Implementing an international web-based collaborative learning environment

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Abstract

This paper reflects on the authors’ experience in creating a collaborative web-based learning environment for school students in immersion programmes on three continents. This work was carried out in the context of a longitudinal research project over three years, aimed at investigating the effects on the proficiency of French immersion students in Australia of collaboration via the Internet with their counterparts in France and Canada. The students worked together on the joint production of a bilingual electronic journal in French and English, the French speakers helping the English speakers with their French and vice versa. The paper begins with a brief discussion of collaborative language learning, particularly in relation to the World Wide Web, and an overview of the project and its aims. This is followed by a description of the challenges encountered in the implementation of the learning environment and the ways in which these were addressed. The final part outlines the outcomes identified so far in assisting the participants to exploit this web-based environment for meaningful language learning.

1 Introduction

Traditional approaches to language teaching are not well suited to the development of the high levels of functional proficiency required if a language is to be a useful means of communication. By contrast, immersion programmes, in which a foreign language is used to teach regular subject matter – such as maths, science or history – have proved to be very successful, achieving unprecedented high levels of foreign language proficiency, without negative effects on the students’ progress in the subjects taught via the foreign language (Chappell & de Courcy 1993; Genesee 1987; Krashen 1984). However, while immersion students outperform students taught by other approaches, in terms of grammatical accuracy and sociolinguistic appropriacy (appropriate levels of politeness, formality etc.), their language use falls short of native-speaker norms (Hammerly 1982; Harley 1984; Lyster 1987). It has been argued (Lyster 1987) that this is due to the fact that students communicate for the most part with their peers, who are at a similar level of target-language proficiency, and with teachers who often overlook grammatical errors if the student’s subject matter is correct.

One of the most important advances that the World Wide Web has introduced into language teaching has been the possibility of getting in touch with on-line resources from the countries where the target language is spoken, as well as with native speakers. The Internet can promote collaboration among international students synchronously and asynchronously (Shield 1999), and add a new learning dimension to the language classroom, which allows the possibility of collaborating with native speakers in order to improve language and cultural learning in a meaningful way (Blin 1999; Levy 1997; Warschauer 1997; Warschauer & Healey 1999). It is this new dimension that offers the
possibility of overcoming problems, such as those identified in immersion programmes, which result from lack of interaction with native speakers.

This paper reflects on the authors’ experience in creating a collaborative web-based learning environment for school students in immersion programmes on three continents. This work was carried out in the context of a longitudinal research project over three years, aimed at investigating the effects on the proficiency of French immersion students in Australia of collaboration via the Internet with their counterparts in France and Canada. The students worked together on the joint production of a bilingual electronic journal in French and English, the French speakers helping the English speakers with their French and vice versa.

2 Collaborative learning and the World Wide Web

In the last decade we have seen an increased interest in the area of collaborative learning (Totten 1991; Nyikos and Hashimoto 1997). According to Littleton and Hakkinen:

Whilst the terms collaborative and cooperative learning are often used interchangeably, collaborative activity requires more than the effective division of labour that constitutes cooperative work. Collaboration necessitates that participants are engaged in a coordinated effort to solve a problem or perform a task together (1999: 21).

In the language-learning context, collaborative learning has been shown to be particularly beneficial. It has been used to acculturate students into the immediate community of learners and the world of the target language and culture (Oxford 1997:452). In addition, it has been claimed that the process involved in collaborative learning can encourage students to pose more questions about the language *in use*, as it affects their proficiency positively. McDonell (1992b:60-61) maintains that students learning a language in which group work is a major focus seem to become more proficient in that language because they:

- have more comprehensible input through peer interactions
- have better listening skills as a result of responding and acting on what has been said
- receive immediate response to their participation
- build on the talk of others through elaboration and/or restatement
- have longer conversational turns than in the whole-class teaching situation
- consult with each other to seek opinions and information
- initiate their own questions
- articulate their needs and interests
- become aware of audience, purpose, and social context
- exchange information about ideas, feelings, and needs
- focus with conversational partners on meaning and what is appropriate, rather than on accuracy
- have continual comprehension checks and clarification requests
- relate new information about language to existing information
- experience individually appropriate language with extralinguistic support (e.g. facial expression, diagrams) to aid understanding
• make use of their own natural learning power in a positive and accepting environment.

It has also been argued (Hyland 1991; Oxford 1997) that, even though collaborative learning may not be appropriate for all learners, it is beneficial for language students if this classroom technique is part of the teacher’s repertoire. Therefore, the teacher becomes the “key” to collaborative learning (McDonell 1992a:171). At the same time, the use of collaborative learning has an impact on the traditional roles of students and teachers. Educators using collaborative learning in their classrooms are redefining the role of the teacher and re-examining the structure of the classroom. They have to be committed to educational equity, and “they are the first to admit that the transmission model of program delivery confined our at-risk students to a passive role that induced a form of ‘learned helplessness’” (Cummins 1989; McDonell 1992a:164-165). The use of collaborative learning in the classroom can create an egalitarian environment, in which students take control of their own learning and become active generators of knowledge. The collaborative educator, in encouraging this behaviour in learners, is instrumental in promoting learner autonomy (Little 1991), as students are provided with the power to carry out certain learning tasks independently (Holec 1988).

The World Wide Web presents teachers not only with a new medium and resource, but also with a new way of looking at their role in the classroom and their relationship with the students. As Schneiderman states: “[c]entralised and hierarchical institutions are struggling as the potency of individual actions grows and rigidity gives way to fluidity” (1997:vi). The research conducted on the social dynamics of computer use in the classroom indicates that “it is not the computer itself that affects interaction.... [the] factors that affect interaction are the nature of the tasks teachers devise and the way that teachers organise classroom interactions centred around computer work or mediated through the computer” (Johnson 1991:77).

The integration of email tools in web-based environments can offer a new door into the global classroom. The type of collaborative learning that can be promoted in this medium has the potential to help the learner learn about the language through using it, which is one of the main aims of collaborative learning in the language classroom (McDonell 1992b). As Pitfield points out, email can be a “medium which does allow and facilitate children to work in groups, not only conventionally within a classroom, but cross-culturally, participating equally with fellow members located in distant schools” (1988:32), and web-based mail allows the integration of email with other web learning resources available on-line, to create a meaningful learning environment on the web.

In addition, the use of collaborative arrangements to enhance students’ achievement, through access to peer feedback and discussion from other network sites, has been reported in several studies (Bonk, Medry & Reynolds 1994; Cavalier, Klein & Cavalier 1995; Forman 1994). This applies particularly to the development of writing skills, especially when interaction occurs with more capable peers, a feature which is particularly relevant to the use of the network for enabling contact with native speakers of a foreign language. Moreover, it has been argued that Internet resources used “to allow students to communicate with native speakers around the world ... constitute tools conducive to fostering second language acquisition” (Oliva & Pollastrini 1995). This can provide students with more comprehensible input through peer interactions and therefore the opportunity to consult others for opinions and information, initiate
questions, articulate needs and interests, become aware of audience and social context, and exchange information about ideas, feelings, needs and purpose. All of these are considered the benefits of collaborative work (McDonell 1992b:60-61).

Furthermore, in recent years, some projects have looked into the use of web-based collaboration to promote cross-cultural and linguistic exchanges. Among these is the Cultural Project between the Massachusetts Institute of Technology in the USA and the Institut National des Télécommunications in France. This was designed to develop understanding of foreign cultural attitudes, concepts, beliefs and ways of looking at the world, among American and French students (Furstenberg et al. 2001). In addition, the TANDEM Foundation based in Spain has provided the opportunity for learners to meet other people for communicative and intercultural exchanges in a network of language schools in seventeen different languages (TANDEM Fundazioa 2002). Web-based collaboration is also the focus of the project we report on in this paper.

3   The project

The research project for which we established an Internet-based collaborative learning environment is aimed at investigating the effects on the language proficiency of French immersion students in Australia of collaborating via the Internet with students in France and Canada. We created this on-line environment so that the students could work together on the joint production of a bilingual electronic journal in French and English, the French speakers helping the English speakers with their French and vice versa. The Canadian students, like the Australians, were native speakers of English studying in a French immersion programme.

The students participating were between fourteen and sixteen years of age. Those in Canada and France were selected as a result of their teachers replying to notices placed on web pages dedicated to the use of the Internet in education. One such site is at http://www.csavqal.qc.ca/prof-inet/aai/collab/aai_registre.html and was created in Quebec for the purpose of facilitating Internet-based projects in schools. Announcing our intention to develop a collaborative project led to considerable interest from schools both in Canada and France and we worked on the assumption that those teachers who located our notice on the web, and expressed their interest, would at least have sufficient computer literacy to participate in the project. We initially chose a school in France that already had a student exchange relationship with one of the Australian schools, and then later a school that was recommended to us by an organisation in Provence involved in developing cultural exchanges between France and Australia. This second school also happened to be close to a university with a reputation in applied linguistics, which we felt might be an advantage for developing a joint research project in the field.

4   The collaborative learning environment

In order to implement the project we designed two different web-sites. The first was developed in 1998 in order to connect the first four schools participating in the project, and the participants named it Cybamis. The second, called Francophones, was developed in 1999 to link another four schools (see Figure 1).
The experience of creating the sites provided very useful insight into how to design and refine quality cooperative-learning tools to respond to users’ needs by linking design to use through a co-dependent view of design (Wilson 1999). The 1998/99 version of the web-sites was developed with the technology and knowledge of web design available at the time, and only very limited information on the future users of the site (see Birch and Poyatos Matas 1999). However, the rapid evolution of web-editing tools available on the market, the feedback received from the participants, and the knowledge gathered from classroom observations of their use of the site made it possible to redesign the sites for 2000. The new version (see Figure 2) responded more effectively to the users’ needs, by providing better support for the implementation of learning tasks in a bilingual environment and a navigation structure that was easier to use.
Both bilingual web-sites have a fixed menu of five sections, designed to allow collaboration and interaction among the participants and provide access to French and English learning resources on the web as well as to us, the researchers. Each site has been created to be used by four schools. While both have the same navigational structure and design, graphics and colours have been used differently, in response to the participants’ involvement in their development. The five sections are briefly described below.

1. The Renseignements/Information section contains general information relevant to the project. There is also a password-protected on-line chat facility for the teachers, so that they can communicate on a private channel to discuss procedural matters.

2. The Magazine section contains the issues of the magazine, where the final versions of articles are placed once the participants are satisfied with them.

3. Rédaction/Editorial section is the area in which students can review their own and others’ work. An initial screen allows them to select the level in which they have been placed (according to their age), then the country and group with which they are working. Once they have made their selection, they enter the collaborative webspace requested (see Figure 3).
In this webspace the students have access to a noticeboard through which they can communicate with their international peers and link to their on-line articles in progress. They can change the way in which they view the information contained in this part of the screen (see Figure 3) in order to see the whole article or the whole noticeboard.

Students in Australia work in pairs and are assigned partnerships with other pairs in both France and Canada. The rules for communication have been designed so that when students are giving feedback they use the language of the text they are critiquing. So, Australian students send their comments to the French students in English and to the Canadian students in French. In turn, they receive comments from the French and the Canadian students in French. Each Australian group is linked with two French groups: one for whom they provide feedback and with whom they always use English; and the other which provides them with feedback and with whom they only ever use French.

Several manuals have been prepared for teachers and students, explaining how to use the site effectively and how to compose and edit on-line articles. In addition, all students have lists of usernames and passwords allowing them access to their own web spaces and those of their international peers.
4. The Documentation/Resources section contains hypertext links to on-line dictionaries and encyclopaedias, as well as to useful sites on languages, content areas and technical issues. The links have been suggested by the various teachers and students involved in the project.

5. The Votre Avis/Get in Touch section includes easy to use email forms for communication with us on any issue related to the site or the project and, for example, reporting technical problems or contributing URLs for new links. There is also an on-line questionnaire for evaluating the new version of the site.

5 Challenges in the implementation and how they were addressed

It is perhaps to be expected that a project as ambitious as this one, involving such a large number of variables, would experience its share of challenges. Indeed, the story of any research project is the story of its challenges and the way they were – more or less – overcome. In this project, even though we may be still seeking answers to the initial research question, the technical and procedural insights into the establishment of an Internet-based collaborative environment, that the study has already yielded, may have themselves justified the endeavour. As in most research, the challenges have often provided the catalyst for discovery and much of the success we have experienced.

This section discusses factors that have had a negative impact on the project at different stages, and how they have been addressed. We have classified these as follows:

1. Contextual constraints
2. Educational constraints
3. Technical constraints
4. Project-related constraints

5.1 Contextual constraints

5.1.1 Geographical context

As this project was conducted across three continents and between two hemispheres, the issue of different time zones created some problems. Real-time communication was never possible between the Australian students and their peers in France and Canada. Similarly, when teachers in Canada and France needed technical assistance from us in Australia, there was an inevitable time lag which at times caused considerable frustration. This particular problem was overcome to some extent by employing a technical assistant in Amsterdam to address difficulties encountered by the teachers in the northern hemisphere.

5.1.2 School culture

Each school has its own individual culture, which may be more or less conducive to research projects such as this. All schools, however, operate in a context in which they are seen as being responsible for the development of the whole child. To acquit this responsibility, they provide a diverse programme which often places conflicting
demands on time and resources. This kind of conflict often had a negative impact on the project in the form of classes being cancelled, computer laboratories being unavailable or technical assistance being deployed elsewhere.

In addition, schools are increasingly being required to conform to demands of accountability. This often creates a climate in which there is an obsession for testing outcomes, resulting in most activities being subjected to some form of assessment. This can often lead to compromising the integrity of a project such as ours. For example, in one school, the articles written by students became assessable items and as such could no longer be written collaboratively by class groups. However, such restrictions need to be viewed as essential features of classroom reality and factored in to any investigation of how innovation is to be integrated into the culture of a school.

5.1.3 Technical infrastructure in schools

As noted above, we had assumed that, at schools selected as a result of their response to notices placed on the Internet, we could be assured of the presence of appropriate equipment and a certain level of expertise. However, in the majority of schools, the number of computers available to the participating teachers and students was inadequate, while in some cases the technical infrastructure was very limited indeed. The participants in France had the worst conditions, with very high ratios of students to computers, reaching 10:1 in one school. Even in the schools with a lower ratio, access tended to be an issue, as the technical resources were being heavily used across the institution. In addition, there was the problem of superseded technology, with institutions experiencing difficulties in keeping up with the rapid changes taking place (see Owston 1997). Part of the project funding was used to assist the participating Australian schools in the purchase of equipment and improvement of existing networks. However, the nature of the grant meant that the schools in Canada and France could not be helped in the same way.

5.2 Educational constraints

5.2.1 Teachers’ lack of technical knowledge

The participating teachers’ technical knowledge was very limited. Throughout the world it is understood that education is undergoing a technological revolution and teachers are expected to keep up with the changes and use technology in their classrooms. However, the speed with which the technology evolves makes it very difficult for teachers (and researchers) to keep up with developments (Levy 1999).

5.2.2 Lack of expertise in methodology for computer-assisted language learning

Most of the teachers participating in the project had never integrated the use of computers into their teaching before. The new computer technology can be difficult to learn and apply in learning activities and its implementation can produce planned and unplanned changes in the educational process (Blin 1999; Levy 1997; Schofield 1995).
5.2.3 Personal teaching styles

As Berge states, “most teachers have implicit or explicit personal theories of what constitutes good instruction that describe education under their usual teaching conditions” (1997:35). This project was bringing into the classrooms a view of learning in which students were given responsibility for their own learning and use of the language. This promotes a higher degree of autonomous learning in the language class (Pemberton 1996; Benson & Voller 1997) and therefore requires the teacher to take on a different set of roles. We found that the more conservative teachers reacted in a very sceptical way to the concept of students collaborating and providing peer reviews to improve their work.

5.2.4 Complexity of matching students across the globe

Each classroom had a different number of students: Canadian classes were always smaller than those in Australia and French classes always bigger. Therefore, the logistics of matching students became a real challenge, as we and the teachers tried to maintain a balance in the distribution of work among the participating students and meet the individual teachers’ requests for grouping students.

5.2.5 Location of computers in laboratories

The computers were rarely an integral part of the classroom, and the participants had to use computer laboratories to gain access to them. This had the effect that teachers and students focused more on the technological than the linguistic component of a lesson, resulting in greater use of their first language than the target language, especially when referring to hardware and software. As a consequence, we support the view that computers should be placed in classrooms in order to promote curriculum integration (Maddux 1998).

5.3 Technical constraints

5.3.1 The lack of face-to-face technical support for all participants

While the teachers in Australia were able to call upon us for hands-on technical assistance, this was not available to teachers in France and Canada, who had to rely on support from their school-based technician. In some schools, the technical officer was another teacher who might have been given a reduced teaching load and was therefore required to work in a part-time capacity, yet meet the needs of all teachers in the school. Other schools did not have any person allocated to support the teachers in the use of technology; those teachers therefore relied completely on us – at a distance – or other teachers in their schools who happened to know something about technology.

5.3.2 External technical barriers

This project was extremely vulnerable in the technical sense, due to the number of schools involved in different countries and with different types of hardware, software and network systems, as well as web and email providers. Frequently, this contributed to the frustration of the participants, who were unable to use their own computers because their own network security system did not allow them to access the Internet (as
was the case in one of the Australian schools), or because the web connection had been cut due to student misuse of the resources (as happened in one of the French schools). Moreover, computers were out of order from time to time, with classes having to wait several days for a technical assistant to work through a backlog of similar requests for help. As far as possible, we attempted to cope constructively with this array of problems by maintaining contact with the participating teachers and providing guidance, whether through emails, phone calls or talking directly to the information technology officers of their schools, where such people existed.

5.3.3 User names and passwords

These needed to be changed regularly as the participants came and went at different times due to the differences in academic calendar between northern and southern hemispheres. In addition, it was not uncommon for students to lose or forget their passwords and usernames, which slows down the participation process.

5.3.4 Structure of the web-site

Initially, the interface of the noticeboard for exchanging messages in the Rédaction/Editorial section was not particularly comprehensive: it only allowed the students to input the text of their message, which was displayed along with just the date on which it has been generated. The later version of the noticeboard required students to attend to the type of message they were writing, and give the recipient an idea of its content, by selecting a subject for the message from a menu of options: personal, content, technical or other. In addition, the earlier version of the web-site did not make use of frames, as they were not available in 1998. In the final version, the information was organised and displayed in a more effective and appealing way, with a site map in the left frame and most information in the right frame.

5.4 Project-related constraints

5.4.1 Level of communication among the participants

Nagel (1999) maintains that a personal element in the communication between participants is essential for such a project to succeed. It became evident, during the implementation of our project, that its nature and aims had not been made sufficiently clear, that we as researchers had been guilty of providing explanations that were too technical for people undertaking such a project for the first time. We discovered that a ‘high-touch’ approach – in the sense of nurturing participants – is just as important as a ‘high–tech’ one.

5.4.2 Level of commitment

The duration of a longitudinal project such as this demands a certain vision, enthusiasm, and time commitment on the part of all the participants and researchers. This was hard to maintain at times, particularly when technological challenges presented themselves in the initial stages of the project.
5.4.3 The teachers’ perceptions of the project

It has been argued that, as schools increasingly integrate the use of technology into their curriculum, we may see more teachers passively resisting the imposition of technology (McKay & Robinson 1997; Maddux 1998). The teachers involved in this project reacted in a range of ways, depending on their perceptions of its various aspects. The ‘cooperative’ teacher, who saw the project as beneficial for teachers themselves and students, was willing to take risks, get in contact with other teachers and work constructively in helping us overcome the limitations encountered. By contrast, there was the ‘always busy’ teacher, who found it very difficult to find time to implement any aspect of the project and felt the pressure of time to cover the given curriculum. We also encountered the ‘forced to participate’ teacher, on whom the project may have been imposed by the institution, and who complained constantly and about every conceivable detail. Finally, the ‘technophobic teacher’, who may well have liked the idea of participating in the project but thought it was too technological, and was convinced that anything with technology involved would either not work or break down, leaving him/her to salvage the lesson.

6 Achievements

The next stage of the research project will involve analysis of the effects of using this approach on the written French proficiency of the Australian participants, and the results will be the subject of separate publications. The remainder of this paper reviews the outcomes of the implementation phase and those apparent in the early stages of the use of this learning environment. These are examined under three headings: technical achievements, students’ achievements and teachers’ achievements.

6.1 Technical achievements

The project has been a learning experience for all concerned, not least for us as researchers. We have not only overcome considerable technical difficulties but have been able to introduce technical innovations during the course of the project. For example, we decided that, as well as gathering data which would help us answer questions about the ‘product’ – that is, the effects of student collaboration via the Internet – we should also trace the processes which contributed to changes in the students’ written French. To do this, we needed to devise instruments that would give us access to the interactions between the students and to the effects of those interactions on the development of their Internet-based articles. These instruments, which began as tableaux de communication have been progressively refined to render them more user-friendly, since initially both students and teachers found them rather complicated. Their present form makes use of drop-down menus and students report that they find them easy to navigate. In addition, the introduction of frames has helped, by allowing the users to move more freely between different parts of the web-site. For example, in the course of composing an article, students can move to documentation where they gain access to a range of resources (such as dictionaries and encyclopaedias) or feedback from their peers in the other countries.

While it might have been technically more simple to make greater use of email for feedback between students, this would have denied us access to the students’ writing
processes and their responses to the feedback from their peers. The teachers too can monitor students’ writing via the Internet and gain invaluable information about their writing processes, which may lead to more effective teaching of this skill.

6.2 Students’ achievements

The students have recorded significant achievements in two areas:
1. development of web-related skills
2. development of written French proficiency.

6.2.1 Web-related skills

In the course of this project, all students have learnt to create their own web pages and publish articles in the electronic magazine. This has become progressively easier with the development of user-friendly web editors and web page uploaders.

For the Australian students, the magazine articles have replaced projects that used to form part of the assessment requirements in the subject Studies of society and the environment or SOSE. It is therefore possible to compare the quality of the work now with what was produced for assessment before the on-line magazine was born.

The current work is superior on a number of levels. In previous years, students wrote their texts in project books, using material they had usually retrieved from sources in English and translated into French. The translation was generally very stilted and contained errors induced by interference from English. Illustrations were typically photocopied in black and white and pasted into the book. This contrasts with the approach students use now, of searching for relevant web-sites – usually in French – and then basing their articles on information summarised from these and incorporating graphics downloaded from them. The students are encouraged to consult a number of sites before selecting what is most appropriate. This process results in articles written in more authentic French and with a far more professional appearance than those that were once written in the project books.

The only drawback is that some students have a tendency to focus most of their energies on the development and presentation of the site, at the expense of the linguistic and subject-matter content. The teachers need to encourage the students to look beyond the appearance of the web-site (no matter how attractive it may be) and exercise their critical judgement with respect to its content. The feedback that they are required to provide for their French and Canadian peers prepares them for this.

6.2.2 Written French proficiency

Data gathering and analysis needs to progress further before any conclusions can be drawn in terms of measurable improvement in the students’ written proficiency. However, the data are already yielding some interesting insights into the effects of this collaborative web-based approach on the process of composing written text. For example, as noted above, the students are modelling their writing more directly on native French discourse, rather than translating English into French. Since the teachers have warned them about the unacceptability of plagiarism, they are developing summarising and paraphrasing strategies, which are being transferred from English.
To date, we have only limited data showing the effects of student feedback on the editing process. However, two outcomes have emerged. Firstly, students do not seem to be overly concerned if the first draft of an article contains errors. Their primary concern is to get their ideas on the screen. Some may run their own check for errors, but mostly what is posted is the student’s spontaneous first draft. Secondly, the feedback they receive from their French and Canadian peers, consisting of comments on grammatical errors and content and advice about web format, is incorporated into the subsequent drafts. The teacher provides the final feedback prior to publication. As the collaboration progresses, the resultant data will shed further light on the effects of peer-initiated feedback on the process of composition.

It may well be that it is unreasonable to expect significant differences in proficiency to emerge as a direct result of the approach adopted in this project. However, it may be more important to identify ways in which collaboration can be maximised between students in different countries, in the production of outcomes of which all involved can experience mutual ownership. If this can be achieved, it is likely that the goal of increasing proficiency will be realised as a matter of course, together with a range of positive affective outcomes.

6.3 Teachers’ achievements

Involvement in a project such as this is daunting for most teachers. Immersion teachers generally have not been trained in the skills required to develop web pages. Indeed, some of the students in this project proved to be more knowledgeable than their teachers. For some teachers, this may be threatening and they may perceive it as a risk to their authority.

Even if this is not a concern, the project adds a dimension of difficulty to the teachers’ work since, as well as teaching language and content, they are now required to cope with the diverse technological knowledge and needs of their students. Combined with this, they have to contend with the inherent unpredictability of computers – which can destroy a carefully planned lesson – using their own limited technical knowledge.

In the face of these variables, it was clear from our classroom observations and the teachers’ responses in interviews that the teachers have emerged with additional knowledge concerning both web-site development and how to cope with the potential anarchy inherent in the Internet. Like their students, they too have been required to collaborate, as they have moved from a situation of complete control of their classroom domain to reliance on computer technicians, their colleagues in France and Canada, us researchers and, in what is perhaps the greatest challenge, their students. Through the course of the project, it is possible to trace their growth from anxiety born of unfamiliarity with the technology, through resistance, to resigned acceptance, and finally to an acknowledgement of the progress that they had made. The extent of this progress is one of the positive outcomes of the project and, in hindsight, it has become clear that the learning the teachers have undergone is a necessary prerequisite for attempting to answer the questions which originally drove the research project.
7 Conclusion

As the Spanish poet Antonio Machado wrote: “Walker, there isn’t an existing path, you make the path as you walk along”. We have learnt from our experience over the last three years that the creation of an international web-based collaborative environment involving three continents is a dynamic and iterative process, and that genuine collaboration is the key to its effective implementation. This collaboration has to involve all participants, including the students in the various countries, the teachers and the research team. Moreover, we have found that the most important ingredient in making a project such as this successful is clear and constant communication among the parties involved, because this is at the very heart of collaboration. We have also learnt that the provision of extensive technical support by the researchers, and a willingness on the part all the participants to be active and constructive in the endeavour, working side by side with the researchers, are vital components for any collaborative project.

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Bibliography


Harley, B. 1984, “How good is their French?”, Language and Society, 12, 55-60.


Krashen, S. 1984, “Immersion: why it works and what it has taught us”, Language and Society, 12, 61-64.


Levy, M.1999, “Responding to the context of CALL: Directions for research”, Prospect, 14, 3.


Wilson, B. 1999, “Adoption of learning technologies: toward new frameworks for understanding the link between design and use”, Educational Technology, January-February, 12-16.