

Chemistry is All Around Network

Workshop on “Successful Experiences and Good Practices in Teaching Chemistry at School”
Liège, Belgium, the 26th of February 2014

Minutes

Timetable of the workshop: 01.30 – 05.00 PM

The meeting took place at HELMo Sainte-Croix, Liège. It gathered experts, teachers and students (future teachers) from Liège and Louvain involved in the project “Chemistry is All Around Network”.

Thus a total of 15 participants.

Participants:

Zlata Selak (Inforef): project manager

Benoît Wagelmans (Inforef): technical support, trainer

Julien Keutgen (Inforef): translator, project assistant

Alessandra Mulas (Pixel – Inforef): intern

Divna Brajkovic (HELMo, Liège): chemistry teacher

Myriam De Kesel (University of Louvain): teacher trainer

Nathalie Matthys (ENCBW, Louvain-la-Neuve): chemistry teacher trainer

Anne Minet (Collège Saint-Louis, Waremme): science teacher

Françoise Derwa (Collège Sainte-Véronique, Liège): science teacher

Laurent Gruber (ENCBW, Louvain-la-Neuve): chemistry teacher

Simonne Marganne-Liégeois (Institut Providence, Herve): science teacher

Caroline Gilen (Institut Providence, Herve): science teacher

Tanguy Pironet (ENCBW, Louvain-la-Neuve)

Jérôme Kariger (HELMo, Liège): science student

Pierre Hautier (SeGEC, IFC and CECAFOC): trainer, honorary professor of chemistry

1) Project activities

Reminder of the main activities of the project: gathering interactive resources on chemistry and creating a European network to share good practices. The third year of the project is dedicated to successful experiences. Presentation of the relevant section on the portal and of the forms to be used by the teachers and experts: the guidelines to test the teaching resources and the comment form for international publications and papers. All the forms as well as a selection of publications were translated in French and made available on Inforef [website](#). Other documents (portal evaluation and testimonial forms) were also presented.

2) ICT resources

2.1) MOOC – Fostering learning in the digital era

Laurent Gruber presented the concept of MOOC (Massive Open Online Courses) to the participants. The digital era changes our relation to knowledge; the teacher is no longer the sole source of information as students can find it on the Internet. MOOC are online platforms that provide courses to a very large audience. There are two general categories of MOOC. xMOOC maintain a passive transmissive approach to knowledge (texts, videos...) while cMOOC connect learners who can teach each other. More and more universities provide courses through MOOC.

Laurent Gruber then presented flipped classrooms with the support of an interactive platform, in which students prepare their lessons before seeing them in group in the classroom.

Using the potential of new MOOC environments, the digital platform (MOODLE, CLAROLINE...) will be a real SPACE for interactive learning activities aiming to develop skills based on delineated pedagogical scenarios. It will include specific educational resources: videos, presentations, guidelines, protocols, questionnaires, discussion forums, online innovative evaluation practices such as post-assessment strategies.

The platform will be the ideal support for the “flipped classroom” strategy: the transmissive part of teaching will be remote, with the help of technologies (online video, paper documents, exercises to prepare...) and activity-based learning and interactions will be “on-site”: discussions between the teacher and students and between peers, group projects, lab activities, debates...

The term “Flipped Classrooms” appeared around 2007 when two secondary school chemistry teachers, Jonathan Bergman and Aaron Sams discovered the potential of videos.

In so-called traditional education, students are given exercises, homework ... to apply the lesson previously received. Here, the strategy is flipped: the “lesson” takes place out of the classroom through different means and media and the classroom is used for exercises, applications and works. The aim is to drive the transmissive part away from the classroom to give it back its (co-)learning potential. Flipped classrooms reset and redeploy the traditional space-times of teaching and learning.

2.2) Examples of new learning sequences

- Discovery of the chemical reaction in flipped classroom through **the platform Claroline Connect** (for third year students)

- **“MOODLE: how can ICT support the investigative approach?”** Evaluation of a teaching resource through the platform MOODLE. First year science students at HELMo tested the resource “[Discovering the chemical reaction](#)” on the Interactive Whiteboard. According to the students, there were two main benefits: increasing their knowledge of the subject and learning how to use the IWB.

- **“Evaluation of ICT tools – an experience in England”**. Jerome Kariger, a third year science student who writes his dissertation on ICT in learning, travelled to Portsmouth and tested a resource with English secondary school students. The resource uses animations presented on the Interactive Whiteboard. He then submitted questionnaires to teachers and students to evaluate the resource. This trip also provided the opportunity to observe the technologies used in English schools and compare with the Belgian situation.

- **“Working group TIChimiE – Co-building learning scenarios using ICT”**. The working group TIChimiE gathers teachers and future teachers from different schools in Liège and its province. It is led by Divna Brajkovic, who presented their results. The working group was created thanks to two projects: the European project “Chemistry is All Around Network” and “École Numérique”, a Belgian initiative to fund projects that involve ICT in education (see [publication](#) in the database of the portal). The objective of this group is to create learning scenarios in a triple cooperation: 2nd year science students – internship supervisors – HELMo science teachers. These scenarios foster the investigative approach and integrate ICT. Four sub-groups work four topics: “atom models”, “photosynthesis”, “introduction to chemistry” and “statics – components of forces”. The groups work among other on the interactive whiteboard and tablets (received in the framework of the project “École Numérique”) and with the technical help of Inforef (which provides training and support). The working group TIChimiE will keep creating new ICT scenarios during the year 2014-2015.
- “There’s carbon, and then there’s carbon”: a riddle to solve on tablet, presented by Nathalie Matthys. Ms Matthys also showed the website [Didac-TIC](#), which contains tools to be used in science classes.
- Implementation of a grid to review the interactivity in the use of the interactive whiteboard, by Tanguy Pironet.

3) National synthesis on “Successful Experiences and Good Practices in Teaching Chemistry at School”

Presentation of the Belgian paper by its author, Divna Brajkovic. The paper presents the situation of ICT in French-speaking schools, explains how to introduce ICT in the investigative approach and presents several initiatives also addressed during this workshop.

4) Conclusion:

1. Ressource testing is still under progress in Belgian schools
2. The construction of new learning sequences is going on:
 - on flipped classroom through the platform Claroline Connect
 - on evaluation with MOODLE
 - on the interactive whiteboard and tablets
3. Comments on partner publication are still coming and being translated.