Integrating Cultural and Language Development with Technology in Curricular Design

A Foreign Language Learning Case Study from a French Teacher Training College

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Abstract: This paper examines the problematic issue of how to integrate Information and Communication Technology (ICT) tools and skill development into the language curriculum. It reports on a case study which was conducted at a French teacher training college where changes to curriculum requirements meant that generalist trainee primary school teachers had to acquire proficiency in teaching English as a Foreign Language for the first time. ICT provided an effective alternative solution to classroom instruction. The study found a range of benefits from ICT and curriculum integration: greater student motivation and greater pleasure in study, more practice in the English language and a much broader cultural competence, as well as the development of a range of ICT competencies.

Keywords: Information Technology Integration, Educational Technology, Foreign Language Teaching, Teacher Education, Linguistic and Cultural Curriculum

Introduction

THE QUESTION OF the integration of Information and Communication Technology (ICT) in curricular design is tackled here from a specific perspective: its potential usefulness for teaching and learning (Tardif, 1998). In order to build technological skills for tomorrow's workforce ICT should be linked to all subjects taught in the classroom, but this needs to be consistent with the teaching and learning strategies for those subjects (Linard, 2000). If technology is to support education – and not to be a mere add-on – then, it has to be conceived from a pedagogical angle, i.e., joining epistemological issues both from the field of ICT and from the subject being studied (Deyrich, 2005). This collaborative approach, linking curricular development and ICT use, can prove constructive for teachers and learners alike. Within this framework, qualitative explorations of new virtual possibilities for learners and teachers can be implemented and assessed.

The integration of ICT must be situated within the more general framework of technological evolution in the education system. This includes issues of technology provision as well as less well understood factors impeding integration. It is widely acknowledged that, in spite of the ever-growing presence and accessibility of computers in educational institutions, diffusion of innovation in the field of educational technology is lagging behind practices in other fields (Cuban, Kirkpatrick & Peck, 2001). Additionally, strong barriers to technology uptake have been reported (Robinson, 2005). Even in foreign language teaching and learning there is a much lower use of ICT in the classroom than one might imagine, given the many digital resources that have been developed and the many advantages that have been demonstrated from using ICTs, such as access to native speakers and "authentic" language, enhancement of the cultural experience in the classroom, real possibilities of differentiated and individualised learning (Becta, 2004), as well as the development of ICT competencies.

This article presents a case study of the integration of ICT in a foreign language curriculum. The context of the study was a French teacher training college involving student teachers who were studying English as a Foreign Language but were not specialists in the language. The research was conducted between September 2004 and May 2005 at the Institut Universitaire de Formation des Maîtres (IUFM) of Nîmes, a small teacher training unit for primary school teachers. This followed a new request from the Ministry of Education that all primary teachers would have to teach a foreign language in their own classrooms from that time on, starting in CE2, i.e., the third year of school (MEN, 2002). For most of the teachers this language would be English.

The consequence for IUFMs all over France was that all primary teachers had to be trained to become foreign language teachers. The task was rendered extremely complex by the fact that the great majority of the trainee population had not taken any degrees in the foreign language they would soon have to

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teach. In addition, the trainees lacked motivation to develop competencies in an area which they felt they should not be teaching at all: in reality, they had not chosen to be language teachers and were all too aware of their deficiencies in this area. Moreover the staff in charge of the training found that problems incurred by the low levels of the trainees' linguistic skills and cultural knowledge were worsened by the inadequacy of the means allotted: a total of 25 classroom hours for linguistic and cultural reinforcement over the entire university year. All this obviously had a negative influence on the group.

Consequently a quest began for alternative solutions to face-to-face teaching. Firstly, it was decided that the motivational problem could be solved, at least partially, provided trainee teachers spent time on interesting research projects. Secondly, the issue of the inadequate hours of instruction available in the timetable could most obviously be addressed by using asynchronous technologies that would allow supplementation of classroom instruction with learning in the students' own time. As a result two technological platforms were adopted: the Internet as a vehicle for the students' research projects, and a collaborative e-learning system to foster communication and management of the learning process.

This article begins by briefly placing the case study within the context of the literature on ICT integration in foreign language teaching in France. This is followed by a description of the design of the new course and an evaluation of its implementation. Given the lack of ICT integration in customary teaching practices, particularly in the French educational system, the authors believe that the knowledge generated by the research should be of interest to the academic community in the disciplines of foreign language teaching, teacher training, and educational technology. It provides a largely successful example of ICT and curriculum integration which derived from pedagogical and practical considerations rather than being imposed for technology's sake.

The Integration of ICT in Foreign Language Teaching and Training: The French Experience

There has been an increasing focus on languages in French schools over recent decades. In 1974 only one foreign language was compulsory (at secondary school level), increasing to two languages by 1998 (Eurydice, 2001). Recently a foreign language has been introduced as a compulsory part of the curriculum in primary schools (MEN, 2002). In nearly all schools the language taught is English. Its teaching is carried out by the teacher in charge of the classroom – not by a specialist of the discipline, as in most other countries. In France, the importance of both linguistic and cross-cultural competencies are emphasized (Eurydice, 2001).

There has been a massive investment in digital technologies over this corresponding period, with France leading Europe in the provision of certain ICTs, for example, in ADSL fast Internet connections. This national "network readiness" supports ICT installations at all levels of the education system.

However, some authors have questioned whether the outlay on ICT in the education system is worth it, since many surveys demonstrate an imbalance between ICT investment and the slow, often marginal development of matching educational practices (Chaptal, 2000). According to one French report only a quarter of teachers interviewed have integrated ICT into their teaching (PNER, 2003). Changes to teaching, to foster e-inclusion, have been experimental and piecemeal.

Studies on the use of computers in the teaching population have shown that there is a wide gap between private and pedagogic uses. Although a great majority of French teachers use computers at home (to prepare lessons, communicate with colleagues and friends, search the Internet, and conduct personal business), only a few of them use ICT in their lessons. While 71% use ICT to develop teaching materials, only 6.1% integrate these resources into their lessons "very often" (Do & Alluin, 2000). The discrepancy between the systematic use of ICT outside the educational institutions and the lack of transfer to educational practices is striking (PNER, 2003), and suggests that a lack of computer skills among teachers is not the main issue. One European report proposes that the major reasons for lack of transference among foreign language teachers is inadequate access to ICT facilities at their institutions, and inadequate training in how to apply ICT to language teaching:

> "... the use and deployment of information and communication technologies in language teaching and learning is far from satisfactory as ICT resources are traditionally reserved for '(computer) science' subjects, and rarely assigned to arts subjects. A general lack of appropriate training of language teachers in meaningful uses of ICT tends to strengthen this trend." (Fitzpatrick & Davies, 2003, p. 17)

In response to this problem, the Ministry of Education has recently introduced the C2i (Certificat informatique et internet – IT and Internet Certificate). Level one of the C2i will soon be required by all candidates sitting teacher-training entrance exams to ensure that teachers are computer literate. Level two will be granted after training at the IUFM and

will focus on how the new technologies can aid in teaching and learning (MEN, 2004).

Despite the low levels of ICT integration in most foreign language classrooms in France, there have been a few interesting experimental implementations reported in the literature. Two have exploited the communication capabilities of ICT to establish links with institutions in English-speaking countries. The first of these showed how children at the Ecole Sanquer talked and sang songs with their counterparts at a primary school in Britain via a videoconferencing system (Arnold, Cayley & Griffith, 2002). Communication was spontaneous and direct, as children could see who they were speaking to and had a motivation to speak. In a second case study, cultural discovery was the main focus, in particular the exploration of the "invisible" elements of culture: attitudes, values and concepts. University students at the Institut National des Télécommunications in Evry viewed multiple objects on the same screen and discussed these with their counterparts in the USA via a discussion forum in an act of reciprocal co-construction (Furstenberg, Levet, English & Maillet, 2001). In a series of studies in senior secondary, university and vocational education, Bernard Moro at the University of Grenoble explored a variety of ICTs to support foreign language learning, including laptops to provide direct access to Web resources such as dictionaries and other reference tools; and a virtual language centre, which provided resources while students received tutoring through a collaborative e-learning environment (Fitzpatrick & Davies, 2003). His studies demonstrate the richness of materials available through technology and their ability to impact language learning.

Notably absent from these French studies is the investigation of ICT integration in foreign language teacher training. Although there are some studies available from other countries, these focus on the education of specialist foreign language teachers (see, for example, Fitzpatrick & Davies, 2003), and so are not directly applicable to the situation in France's IUFMs, that is, the training of non-specialist primary school teachers. Most importantly, the exemplary studies described above do not show the much bleaker reality of foreign language teaching at the average institution. There are real questions over the feasibility of such endeavours: fully equipped multimedia laboratories, videoconferencing equipment, and laptops for every student would be beyond the resources of most foreign language teachers. The issue then remains how to integrate *ordinary* ICT practices into foreign language teaching and learning.

Preliminary Investigation

Prior to implementing a new language curriculum, as required by the Ministerial directive, the researchers conducted a preliminary survey of the trainee teachers to ascertain their existing knowledge in the subject area of English. A lack of competence was observed relating not only to language but also to cultural understanding. When asked to list cultural themes concerning English-speaking countries which they thought would be of interest for their teaching, it was discovered that those most often cited were extremely clichéd and included such things as the Queen, Christmas and Halloween, and various culinary eccentricities (see Figure 1).

Theme	Percentage of Trainees Listing this Theme
1. The Queen / monarchy / royal family	90%
2. Christmas	87%
3. Halloween	85%
4. Red buses / black taxis / red pillar boxes	80%
5. Food (pudding, cheese cake, jelly, etc.) and tea	80%
6. Thanksgiving	46%
7. The Beatles / U2	30%
8. Pubs and beer	25%
9. Big Ben / Tower Bridge	22%
10. Polo / cricket / football	20%

Figure 1: Ten Most Quoted Cultural Themes about English-Speaking Countries

The profound ignorance observed in the inquiry might be ascribed to a variety of reasons, such as lack of curiosity and a desire to conform. However, when interviewed, many trainees laid the blame on the lack of access to interesting data and most of them said they did not know which books they should consult. Moreover, for this younger generation books seemed out-of-date, especially when the subject was not of their own choice.

From this preliminary investigation three issues emerged:

1. The need for linguistic and cultural development of primary teacher trainees
2. The need for access to interesting, varied information
3. The use of ICT, such as the World Wide Web, as the means of access to interesting cultural information.

Course Design and Implementation: Linking ICT and Foreign Language Teaching and Learning

To deal with the problem a new module was introduced. Through the use of ICT, it combines the development of English language with the exploration of minority cultures in the English-speaking world. By focusing on the latter it was hoped to draw trainees away from cultural stereotypes. Course design was targeted at two levels of development: Phase 1 considers the trainee teacher as a language learner who should master a minimum of linguistic and cultural competences; Phase 2 regards the trainee teacher as a future teacher who will have to transform linguistic and cultural concepts into pedagogically coherent activities for the children.

The design of the new course was founded on three principles:

1. Information technology alone cannot generate learning: a blended approach is needed involving pedagogy and technology planning alike (Drossos, Vassiliadis, Stefani, Xenos & Sakkopoulos, 2006; Jackson, 2004; Warschauer, 2003).
2. As the learner has to move from one linguistic and cultural system to another, which is very demanding, the tasks should be motivating, varied and adaptable to individual needs (Deyrich, 2005). This also fits with the motivational problems experienced by the trainees at the IUFM, as outlined in the Introduction.
3. Trainee teachers need to experience activities as learners and develop a reflexive attitude in

order to adopt the right critical distance when teaching children (Narcy-Combes, 2005).

The team consisted of five people: one administrator, three tutors and one technical adviser. Within the framework of a collaborative learning system, a web-based course devoted to semi-autonomous learning was designed. It was entitled "*Module transitoire pour les PE2: renforcement linguistique et culturel*" (Transitional module for trainee-teachers in primary schools: linguistic and cultural reinforcement in English) (see Figure 2).

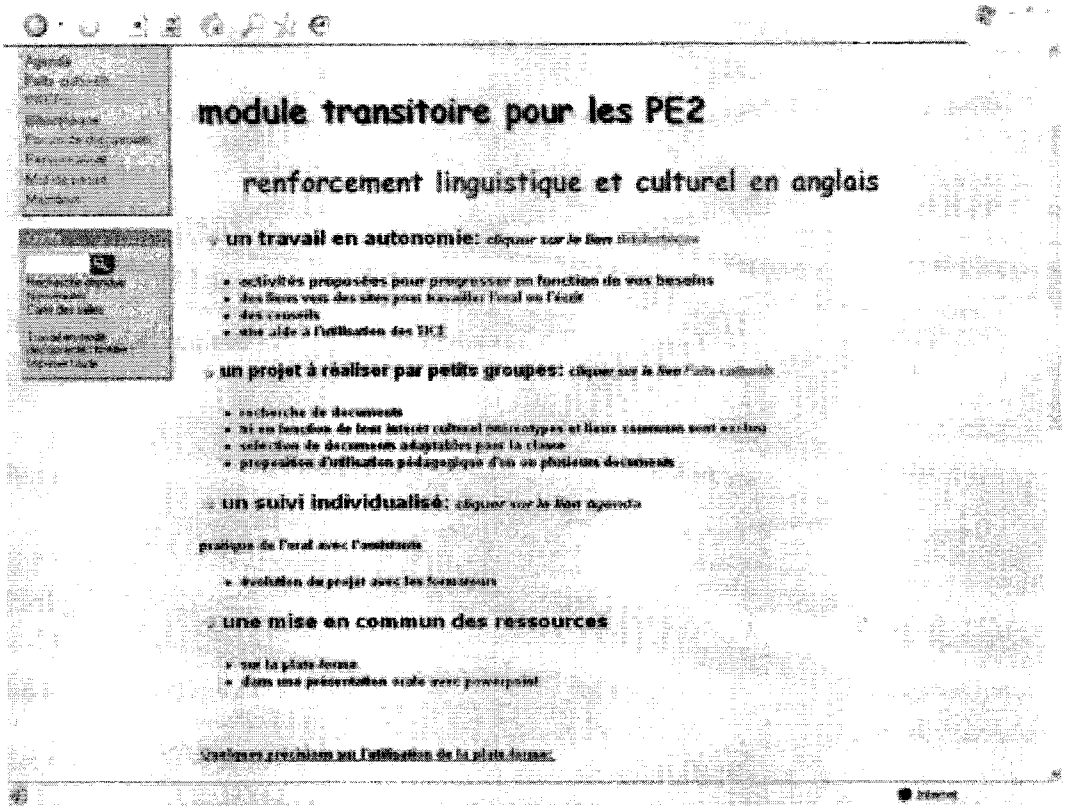

Figure 2: Opening Page of the E-Learning Platform

The architecture of the platform was tailored to meet the module's specific needs. As the opening page shows, the Agenda facilitated programming of activities and the Discussion Forum was used for support and customization. The instructions are given along four lines:

1. Private study following individual needs: assessment of written and oral English; activities and exercises; online tutorials to improve their English and their computer skills
2. Group work about culture in the English-speaking world: searching the Internet for documents selected and sorted according to their potential interest for exploitation in primary schools (stereotypes and clichés excluded)
3. Individual follow-up and feed-back
4. Sharing of resources collected, both in one of the virtual classrooms and in a PowerPoint presentation.

The tasks given to the trainees were twofold (see Figure 3).

Individual Work	Group Work
Linguistic reinforcement Development of ICT skills	Project elaboration aimed at curricular implementation *Theme*: Exploration of cultural diversity in the English-speaking world
PHASE ONE AND TWO: Assessment in English: • Pre-test • Post-test Activities and exercises: • Practice of oral skills • Practice of written skills Consultation of online tutorials: • Language learning strategies • Computer skills and website selection Giving feed-back in English via the forum: • About their performance: • English language skills • ICT skills • About one of the projects	PHASE ONE: Selection of a theme which: • They would like to know more about • Could be of interest to their pupils Exploration of information on the Web • Upload of a selection to platform • Production of short synthesis in English PHASE TWO: Production of teaching unit on the subject: • Detail of activities • Vocabulary needed • Establish links with other subjects in curriculum Sharing of the project: • Upload of complete file to platform • Short oral presentation with PowerPoint

Figure 3: Trainee Teacher Tasks

Implementation included:

- Training
  - Initial explanation of Project objectives, and training in use of the e-learning system.
  - Ongoing monitoring by tutors of trainees' progress via the discussion forum, including private meetings on request to deal with difficulties in comprehension or pronunciation.
  - Access to online tutorials.
- Individual Work
  - Tasks self-selected from exercises provided on the system, with selection according to needs identified in the pre-test (oral and/or written skills).
- Collaboration
  - Preliminary work on documents and information on their group's chosen topic.
  - Refining their selection to create two data banks: documents for their own cultural understanding, and those for future exploitation in the school room.
- Oral presentation (group work)
  - Explanation in English of their cultural research project and why it was interesting.
  - Proposal in English or French of activities for children linked with the chosen subject.
  - Whole-class discussion allowing revision of documents before putting them on the platform as a data bank for all trainees.

Project Evaluation

Methodology

Evaluation of the Project focused on achievement of pedagogical goals rather than statistical significance since the module was taken by 60 trainee teachers only. The analyses are thus mainly qualitative. Data was collected from:

- A preliminary anonymous questionnaire completed by all trainees
- Pre- and post-tests of linguistic skills
- Interview of one person in each of the 15 groups (longitudinal data)
- Some feedback on the platform
- Evaluation of the completed projects uploaded to the platform
- Notes taken during the oral presentations
- An anonymous questionnaire completed by trainees towards the end of the Project.

Findings and Discussion

- Development of Cultural Competence

The analysis presented here derives from the trainee teachers' completed cultural research projects available on the collaborative e-learning platform and also displayed at the oral presentations, and from the interviews. It addresses primarily the question of ICT integration and its impact on cultural and pedagogical competence.

A selection of 5 group projects (out of a total of 15 completed projects) shows that cultural diversity was interpreted rather freely (all continents, inclusion of cultural minorities) (see Figure 4). The 10 other themes that were treated confirm this: Australian Aboriginal art, Maoris and tattoos, the Maori Haka, the didgeridoo, the game of netball, the Caribbean tradition in Notting Hill, gospel singing, sugar cane, Irish legends and Hawaiian dancers. It is very different from the stereotyped vision they had prior to attending the course.

Themes	Phase 1 Research and Transfer on The Platform		Phase 2 Lesson Planning and Activities		
	Language/ Culture	ICT Integration	Language/ Culture	ICT Integration in Presentation	ICT Integration for Children
GROUP 1 Diversity in Great Britain	Emblems and traditions	Adequate	Geography, songs	No Powerpoint	Emblems and flags from the Internet on handouts
GROUP 2 Native Americans	Traditions and crafts	Good	Dreamcatchers, legends	Good	None
GROUP 3 Rugby	Sports, rules of the game and specific vocabulary	Adequate	Geography, legend, physical education	None	• Websites of rugby teams • E-mail to the players
GROUP 4 Inuit culture	Inuit habitat	Problems with the platform	Building an igloo, science, story telling	Good	None
GROUP 5 The Asian community in the UK	Film: Bend it like Beckam, immigration in the UK	Good References to a great diversity of websites	Geography, immigration in the UK	Adequate	Research on the Internet about India, about the UK

Figure 4: Five Selected Cultural Projects Showing Cultural, Linguistic and ICT Skills

Some projects also managed to develop the cultural material into activities for children. For example, one group found that the game of netball, which is nearly unheard-of in France, could be explored via the Web and developed into challenging activities in physical education and geography, as well as in English as a foreign language.

In general, the trainees acquired a sense of familiarity with the subject, which they tended to master both conceptually and linguistically. As one trainee teacher stated:

"I know so many things about igloo building."

- Development of Linguistic Competence

Development of English language competence was assessed via the pre- and post-tests which trainees completed before and after the course, the demonstration of language skills on the collaborative platform, in their cultural project files and in the oral presentations.

A comparison of the post-test results with the scores on the pre-tests shows that most trainees had improved in the written comprehension test (except for 7 of them); the grammatical improvement was insignificant. This contrasted with the written tasks performed during the course, where all trainees displayed a globally satisfying mastery of the lexical fields they had chosen to explore and nearly half of them reinvested syntactic structures in correct sentences.

An interesting outcome of the course design and the use of asynchronous technologies was the amount and complexity of English that the trainees had to use. On the whole, the research

projects led them to work more than in ordinary lessons and, consequently, to handle much more English language. One student commented:

"My research took me an amount of time which I considered unreasonable compared with the importance of language teaching in the primary school curriculum. And all that in English!"

Indeed, the status of the language they were studying changed dramatically: from a set of rules, structures and lexicon, it clearly became a means to gather useful information. It became richly contextualized in the topic they were researching.

- Development of ICT competence

ICT skills were assessed:

1. In Phase One: the ability to appropriately select pertinent and varied elements from the Internet, to transfer data to the platform, and to use a word processor. For the great majority, ICT competence was reached.
2. In Phase Two: in the lesson preparation and presentation. Some trainee teachers encountered problems in transforming what they wanted to say into slides: the technical element added another difficulty to the already uneasy situation of having to speak in English.

Overall, most trainee teachers were conscious of the evolution of their attitudes towards ICT. To quote an example from the final questionnaire:

"The use of the Internet in a project in English intended for an oral presentation allowed me to get a fair amount of documents. I started to have a liking for the Internet because up to now, I used it only rarely."

- Integration of ICT in Teaching Practice

The staff involved in the Project found that the experimental integration of ICT in the curriculum had a direct and positive influence on the development of competencies that trainees should acquire as part of the C2i (MEN, 2004), notably in the following areas:

- Mastering of a professional digital environment: choice and use of adequate resources, and of the appropriate means of communicating
- Professional responsibility within the e-learning system: adapt one's mode of communication according to different recipients, and abide by the rules
- Integration of IT in teaching strategies: research, produce and share documents, information and resources, within a digital environment.

One stumbling block was, however, in the integration of ICT into the activities for children. Mostly the activities seem to avoid ICT. The research about India and Britain, for instance, could have been done the same way from books: ICT does not add any value in this case. There is only one example of integration in this sample where children work with ICT: research on rugby clubs which is aimed at communication with players through email. This illustrates one of the limits of the experiment: ICT should be examined in terms of added value and not as a substitute. On the other hand, it should be remembered that a change in habits takes some time in the teaching population. Examples of good practice could encourage a progressive change in attitude.

- Evolution in Learning Attitudes

The questionnaires completed towards the end of the Project revealed that the learning approach was mainly guided by some pleasure of discovery. ICT was experienced as recreational by the majority during their research, and their exploration of cultural facts led them far further than they would have imagined:

"Having no computer at home, I did my research directly at the university, when there were computers which were accessible!!! I however managed to find lapses of time when I could quench my thirst of knowledge, Maori, a culture which is filled with knowledge and hidden talents, all of which I will of course have the pleasure to unveil during my oral presentation."

Another point worthy of interest is that a certain degree of autonomy seems to have been reached – although autonomy was not originally considered a priority in the Project.

- Integration of ICT in the IUFM Curriculum

Working with ICT took more time for the IUFM teachers running the experimental course than delivering face-to-face lessons. Preparing the platform, answering messages, and meeting groups all took time. Technical problems had to be sorted out, such as the difficulty in the complete team of organizers having access to all the virtual classrooms: the limitations of the platform were such that only the registered administrator was allowed everywhere. The

occasional lack of accessibility of the server posed problems for trainee teachers who did not have Internet access at home (around 30%). Integration of ICT into the curriculum was thus more complicated than expected. However, it also proved richer than anticipated: for example, the use of PowerPoint, which seemed formerly superfluous, has now become customary in lessons.

- Problems to Be Addressed in the Future

This preliminary study will serve as a basis for a further study in 2005-2006. The significance of the initial findings has to be tested again in order to check their validity. Limitations of the current study concern the excess number of variables due to the complexity of the task, technical problems which affected the trainee groups differently, and the need to define tasks for the tutors more precisely so that they are not interpreted in various ways.

Research problems should also incorporate the affective dimension more overtly, since distance education posed real problems for some trainees who felt at a loss despite the guidance. Questions about the role of the tutors and about more accessible task design (setting sub-objectives for example) should therefore be on the agenda.

Conclusion

Integration of ICT in curricular development can prove both appropriate and beneficial in teacher education. This is particularly so in language teaching where it offers tools for a greater individualisation of work as well as a wealth of information to broaden the scope of cultural competence. It can make available solutions to didactic problems which cannot be settled by traditional face-to-face means (Karsenti & Larose, 2001).

The experiment at the teacher training college showed the problems brought about by the new requirements regarding foreign language training for primary school teachers could be solved. Firstly, the autonomy afforded by the collaborative learning system and the Internet allowed the expansion of the inadequate 25 hours provided for face-to-face teaching: students spent far longer working on the module in order to complete it. Secondly, the initial lack of motivation and resentment of the trainees, which derived from their lack of interest in English teaching and their knowledge that they lacked the necessary competence, became a thing of the past since they were given multimedia tools to work with which they normally used in their everyday lives and enjoyed using. Thirdly, the Internet opened up a rich resource of up-to-date cultural materials which they could share through the collaborative platform with fellow trainees and which they could continue to access from the schools where they would be assigned to teach, in contrast to the limited libraries which those same schools would be able to provide. Most importantly, they acquired new competencies in English language, in anglophone culture and in ICT which they would be able to pass on with a new enthusiasm to the children they would be teaching. Their acquisition of these competencies had taken place in the context of the integration of ethical values towards cultural diversity and minority cultures in the English-speaking world and hopefully they will carry these forward to their new positions as well.

In this study, the integration of ICT into the curriculum required a collaboration between the pedagogy of English as a Foreign Language and that of ICT. The successes of the teaching and learning were brought about by a carefully planned use of computer technology and integration operating on a number of levels. The research project will be renewed next year to understand the limitations and difficulties of the approach and to explore the integration process more deeply.

Acknowledgements

The authors would like to thank the Research Department of the IUFM de l'Académie de Montpellier, and particularly Alain Lerouge, who supported the project; Patrick Demougin, Head of Nîmes Teacher Training Centre at the time (now Head of the IUFM de l'Académie de Montpellier), who defended the project and accepted the difficult timetable transformations incurred by the change in curriculum; the trainee teachers who proved patient and collaborative; and our colleagues (Gilles Dieumegard, Elisabeth Dumas-Domergue and Sabine Ulrich), who readily gave some of their time for the experiment.

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