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FLEXIBILITY AND INTERACTION AT A DISTANCE: A MIXED-MODE ENVIRONMENT FOR LANGUAGE LEARNING

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ABSTRACT

This article reports on the process of design and development of two language courses for university students at beginning levels of competence. Following a preliminary experience in a low-tech environment for distance language learning and teaching, and a thorough review of the available literature, we identified two major challenges that would need to be addressed in our design:

(1) a necessity to build sufficient flexibility into the materials to cater to a variety of learners' styles, interests and skill levels, therefore sustaining learners' motivation; and

(2) a need to design materials that would present the necessary requisites of authenticity and interactivity identified in the examined literature, in spite of the reduced opportunities for face-to-face communication.

In response to these considerations, we designed and developed learning materials and tasks to be distributed on CD-ROM, complemented by a WebCT component for added interactivity and task authenticity. Although only part of the original design was implemented, and further research is needed to assess the impact of our environment on learning outcomes, the results of preliminary evaluations are encouraging.

BACKGROUND TO THE PROJECT

This article reports on the process of design and development of two distance courses, in Italian and French, for beginning learners. The language courses were part of a new Graduate Diploma in Language Teaching (GradDipLT), offered by the Department of Languages at Flinders University (Australia). The process was initiated in 2000, by a request from the South Australian Department of Education, which identified a demand for language teachers in schools, particularly in remote areas of the State. It was decided that the course would be offered by distance to cater to students unable to attend our regular language classes on campus. The South Australian Department of Education offered scholarships for registered teachers to be trained in languages. Therefore, our primary target was identified as full-time, non-language teachers, looking at career diversification. As a consequence, we expected the majority of our students to be mature-age women, with numerous work, family, and social commitments.

In 2001, when the GradDipLT was first offered, a low-technology version of the course was implemented. The instructional materials initially used were merely an adaptation of those prescribed in our regular classes on campus. The use of print-based materials was complemented by audiotapes provided with the selected textbooks,[1] e-mail correspondence, and weekly telephone appointments between students and their instructors.

A few weeks into the first semester, however, it was clear that distance learners had different study patterns from our campus-based students and that a highly flexible environment was required in order to accommodate a variety of learner needs and skill levels. First of all, their full-time employment and

family commitments made it difficult for these learners to follow the regular work progression set in our 13-week semester schedule, as most students worked in spurts contingent upon their professional calendar. Secondly, although the course was designed for absolute beginners, great variety was observed in students' levels of proficiency in the target language, as well as in terms of learners' general academic skills and learning styles and preferences. Some students had had some exposure to the target language in their school years or due to their family backgrounds. Some had learned a second language before, which had provided them with strategies that could be applied to their current learning situation, while other learners had no prior language learning experience. As a consequence, it was particularly difficult to set a course pace that would satisfy all learners' needs.

From the point of view of the instructors involved in the delivery of the course, this was a very formative, but at the same time challenging and demanding pedagogical experience. Instructors reported having to reassess their teaching practices, partly re-inventing themselves as pedagogues, as they became aware that teaching a language at a distance required a completely different instructional stand from classroom-based instruction. The direct contact established with the students allowed us to gain an understanding of the pedagogy of distance language learning and teaching, and ensured that learners were not overcome by feelings of frustration, isolation, and anxiety. However, it was evident that the teaching approach employed could not be described as ideal. A number of problems were identified, in addition to the lack of cohesion among the student cohort previously discussed. In particular,

- A great deal of effort was expended to establish positive interpersonal relationships between students and instructors, and to ensure that the initial levels of learner motivation were sustained. In order to achieve these goals, the instructors often went out of their way to offer support and encouragement, as well as timely feedback. The fact that instruction was mainly conducted through individual telephone appointments, made the instructors' task particularly demanding and time-consuming.
- Some of the instructors were especially concerned with the emotional involvement that such close contact with their students required. In a classroom situation, learners are often assigned pair or small-group work during which they exchange personal information with other students. During our telephone appointments, the instructors acted as interactants in the conversational exchanges, therefore establishing much closer relationships with their students. Some of the instructors felt that the boundary between their professional and private lives had weakened, since they often had to disrupt their family routines in order to schedule telephone appointments outside of business hours, and they were expected to share a great deal of personal information with their students.
- On the other hand, it was recognised that constant pressure was put on each individual student to perform during telephone lessons. In a classroom situation, learners can take turns in answering the instructors' questions, or even avoid participation altogether; these options were obviously denied to our students.
- Since no visual support was available during telephone lessons, some instructors found it difficult to give explanations without being able to use a whiteboard or an overhead projector and often had to revert to English to ensure students' comprehension.
- The costs involved with the delivery of the GradDipLT in terms of human resources, printing and copying, postage and telephone, were extremely high. Since the Department of Languages did not receive financial support from the University to establish a new maintenance fund for flexible delivery, these expenses put considerable pressure onto an already tight budget.
- Finally, although the students appeared satisfied overall with their experience in the GradDipLT, one shortcoming was identified. In spite of the efforts made by their instructors, some learners noted that their exposure to the target language had remained limited, compared to students attending regular classes on campus -- who received 5 contact hours per week -- and felt that their opportunities to learn had been somewhat reduced.

This preliminary step into distance language education confirmed the need for an instructional environment that could accommodate our students' busy lifestyles as well as cater for a variety of learner needs and skill levels, while avoiding excessive strain on the human and financial resources of our Department. In order to gain further insight into the process of language learning and teaching at a distance, and to provide a solid theoretical grounding for our design project, we conducted a thorough review of the available literature. In the next paragraphs, we shall provide an overview of the learning theories and models that have informed the design of an environment for distance language learning that integrates a set of learning materials on CD-ROM with a Web-CT component, for enhanced flexibility and interactivity. Firstly, we shall address problematic issues connected with learning languages at a distance. We shall then explore the potential contribution of Internet and Computing Technology (ICT) to the process of Second Language Acquisition (SLA).

THEORETICAL CONSIDERATIONS

An overall social-constructivist approach was selected as a starting point for the present study, as this allows for an integration of affective, cognitive and interactionist perspectives into a coherent picture (Williams & Burden, 1997). In particular, a view of learning as the result of interactions between learners, teachers, and other sources of the target language within socio-educational contexts is derived from social-interactionist perspectives. A view of the learner as "an active meaning-maker and problem-solver" (Williams & Burden, p. 43) is derived from cognitive approaches. Finally, the emphasis placed on emotional aspects of learning, and on the necessity of developing the learner's potential as a "whole person," is borrowed from humanistic approaches (e.g., Stevick, 1990). The strong focus placed on learners' affective and cognitive resources necessarily draws attention towards individual differences in terms of knowledge, skills, personality, cultural values, and lifestyles.

Motivational Aspects of Learning Languages at a Distance

Within the SLA process, learners' motivation is assigned a prominent role. In fact, provided that learners possess the knowledge and skills necessary to learn a new language and that they are exposed to sources of the target language, they must also make the conscious choice to participate actively in the learning process. In order for learning to occur, learners must be willing to (a) engage in interaction with the learning environment; (b) experiment with the target language, accepting the risk of making mistakes; (c) reflect over their learning; and (d) analyse their errors and plan future action (Oxford, 1999; Rubin, 1975). In other words, they must be motivated to learn.

In recent years, several proposals have been advanced for a multidimensional model of second language motivation that integrates affective, cognitive and social factors. The majority of these proposals have been purely theoretical (e.g., Dörnyei & Ottò, 1999; Oxford & Shearin, 1996; Williams & Burden, 1997). However, some of these models have been at least partially validated by results obtained in empirical studies (e.g., Gardner, Tremblay, & Masgoret, 1997; Schmidt, Boraie, & Kassabgy, 1996). In spite of the differences in scope and formulation, there seems to be reasonable agreement among researchers in viewing motivation as the result of complex interactions between numerous variables at play. In particular, learners' evaluations of the opportunities offered by their learning environment and consequently their willingness to take an active part in the learning process, will be influenced by considerations relative to value attributed to learning outcomes, relevance of tasks to one's goals and interests, optimal level of challenge posed by learning tasks, and expectations of success, among others. More than the actual features of the learning environment, however, it is the "psychological meaning" (Deci & Ryan, 1985, p. 87) attached to these features by individual learners -- in other words learners' perceptions and interpretations of their interactions with the learning environment -- that will exert the greatest influence.

Learners' positive attitudes can be triggered by building flexibility into learning environments, in order to accommodate a variety of learning styles, interests, and skill levels (Hoven, 1999; Salaberry, 1996; Schmidt, Boraie, & Kassabgy, 1996). This is especially relevant to situations of distance language learning, as they present a number of specific challenges:

- As previously observed, many distance students, and particularly those attending teacher education courses at graduate level, need to balance family, work, and social commitments (e.g., Harrell, 1999). Since the effort required to master a second language is considerable, while the outcome "in terms of proficiency, enjoyment, social interaction, or language utility on the job" (Oxford & Shearin, 1994, p. 20; see also Horwitz, 1988) is often modest, it is particularly difficult for these students to maintain a high level of motivation.
- Furthermore, because distance learners must solve most problems independently and often operate in a low-structured environment with scarce monitoring and feedback from their instructors, they tend to spend more time working on the materials than is required (Goodfellow, Manning, & Lamy, 1999; Hara & Kling, 1999). It has also been noted that many of these students return to tertiary education after a relatively long period and may lack academic or linguistic skills that would make the learning process more efficient (Kötter, Shield, & Stevens, 1999).
- Adding to the previous point, distance learning materials often do not provide sufficiently clear instructions on how to carry out tasks, or detailed indications on evaluation criteria. As a result, distance learners may develop feelings of frustration and anxiety. In a study conducted by Hara and Kling (1999), for example, it was observed that task instructions tended to be unclear due to the fact that the materials had originally been developed for face-to-face instruction, and therefore presupposed that further explanations could easily be provided if required. Moreover, learners noted that, due to the lack of face-to-face interaction with their instructor, they were often unable to interpret her messages correctly and were unsure as to whether they had been able to meet her expectations.
- As a result of the limited opportunities for interaction with the instructor or other learners, distance students may feel disconnected and isolated (Egbert & Thomas, 2001; Harrell, 1999; Rovai, 2002).
- Finally, when computers are used extensively, students and instructors will have to deal with inevitable technical glitches, which, coupled with slow internet connections, may cause severe frustration and seriously impair learning (Hara & Kling, 1999; see also Egbert & Thomas, 2001; Hauck & Haezewindt, 1999)

Because of these difficulties, it is relatively likely that distance learners will develop negative perceptions of their learning environment and experience a decrease in motivation, unless a great deal of support and guidance is provided. Furthermore, as previously noted, it is imperative that distance courses provide flexibility to cater to a variety of skill levels, learning styles, and interests, as well as to allow students to integrate their study commitments into their busy lives as smoothly as possible.

The Role of Interaction in Second Language Acquisition

In the literature on Second Language Acquisition (SLA), learners' active involvement in interaction with native speakers or other learners of the target language has been identified as a fundamental aspect of the learning process as it provides opportunities for students to engage in negotiation of meaning, and therefore to receive *negative evidence.* Negative evidence represents "direct or indirect information about what is ungrammatical" (Long, 1996, p. 413) in the language produced by learners. Upon receiving indications that their message has not been successfully conveyed, learners are encouraged to focus on the linguistic means used to encode meaning, and to adjust the form of their utterance, in order to increase output comprehensibility (e.g., Gass, Mackey & Pica, 1998; Mackey & Philp, 1998; Pica, 1994). The negative evidence received during conversational exchanges therefore represents a valuable source of

feedback on the validity of learners' hypotheses that make up their *interlanguage,* that is, the transitional mental representation of the target linguistic system (Selinker, 1972).

As a result of the above considerations, scholars seem united in maintaining that language learning environments should provide occasions for learners to be engaged in interaction and negotiation of meaning (Doughty & Pica, 1986; Willis, 1996). Specially designed tasks can provide even more opportunities for language development than spontaneous conversation, in that they force learners to deal with difficulties in comprehension and production in order to achieve their communicative goals (Long, 1996). As a result, negotiation of meaning will be more likely to occur. However, tasks should also present requisites of authenticity, that is, they should resemble as closely as possible "actual tasks which a person may undertake when communicating through the target language" (Breen, 1987, p. 162). Task authenticity promotes meaningful interaction, which encourages the production of comprehensible output and provides purpose and personal involvement (Nunan, 1993).

As observed in the previous section, in addition to providing linguistic input and feedback, learners' interaction with their instructors and other learners represents a fundamental factor from an affective point of view. The establishment of positive teacher-learner relationships, and a generally positive classroom atmosphere, plays a fundamental role in fostering learners' positive perceptions of the learning environment. This in turn is expected to lower students' anxiety and foster motivation (Burden & Williams, 1998; Noels, Clément, & Pelletier, 1999; Young, 1990). It is essential, therefore, that learners come to perceive the learning environment as a place where assistance can be obtained whenever needed, and where everyone's opinions are respected and valued as contributions to the group's culture. This is especially true of distance learning environments, where face-to-face contact is limited or non-existent.

Meeting the Challenges of Distance Language Learning and Teaching with ICT

In the previous sections we have identified two major challenges associated with distance language learning: (a) sustaining learners' positive attitudes and motivation despite the many difficulties they face and (b) maintaining high levels of interaction in the learning environment despite the limited personal contact. In the next paragraphs we look at the possibilities offered by ICT in meeting these challenges, by allowing flexibility in the learning environment and by enhancing opportunities for interaction and task authenticity.

Flexibility

One of the most often cited benefits associated with ICT is its ability to increase flexibility and learner control over time, pace and modalities of material access (e.g., Curtis, Duchastel, & Radic, 1999; Egbert & Jessup, 1996; Oxford, Rivera-Castillo, Feyten, & Nutta., 1998; Pusack & Otto, 1997). Because of this, ICT seems particularly apt to ensure correspondence of instruction to individual learners' styles and needs, therefore promoting positive attitudes and sustaining motivation (Duchastel, 1997; Garrett, 1987, 1988; Harben, 1999; Pennington, 1996; Reeves & Reeves, 1997).

In fact, apart from different skill levels and interests, ICT can also cater for a multiplicity of learners' preferences in terms of perceptual mode, due to its multimedia nature (Soo, 1999; Underwood, 1988). A great advantage attributed to multimedia materials over traditional presentation media is their ability to integrate a variety of input sources in a coherent and cohesive way:

> The strength of multimedia software is in the synergy derived from presenting content using a variety of modalities that can reinforce each other and that are linked together in meaningful ways to provide an in-depth learning experience. (Pusack & Otto, 1997, p. 2)

Indeed, the above observations should be extended to include what is normally referred to as *hypermedia,* which integrates the concept of hypertext with that of multimedia, as is the case with most instructional materials delivered via ICT.

Hypertexts allow task designers to store additional information, such as dictionaries or other reference materials, that learners can access if and when needed, to enhance their comprehension. The fact that such materials are available through a simple mouse click, but remain hidden until they are requested, ensures a high degree of correspondence between the amount of assistance provided and the reader's skill level. Furthermore, large amounts of information can be made available without becoming distracting or intimidating for the learner (Davis & Lyman-Hager, 1997; Ellis, 1995; Greaves & Yang, 1999).

According to some scholars (e.g., Richmond, 1999; Stevens, 1992), not only can online reference materials be more time efficient than their written counterparts, but their use entails a more effective use of cognitive resources. For example, the definition of an unknown word, requested during a task, would appear on the screen next to the context in which that particular word is used, freeing up cognitive resources that could otherwise be employed to retain information gathered from other sources (see also Ellis, 1995).

Other cognitive advantages have been associated with intrinsic features of hypertexts. Jonassen and colleagues (Jonassen, Dyer, Peters, Robinson, Harvey, King, & Loughner, 1997; Jonassen, Duffy, & Lowyck, 1993), for example, have suggested that the exploratory, non-linear nature of hypertexts and their ability to represent multiple perspectives, coupled with the opportunities for engagement in collaborative, problem-solving tasks they provide, would promote learners' cognitive flexibility (see also Gruba & Lynch, 1997; Spiro, Feltovich, Jacobson, & Coulson., 1995). Other researchers have noted that hypertexts facilitate a deeper approach to learning materials, in that they require learners to select, interpret, and reorganise chunks of information into a coherent and cohesive mental image, which involves reconstruction, rather than reproduction of knowledge (Gordon, 1996; see also Lanzotti, 1997). Finally, the associative structure of hypertexts has been likened to the organisation of knowledge within the human mind (Ebersole, 1997; Oliver, Herrington, & Omari, 1996). Because of such similarity, retention and retrieval of information acquired through hypertexts would be facilitated.

The hypermedia nature of ICT, therefore, ensures that individualised sequences of access to a range of materials can be easily built while maintaining coherence and cohesiveness in the presentation and, indeed, providing cognitive advantages over traditional media. From this point of view, ICT can represent an important step towards the establishment of environments that allow high levels of flexibility and learner control. Increasing learner control, however, presupposes a reasonable degree of autonomy in students, who must possess the necessary knowledge and skills to make informed choices (see Blin, 1999; Goodfellow, 1999, for further discussion). As has been previously noted, adult distance learners often have lost or never acquired these skills, and may not be able to implement strategies (either metacognitive or linguistic) to manage their learning effectively. The role of the instructor in providing scaffolding and coaching, therefore, remains fundamental to sustain and enhance learners' ability to engage in autonomous learning, particularly in technology-rich environments. This is where the communication tools offered by ICT become invaluable assets.

Interaction and Task Authenticity

The ability of ICT to promote interaction has been studied extensively in relation to Computer Mediated Communication (e.g., Herring, 1996). It has been suggested that not only would communication via the computer provide the same opportunities for negotiation of meaning observed in face-to-face interaction, but its written nature would make interaction and negotiation even more effective (Lamy & Goodfellow, 1999; Warschauer, 1998).

In particular, learners participating in Computer Mediated Communication (CMC) seem able to produce more complex and accurate instances of language than they do in oral conversation (e.g., González-Bueno, 1998). The observed advantages would derive from the fact that, during CMC, learners have more time for reflection and opportunities to access reference materials, which translates into better

opportunities for comprehension, as well as an enhanced ability to engage in planning and monitoring of one's output.

Furthermore, CMC seems to provide a non-threatening environment for learners' experimentation with the target language (e.g., Pennington, 1996). In electronic discussion, learners can decide when to contribute, and can prepare their text without pressure or fear of being interrupted. The risk of making mistakes in front of other students and the consequent allocation of cognitive resources to the monitoring of one's linguistic accuracy and pronunciation also seem to be overcome in CMC. The result would be more equality in students' participation, better learner disposition towards engaging in activities involving risk-taking, and positive perceptions of the learning environment.

Finally, it has been observed that CMC enhances task authenticity, especially when it involves exchanges with native speakers or other learners in different contexts (e.g., Ortega, 1997; Paiva, 1999). In the case of distance language learners, asynchronous communication via the computer can represent a fundamental tool for the establishment of a community of learners. Students can easily exchange personal information, request and offer support to other learners, or contact the instructor when needed, without major disruption to their busy personal and professional schedules. Answers to learners' questions can be posted to a bulletin board and made available for future reference, therefore constituting a knowledge base of prior learning experiences.

While CMC represents an expanding field of inquiry and is increasingly used to foster learner-learner interaction during communicative tasks, computers have been traditionally used for grammar-based activities, for a number of reasons. From a utilitarian point of view, the relative simplicity of the data-handling programs required for marking grammar drills allows for easy scripting and implementation. From a pedagogical perspective, grammar-based activities remain an important part of linguistic training for beginning students. Firstly, most researchers agree that a balance should be established between meaning and form as foci of the language syllabus (e.g., Dubin & Olshtain, 1986; Long & Crookes, 1993), not only to promote both fluency and accuracy, but also to cater to differences in learning styles and preferences. Secondly, grammar-based activities allow learners to build or reinforce background knowledge. At introductory levels, in fact, reproduction rather than construction of knowledge is often seen as a necessary first step towards more creative uses of the language (e.g., Garrett, 1998).

It has been noted that such use of ICT is rather unimaginative and does not represent the best way to exploit the full potential of technology for language learning (Mohan, 1992; Richmond, 1999). On the other hand, according to Chapelle (1997), learners' interaction with computer-based materials could indeed be viewed as providing similar opportunities for negotiation of meaning to those observed in human interaction (see also Underwood, 1988). For example, learners' access to the transcript in a listening comprehension activity could be viewed as an example of interactional modification, and the recourse to additional reference materials in order to increase comprehension could be interpreted as an instance of negotiation of meaning and scaffolding (Holliday, 1999; Hoven, 1999).

The possibility of providing automatic, immediate feedback as a source of negative evidence has also been identified as one of the main advantages of ICT. Unfortunately, the flexibility afforded by most marking scripts is often extremely limited (Salaberry, 1996). As Garrett (1987) has noted, a simple indication of correctness can be of little benefit in cases in which learners are unable to identify the source of their mistakes. On the other hand, an indication that a mistake has been made allows learners to identify a problematic aspect of their interlanguage, at which stage assistance can be sought from the instructor or other sources (Bradin, 1999). After all, as Stevens (1992) has observed, while computers can respond to students' prompts, "they cannot do so with empathy" (p. 31). As a consequence, human interaction, though computer-mediated, remains a necessity.

TRANSLATING THEORY INTO PRACTICE: DESIGN AND DEVELOPMENT

In light of the theoretical and contextual considerations made so far, we established that our distance language learning environment should satisfy the following design criteria:

1) *Flexibility,* combined with assistance and scaffolding to support a variety of learners' needs, interests and skill levels, and to facilitate ultimate learning -- This can be achieved by designing an environment that provides opportunities for

    - Learner control over the instructional path(s) to follow. Although learners should not be constrained by a pre-determined sequence of access, support can be provided by indicating a suggested pathway. Information and tools that facilitate planning and monitoring of the students' learning process are essential to provide guidance and scaffolding.
    - Learner control over a variety of (a) media sources, to cater to different perceptual styles; and (b) materials and tasks to cater to different interests and cognitive styles of learning.
    - Learner interaction with hypermedia materials offering (a) different degrees of assistance through online help and reference materials that remain concealed unless requested and (b) flexibility in the provision of feedback.
    - Extensive use of hypertext features that facilitate association and memorisation.

2) *Interaction and task authenticity* -- ample opportunities for exposure to and interaction with a variety of input sources. This can be achieved by designing an environment that provides opportunities for

    - Involvement in tasks that require learners' interaction and negotiation with an authentic audience and authentic materials in order to facilitate negotiation of meaning and the production of comprehensible output, in spite of the limited contact with the instructor.
    - Learner-computer interaction, including some grammar-based practice as well as listening-comprehension activities, to maximise opportunities for exposure to the target language in a non-threatening environment and to ensure acquisition of background knowledge. In order to compensate for the limited interaction with the instructor, and to prevent frustration and confusion, clear instructions on how to carry out these tasks must be provided.

In the next paragraphs, we shall illustrate the process that led us to the actualisation of the theoretical principles we identified as our point of departure. In particular, we shall firstly discuss the original concept of our distance language learning environment, which culminated in the design of a blueprint for the integrated CD-ROM and WebCT components of the course. Subsequently, we shall address the process of development and piloting of our materials.

An Integrated Environment for Distance Language Learning: Initial Concept

After our first teaching experience in the low-tech version of the GradDipLT, we were dissatisfied with the existing course packages (see note 1 for details), for a number of reasons. Firstly, their teaching and learning approach placed too much emphasis on grammar, while oral comprehension and communication aspects were insufficiently developed. Secondly, the textbooks were designed mainly for young students attending tertiary institutions in the United States. Consequently, a considerable proportion of the topics treated was considered unsuitable for mature-age students living in an Australian context. Thirdly, these materials presupposed face-to-face contact, with the result that many of the learning activities require pair or small group work and teacher direction. As previously observed, if instructional materials are not designed for distance education they run the risk of lacking the necessary clarity and exhaustiveness in the provision of relevant information. Finally, we believed that a purposely-designed ICT-based course would be especially effective due to the benefits associated with hypermedia discussed in the previous section.

As a consequence of the above observations, we decided to develop a template for a learning environment that could be easily adapted to satisfy the needs of different cohorts of students and a variety of teaching

approaches, and that would also satisfy the requirements of interactivity and flexibility previously discussed.

In order to provide ample opportunities for learners' exposure to the target language and interaction with a variety of input sources and media types, we expected to include a considerable amount of listening comprehension activities in our courseware. Furthermore, to compensate for the lack of face-to-face interaction, we planned to shoot several video segments showing conversations among native speakers of the target language, recorded on the University grounds as well as in the countries in which the target languages are spoken. Other audiovisual material was to be recorded from TV and radio stations in the target language and digitised.

Therefore, it was decided that the bulk of our materials would be made available to the students on CD-ROM, which would facilitate the distribution of such media-rich content, and would allow us to overcome access problems related to bandwidth, particularly in remote areas of South Australia. CD-ROM technology, however, does not allow for much learner-learner or leaner-instructor interactivity. For this reason, we established that a WebCT component would also be developed, in order to ensure that timely information would be easily available, and to provide access to communication tools. The result of our conceptualisation process is visually represented in Figure 1.

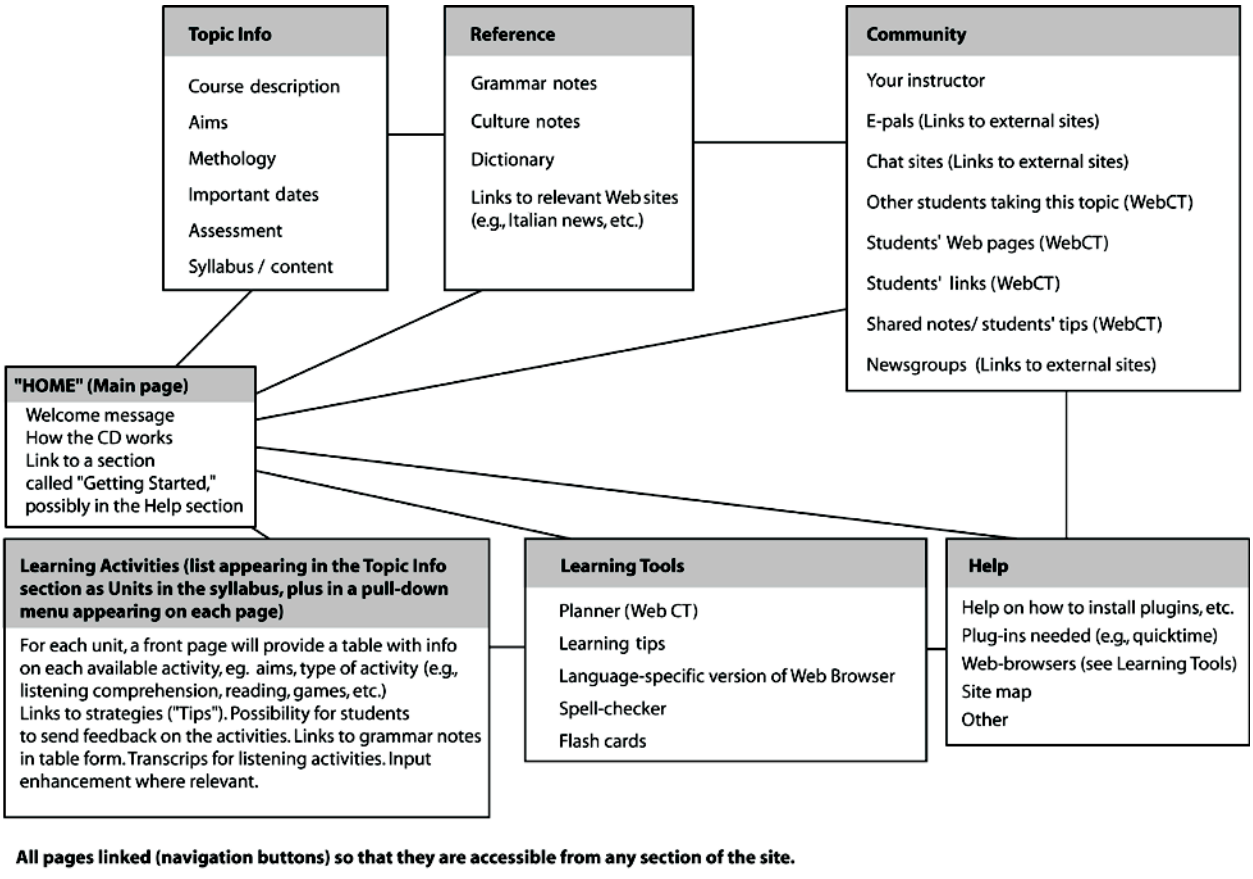

Figure 1. Course template -- concept map

As shown in our diagram, a substantial proportion of our design concerned the content and organisation of the CD-ROM. In addition to learning activities, it was decided that the CD-ROM would contain a section detailing information on the course aims, approach, syllabus, and assessment, which ensured students' awareness of their instructors' expectations. A help section was to be provided that would contain extensive instructions on the use of the CD-ROM and installation of the two plug-ins required for

audio and video access, as well as a site map. The CD-ROM would also provide links to linguistic tools such as language-specific versions of Web browsers, to maximise exposure to the target language, spell-checkers, and flash cards. Grammar and culture notes, links to online dictionaries, and relevant Web sites in the target language, on the other hand, were grouped under a "Reference" heading. In order to facilitate the development of learners' metacognitive strategies, particularly their ability to plan and monitor their learning, we also decided to include a "Learning Tools" section, containing learning tips and also a link to a WebCT-based calendar, which would enable learners to keep track of their progress in relation to the course aims and objectives.

As mentioned above, from the CD-ROM, students could access relevant sections of the WebCT component. In addition to the instructors' and students' personal webpages, it was decided that the course Web site would contain a list of e-mail addresses to facilitate communication within the group, students' shared links and course notes, and a chat facility; and a bulletin board, which students could use to request assistance.

The Development Stage

The template of the CD-ROM interface was developed in HTML and Javascript language for cross-platform compatibility and also to allow for easy distribution over the Internet in the future. *Envol*, the French version of the CD-ROM, was the first to be developed and piloted (see the section "Taking Off" for more information on the piloting phase). In our brief to the graphic designer and Web developer who assisted us in the development of the template, we followed indications for effective multimedia design identified in the literature on instructional technology (e.g., Boling & Soo, 1999; Ebersole, 1997; Hémard, 1999). In particular, a white background was chosen to ensure readability, colour and images were used consistently to provide orientation, and fixed spaces were created for video viewing and note reading, so that learners would be able to complete learning activities without the need to scroll up and down the pages to access instructions, audiovisual input, reference materials, and task questions (see Figures 2, 3, and 4, below for screenshots).

The bottom bar contains buttons that link to the five main areas within the CD-ROM, while the pull-down menu below the video screen provides easy access to the learning activities, organised into thematic units of work. Since these facilities are an integral part of the interface, users have unlimited access to all the sections of the CD-ROM at any point during their interaction with the materials. In other words, it is possible to navigate the CD-ROM in any preferred sequence of access. A "home" button on the top bar allows users to return to the welcome screen at any time, therefore ensuring that learners never lose their way in the navigation.

As previously observed, a design that allows freedom of navigation may not represent the best choice for learners who do not possess the necessary metacognitive knowledge and skills to be completely autonomous. In order to limit cognitive overload, and to offer scaffolding for more inexperienced learners, we included a suggested sequence of access to the materials and tasks offered, by including navigation buttons in each activity page. The buttons (visible in Figure 3) allow learners to progress to the next available activity without returning to the table of contents, hence making the navigation similar to the familiar, linear pattern of access experienced when turning the pages in a book.

Assistance and scaffolding in planning, monitoring and evaluating one's learning process were offered in the form of

- A list of aims and objectives, linked to the relevant grammar, communication and culture notes and included in the "Topic information" section of the CD-ROM. Information about aims and objectives of individual activities was also provided in the table of content of each unit of work, together with a short description of what the activities involved (see Figure 2 for an example).

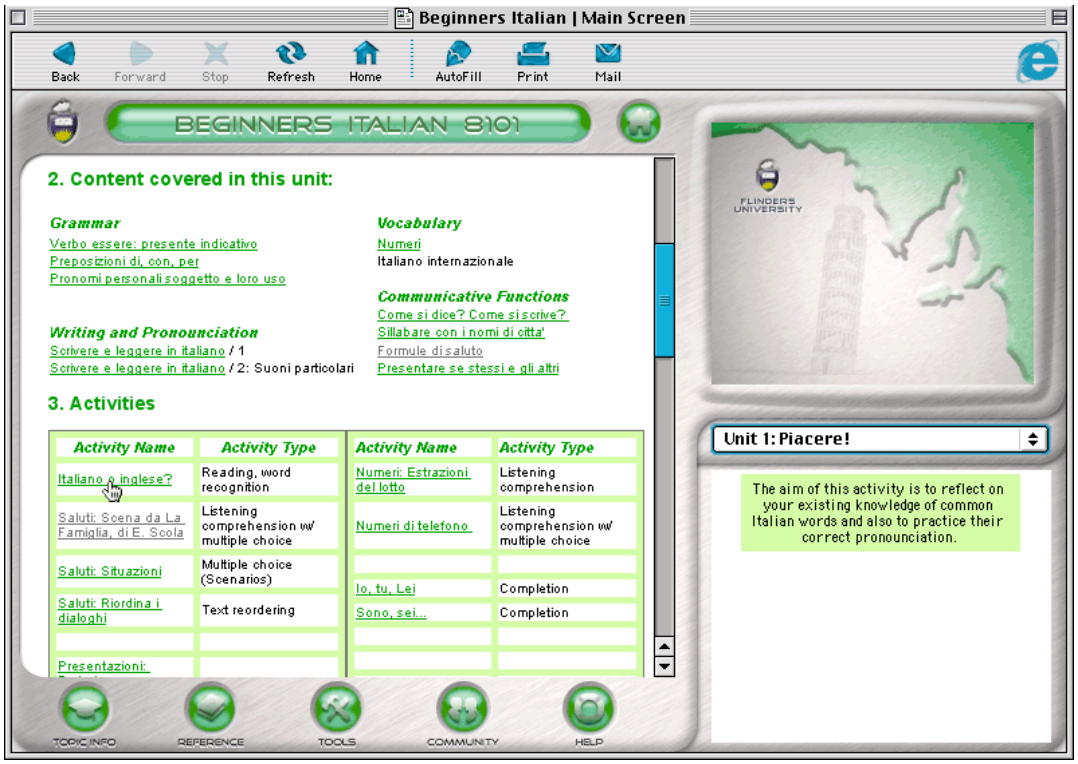

Figure 2. Table of content for unit 1 of the Italian CD-ROM

- Detailed information about assessment requirements and procedures for submission of student work, also included under the "Topic information" heading.
- An interactive topic calendar regularly updated by instructors to include all relevant dates and deadlines, available from the WebCT course Web site (links to the calendar were provided in the "Topic information" and "Learning Tools" sections).
- A whole section of the CD-ROM reserved for suggestions on how to enhance one's learning by employing a variety of learning strategies. Links to learning strategies that were especially relevant to the tasks and materials offered in each unit of work were featured prominently in the table of contents. At the beginning of the course, for example, learners were encouraged to find out more about themselves and their preferred learning styles and strategies, by completing surveys available online from external Web sites.
- Finally, at the end of each unit of work, learners were encouraged to evaluate their learning by reviewing the stated aims and objectives, and by taking self-assessment tests available from the WebCT Web site (see Figure 4).

As noted in the previous section, the CD-ROM contained a variety of learning activities, many of which involved access to audiovisual materials, in order to compensate for the lack of face-to-face interaction with sources of the target language that is a characteristic of distance learning, and also to exploit the advantages offered by hypermedia. Video clips and audio segments for listening comprehension activities were recorded for the *Envol* CD-ROM on the basis of scripts created by instructors at Flinders University. In the case of the Italian CD-ROM, interviews with native speakers were videorecorded without a predetermined script in order to ensure input authenticity. TV and radio broadcasting, as well as film excerpts, were also used to increase learners' opportunities for exposure to a variety of authentic input sources.

Learning activities were created using a wide range of approaches, to ensure correspondence with individual learners' interests, learning styles, and skill levels. For example, some exercises required

minimal language production, such as those involving listening to a dialogue and recognising some of the expressions used by the interlocutors by selecting them from an available list or answering true-or-false questions (see Figure 3).

Figure 3. Listening comprehension activity from the *Envol* CD-ROM

Other activities placed greater emphasis on written production by asking learners to reorder given sentences to reconstruct written dialogues, complete texts by filling in gaps, type words corresponding to the definitions given in crossword puzzles exercises, or write short answers to comprehension questions. Tasks requiring learners to exchange personal information, mainly through the WebCT bulletin board, were also made available in order to enhance opportunities for learner-learner interaction and task authenticity. In the Italian version of the course, at the end of each unit of work, a written assignment required learners to use the knowledge and skills gained through more structured activities included in the CD-ROM in order to get to know their fellow students and instructors. The themes introduced in the units concerned personal habits, characteristics, and feelings, hence providing scope for authentic communicative exchanges. At the end of the first unit, for example, students were required to introduce themselves to other learners taking the course by posting a message in the WebCT bulletin board, as shown in Figure 4.

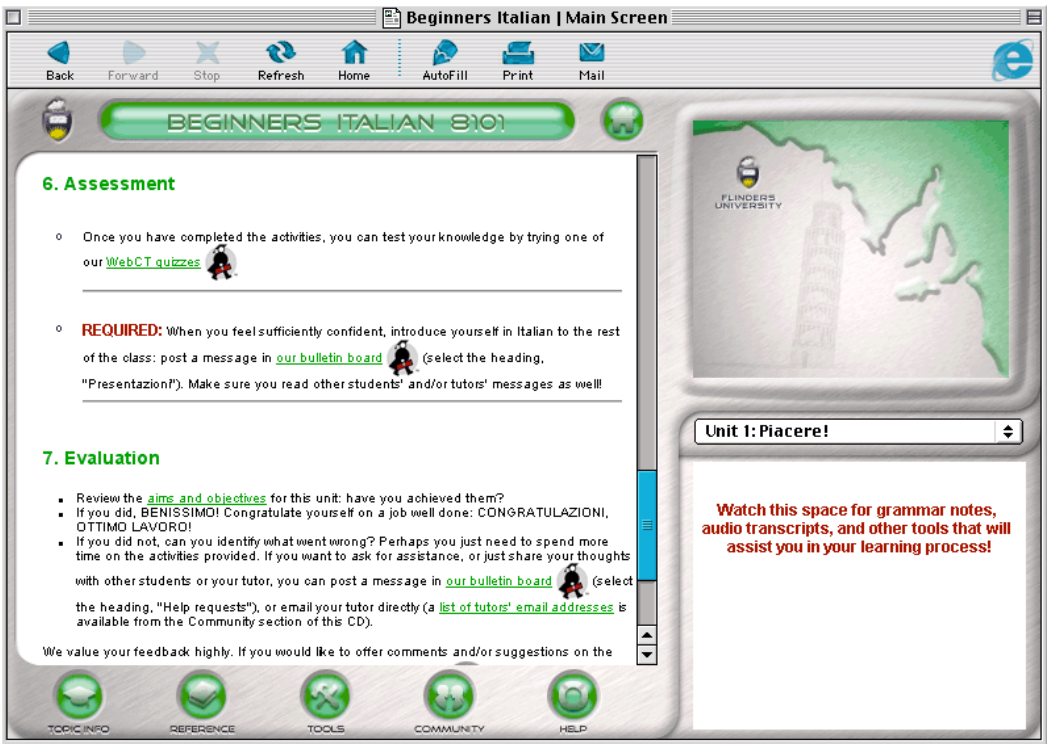

Figure 4. Italian language task at the end of unit 1

Other tasks of this type involved describing one's family, usual activities on a working day, hobbies, favourite food and recipes, home, best friend, and so forth. Special topics were created in the course bulletin board for this purpose (see Figure 5).

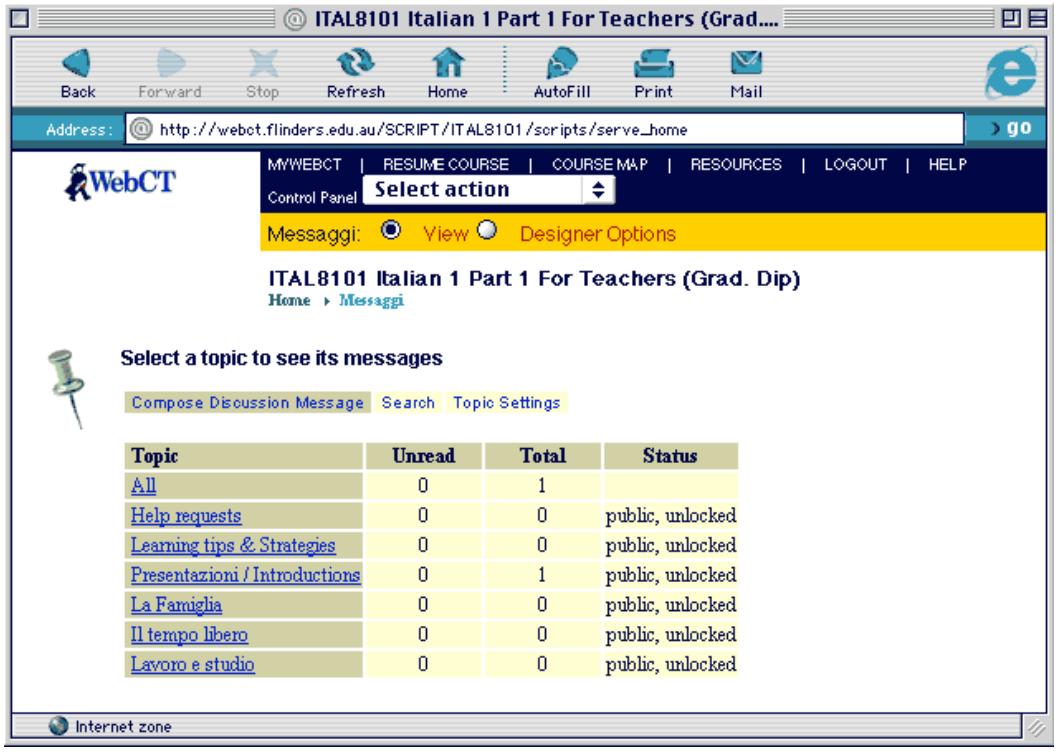

Figure 5. Discussion topics in the Italian course bulletin board

It was decided that instructors would participate in the interaction by posting messages about themselves to model the tasks, as well as to establish personal links with the students. A chat facility was also provided in order to encourage learners to "meet" on line and interact more freely, not only to establish closer relationships but also to practise conversation topics in preparation for oral tests (to be taken during telephone appointments with the instructor or in person on campus, whenever possible).

In addition to the tools discussed above, other measures were taken to foster learner collaboration and consequently the development of a sense of community. In particular, learners could develop personal Web pages, post learning tips and notes that they felt were especially helpful, and build a collection of useful links. Furthermore, a space was reserved for help requests in the course bulletin board. The WebCT frontpage for the Italian course is reproduced in Figure 6.

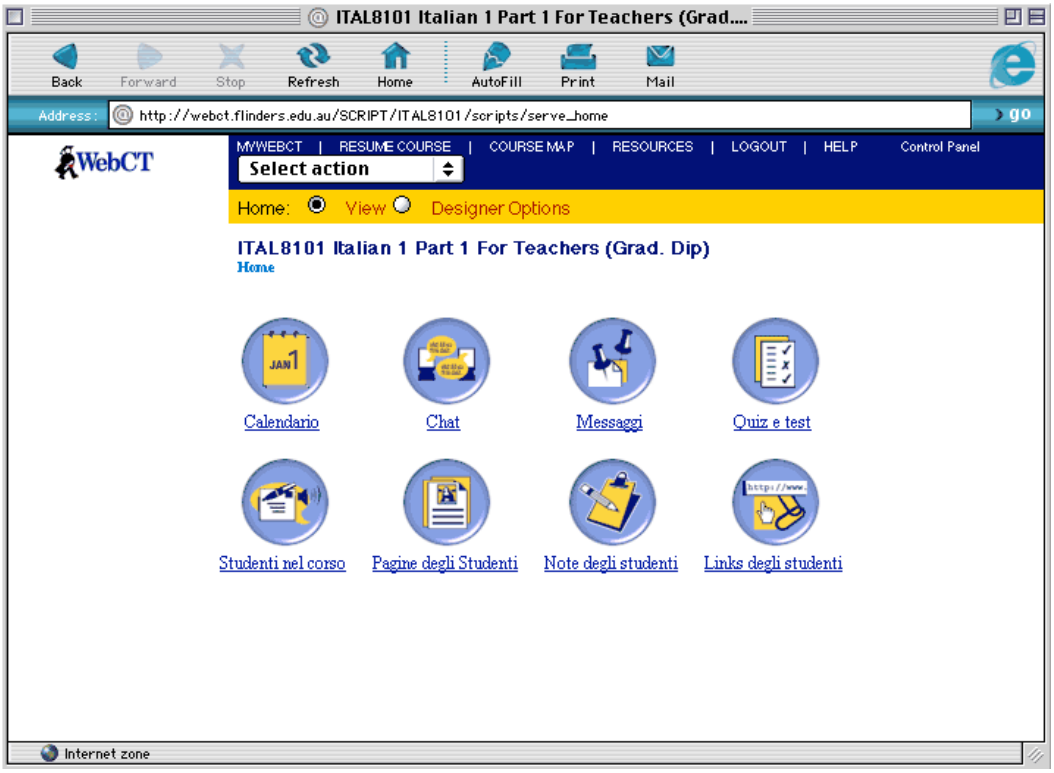

Figure 6. The WebCT front page for the Italian course

In developing our materials, we made a conscious effort to exploit those hypertext features previously identified as especially advantageous for language learning. In particular, all activities included in the CD-ROM provided immediate access to supporting materials, which could be requested by the users during their engagement in tasks. It was expected that this would enhance input comprehension and facilitate the production of comprehensible output. As shown in Figure 3, for example, when completing listening comprehension exercises, learners could request to view the relevant transcript, grammar or culture notes, or a glossary. The requested information would appear in the lower right-hand frame of the interface to ease cognitive load and facilitate association and memorisation, as previously discussed.

In the first few units of work, English was used extensively to ensure comprehension and limit the risk of learners' frustration, given the fact that many of our students have little or no competence in the target language when they enrol in the course. Starting from units 3 to 4, the target language was gradually introduced as the main language of instruction. However, by clicking a button, learners had the possibility to access an English translation of the task instructions.

Finally, all materials and tools included in the CD-ROM and in the WebCT sites were extensively cross-linked to facilitate associative processes, and especially to provide learners with opportunities to request and obtain assistance and scaffolding at any point during their learning experience.

The design and development process was an exciting, but at the same time extremely challenging and time consuming task, given our little experience in developing ICT materials and the limited resources available to a small Language Department such as ours (see Concluding Remarks for further discussion). The most important test, however, was still to come: It was time to obtain some preliminary data on the effectiveness of our design. In the next section, we report on the process of piloting the French version of the CD-ROM.

TAKING OFF: PILOTING THE FRENCH CD-ROM

The *Envol* CD-ROM was first piloted in 2002. The implementation of the WebCT component included in our initial design, however, was temporarily put on hold for several reasons. Firstly, most instructors had limited familiarity with ICT and did not possess the necessary skills to provide assistance in case of (likely) technical problems encountered by the students. Secondly, time and resource constraints imposed limitations on the rate of our progress within the development process. As a result of these considerations, it was decided to focus on the CD-ROM, while WebCT would be used mainly to provide information about the course. A course bulletin board was included in the course Web site, and students were encouraged to post messages; however, the use of this tool was not assessed, and was therefore considered optional. Consequently, although learners were able to correspond with each other on everyday topics after a few weeks of instruction, actual usage of the bulletin board was extremely limited. Opportunities for oral interaction continued to be offered principally through telephone appointments between the students and their instructors.

In semester 1, 2002, when the *Envol* CD-ROM was piloted, the language course was divided into six thematic units of work to be covered in 13 weeks. Five of these units (that is, units 2 to 6) were subject to formal assessment in the form of take-home assignments and tests. The CD-ROM was sent to students prior to the start of the semester with a cover letter outlining the objectives of the topic. Students were advised to preview the content of the CD-ROM before contacting the instructor during the week preceding the start of the semester.

On first contact, the instructor gave a guided tour of the CD-ROM, pointing out its essential features in terms of navigation and content. Individual appointments, either face-to-face for students able to attend the University campus, or by telephone, were scheduled once weekly and lasted for about 45 minutes. These appointments were to take place preferably towards the end of the week to allow students to complete the assigned weekly work prior to the consultation session. During these sessions, the work was discussed and additional grammatical explanations were given, in English if needed. Model-dialogues included in the CD-ROM were practised and students were expected to engage in free conversation with their instructor in the target language. Assignments were given at regular intervals and were made available on WebCT for two-week periods (one week before and one week after the suggested assignment due date), allowing students to be one week ahead or one week behind schedule if needed. The oral production part of the assessment was done face-to-face on campus, or by telephone if students were unable to travel to the University.

At the end of the first semester informal evaluations of the *Envol* experience were conducted. Given the fact that only four students had used the materials, we opted for semi-directed interviews to collect qualitative data, rather than administer a questionnaire, which, due to the small number of respondents, would be of little significance.

Authenticity, relevance, and usefulness were some of the features closely associated with the *Envol* CD-ROM, as shown by the following students' comments:

> [The CD-ROM] was always there to refer back to.
>
> The video and sound made [the CD-ROM] complete.
>
> The grammar was well organised and more thorough than in other commercial [interactive] courses [...] tried before.
>
> The [content of the CD-ROM] was realistic and could be easily related to.
>
> The navigation was easy and logical.
>
> The links were useful.

A few negative comments were also made, mostly concerning the unavoidable technical glitches occurring during the use of the CD-ROM. For example, some video-clips were not running, and some of the activities providing automatic feedback lacked consistency or contained errors. However, the students were extremely satisfied with the CD-ROM. In fact, they expressed strong preference for the organisation of the first semester of the course, compared to the second part, in which only commercially available materials were used. In fact, even though the new edition of the textbook package contained a CD-ROM and online resources (see note 1 for details), the students believed that it lacked the cohesiveness and coherence provided by the *Envol* CD-ROM. They also observed that the *Envol* CD-ROM was a comprehensive point of reference and contained learning activities that were more suitable to the context of adult distance language learning, which made the learning process more efficient and effective, and ultimately more enjoyable.

While the results of these evaluations are extremely encouraging, it must be recognised that our learners' positive attitudes in relation to their experience in the GradDipLT are still largely dependent on the instructors' efforts to establish positive relationships with their students and to provide a high degree of flexibility and support. As discussed in the Background section of this article, such high levels of instructor-learner interaction are not economically sustainable. Therefore, it is necessary to identify alternative ways of promoting quality interaction to compensate for the anticipated reduction in contact time.

Furthermore, we believe that learners' interaction with other learners is necessary to maximise input exposure and output production, as well as to create a community of learners and, consequently, a support network. In comparison to students attending our regular classes on campus, who receive 5 hours of language instruction every week, distance students working in isolation have reduced opportunities for participating actively in, or even observing, conversational exchanges.

It is expected that the introduction of the WebCT component of our design will allow us to foster learner-learner interaction and task authenticity, and to reduce direct contact time between students and their instructors. We are also exploring options relative to the use of audio-conferencing tools to build virtual classrooms, in order to provide oral, as well as written input and interaction. Building a virtual classroom may, however, limit the degree of flexibility provided if students are required to "meet" online at the same time and, more importantly, to maintain the pace imposed by the instructor. Indeed, we found that one of the challenges posed by distance learning and teaching is trying to strike a balance between flexibility, especially with regard to assessment deadlines and course content, and a need for structure and close monitoring of the learning process by the instructor. On the one hand, both instructors and learners recognise that it is important to establish work deadlines. On the other hand, in order to offer real flexibility, we need to allow learners to study at their own pace and to select the learning materials and practices that best correspond to their interests and skill levels.

CONCLUDING REMARKS

Our involvement in the conceptualisation and the development of the French and Italian language courses has presented an important pedagogical challenge. Having gone through the design and piloting stages of the project, we have come to realize how largely unaware we were initially of the many principles and issues pertaining to the development of an instructional environment for distance language education.

While the results obtained in our preliminary evaluations are encouraging, a number of questions remain open. Firstly, the small number of students involved in the piloting phase, coupled with the fact that no formal evaluations were conducted, do not allow us to draw conclusions as to the impact of the instructional materials we designed on learners' attitudes and motivation. Further studies need to be conducted on a larger scale, employing rigorous methods of data collection and analysis.

Furthermore, the full implementation of our original design, which includes both the CD-ROM and the WebCT component, will introduce modifications that can be expected to influence learners' attitudes towards the course. In particular, as the new environment will be more reliant on ICT, and opportunities for direct contact with the instructors will be somewhat reduced, it will be necessary to monitor the students' reaction to these important changes.

Although affective variables, such as students' attitudes, are central to the process of SLA and especially to distance language learning, it is imperative that the ability of our learning environment to promote language development be also investigated. Therefore, further studies will have to be conducted that focus on our students' learning processes and outcomes and that evaluate our materials' effectiveness in facilitating SLA.

It is also extremely important that the results of formal and informal evaluations are integrated into the process of material development. As Egbert and Thomas (2001) have noted, in order to provide the necessary flexibility to accommodate the changing needs of our learners, the process of instructional design must be "inherently iterative and evaluative in nature" (p. 404). However, this may present a problem for teams working within relatively small language departments, where the time and resources available for material design tend to be extremely limited.

In the case of this project, for example, language lecturers were assigned the task of designing the course as an addition to their regular workload. Consequently, and due to their limited experience in the development of ICT materials, it was necessary to rely quite heavily on assistance from the University's IT support staff, who had little awareness of the pedagogical issues involved in language instruction. As a result, the development process was extremely time consuming, as well as frustrating at times, especially when the original design had to be modified to compensate for technical limitations. The risk of developing technology-driven, rather than pedagogically sound materials, was a constant reality. In order to avoid potentially serious pitfalls, it is imperative that administrators be made aware of the complex issues involved in the design of distance language learning environments, and that appropriate resources and support be made available.

Despite the limitations of our project, our experience has been a positive one. Not only have we gained an understanding of the dynamics involved in distance education, but we have also had to reassess radically our teaching practices to suit a new teaching and learning context. We now look forward to the full implementation of our design and to being able to evaluate our effort in relation to the learning outcomes of our students. We hope that other language instructors operating in contexts similar to ours will benefit from our experience, and that this article can contribute to enhancing their awareness of the pedagogical and technical issues that need to be taken into account when designing ICT-enhanced environments for distance language learning.

NOTE

1. The *Deux Mondes* (Terrell, Rogers, Barnes, & Spielmann, 1997) course package was selected for the French course, while the *Prego!* (Lazzarino, Aski, Dini, & Peccianti, 1997) package was the prescribed text for the Italian course. At the time, the packages included a textbook, a workbook and audiotapes. Current editions are distributed with a CD-ROM containing audiovisual materials and language activities providing automatic feedback.

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