Package 6: Conceptual design of the server for an interactive, collaborative classroom

Work Package 8: Implementation of the server

Work Package 10: Testing and evaluation of the server

Project members of the Ludwigsburg University of Education were responsible for the overall project coordination, quality assurance and overseeing all project task areas. For administrative activities, a project management position was established.

Work Package 1: Project management

Work Package 2: Quality management

To facilitate communication and documentation of the project, the learning management system *Moodle* was used

- as a repository for all project documents
- for communication within and between groups via a news forum
- for dissemination of information to project partners and pilot teachers
- to document and organise work operations

Virtual group meetings took place regularly using Adobe Connect of the German Research Network (DFN). These online meetings were recorded and both minutes and recordings were provided in Moodle. In addition, regular meetings of all national teams dealt with internal tasks to be completed.

2.1.2 Project Communication and Collaboration

The partners of the INTACT project decided at the beginning on a collaborative approach where pairs of project members of two nations were assigned responsibilities for specific aspects of the project according to the skills and expertise of the involved persons and their institutions. This allowed an effective combination of expertise while optimizing the available worktimes. A plan to visualize the communication and collaboration was set up as well as a guiding system using a color code. Each work packages

was assigned to one of three groups and the spokespersons of each group met regularly online. During the face-to-face meetings, all the project members took part in fundamental discussions and major decisions. Several methods for giving feedback were used i.e. online questionnaires regarding meetings and project work or 'paper and stickers' as seen in the example here (figure 2)

Also, it turned out to be very helpful to start working on new issues during the face-to-face meetings and then to finish after the meetings.

2.1.3 Methodologies

INTACT followed the methodology of action research. Teacher education experts in primary and secondary education developed exemplary resources and supporting tools based on current pedagogy and theories of learning. The developers - together with pilot teachers - tested these resources and the supporting tools first in theory and then in classrooms, evaluated and revised accordingly. After this process, the resources incl. the INTACT platform were published online and made available for free use of teachers all over the world.

2.1.4 Fields of Activity

The INTACT project incorporated three fields of activity:

- Development and implementation of teaching scenarios and learning materials including the technical support tools (INTACT platform)
- Evaluation of teaching scenarios and learning materials and technical support tools (INTACT platform)
- Dissemination of teaching scenarios and learning materials and technical support tools (INTACT platform)

Connecting all fields of activity were the permanent revisions made throughout the entire process. The developed teaching scenarios and learning materials were implemented, evaluated and then adapted according to the evaluation results. Figure 3 below shows some of the activities' interdependencies.

Development and Implementation

First, the project partners discussed, planned and developed the concepts of teaching scenarios and learning materials for bilingual, learner-centered instruction in different subjects. Since the whole project is based on a collaborative approach all the artefacts

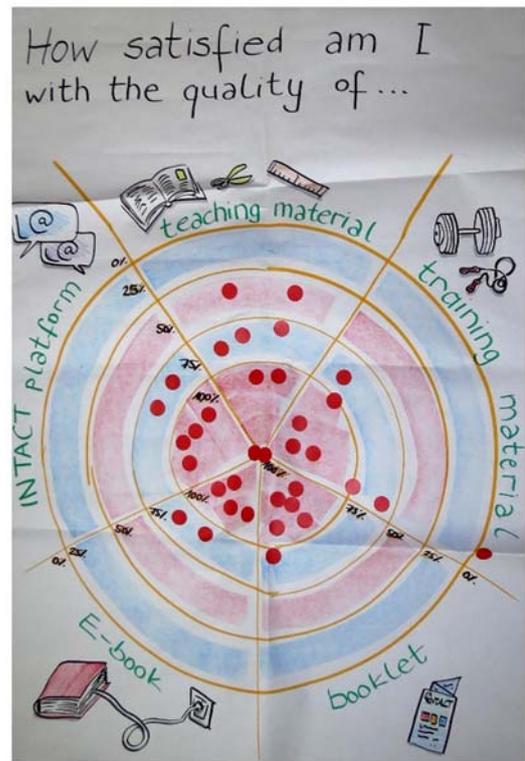


Figure 2 Evaluation sheet 'Satisfaction'

like flyers, posters and in particular the learning and teaching philosophies were discussed among the partners. The identification of the ‘common denominator’ of all the

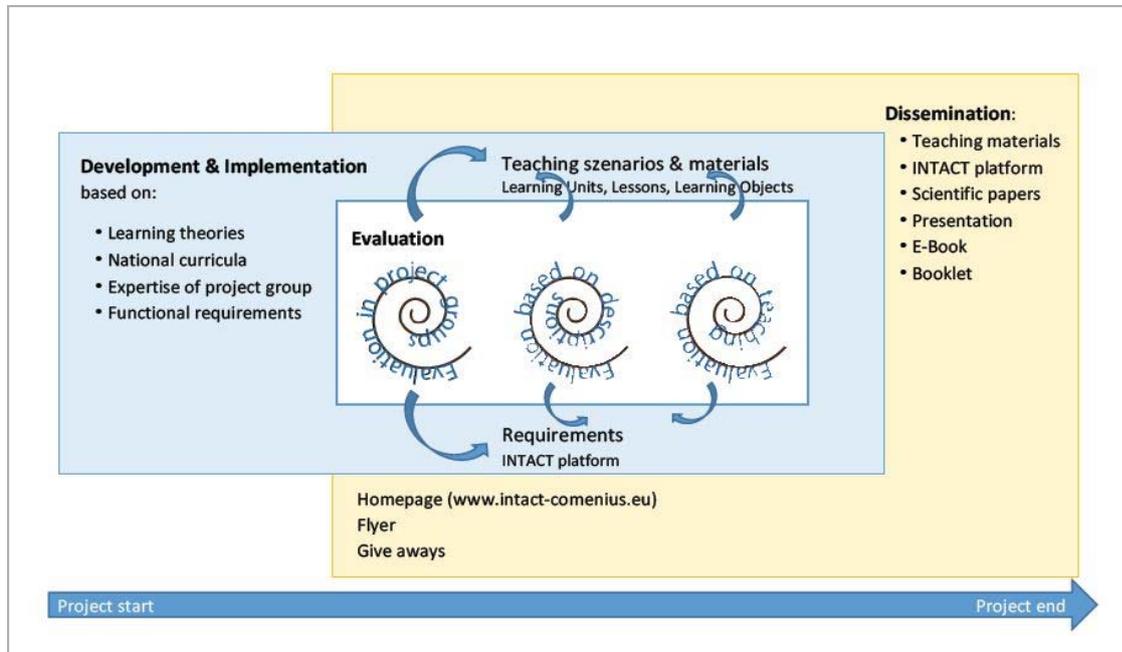


Figure 3 Fields of Activity INTACT project

involved project partners regarding national school curricula, constraints in actual classrooms, key competences and relevant theories of learning took several meetings and a lot of discussion. During this process, the huge complexity of the aims of INTACT became obvious as well as the broad expertise necessary to reach these goals.

To develop the INTACT teaching scenarios and learning materials a very broad expertise is necessary. Not only expertise in the teaching of a specific subject but also teaching in bilingual and often intercultural settings as well as using interactive information technology for learning are required. The INTACT group as a whole possesses this broad expertise but not all individuals combined these fields of expertise in oneself. Therefore, we created several text templates to describe the teaching scenarios (learning units, lessons) and learning materials (learning objects) including meta data on learning theories, classroom settings, bilingual and intercultural aspects, and technical requirements.

At this point, it became clear that for the realization of these very complex teaching scenarios specific technical support tools like audio and video conferencing would be necessary. These options are not commonly found in online platforms for teachers. Out of this necessity, the functional requirements, which were defined by the project partners during the description of the learning scenarios, led to the development of the INTACT platform. The requirements deriving from the teaching scenarios and learning materials led to a call for proposals to find an external company that would realize the INTACT platform was published. Micro plans and use cases were developed and updated continually to support all aspects of implementation in a step-by-step manner.

For the prototyping of the teaching scenarios and learning materials, the developers used whatever technology was available (i.e. Powerpoint, learningapps.org or ActiveInspire).

The project partners focused on the provision of the teaching ideas and the necessary infrastructure as well as giving some significant examples in the form of *learning units, lessons and learning objects*. This way teachers can easily understand what is special about the approach of INTACT and get ideas – as well as technical support – for realizing this approach in their own classrooms. In addition, they can start on a small scale and then decide on the appropriate complexity level.

Evaluation¹

The development and implementation of the teaching scenarios, the learning materials, and the corresponding technical support in form of the INTACT platform required a combined approach of incremental and spiral development strategies as well as multiple feedback from different user groups like pilot teachers, teacher educators and students according to the state of implementation.

Evaluation of plans for teaching scenarios and learning materials:

The pilot teachers of at least two paired partner nations initially studied the drafts of the teaching scenarios and learning materials. They read the filled in templates with the descriptions of the learning units, selected lessons including interactive learning objects, and evaluated using an especially designed questionnaire. This template asked about 'strengths', 'weaknesses', and 'additional suggestions' according to the objectives described in section 1.1. and aspects of realization in everyday classrooms (https://www.ph-ludwigsburg.de/fileadmin/subsites/8x-0003-t-01/user_files/INTACT/INTACT-Template_Evaluation.docx). The results were made available for the unit creators and led to - sometimes major - revisions of the teaching scenarios and learning materials.

Evaluation of the technical support tools (INTACT platform):

As soon as the implementation of the INTACT online platform was in an advanced enough state, an evaluation took place through training sessions for the participating pilot teachers and the creators of the INTACT teaching materials starting in January 2015. Based on this feedback, the developers amended continuously the INTACT platform.

There were no templates or specific guidelines used for the evaluation, rather each partner collected the feedback of the pilot teachers and the creators of the INTACT teaching materials. Reason for this 'open feedback' was the idea to find out what issues needed more guidance based on average users respectively which options were not intuitive. The result were discussed with the developers face-to-face or in online-meetings.

Evaluation of the piloting of the teaching scenarios and learning materials:

Once as the exemplary teaching scenarios, learning materials and the INTACT platform were in reasonably advanced stages of completion, the implementation in html5 format took place in the INTACT platform. The implemented example lessons including the html5-learning objects were tested in the piloting schools in real classrooms. The

¹ Beside the activity 'evaluation' directly connected to the development and implementation of the teaching scenarios and learning materials described here, there was also an ongoing evaluation of the project work (satisfaction with the work, communication and collaboration) which is described in section 2.3.

pilot teachers then reevaluated the scenarios and teaching materials using the same template/questionnaire from the ‘theoretical’ evaluation. The developers revised their resources accordingly.

Based on feedback and needs of adjustment, both the materials and the online platform were continuously improved.

Dissemination and Exploitation

This activity is still ongoing. The INTACT platform is freely available as well as the examples of learning units, lessons and learning objects including the pedagogical backgrounds described in the e-book. Project website, flyers, posters and booklets in all of the project languages are available for everybody. The project partners promoted the INTACT ideas, materials, and platform in the educational institutions and different scientific communities via papers, presentations and teacher trainings (for more details refer to section 3.1).

2.2 Added Value of the Approach

From the *pedagogical point of view* creating teaching scenarios and learning materials according to the objectives of the INTACT projects is in itself a benefit for teaching and learning in Europe. However, the collaboration of teacher educators from six different countries to work on these aims yielded also some unexpected challenges and by getting over them, a new quality of educational cooperation emerged. Teaching scenarios for specific subject areas, which are learner-centered, cooperative, interactive, bilingual, intercultural, and supported by IT require a very broad expertise and flexibility. This expertise is needed by the developers as well as the teachers – and at a lesser level the students as well. Hardly any of the project members combined all the areas of expertise in oneself but the group as a whole working together could managed.

Further, in discussing the different ideas for the teaching scenarios, the project partners challenged continuously their own beliefs on teaching or started to consider new aspects in teaching like the meaningfulness of language in learning science or mathematics. In addition, the processes of reaching common definitions i.e. for ‘an interactive learner-centered teaching scenario’ helped the project partners to acquire new ideas for and viewpoints on teaching. As all of the INTACT partners work in teacher education this change of view influences directly or indirectly a lot of future teachers and student.

Moreover, by working in a multilingual, intercultural project using IT-based cooperation tools the project members could experience many of the aspects school students learning in similar teaching scenarios face as well. Therefore, the self-reflection of the challenges and potential need for support lead to a much higher level of learner awareness by the developers and pilot teachers.

From an *organizational point of view* the developed artefacts (descriptions of teaching scenarios, learning materials and INTACT platform) are freely available to all teachers and schools interested so they gained access to high quality educational materials.

2.3 Evaluation strategy, approach, results

There were two different strands of evaluation at the INTACT project:

- The evaluation of the teaching scenarios and learning materials as well as the supporting tool – the INTACT platform – was done as a very important part of the development process and is described in detail in section 2.1.4. Different questionnaires, evaluation templates and direct communication were used to improve the teaching scenarios, learning materials and the INTACT platform continuously.
- Since the collaboration in the project group was essential to reach the project's objectives, we continually evaluated the cooperation and the satisfaction of the project members. Therefore, evaluation and feedback tools had been established to ensure a continuous monitoring of project and work process as well as the quality of cooperation and collaboration in the project. Outcomes of these surveys (online questionnaires) were the basis for continuous process optimization. The results of questionnaires were analyzed by the project team and were discussed in meetings in order to address challenges or uncertainties, clarify issues and to make process adjustments if needed.

Additionally, an external evaluator took part in the final meeting in order to help the project group to reflect on the last three years of common work, deliverables made and the progress achieved. The external evaluation was carried out using the method of group moderation based on a previously prepared Metaplan and documentation by Graphic Recording. It was very helpful to have an external sight on the partnership, to review all crucial steps made, and speak about the lessons learned and coming plans. Overall, the project management was highly appreciated by the project partners because “a big part of such project is the project management and it's not always very easy as a project member to understand all the rules of the EU (source: internal evaluation)”

An example of the documentation by Graphic Recording is given in figure 4:

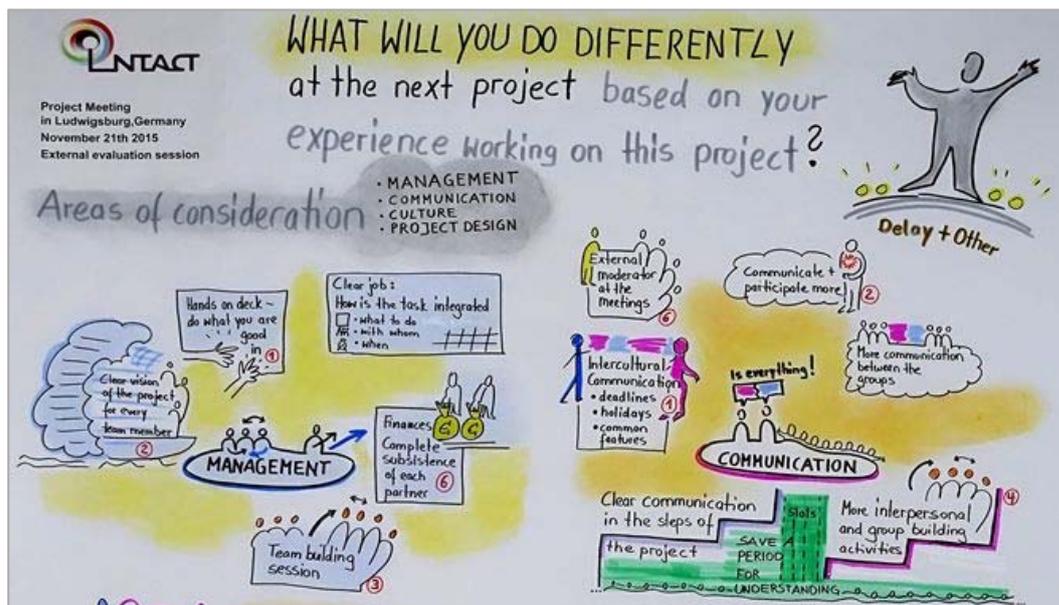


Figure 4 Example of External Evaluation Result c/o Hartmann-Wall

2.4 Dissemination and Exploitation Strategy and Activities

The dissemination strategy was built on the project aims and is based on the following objectives:

- to raise awareness of the project, its content and outcomes among the defined target groups
- to spread INTACT results as widely and effectively as possible
- to generate the effective impact of the project in terms of scope and sustainability
- to share expertise in the field
- to underline the European added value of the European projects and to enhance the quality as well as European dimension of teacher training

From the start of the project, dissemination and exploitation was an important project task. So, at the beginning when we couldn't 'show' what INTACT really was, we made the name and the basic ideas known by setting up the website (<http://www.intact-comenius.eu/>), creating flyers and posters (<http://www.intact-comenius.eu/p/dissemination.html> s. at the bottom) in different languages and giveaways.

Further along the project, the ideas, concepts, early versions of scenarios, materials and platform requirements were presented and discussed on local, national and international levels. Project partners attended meetings at universities, schools, school administrations and presented the INTACT ideas and products.

The main target group – teachers at schools and teacher educators at universities – were involved in the development and implementation throughout the project in form of the project members themselves and the cooperation with the pilot schools. These persons served as 'INTACT multipliers' in their own communities.

As soon as the description of the teaching scenarios and the materials as well as the INTACT platform were in a reasonably finished state they were made available online for everybody free to use.

The project partners wrote special publications for different target groups and published them accordingly – if possible always on the INTACT website as well. Information on the published scientific papers are given in section 3.1.

The e-book (https://bibliotecadigital.ipb.pt/bitstream/10198/11931/5/E-book%20INTACT_FINAL.pdf) was written in English and contains the pedagogical background and underlying concepts for the teaching scenarios and materials as well as most of the templates and examples. Here the main target group are other teachers as well as educational researchers and teacher educators.

The booklet on the INTACT resources and platform (<http://www.intact-comenius.eu/p/dissemination.html> s. at the bottom) is available in all languages of the project partners and was written more in a nature of general information targeting school administrations and teachers.

By actively spreading the information about the INTACT project in the respective teacher or scientific communities from the beginning and making every 'product' available online the sustainability of INTACT is easily supported. The main results of the

project: the catalogue of teachings scenarios and materials as well as the INTACT platform are available for teachers who register at the platform. They are adaptable to all levels of schooling, including vocational training and teacher education. Both the platform and the website (where all dissemination and exploitation materials are available for download).

3. Project Outcomes & Results

3.1 Major Achievements and Results

The objectives of the INTACT project were the realization of learner-centered teaching scenarios and materials for different school subject according to the criteria of *interactivity, bilingual education, social / collaborative learning, and independence from specific technology*.

The first achievement - and one with the most direct effect on the project members - is the increase of *awareness, knowledge, competencies about the complexity of the intended teaching scenarios*. To reach the level of realization and implementation of the products numerous meetings (face-to-face and online), discussions and compromises took place, templates were written and ideals were cut down according to the realities of everyday classrooms.

The main achievement are the *teaching scenarios and materials*, which were developed, implemented and described. The number, the variety and the level of details of these scenarios do not live up to the expectations we had at the beginning of the INTACT project. The main reason for this is the very high complexity of the intended scenarios (for more details see sections 2.1 and 3.3). Nonetheless, several scenarios were developed and implemented in the INTACT platform. Real teachers and students tested them and the creators improved them according to the evaluative feedback. The realized teaching scenarios and learning materials demonstrate to interested teacher (and teacher educators), what a typical INTACT scenario looks like, how it can be developed and implemented in everyday classrooms and what are potential pitfalls. Especially to support the creation of INTACT scenarios all the templates developed during the project are available including the filled in templates of the already implemented scenarios.

During the development of the scenarios, the project partners realized that for the implementation of these very complex teaching scenarios specific technical support would be necessary. Out of this necessity, the functional requirements, which were defined by the project partners during the description of the learning scenarios, led to the development of the *INTACT platform*. Even if another online platform for teachers was not an objective at the beginning of the project, it proved to be very essential in the development – and obviously the implementation – of INTACT scenarios and materials.

The concrete products/artefacts of the INTACT project are

- **Templates for developing teaching and learning materials:** Different templates were evolved to support the project partners developing teaching and learning materials for different subjects, levels and such as
 - Template ‘Conceptual Framework for Developing Teaching and Learning Materials’ (http://www.ph-ludwigsburg.de/wp/may/intact/intact-materials/intact_conceptual_framework_for_developing_teaching_and_learning_materials.docx)

- Template/Framework for 'Units of Work' (<http://www.ph-ludwigsburg.de/wp/may/intact/intact-materials/intact-template-unit-of-work.docx>), 'Lesson' (<http://www.ph-ludwigsburg.de/wp/may/intact/intact-materials/intact-template-lesson.docx>), 'Learning Objects' (<http://www.ph-ludwigsburg.de/wp/may/intact/intact-materials/intact-template-learning-object.docx>)
 - Evaluation (Assessment) template for pilot teachers (https://www.ph-ludwigsburg.de/fileadmin/subsites/8x-0003-t-01/user_files/INTACT/INTACT-Template-Evaluation.docx)
- **Concepts of teaching scenarios and learning materials:** Several exemplary descriptions and implementation of teaching scenarios and learning materials in various subjects and levels were created. The descriptions including pedagogical background can be found in the e-book (https://bibliotecadigital.ipb.pt/bitstream/10198/11931/5/E-book_INTACT_FINAL.pdf). The implementation is realized on the INTACT platform (<http://www.intactschools.eu>). The number of content on the INTACT platform is continuously increasing even after the official end of the project. Among the examples finalized during the project duration are 'Learning Units'
- *Human Immune System* (Secondary School Science)
 - *Magnetism* (Primary School Science)
 - *Human Circulatory System* (Primary School Science)
 - *Translational Motion and the Seasons of the Year* (Geography)
 - *Legends and Heroes – King Arthur* (Second Language Acquisition)
 - *Mozart as a Child and his Travels* (Second Language Acquisition)
- **INTACT platform:** In order to enable two classrooms in different locations to work simultaneously on one set of materials, the technical implementation of an online platform was necessary. Therefore, the INTACT platform was developed during the project. At first, the requirements were identified and use cases evolved. In a second step, an external company implemented the platform. The project partners elaborated the requirements for the platform with all the partners including the pilot teachers and developed a concept with the basic and central ideas for the INTACT platform. The different versions of the implemented platform were improved continuously according to the evaluative feedback by the different user groups (creators of teaching scenarios and materials, teachers, students). Generally the INTACT platform integrates different types of systems: repository of learning objects, system for creating content, and platform for cooperation and collaboration. It is based on the free open-source content management system (CMS), Drupal (2016) and an extension of Drupal called Opigno LMS (2016). Besides the platform itself additional products like the functional requirements of the INTACT platform were created and published (<https://www.ph-ludwigsburg.de/wp/may/intact/intact-materials/intact-functional-requirements-of-the-online-platform.pdf>).

- **Dissemination and exploitation products:** As written above several artefacts like flyers, posters, giveaways, scientific papers, e-book and booklet were produced, distributed and/or published.

Information about the INTACT project:

- *Giveaways*
- *Flyers and Posters* in all project languages (<http://www.intact-comenius.eu/p/dissemination.html> s. at the bottom)
- *Website* (<http://www.intact-comenius.eu/>)
- *Booklet* INTACT – A Solution for Interactive Teaching‘ is available in all project languages and gives general information about the INTACT project, materials and the platform targeting school administrations and teachers (<http://www.intact-comenius.eu/p/dissemination.html> s. at the bottom)

Detailed descriptions of the teaching scenarios and learning materials

- *E-book* ‘Interactive Teaching across Culture and Technology’ which describes the pedagogical background and the implemented scenarios and materials ([https://bibliotecadigital.ipb.pt/bitstream/10198/11931/5/E-book INTACT_FINAL.pdf](https://bibliotecadigital.ipb.pt/bitstream/10198/11931/5/E-book%20INTACT_FINAL.pdf))

Presentations of the INTACT ideas and platform: The INTACT project was already presented at such conferences as:

- ‘Campus Innovation’ in Hamburg, Germany (November 26th -27th 2015)
- ‘IFIP TC3 Working Conference A New Culture of Learning: Computing and Next Generations’, Vilnius, Lithuania July 1st – 3rd, 2015
- ‘New Perspectives in Science Education’ in Florence, Italy (March 21-22nd, 2015)
- ‘ICT for Language Learning’ in Florence, Italy (November 13th - 14th, 2014)
- ‘CADGME 2014 - the Fifth Central- and Eastern European Conference on Computer Algebra- and Dynamic Geometry Systems in Mathematics Education’ in Halle (Saale), Germany (September 26th - 29th 2014)
- ‘Conference on Interactive Whiteboards (IWB Fachtagung)’ in Heidelberg, Germany (March 21st 2014)
- ‘6th International Scientific and Expert Conference of the International TEAM Society’ in Kecskemét, Hungary (November 10-11th 2014)
- ‘International German Language Teacher Conference’ in Sibiu, Romania (October 10th-13th 2013)

Training material for the use of the INTACT platform

- Video tutorials for different target groups (teachers, students and translators) are available on the INTACT platform demonstrating how to use the INTACT platform (<http://www.intactschools.eu/course/534/intact-tutorial>)

- Training materials contain basic information about the INTACT platform in order to help teachers and other professionals to understand the INTACT project and to explore the platform. They are available in all project languages (<http://www.intact-comenius.eu/p/overview-contemporary-interactive.html>)

Scientific Publications (already published)

- Bescherer, C. (2015). "Development of Interactive Teaching and Learning Materials for Bilingual Mathematics Education". In A. Brodnik & C. Lewin (Eds) IFIP TC3 Working Conference "A New Culture of Learning: Computing and next Generations" Preliminary Proceedings. Online at http://www.ifip2015.mii.vu.it/file/repository/IFIP_Preliminary_Proceedings_2015_06_30.pdf, S. 266, last retrieved 02/17/2016)
 - Chumbo, I., Jokiaho, A., May, B., & Rodrigues, M.J. (2015). Sciences Education: Mobile Resources for Holistic Learners. Conference *Proceedings of New Perspectives in Science Education*, Florence, 20-21 March 2015.
 - Chumbo, I., Jokiaho, A., May, B., & Gonçalves, V. (2014). INTACT Project: bilingual teaching resources tailored for students' mobile life. Conference *Proceedings of ICT for Language Learning*, Florence, 13-14 November 2014 (pp. 242-246).
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3.2 Impact of Outcomes and Results on the Target Groups

The impact of the INTACT ideas for teaching and learning as well as the INTACT platform is overwhelming. Alone on the website, there are already more than 13 300 visits (clicks) and at the Facebook group (<https://www.facebook.com/pages/Intact/257181101126434>) more than 400 'likes'. The INTACT platform is also very much in demand. Up to date there are

- Students: 190 users
- Teachers: 65 users
- Managers: 10 users
- Translators: 12 users
- Learning Units: 35
- Learning Units for collaboration: 28
- Discussion Forums: 76
- Video Conferences: 102 meetings

Benefits specific to the target groups:

Ensuring the sustainability of INTACT results and outcomes after the end of the project duration was an important issue. For this purpose, the project team defined a dissemination and exploitation plan. The objectives of the INTACT project addressed a variety of groups in the educational field. These groups profit in different depths from the processes and results of the INTACT project.

- Students at schools and teacher students at universities use the platform and the materials in all kinds of learning scenarios especially interactive and bilingual ones for learning. They can gain new experiences through international and intercultural cooperation. Most partners of the consortium offered INTACT related seminars to their students and directly involved them in the different stages of the project. The students learn digital competence using digital technologies, learning to learn by working collaboratively and sharing the learning outcome with other pupils.
- Teachers and teacher educators use the platform for the development, testing, and implementation of innovative teaching scenarios and learning materials. The teachers benefit from the INTACT results because they are able to apply digital technologies for the teaching materials, are supported trying out new innovative ways of teaching, modernizing their educational approaches, acquiring new competences and extending their national teaching scenarios.
- Scientific communities use the teaching materials and the matching scenarios for their respective research. This group was and still is reached directly by project partners through scientific conferences and publication in journals.
- Key stakeholders and school administration, who look for learning platforms or tools for communication and collaboration get an easy access to a free online-platform.
- Developers of interactive platforms contribute to the open source solution or find examples for their own development.

4. Partnerships

Throughout the project, there was a great emphasis on democratic decision-making. Each partner nation shared their views and opinions in choosing the subjects and topics of the resources, topics of workshops and developing each agenda for online meetings. The forum of the Moodle platform supported this vision of working together in an ideal way as any partner could raise new ideas or reflect on others' thoughts freely. Each partner country had the opportunity to join those groups and work in work packages to which they were assigned, based on their personal and institutional expertise. This mutual trust between the project coordinators and the partners created a supportive background for the project in which all the project members experienced a fair and

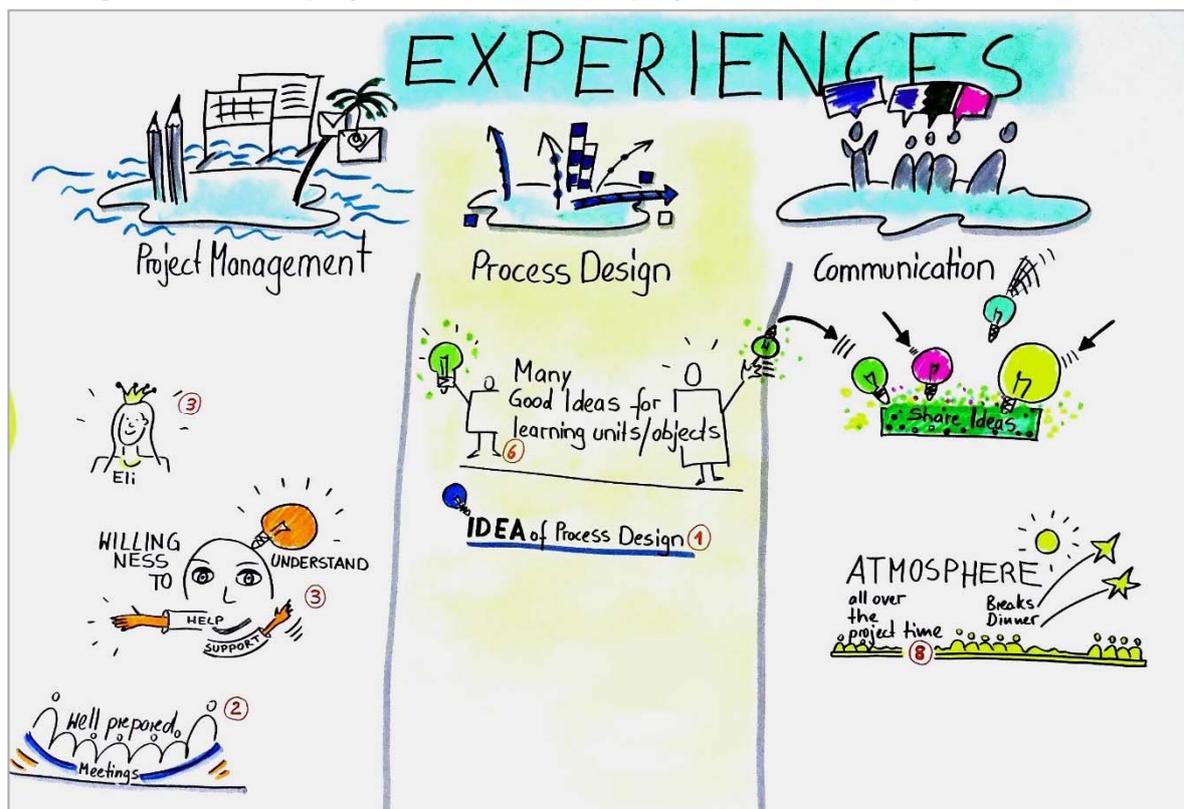


Figure 5 from the external evaluation session Nov. 2015 c/o Hartmann-Wall balanced share of work.

4.1 European added value of the multi country partnership in executing the project

At the end of the three years during which the project unfolded, we count a number of aspects of our working together as definite gains not only for the members and for every county involved, but also for the European Union as such. Throughout the duration of the project, by getting to know each other and by gaining the possibility to compare our cultures as such, our institutional cultures, and our systems of education and so on, we got to know what "Europe" as such means, what it is and, more importantly, what it could be. The engagement in this project has persuaded us, its members, of the necessity of a democratic approach of every task, irrespective of the fact that it is a technical (practical), theoretical, or one pertaining to European politics of education. And, more importantly perhaps, the engagement in the project helped us understand

and determined us to help our students realize that effective communication with others from other cultures requires work and dedication and in no way should not be taken as a given.

4.2 Experience of working together in a European partnership

Despite of the fact that the INTACT project has been carried out by European countries, the development of teaching materials showed that there are still differences concerning teaching and learning culture. Most of the challenges in the INTACT project were due to intercultural differences but this was also one of the most interesting and inspiring part of the project. Intercultural differences are on the one hand certainly a challenge to all projects on a European level. On the other hand, the intercultural differences are also an enrichment that helps all project partners to widen their horizons and profit from the expertise of one another.

4.3 Benefits of Partnerships Established with Groups Outside of the Direct Project

Our close collaboration with primary and secondary school teachers in creating the resources and testing them using the INTACT platform strengthened the ties bonding us together. In this way the members of the project- all academics engaged in teacher training programs but with little to no direct contact with the schools - were better acquainted with the school reality, the educational expectations of the teachers and the students, their interests and motivations for learning not only in their own country but also in all the others.

In this sense, one additional achievements of INTACT was the fact, that in the three years it lasted it lead the members to the realization of the changes needed in the teacher training programs. Especially several members changed their courses and seminars at the teacher training institutions in order to better prepare their teacher students for the challenges of their profession.

An additional benefit of the collaboration is that it offered the basis for the constitution of an extended network of educators and IT professionals from a significant number of European countries with experience in working together and dedicated to further collaboration in the future in various personal and institutional projects. Such endeavors whose seeds planted in the INTACT project, we believe, contribute the most to shaping a European identity and to the development of a true European union.

5. Plans for the Future

The teaching scenarios and learning materials as ‘incarnations’ of the INTACT ideas are available to everybody and will enable teachers and teacher educators to integrate these concepts into their own teaching. Also the project members will continue to develop teaching scenarios and materials following the INTACT ideas. They also will continue to engage with local, regional and national stakeholders, teachers and decision-makers in each partner country to ensure the growth and usability of teaching resources.

The INTACT platform itself is very much in demand by a variety of projects, institutions and initiatives locally at the project partners’ institutions as well as partners from all over the world:

- The INTACT platform was presented at several European and international institutions from Netherlands (Open University Netherlands), Finland (HUMAK University of Applied Sciences) USA, (University of North Carolina in Charlotte) and Israel (Al-Qasemi and Sapir College). The Al-Qasemi College is interested in using the INTACT platform for their university teachers. Sapir College would like to extend or rather adopt the platform to the needs of another European project (IN2IT).
- At local level in Ludwigsburg the INTACT platform will be introduced in different context with a reasonable use for it. For example the INTACT platform was proposed for tutoring students of German as a foreign language that teach German for refugees at the Refugees network meeting at the University of Education Ludwigsburg on December 1st 2015.
- The Complutense University of Madrid sends on a regular basis information to the professors in charge of bilingual groups and also contacts practicum coordinators in order to introduce the platform so that the students, during their stage at the schools, will be able to use the materials already uploaded in the platform or even will design and upload new proposals. This will be a very good way of exploitation as students will introduce the platform in a great number of schools along Madrid area.
- The INTACT platform was presented in one of the most reputed forum for education and technology in Spain: JUTE (Jornadas Universitarias de Tecnología Educativa) in its XXIIIrd edition (June 2015). The title of the communication was “INTACT: una propuesta intercultural, interactiva y cooperativa” (INTACT: and intercultural, interactive and cooperative proposal).
- Project results are integrated and systematically used in the partner institutions and disseminated in local, national and European networking environment. This is the case, for instance, with the 12th Bragança Erasmus Week in May 2016, a meeting which will gather around 100 European researchers, teaching and non-teaching staff for five days at the Polytechnic Institute in order to exchange ideas, good practices and establish better cooperation among HEI.
- The platform was also introduced in the “Congreso de Educación Especial” with the session “INTACT: una plataforma de aprendizaje especial” (INTACT: a

“special” learning platform) as a pedagogically useful tool for students with special needs.

- The INTACT platform will be presented at the Teachers’s Union CSI-F Enseñanza Madrid, which reaches all the Primary and Secondary schools in Madrid (some public 1800 schools).
- The INTACT platform will be used in different training workshops by the partner institutions related to create or provide teaching materials, bilingual teaching, and synchronous settings such as webinars as well as developing and performing MOOCs (Massive Open Online Courses). Moreover, partners will integrate the INTACT platform and contents developed in different courses such as “Planung, Entwicklung und Umsetzung von didaktischen E-Learning-Szenarien”, “Diseñando materiales interactivos y colaborativos a través de la plataforma INTACT” (Designing interactive and collaborative teaching materials with INTACT, “Using INTACT as a Web 2.0 tool to support Curriculum Art”.
- The platform was already used in vocational training (Portugal) so additional lifelong learning sectors can benefit from the INTACT concepts. In the academic year 2016-2017 the platform will be tested whether it is suited to teach such classes as civics, psychology, sociology, logic and the theory or argumentation and philosophy (Romania).
- In Babeş-Bolyai University with the academic year 2016-2017 the INTACT Platform will be used as a tool for the transmission of knowledge, for keeping in touch with the students, as well as a means for administering regular tests of evaluation meant to establish the progress of knowledge both in courses held both by professors with the Faculty of Psychology and the Sciences of Education as well as other Faculties (Philosophy, Letters and so forth).
- Our Portuguese partners designed an online training course for teachers using the INTACT platform as the main tool for its implementation. The national impact of this training course is relevant due to the fact that teachers were from all over the country, different school levels and this training can be repeated in several editions, adapting itself and even being tailored to specific needs.

All these activities means that the outcomes are spread widely in the local teacher communities and also easily adapted for use in higher education (this was not an initial target) contexts, with new resources being created in different fields of like humanities (Translation Theory, English Culture), science and others.

The INTACT platform is an open source project so it can be used and developed further by interested parties. Others will pick up the baton that currently is delivered by the INTACT scenarios, materials, and platform and continue along the path of innovation; a road whose main benefits are located in the advancement of the society toward a future that improves the quality of life of its citizens.

6. Contribution to EU policies

The focus of the INTACT project was to create innovative teaching scenarios and learning materials following a constructivist, learner-centered approach in interactive and bilingual settings. In this goal INTACT followed the recommendations of the EU member states from 2008 on “**promoting creativity and innovation through education and training**” (Council of the European Union, 2008).

The value of the INTACT project correlates with the European Reference Framework for Key Competences for Lifelong Learning developed in 2007 (European Parliament and Council (2006). A key competence of this framework is *communication in a foreign language* which is a focal point of the INTACT project. The target groups of the teaching and learning resources developed by the project are teachers and students of bilingual education throughout Europe.

The development of an online platform led to the development of support materials for learner centered teaching in interactive and bilingual scenarios. This can also be viewed as a realization of “one goal of the “Strategic Framework – Education & Training 2020”: **to open up education through new technologies** (European Commission, 2016).

Beside the broad aims of creativity and innovation, the INTACT project of course addressed the key competences from the recommendation of the **European Parliament on key competences for lifelong learning** (European Parliament and Council, 2006) like the communication in foreign language, competences in different (school) subjects as well as the competence to use digital technologies for learning other competencies.

The platform and the example materials allow students to learn different **subject content by working collaboratively in heterogeneous groups across borders and to develop social, civic, and intercultural competences.**

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