

Master Model to Gain Time in Your Classroom: An Ongoing European Project

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ABSTRACT

This article describes a European project that involves a consortium of 8 partners in the education field. The GainTime project aims and objectives are to develop professional and pedagogic competences among teachers and trainers. It intends to enhance Information and Communication Technology uptake, through the support of learning and access to open educational resources with the aims to combine higher levels of excellence and attractiveness with increased opportunities for all. The consortium also intends to develop an online course that teaches teachers about how to innovate in their classroom, specially using flipped classroom and games supported on Open Educational Resources. The target of the project is secondary education. This paper describes the results of the first two outputs of this project: the development of a compendium of best practices about creative classroom and game learning and also the development of a handbook of a flipped classroom.

Categories and Subject Descriptors

Applied computing: Education: Distance learning, e-Learning, Collaborative Learning

General Terms

Management, Measurement, Performance, Design, Experimentation, Human Factors.

Keywords

New innovative curricula, Educational methods, Development of training courses, Open and distance learning, Pedagogy and didactics.

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1. INTRODUCTION

According to the document of the Thematic Working Group 'Teacher Professional Development' "Supporting Teacher Educators for better learning outcomes" (Commission, 2013) one of the most important goals for the UE is to encourage teachers to continue developing and extending their pedagogical competences throughout their careers because they can have a significant impact upon the quality of teaching and learning in school.

The document 'Opening Up Education' underlines another fundamental objective for Europe, that is to foster teachers' competences and methods for digital teaching, in order to support the development and the availability of Open Educational Resources (OER). In fact, OERs enable to connect the classes through digital contents, but also to enhance their pedagogical competences with the purpose of modifying the role of the digital technologies in educational institutes (European Commission (DG EAC), 2013b).

The 70% of teachers in EU acknowledge the importance of lifelong learning and of a specific training on the teaching and learning methods through digital instruments. Yet, only the 20-25% of students have motivated and competent teachers at digital level and most of them use ICT mainly to prepare the didactic lessons, instead of using it for working with students during lessons (Commission, 2013).

The EU lacks critical mass concerning didactic contents, digital methodologies and best practices in specific sectors. The risk for Europe is to lag behind other regions in the world, such as the USA and some Asian Countries, where there are meaningful investments in strategies based on ICT so as to re-define education and training (European Commission (DG EAC), 2012).

Schools in Europe need innovative teachers, able to improve their pedagogical competences, to carry out actions aimed at open up the learning contexts that combine direct and online lessons, in order to enhance the students' motivation and the effectiveness of learning (European Commission (DG EAC), 2013b).

The project GAIN TIME (<http://gaintime.eu/project/>) responds to this urgency for Europe: to develop professional and pedagogic competences among teachers and trainers enhancing Information and Communication Technologies (ICT) uptake in teaching and learning, through the support of learning and access to open educational resources (OER) in the education and training fields with the aim of combining higher levels of excellence and attractiveness with increased opportunities for all.

GAIN TIME project wants to help teachers to revise and strengthen their professional profile and improve the attainment of young people, particularly those at risk of early school leaving

and with low basic skills, developing a methodology focusing especially on the use of ICT.

In line with the Communication from the Commission (European Commission (DG EAC), 2014)) " Rethinking Education: Investing in skills for better socio-economic outcomes" , GAIN TIME project aims to develop, test and implement an innovative approach for teachers that promote the development, testing and implementation of innovative practices in the field of education.

GAIN TIME project aims to develop tools for the professional development of teachers using ICT tools, very effective for the management of creative classes. GAIN TIME project develops tools to enable teachers to evaluate, transfer and validate GAIN TIME project training at local, regional, national and European level thanks to a multilevel partnership.

The project wants to promote a new form of learning and to provide education and training with open educational resources, focusing on better exploitation of the ICT potential, in order to help the teachers to modify their teaching methodologies, as the web can offer contents in a more complete, holistic, updated, simple and economic way. GAIN TIME project can take advantage of the potential of: online contents (that can be studied at home or at work); class activities and laboratories, that can be customized and socialized.

2. INNOVATION OF THE PROJECT

The promotion of learning experiences that combine direct and online lessons (blended learning) can enhance the motivation of students and the effectiveness of learning. Only an integrated approach, that ensure, on the one hand, the access to digital contents for students and, on the other hand, the adequate level of pedagogical and digital competences and of organizational strategies for teachers, can generate an educational offer able to sustain the innovation needed to improve the quality of the teaching in European schools (European Commission (DG EAC), 2013a).

GAIN TIME project aims at this type of methodological innovation. The project identifies, elaborates and experiments a pedagogic process to improve teachers' competences for their professional development.

The project in fact stems from the need of improving the professional profile of teachers through digital teaching methods related to OERs. Doubtless, teachers have been promoting innovation in schools. Yet, as far as ICT integration is concerned, many of them do not have the competences needed for didactic exploitation of such technologies (European Commission (DG EAC), 2013b). This shortage can only slow down the process of modernization of the European education system.

The specific objective of the GAIN TIME project is to develop, test and implement an innovative approach for teachers focusing notably on the strategic use of: an open and flexible learning, OERs and a better exploitation of the ICT resources.

This will be achieved by planning and developing a scientific study on creative classes, a manual and an Open Online Course in teaching the methodology, based on the "Flipped Classroom" approach. This approach is based on the transformation of traditional classes into Creative Classrooms (CCR), namely innovative learning environments where the potential of ICT is fully embedded, in order to innovate learning and teaching

practices in formal, non-formal and informal settings and to create OERs.

The flipped methodology was born in the nineties thanks to the studies of Eric Mazur, physics professor at Harvard University. This approach was developed in the Mastery Learning (learning through mastery) mark by Benjamin Samuel Bloom. Today the "Flipped classroom" is very diffused in the USA (<http://www.flippedclassroom.com/>).

The "Flipped classroom" approach follows a reversed teaching and learning model: learners watch lectures at home and use the classroom time to interact with classmates and teachers, especially through educational games in the classroom. The adoption of this teaching approach and methodology will help teachers to: 1) strengthen the e-skills and the adoption of practices of collaborative learning; 2) adopt an approach based on learning outcomes also suitable for low skilled learners; 3) assimilate a sensitive culture to the value of non-formal and informal learning, supported alternative for learners less interested in the academic world, as well as at-risk groups; 4) acquire the tools to stimulate creativity and innovation through the learning of new knowledge to create and manage Learning Games Lab.

The innovative elements of this project can be summarized in these points:

a) support the change from a theoretic learning to a social and constructive learning. Class time, with no more frontal lessons allows to change the teaching method. Exercises and laboratories take place in a collaborative context, with the support of teachers, finding time to transform training strategies through the active learning: from the inquiry learning to the problem solving; from the cooperative learning to the peer tutoring. Notably the strategic use of open and flexible learning can create new forms of learning and providing education and training in line with the students' needs and expectations.

b) it makes possible to customize the learning process. This learning setting can answer to the class' needs. It is easier to identify professionalizing courses, more flexible in timing and, through the creation of working groups, teachers can better stimulate students and increase the quality of education combining higher levels of excellence and attractiveness with increased opportunities for all.

c) it draws a new role for the teacher. In this context, the new role of the trainer is to support intuitive processes, enhance creativity, promote reflection and dialogue. GAIN TIME project wants to help the teachers to revise and strengthen their professional profile.

d) it goes beyond the traditional e-learning in which technological tools and contents' elaborations need different skilled people. In the GAIN TIME project ICT tools of common use are directly used by the trainers. These conditions make possible that the contents are always updated with user-friendly technologies, easy to use and economical. Besides, thanks to the GAIN TIME, it will be possible to create virtual spaces of collaboration among the teachers that promote OERs.

3. PARTENERSHIP

The ERASMUS+ Strategic Partnership for School Education European project GainTime – Master model to gain time in your classroom (2014-1-ES01-KA201-004401) has started in 2014 and will end in 2016.

The consortium has 7 partners¹:

P1. CECE [Spain. Coordinator];

P2. ERIFO [Italy];

P4. STUCOM Centre d'Estudis [Spain];

P5. Association IT World BG [Bulgaria];

P6. ELAZIG [Turkey];

P7. ISCAP / IPP – Instituto Politécnico do Porto [Portugal];

P8. ISTITUTO SERENI [Italy] and Gausdal videregående skole, Pierre de Coubertin [Norway].

The partnership was built up on the basis of 3 criteria:

1) **COMPETENCE:** the partnership is composed of public and private organizations that operate in the field of education and whose mission focuses on stimulating the innovative learning practices in order to make education more attractive. The Consortium is formed by 3 typologies of partners:

A. P1 and P2 are expert in innovative teaching. P1 is a non-profit employers' and professional and represents a wide educational sector in Spain. It has more than 5.000 Education and training centres. P2 is an Accredited training provider, recognized by the Lazio Region and accredited by the Ministry of Education for the lifelong learning of staff school for formal and e-learning courses. P1 has organized and managed two editions of the course "Flipped Classroom in the Lifelong Learning Supporting trainers and adults' participation in innovative Educational courses" (database Comenius-Grundtvig)

B. Schools/colleges that experiment innovative programmes for their students so as to stimulate their creative thinking:

-P4 is a private Education and Training organization, with 1000 students and 52 teachers, offering also an E-Learning platform

-P7 has experience in learning innovation and it has created an organizational unit to deal with innovation, creativity and e-learning, GAIE Office of Innovation in Education

-P8 is a public agricultural institute with a real firm inside the school. Their students can combine study and work at the same time. There is a department of teachers in the school that is specialized in innovative teaching in Agricultural Development.

-P6 is affiliated to the Ministry of National Education of Turkish Republic. In addition to formal education (Pre-school, primary and secondary) it covers also non-formal education.

-P9 offers a range of educational programmes; General theoretical studies, Sports, Media & Communication. It promotes the participation of as many students in initiatives that involves the cooperation with their peers abroad, so as to increase their intercultural competences, language skills and responsibility as European citizens.

P5 is expert in the digital sector and its mission is to develop effective methods in education through the modernization of information technologies in Europe. It is experienced in the deployment of e-Learning solutions. The company is also a registered training provider offering digital literacy courses.

For Italy and Spain, it was considered necessary to introduce two types of partners: P1 and P2, being organizations expert in innovative teaching and having a long-term experience in managing EU projects, can give an added value to the Partnership at level of management and coordination for the implementation of the IOs; P8 and P4 will be fundamental for the dissemination and the exploitation of the outcomes.

2) **Import/export:** this criterion is fundamental to ensure a fair and equal Partnership, that enables all members to import and export know-how and experiences. This process triggers a virtuous circle that strengthens the competences within the partners and contributes to the sustainability after the conclusion of the project.

-Spain exports experience in the management of centralized projects, reinforcing the capacity of each partner in this area; it imports everything exported by the other partners.

-Italy exports the experience of P1 in the Flipped Methodology and of the P8 in the school programmes that combine study and work.

-Portugal exports the experience of P7 about how to organize functional units for teaching innovation and creativity, able to ensure a durable sustainability of GAIN TIME.

-Turkey exports the experience of P6 in the innovative practices for promoting non-formal education.

3) **RELIABILITY:** The partnership was established choosing as reliability's indicators: previous direct interactions among the partners; the relevance/reown of the organization in its sector of activity. Most of the partners worked or are working together in other EU projects in the field of education and teachers' training. In particular, P1 and P2 are working together in a Comenius project for preventing and tackling early school leaving, with the aim of creating video tools for teachers that will be used to motivate students to go on along their education path. They have collaborated in further projects as LdV TOI, LdV Partnership, LdV Pilot. P7 and P2 are working together in the project LdV TOI based on the export and import of best practices so as to help teachers to prevent ESL.

P4, P9 and P6 worked together in a Comenius project about the added value provided by school for the local and international immigration.

4. EXPECTED RESULTS

The GainTime project aims and objectives are to develop professional and pedagogic competences among teachers and trainers enhancing ICT uptake, through the support of learning and access to open educational resources (OER) with the aims to combine higher levels of excellence and attractiveness with increased opportunities for all. The consortium also intends to develop an online course that teaches teachers about how to innovate in their classroom, specially using flipped classroom and games supported on OERs. The target of the project is secondary education.

In order to attain the objectives proposed, the consortium entailed a research to identify good practices of Creative Classroom (CCRs) fully embedding the potential of ICT to innovate learning and teaching practices. Additionally the research will deepen the issue related with educational games as didactics instruments since these enable an innovative approach by providing more attractive education programs, in line with students' needs and expectations. Educational games have a strong pedagogical value,

¹ When the project was submitted there was another partner that, meanwhile, had to withdraw

not only because they increase soft skills but also because they enhance the curricular competences since they are based on the process of simulation, representation and reproduction that help the learner to move from a traditional learning to a learning-by-doing. Besides this, educational games enable teachers and students to reconstruct the knowledge acquired, to reinforce it and to give a concrete and increased meaning to the learning experience.

After this the consortium will develop a “Master model to gain time in your classroom”, that represents in the project framework an in-depth study on a specific innovative teaching methodology: the “flipped classroom”. The method (flipped classroom) will be analyzed and described in its technical, methodological and pedagogical characteristics for secondary school teachers, so that they can adopt it in their ordinary lessons. The final product will be an informative and operative tool, that alternate studies and analyses with video tutorials that introduce the different topics in the Master Model. The final product will be a Master Model for learning and understanding the method in its complexity: the conceptual framework, the glossary, the techniques, the approach. It will be a product to know what the Flipped is, how to do a Flipped lesson, how to be a good teacher in the Flipped classroom. The Master Model will be a digital book that can be read by a speech synthesizer; it can be managed freely and also used as a normal book (highlighted, underlined, personalized with notes). In the next section, we will present the results obtained in the activities already carried out in the Portuguese partner.

5. ONGOING ACTIVITIES

5.1 BEST PRACTICES - COMPENDIUM

In order to collect the best practices on flipped classroom and games the Portuguese partner have searched in scientific databases papers describing learning activities such as games or creative classroom implementation. At same time, we have developed and implemented a small online questionnaire with the aim to identify teachers that are developing creative learning activities in their classroom, in Portuguese secondary schools.

5.1.1.1 Questionnaire Results

The questionnaire comprised questions about the respondent: identification, degree obtained, area of knowledge, average of students' age and number of students per class, questions about the use of ICT, classroom environment, use of a Learning Management System and the development of any educative game. It was also asked if the teacher knew what flipped classroom means and if he / she had already developed a flipped classroom strategy.

The questionnaire was administered at the beginning of 2015. We obtained 39 answers, 34 validated and 32 describing an implementation of learning strategy. Most of respondents are from the field of Math, ICT and Portuguese areas (see fig 1).

The respondents mentioned having an easy internet access, at home or at school. Some of them are using tablets to access the internet.

They also use internet regularly – almost 50% refer using internet very often, while 29% say “most of the time” and 19% “sometimes”. Most of the respondents define the classroom as a place equipped with computers connected to the internet. Some of them are also using an interactive board.

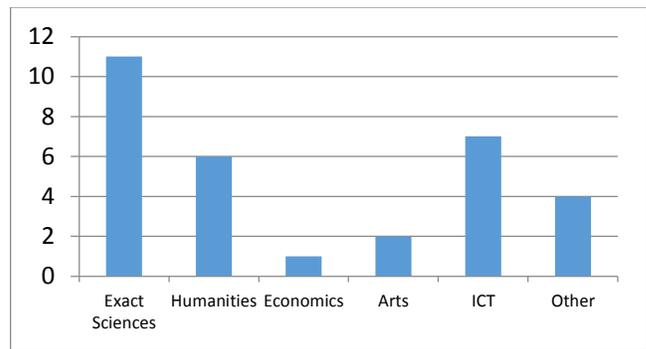


Figure 1: Distribution of respondents by scientific area

Many teachers (25%) are using the moodle platform to support their learning activities but there are also others that prefer using web 2.0 tools, such as blogs, Elgg platform, iTunes, etc. Teachers described their use of the platforms as a way to share contents with their students. Some of them use moodle platform because it is mandatory in their schools. They have to use it to make the summaries and the schedule available, to share contents with their students and make all the registries related to the unit. The majority of teachers (60%) refer having already developed an educational game in their classroom (we did not ask if they used PC).

When asked for the meaning of flipped classroom, 65% of them know what it means. However, only 28% have already implemented it.

5.1.1.2 Database search Results

To compliment results obtained with the questionnaire, we searched scientific databases, in order to find descriptions of creative classroom and game learning implemented in Portugal (only searched for Portuguese authors).

According to the project proposal, we searched for 10 creative classroom and 10 educational games.

Most of the creative educational descriptions found are related to the areas of Math and Portuguese.

The duration of the activities vary from 90min to 1 year.

The main learning strategies used are:

Problem solving, Creative communication strategy, Creative writing, Text analysis, Project work, Collaborative work.

Usually teachers do a qualitative data analysis after the implementation of the creative classroom in order to learn from the experience. In the activities described teachers use different kind of technologies such as: Digital documents, Camtasia, Power Point, Audacity, Moodle, Windows, Facebook, Google, Yahoo, asl.

Some of the practices identified describe a creative learning activity without using any kind of technology.

As a reflection, teachers state that they want to improve the creativity but this is difficult to measure.

Usually creative learning activities are good to make students to think differently and to create a good environment among teacher and students. Teachers state that problem solving must be used to promote creativity. Creative classroom are good to promote the socio-constructivism and in general are effective. Using this technique helps students to learn more and teacher can improve

his / her teaching competences. As for students, they like this kind of activities, they are actively involved, but they need a prompt feedback on the task. They also register some difficulties in managing time.

It was possible to identify the following main competences required

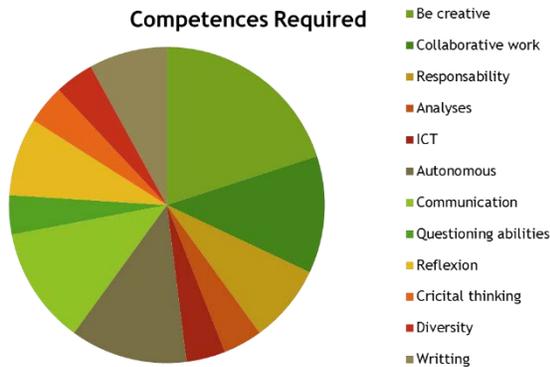


Figure 2: Competences required to develop a flipped classroom

We also identified the main competences improved. The most important one was “learning deeply”, followed by “motivation” and “dialogue”. The less developed were “diversity”, “inclusion”, “creativity” “collaborative work”, “active learning”, “autonomy” and “attitudes”.

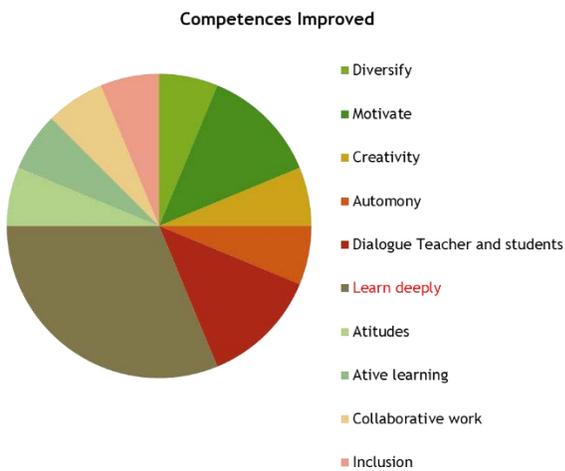


Figure 3: Competences developed in a flipped classroom

5.2 HANDBOOK

Concerning the development of the handbook, each partner was responsible for a specific thematic area. The handbook contents were divided into 8 themes. The thematic areas of the Master Model are articulated as follows:

1. Creative classes: this thematic area is related to how to stimulate (techniques, strategies and methods) creativity in class,

and how to integrate the use of ICTs and OERs in traditional teaching.

2. Teacher-innovators: the second thematic area is related to the function of the CCRs in preventing and tackling early school leaving and enhancing the empowerment of youth. It focuses also on the specific role that teachers have to play in managing a CCR.

3. Flipped methodology: the third thematic area is related to the Flipped methodology. The objective is to analyse, its points of strength, weaknesses, threats and opportunities related to different contexts (for example: classes with students at risk of social/economic/emotional/cultural exclusion).

4. Design of the Flipped lesson: the fourth thematic area is related to the design of a didactic unit with the Flipped methodology. This section explains the operative steps to implement the Flipped methodology in traditional teaching, to personalize the lesson according to the time and the technological resources available.

5. Development of the didactic contents in the Flipped: the fifth thematic area is related to the teacher in the creation of a learning object, namely the smallest unit of competence that contains an objective, a learning activity and an evaluation. The section explains how to develop and manage a learning object through the SCORM (Shareable Content Object Reference Model).

6. Videos in the Flipped methodology is the sixth thematic area.

The first phase for the development of the Master Model was the design of the structure of the handbook. The outline of the Master Model can be imagined as the table of contents of a book. The main chapters are articulated in sub-chapters, with an easily readable hierarchy among the elements. Each chapter and sub-chapter contain a brief summary of the contents to develop and indicates the competences (outcomes) that can be acquired by the study of the Model.

It was defined the following structure for each thematic:

1-Introduction (Rationale, outline)

2-Content

3- Conclusion

4- References, links

In the next section, we present one example of the chapters developed: Chapter 4: Design of the Flipped lesson (developed by the Portuguese partner).

5.2.1 Handbook chapter example: Design of the Flipped lesson

The development of this chapter was supported on the practices and experience of the researchers involved in the project (Portuguese partner) and on the analysis of the good practices described before.

5.2.1.1 Introduction

The introduction gives practical suggestion on how to design a flipped lesson namely presenting the relation between learning objectives, skills, content and activities and resources (see figure 4)

Learning objectives	Skills to be developed	Content	Activities and resources
Obj 1	SS1	Chapt 1	Act. 1
	SS2	Chapt 2	Act. 2
	SS3		
Obj 2	SS1	Chap 3	Act 1
	SS4		Act 4
etc			

Figure 4: Instruction alignment

The introduction includes also the main elements of a flipped classroom description (see figure 5)

Time	Place	Learning objectives and contents
Step 1	Outside class (pre class)	Objective (usually Knowledge and comprehension levels of the Bloom taxonomy) Content 1
Step 2	In class	Objective (usually Application, Analysis, Synthesis and Evaluation levels in the Bloom taxonomy) Content 2
Step 3	Outside class	Objective (usually Application, Analysis, Synthesis and Evaluation levels in the Bloom taxonomy) Content 3
Step 4	In class	Evaluation / assessment

Figure 5 – Main elements of a flipped classroom

These elements were, almost every time, referred in the description of the best practices.

The introduction also includes how we can plan a flipped classroom lesson (see figure 6):

- ▶ 02-A2.4 DESIGN FLIPPED LESSON IPP
 - ▶ Introduction
 - ▶ Content
 - ▶ Step 1 - Tasks to develop outsider the classroom (preclass)
 - ▶ Step 2- Introduction to the topic in the classroom:
 - ▶ Step 3 - Activities of self-assessment performed outsider the classroom:
 - ▶ Step 4 - Peer assessment and teacher assessment in the classroom
 - ▶ Conclusion
 - ▶ References, links

Figure 6: Lessons of a Flipped Classroom

Then it presents the steps that we have to follow when we are designing a flipped lesson.

At the end, the chapter presents the conclusion and the references.

6. CONCLUSION

Reflecting on the GainTime project development, we can state that the use of creative classroom strategies seems to improve learning. At least, teachers refer that they are having positive results and this is a trigger and motivation to continue to develop such kind of materials and activities. Teachers can use it to motivate students and thus improve the learning process. The analysis made on the best practices supported the definition of the handbook chapters' structure. As the main point we can underline the importance of making the alignment among learning objectives, development of competences and contents and activities. Comparing to the traditional education settings, we attested the deviation of the focus on the content and transmission of knowledge to the focus on the learning experience and interactions.

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