Teacher Training for Using Geo Information in Secondary Education – Experiences from the Pairform@nce Project

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Abstract

Pairform@nce is an online teacher training device developed in France since 2007. It proposes training packages (called training paths), providing resources for the organization of blended teachers training sessions, using a distance learning platform. The research team EducTice (INRP, Lyon) designed and evaluated the use of four courses on virtual globes on this online platform. From this research-training experience, we propose to examine and summarise the main benefits and limitations of such a training device for developing the Geo Information literacy in secondary education.

1 Introduction

The lack of training in Information and Communication Technologies (ICT) is a key question for teachers, particularly concerning the use of on-line geoinformation environments in an educational context (Baker & Bednarz 2003, Bednarz & Van der Schée 2006, GENEVOIS 2008). The development of web-based platforms concerns mainly GI portals: for instance in France, the Géoportail, a geoportal for citizens designed by the IGN (Institute of National Geography) or Edugéo, an educational geoportal derived from the Géoportail and designed by the IGN and the Ministry of Education. However the great quantity and the broad availability of geo-information based resources does not resolve the problem of training: teachers and learners need to share not only software and data but also activities and scenarios, and to improve their geo-information literacy. Virtual learning Environments (VLE) which are being introduced in secondary education are a means to develop new forms of learning and training in face to face and at a distance modes. Although these platforms are often presented as a means to reduce the costs of training, we will show that they are at first a means to renew teacher training with some benefits and limitations.

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1 In accordance with the European INSPIRE directive, Géoportail (http://www.geoportail.fr) is the “French Citizens' and Territories' Portal”. Edugéo (http://www.edugeo.fr) is a specific service of the Géoportail for teachers and learners: this educational geoportal designed by the IGN and the Ministry of Education requires a subscription to be able to download GIS data and to use the online sketch map software. For the Infrastructure for Spatial Information in European Community (INSPIRE directive), see : http://www.inspire-geoportal.eu.

2 “Geographic information literacy (GIL) is defined as the possession of concepts, abilities and habits of mind that allow an individual to understand and use geographic information properly.” (Miller et al. 2005)
2 The Context of Training in France

Like many other countries in Europe, teacher training systems are in deep transformation in France, especially regarding pre-service training. Until a reform was adopted in 2009, teacher training was provided at Instituts Universitaires de Formation des Maîtres (IUFM) after 3 years of university study. The first year was devoted to the preparation for a competitive examination, and the second year consisted of a part time placement of the pre-service teacher in a school and training at the IUFM. But now the reform incorporates the IUFM into universities and creates a special Education Masters Degree. For economic reasons, the reform removes the pre-service period of training. The student begins to teach in real classes just after graduation from their scientific degree, under the supervision of an experienced teacher but without pedagogical pre-service training (SANCHEZ et al. 2011).

In this context we focus attention on in-service training for teachers who are not necessarily well trained in using ICT, although some of them hold an ICT certificate: the Certificat Informatique et Internet (C2i) that students take while at the university in order to attest they have acquired the main competencies in the use of ICT.

3 The Pairform@nce Project

Pairform@nce is a national training project created in 2007 in France in order to renew the professional development of teachers through training. It proposes training packages (called training paths), providing resources for the organization of blended teacher training sessions, using a distance learning platform. The French Ministry of Education makes a national platform available as the main portal to offer access to the training courses. All these courses are duplicated on regional platforms in order to allow trainers and teachers to access the courses and to adapt them according to their needs.

The main goals of the Pairform@nce training device are the following:

- online training paths for teachers aiming to improve their ICT competencies;
- pedagogical and didactical help: ready-made sequences and tutorials in several disciplines;
- in Geography and Earth science, the use of geoinformatics tools such as Google Earth, Virtual Earth, Worldwind, Géoportail or Edugéo.

In the training platform, there are three access levels to the courses. The first level concerns the course developers, who design and implement the resources on the platform. At the second level there are the trainers who use the resources to train the teachers. Trainers can be designers too. At the third level we find the teachers who collaborate together to make lessons plans and to pilot and test activities in their own classrooms.

In 2008 and 2009, the research team (EducTice-INRP) participated in this project to undertake the design of 4 modules (see figure 1):

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3 The Pairform@nce platform which is based on a Moodle platform is available on: http://national.pairformance.education.fr/. For a general presentation of the training device, see: http://www.educnet.education.fr/en/ICTE-training%20/pairformance.
• Module 1: visualising geological and geographical information (initiation level)
• Module 2: using and editing georeferenced data (confirmed level)
• Module 3: investigating and solving a problem with case studies (confirmed level)
• Module 4: leading a geo-project for field work or geo-exploration with geolocation-based games (confirmed level)

In 2010 we evaluated and followed up the appropriation of these courses by geography and earth science teachers.

Fig. 1: Overview of the Pairform@nce platform and the course Virtual Globes n°3

4 First Results of this R&D project

The complete results of this R&D project are available in reports produced for the French Ministry of Education (SOURY-LAVERGNE et al. 2009)4. A summary of the main conclusions of these reports is provided here. Semi-structured interviews were carried out of the teachers and trainers involved in these in-service training courses. According to these interviews, the following benefits and limitations can be highlighted:

Benefits:
• modularity of the training courses
• re-use and reinforcement of ICT in the classroom
• co-designing of the educational activities on virtual globes (for some teachers)

Fig. 1: Overview of the Pairform@nce platform and the course Virtual Globes n°3

4 The research reports on the Pairform@nce project are available at: http://eductice.inrp.fr/EducTice/projets/pairformance.
Limitations:
- difficulty of training themselves during one year
- the platform was mainly used to deposit documents but not to share and to communicate at a distance (with chats or forums)
- teachers spent more time on technical aspects when compared with educational aspects

Although teachers are more accustomed to face to face learning, they appreciated the opportunity to be trained with peer groups and in a collaborative manner. They didn’t use a lot of discussion fora and chat rooms on the platform, but they deposited and shared their resources (especially the kmz files for using Google Earth in their classes). They were able to ask questions of their trainers who were available and answered them almost “in real time”. The flexible use of time and opportunity to have a permanent tutor were two strong points highlighted by the teachers who participated in the online training courses. The teachers found that the Pairformance device was a nice tool, they encouraged other colleagues to subscribe. Beyond these positive aspects, it is necessary to also stress also the aspects which need to be improved, especially the difficulty of reusing resources designed by other teachers and to adapt them to their own specific context.

References