

Stimulating VET Students' Creativity and Motivation through Flipped and CLIL Experiences: The E-Classes Project

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Abstract

The article draws on the Erasmus+ E-Classes project (Ref. no.: 2017-1-RO01-KA202-037344) and presents the project's objectives, target groups, methodology and outputs. The project's main aim is to motivate VET students to study science and improve their language and ICT competences by using flipped classroom and CLIL (Content and Language Integrated Learning) approaches. The article focuses on the basic theoretical background and practices related to the new flipped classroom pedagogic model. It introduces the main techniques, strategies and methods used in creative flipped classrooms, including the integration of ICT (Information and Communication Technology) and CLIL in traditional teaching. It gives insights into how teachers can design a flipped lesson, experiment and improve their lesson according to their students' needs, the time, and the technological resources available. The article also highlights the potential and benefits that new technology offers teachers and how teachers can take advantage of its channels, join their efforts in learning communities and raise students' interest in learning. In addition, the project adds value to flipped classroom principles by involving companies in the educational process through multimedia enriched apprenticeship simulations.

Keywords: *flipped classroom, CLIL, creativity, motivation, science;*

1. Introduction

People's mobility and the advance of modern technology have brought about new challenges to European society and schools are invited to play an important role in managing them. Technology must be integrated into the classroom to make learning more effective and applicable to reality. Teachers use technology to enable an immediate sharing of useful learning materials, facilitate learning, create a work environment that empowers students to become independent motivated learners as well as enhance various useful competences: workplace skills, problem-solving, teamwork, foreign languages, IT and multimedia, communication and cultural competences. The use of technology in a consistent instructional design not only increases students' motivation but also has the advantage to place the focus on the student and collaborative learning, where the teacher becomes a "facilitator", a "guide" or "a coordinator" of the group.

One way of integrating technology into the classroom is through the flipped classroom method, which underpins the European E-Classes project [1]. The project aims at helping VET teachers to revise and consolidate their professional skills so that they can improve young people's performance. To this end the project develops a methodology especially focused on the use of ICT in school and relies not only on teachers' professionalism but also on students' involvement in their learning process and creation of materials.

2. The European E-Classes project

The main objectives of the project are [2]:

- to improve science teachers' e-skills and collaborative learning skills;
- to produce tools based on multimedia educational resources, which stimulate creativity and innovation;
- to stimulate students' active and creative role in the learning process through the use of ICT and OER;
- to collaborate with companies in order to create relevant educational products on job orientation and integration for students;

The E-Classes project addresses the following target groups [2]:

direct target groups: VET teachers, VET students, VET schools, companies; indirect target groups: schools (in general), teachers and students (in general), parents, educational and training centers/ NGOs in the field of education, teachers' associations, students/ youth associations, educational public authorities (teacher training Centers), public at large.

The E-Classes project aims at creating a guide (whose main content is presented below) on flipped classroom methodology for teachers, flipped lesson plans for science classes and their corresponding videos.

3. The E-Classes project's methodology

The project's methodology, the flipped classroom, first exposes students to new material outside the class, usually a video, and then during class time it develops students' higher thinking skills through the use of strategies such as problem-solving, discussion or debates. The main objective of the design of a flipped lesson is to maximize the students' participation in online and offline activities inside and outside the classroom [3]. Teachers' main goal is not on exhausting the subject but rather on developing a wide range of students' deeper cognitive skills. Outside the class VET students develop lower levels of cognitive work, via reading or watching videos (gaining knowledge and comprehension) and in-class they focus on higher forms of cognitive work, harder work of assimilating knowledge, solving problems, debating or discussing some controversial issues (application, analysis, synthesis, and/or evaluation), where they have their peers and teachers' support and feedback. In all, a flipped classroom activity includes the following main elements in its description: cognitive objectives, soft skills, subject, general description, tools, e-content, activity stages (pre-class, in- class, outside class), rules and results [3].

4. The main stages of a flipped lesson

In the first in-class lesson, teachers give a brief introduction to the topic and explain the learning process. As many students may not have any previous experience with flipped classroom and/or active learning, it is important to explain all the activities that students will develop outside and inside the classroom and their rationale so that they will understand the benefits of the flipped classroom method. They should also clarify the expectations concerning results, the students' participation and time needed to perform all the tasks.

The pre-class activities (videos, readings) should be developed in advance of the first class time. During the pre-class activities students have to watch short recorded video lectures or do some readings, which introduce the main concepts related to the content area before class. Students are also asked to do short quizzes (problems to solve, research to do), which are embedded in these materials; collaborative work among students is encouraged from this very first stage: students' answers posted to the course website are shared and commented upon [4]. Students use online dashboards to ask the teacher or their peers questions about the new content they learn outside of class or as a means to collaborate with their peers to do the tasks (www.padlet.com/ www.tricider.com/).

During the in-class activity after the video students spend the first 10 minutes reviewing the pre-class activities through a quick quiz or a question and answer session. All class activities are based on the video and they generally clarify and define new terms; they are meant to stir students' interest in the topic, promote high order thinking, stimulate reflection and discussions and create opportunities to deepen and apply the knowledge acquired. Students are engaged in active learning activities where students practise and improve what they started learning outside class, such as: case studies, creative scenarios and simulations, debates, group investigations, students' PPTs and discussions or micro lectures. They share and exchange knowledge with their peers, work together in groups to achieve tasks by using the internet, communicating with each other physically or virtually, and asking teachers for support whenever they need it. At the end of the first in-class activity teachers explain to students what they should do after the in-class activity to continue learning. Some ideas for deepening student understanding include: discussions using boards or social media, assignments that require students to apply the skills and knowledge developed in class in a new way or to a new situation, additional readings on the topic or debates within informal learning groups [5].



Self-assessment activities carried out outside the classroom consist of short tasks or online questionnaires, with a limited number of items (3-4). Questionnaires should not check students' understanding or comprehension of the acquired knowledge but rather whether students know how to apply what they learned [6].

The activities developed in the last class session should promote peer evaluation and teacher's evaluation. The construction of knowledge should be developed based on the dialogue, active learning and collaboration. By reviewing their peers' work, VET students consolidate and deepen both their own and their peers' understanding of the material.

Mobility across the European Union requires high levels of language competence in designated languages, as these languages are not only the languages of everyday conversation but also the languages of work. Teachers have to adapt existing language teaching approaches so as to provide a wide range of students with high levels of language competence in different fields by forging relationships across disciplines, namely linguistic and non-linguistic. The result is a new method, Content and Language Integrated Learning (CLIL), which refers to teaching a non-language subject through the medium of a foreign language (L2). All school subjects can be taught through foreign languages: history, civic education, physical education, biology, geography, chemistry, art or mathematics [6]. Thus students acquire knowledge and understanding about scientific concepts and phenomena while at the same time improving their language competences related to this content.

5. Online tools

Teachers should also encourage group work and collaboration through several online tools, such as padlet, tricider or kahoot.

Padlet (<http://padlet.com>) is an online notice board where users, in our case teachers and students, can post ideas/information. Teachers can create a page free of charge and then share the address with students who post their ideas which appear in real time. First students have to reply to teachers' posted questions/ ideas related to the video. Students' comments to their peers are also encouraged and can be added with teachers' approval. Padlet is a great collaboration tool where each contribution is valued stimulating peer and autonomous learning. It can also allow teachers to assess all their students' understanding of the materials [7].

Tricider (<http://tricider.com>) is a tool enabling teachers to ask a question and get replies from their students. Teachers can ask their students to post their 'for or against' arguments by justifying them and then voting for their favourite. It is a free tool which if efficiently used can generate interesting class discussions [8].

Kahoot (<http://getkahoot.com>) enables teachers to create quizzes (multiple choice and true or false types) related to the videos or any other reading material. The tool also allows teachers to choose the amount of time students should have to answer. When all students have finished, their selected answers appear on the board. This tells teachers how everyone in the class did and is a good springboard for further discussion. The time limit pushes students to read the text quickly, developing the kind of scanning skills. [9].

At the end of the activities the teacher is encouraged to consider opportunities to evaluate the work done by reflecting on the design of the class or course. Feedback from students on what worked well and what didn't should be collected. Results obtained should be used in order to improve future practices.

6. Conclusions

Through the use of modern technologies the flipped methodology is definitely a method which enables teachers to reach their students. A flipped class changes a teacher's traditional role and empowers students to think critically, do research and then share their knowledge with their peers in a collaborative way in an attempt to co-create new knowledge. The flipped classroom approach turns students into independent learners in control of their own learning process [6]. The video, which is accessible and can be watched as many times as the student needs, introduces the topic and stirs students' curiosity; it is a suitable tool which paves the way for class activities, which clarify and deepen the content. Students are invited to apply everything they learned in practice and encouraged



to bring their own contribution to their group tasks, which are improved through the teacher's or peers' feedback. Students learn from each other under the guidance of the teacher through collaborative work and discussions. The E-Classes project is taking advantage of state-of-the-art technology and maximizes students' engagement and creates lots of opportunities for students' and teacher's interaction and collaboration, which makes learning a memorable experience.

References

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