

Multimedia GIS E-Lectures in Multicultural Teaching Context

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Abstract

This article presents the challenges and the problems that the interactive education implementation within the e-campus (Campus numérique) framework and more particularly geographic Information systems (GIS) in a multicultural environment puts intended for diverse trainings in engineering, geography, history disciplines, etc.

Keywords: Multimedia e-lectures, normalisation and adaptability, multicultural educational context.

Introduction

The creation of engineer's AIGEME Master (Computer Applications: Management, Multimedia Studies and e-Training) gathering 17 European, African, Asian and Middle Eastern universities with more than 400 students under the partnership of the French-speaking World University Agency (Agence universitaire de la francophonie, AUF) leads to questioning on didactic aspects.

These theoretical and practical didactic questions are linked to the overall expansion of the on-line education in which the learning of the geographic information systems makes up one of the disciplines and technical tools to be mastered for future engineers specialised in the engineering of sampling techniques, audit and computer studies, etc. In addition, not the core of the training problem distributed in an interactive way as it is generally the case with geomatic discipline. The high number of students, their cultural, disciplinary variety and their training-background level demands the normalization and the adaptability of the Geographic information system education to French-speaking or Francophile students as different as Swede, Portuguese, Senegalese, Syrians, Cambodians, Egyptians, Moroccans, etc. ...

The "French touch" notion is it still relevant as far as educational matters are concerned. The teaching of geomatics as one of the disciplines requires the rethinking of the structure and the contents of the geographic information system courses, also to confront the discipline as well as the tool to other disciplines, which are being taught in order to obtain a surplus of pedagogical and heuristic value. Eventually, the transition from an e-learning type of teaching to a "multimedia e-lectures" one – whether it stands for a progress in terms of didactical tool and knowledge spread then does it answer to the challenges of a mass teaching in broad cultural and disciplinary context?

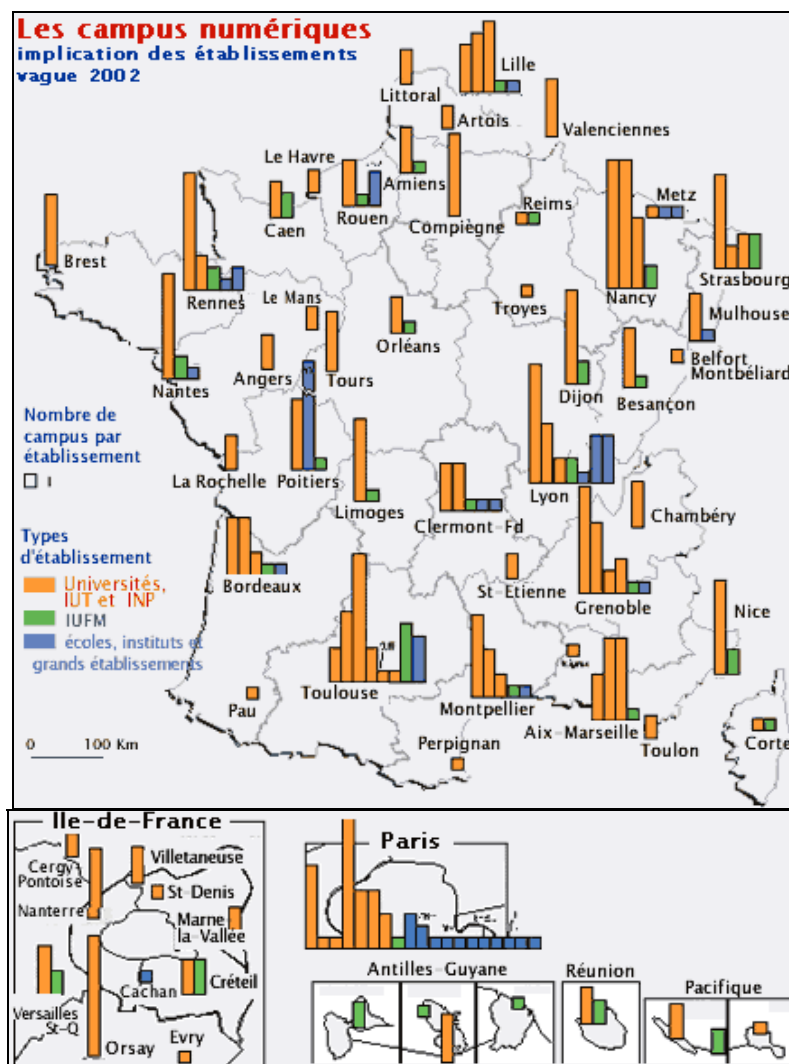
These are as many issues as we would like to approach in the framework of this European Geographic Information Seminar.

1. The French E-Learning Area

1.1. Context

The GIS e-learning courses receive generally 15 to 50 students in Master level. They are for the main part of the unique trainings in geomatics or GIS. These courses are for the main part in English languages and often are paying.

The development of the Internet interactive education in France is something relatively new, at least in the use of this on-line digital support. It is determined to a double national and international institutional policy: The development of one interactive and virtual French-speaking academic network by e-campus interface supports. It has objective to create a real French-speaking scientific area in developing countries by federating the 526 French-speaking universities in the World with the support of the 68 e-campus under construction or operational in France since 2001. For example, since 2 years ago, the Djiboutian students follow their studies of geography by e-learning within the Franche-Comté University e-campus up to License before coming in France. They present better results and level than during their coming in France to study before. The interactive education takes gradually the place of all the educational correspondence courses proposed by the French universities and the Centre national de l'éducation à distance (CNED). These courses are also supplementary training supports of academic educations given to the university or in high schools. They are proposed to the other French universities; or foreign, mostly African, or Arabic (the Maghreb, West Bank, the Middle East) or the South Asian.



Source: <http://www.educnet.education.fr/superieur/campus.htm>

1.2. The Digital Campus Concept

The e-campus objective is to protect the excellence of the French higher education and to modernize it. Its were successively set up from year 2000 to extend over 68 French university sites. Its have for vocation to build a national competitive and quality open and e-correspondence courses offer by the "Formation ouverte et à distance" (FOAD) policy educative concept on the international market to answer needs of the extremely diversified Higher education demand. This trained offer bases itself on new educational services, collectively called "digital working environments". It is about a global device supplying to the educational system actors: students, teachers, academics, etc. It gives access, through networks, it almost totality of the educational and training resources, services and digital tools in touch with their activities with a virtual desk personalised gate. It aims at developing the concept of correspondence courses teaching developed in France for more than one century thanks to the digital supports and at integrating the Anglo-Saxon open education concept as the Open GIS consortium. Three types of interactive educations are defined in France:

- The digital campus: It is a device of modularised disciplinal trainings and lectures combining multimedia resources, the interactivity of the digital environments and the human and administrative environmental university structures necessary for the learning's and for diploma validation.
- The virtual campus: it indicates any Website having for object to go to a community of learning by providing with the educational resources and the corresponding features of communication and collaboration. Some of these sites choose a graphic metaphor representing a physical campus with its cafeteria, its library, its teaching rooms, etc. These are generally a part of the university or the faculty offering on Internet accessible educational opportunities at any time and since any site. This is the equivalent of the Anglo-Saxon e-campus. Among these services, let us mention the on-line courses, the forums, the video conferences. The virtual campus term relates back to a vaster notion, referring to services, which can be not only supplied by Internet, but also by means of the TV or telephone.
- The electronic Campus is educational set services distance accessible, by the intervention of a media, mostly electronic.

The trainings and lectures developed within the framework of the Marne-la-Vallée University digital campus (e-campus) include all these three educational structures: it offers complete Master educations levels combining on-lines resources by means of a virtual Campus and local lectures in 17 Universities around the World. It leans on local relays: the French-speaking digital campus centres.

1.3. The French World Speaking Agency Digital Campus

The French-speaking digital campus (or e-campus) is a technological support platform for universities, high schools, training centres and research laboratories of the developing countries. The main objectives of a digital campus are to improve capacities and education levels of the developing countries and European universities by favouring the co-development and the partnerships in the goals of a mutual enrichment. Theses university network organisations encourage the appropriation of the new information technologies in French-speaking universities of developing countries for e-training projects, production of educational contents and networking. The French-speaking e-campus centres supports the academics reflections on the role and the place of the educational technologies by allowing them to experiment new educational practices between Southern and Northern Universities.

It proposes a French-speaking answer to two major challenges: make compatible the growth of the student workforce and the quality of the education and the diplomas; raise the level of the education and the research without increasing the costs in an exponential way. To answer it, a field of "reasonable" intervention was chosen: an intervention centred on new educational methods, on new manners to produce the knowledge and to give it. The current context is characterised by the massive arrival of digital tools but these, notably through the explosion of the Internet, bring the major risk of hegemony of the English-American to the detriment of the multilingualism and of the plurality of the cultures. For the French-speaking World Agency, there is thus the third challenge: implement the technological means and create the offer of educational contents capable of being the vectors of an effective answer to the Southern university crisis. It makes it by associating strictly academic teachers and researchers of the South so that these have the possibilities of redefining their role instead of being gobbled up in the world market of the virtual knowledge. The French-speaking e-campus centres organises itself around an access centre to the scientific and technical information for the databases consultation, teaching document order, the access to the French-speaking university resources. This is a centre of resources and educational production

intended to conceive, to realize scientific contents in French. Academics find the technological means there - computers, software's, network - and human beings - advices, e-trainings to produce contents of education in digital form. These e-campus include auto training rooms where students can follow on-line programme diploma suits with the French-speaking partner universities, or learning modules lectures additional of the traditional university lectures. The educational environment of the device is assured at the same moment by a local tutelage and on-line.

It is in this double French university e-campus organisation and digital Campus of French-speaking World Agency that are developed the GIS courses, lectures and training. The goal of this Master is to teach audit, multimedia and database in the use of GIS tools and geographic information. It goes by means of the Marne-la-Vallée University digital Campus to the French students and 17 African, Arabic, Georgian, Portuguese, Cambodian partner universities. The native student's management are made in the UMLV; the students were situated abroad in the e-campus of the French-speaking World Agency.

2. Challenges of the Interactive Education

2.1. An European Modular System

The projects lean on an engineering of innovative e-training, conceived in a modular way, to allow individualised courses. The training courses become flexible, in coherence with the implementation of the ECTS (European credits transfer system); bridges are established between the initial training and continuing education with the Validation of the Professional Experiences. It aims at generalising the experimental studies led between the French universities, the suppliers of on-line contents and the African universities. These experimental studies show that the followed interactive training is considered for the wide majority of students (most than 85 %) as superior or equivalent in a classical university-teaching mode.

2.2. Overall Expansion and Individualization of the Post-graduate Educations

However, this individuation of the educations keeps pace with them the overall expansion of the educations in GIS. The GIS ECTS lecture module receives 250 to 300 students from 17 universities stemming from different educational programme. It puts three types of problems: the contents of the educations and their updates, the consideration of needs and the local geographic information systems uses, and the management of the students. Because of the relative delay of the French academics in the GIS interactive education, the first year bases itself on a linear educational structure "lessons-exercises". It is added by the integration of basic interactive tools: Forums, per-to-per dialogues sessions with the academic teacher, the mutualisation and the use of the on-line interactive software editor resources or the digital French-speaking reviews in GIS and geography. The practical exercises return level determines the passage to the following session. He allows the student to assimilate and to progress at its pace. He also allows basing a minimum level of qualification in the control and the acquisition of GIS tools and methodologies.

The contents of the educations are updated every year. The objective is to have a new GIS educational content every four years. The objective is to proceed to a renewal of the contents every four years to ensure the training level, add the contents and take into account feedbacks. The lecture contents also answer the standards of interactive educations defined by the French Standard Authority (AFNOR) since April 2004.

The multimedia supports integration is foreseen from the academic year 2005-2006. It is depend on negotiation for technical reasons essentially. Not all the African universities of developing countries are equipped with Internet very high large bands. This situation is partially resolved by a partnership with Alcatel Space. The network operator supplied of the French-speaking World e-campus centres very high Internet debits accesses by satellite.

The main problem is that of the frame of 250 to 300 students and their follow-up by a single academic teacher who is supported in theory by teaching assistants. It is double: the presence or teaching assistant absence capable of following the students. There are in 17 European, African and Arabic universities the skills to supervise the GIS students? The very strong demand registered since April-May by the French-speaking students puts in evidence under professorial size of the e-campus with regard to applications for

training. This situation is stressed by the status of the academic teachers. The speakers are academics and researchers making extras lectures.

2.3. GIS Teaching: Geographical Specific Environmental Applies

The education of the geographic Information systems is subjected to three relatively new constraints for the French university education system. The education in geomatics is a module (ETCS) among the other disciplines concerning data processing, computer sciences and databases analysis. Its contents have to become integrated and join to the other materials and disciplines to answer at the training goal. This one must be also conceived in a modular way. This education is proposed to the other universities and e-campus within the framework of the educational resources mutualisation policy of lectures. This GIS education also has to answer the specific needs of the Master's students situated in foreign countries. The use of the GIS is not the same in France, in Georgia or in Egypt. It answers different waits in the domains of the town and land planning, the geomarketing or GIS researches approaches in history or in geography disciplines. These waits and the needs varieties are synthesised around a concept: The GIS Multi Cultural Context Teaching. The interest is to adapt the educational contents to the geographic context in the professional domain of application of use. Nevertheless, especially, to propose specific methodologies of computing and spatial analysis models in each domains of applications in different geographic and informational environments. A project of town planning is not processed in the same way in the Lebanon or in France first because of the available geographic data and of the local legislation; second, then in the part, the spatial configuration heritage and the project of town planning in it. To "stick" on the geographic, informational and political reality of the geographic field of application is a necessity. The acquisition of GIS spatial analysis tools and methodologies passes at the same moment by the practical control of tools and capacity to set up processing and analysis methodologies in a local application context. Every interactive lecture organises itself around three modules: the first one common to all concerns the theories and the concepts relative to the GIS and on the practical control of the various functions and the use areas. Second, more specific, aims at giving a specific geomatical culture to the domain and to the field of application of the GIS tool by the analysis of available digital articles, working papers and reports. The third, applied, has objective to put the student in a real application situation in the geographic and professional environments that will be. The quality level of GIS products from practical exercise that ends the passage in the following chapter of run GIS education.

3. Report and problems

3.1. The Teaching Managerial Staff

The quasi-totality of the students is partially followed at least and helped by a teaching assistant. He has mainly in responsibility the support of their difficulties on GIS learning in local French-speaking e-campus centres. This human resource is very appreciated for its skills raises problem on the other hand by its availability and its ability to react. This lack spatters and strengthens the main inconveniences advanced by the FOAD: But, often, the lack of follow-up and support, the difficulty remaining motivated and the difficulties of organization in the work. Numerous academic teachers (from 25 to 30 %) declare to perceive no payment. What is not the case in the UMLV e-campus. E-GIS course is paid as academic book. However, the main problem is the content interactive lectures protection produced in the different digital campus. Must be protected on academic books example? The absence of coherent academic status and with the code of the intellectual property is the second problem. It seems that a legal and statutory evolution is necessary to support the motivation of the academic teaching on the questions of the intellectual property and the academic status toward the e-campus educational success.

3.2. Didactic and Educational Ways

The produced educational contents are generally of very good quality. They like at the French university education level, that in the acquired experience since the end of the XIXth century in the correspondence teaching. Numbers of educational resource limits come from writing, production to digital formats educational supports stemming from current academic lessons and practical educations like for correspondence learning. The interactive educations produced are the shapes of textbooks answer probably more the requirements of the on-line interactive educations. However, they do not integrate the interactive lessons features. Does multimedia CD-ROM produced as helped support of additional

interactive educations of colleges and gymnasium levels present the most adapted interactive multimedia didactic and educational structure? Their systemic organisation has the advantage to oblige the students to master, to connect, to interface the functional GIS modules and to answer a specific application. It allows the student to acquire the GIS functional aspects and to develop analysis and geographical data processing methodologies. It completes the linear interactive GIS e-education "lectures and exercises" pedagogical and didactical organisation. This most collectively educational structure suffers from the not integration of all the multimedia supports as the video, the interactive forum, CD-ROM, etc. However, it has the advantage to immerse the student in a common logic of learning since the school. The access to the geographic information system software used in a professional context by the student was the main preoccupation in the implementation of the GIS interactive educations. The software is in free use and downloading during e-training period.

3.3. Toward a European Federal Digital Campus?

Actually, the French e-campus international development is above all French-speaking centres. European collaborations are rarely envisaged even if for the most part of the partners, the opening in the international is a priority objective for the future. This would also allow in e-campus to be next to International e-campus maybe more advanced in their projects of e-learning and so to make the whole offer of French GIS open e-trainings progress. The creation of a federal structure of digital campus support service in a structured federal networks organisation, for mix common resources seems the priority.

Conclusion

The use of the digital campus for the GIS interactive e-teaching answers an exponential need of training, upgrade and information. It also answers an increasing individualisation of the educational background and a need of the students to collect under the same training structure GIS and GI - geometical academic information: combining training and information in academic lectures. The introduction of the flexibility and the transverse open educational methodologies in the French university come up against at present with two aspects:

- The professionalisation and the academic status: This is easily surmountable thanks to the experience in the correspondence teaching acquired from 110 years. Digital campuses are likened as supplementary didactic tools to for academic readers, but still no much as a new educational logic of transmission of the knowledge.
- Economic: the French interactive education has to position and think as an economic actor of knowledge production and distribution in front of the other European and international private companies and universities, which are already in competitions and in the capitalist scheme market. The free open education gives it in French e-campus an attractive positioning in the strategic World market of geographical knowledge.

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