IS INFORMATION TECHNOLOGY WORTH THE EFFORT IN LANGUAGE LEARNING?

Review by Phillip Towndrow

INTRODUCTION

English language teachers in Singapore schools need to balance a number of concerns when it comes to the use of information technology (IT) in their lessons. On the one hand they are mindful of the goal for pupils to spend up to 30% of curriculum time using IT (Ministry of Education, 1997) and this has led to pressure from school management teams to meet this objective. Keen as they are, teachers feel the pinch on their time as they have to get their regular administrative duties and co-curricular activities out of the way before they can turn their often diminishing attention to the time-consuming process of preparing digitally-based teaching and learning materials.

On the other hand, language teachers are rightly concerned about whether the use of IT is appropriate and useful given their pupils’ needs and interests. After all, less time-consuming means can be found to facilitate interactivity, multi-media, hypermedia and even hypertext in the low technology classroom. This has led many, including this reviewer (Towndrow, 1999) to question whether IT is really worth the effort in language learning.

This article reviews some relatively recent research into computer-assisted and Web-assisted language learning and attempts to show that IT probably does have a useful role to play in language education but only when the nature of the investment in time is understood differently. The review concludes with some suggestions for maximising the potential of IT in and beyond the language classroom.

REVIEW OF RESEARCH

Pre-Internet and World Wide Web

Prior to the Internet and use of the World Wide Web, the power of the computer in language learning was debated extensively from 1980 to the mid-90s. Early pioneers in the field of Computer Assisted Language Learning (CALL) were confident that computers were ‘quite flexible enough to serve a variety of learning theories’ (Higgins & Johns, 1984) and that they could motivate students (Maley, 1989). Following the rise and popularity of communicative language teaching approaches, CALL was described by Stevens (1992) as ‘coming of age’, as practitioners developed courseware that lent itself more to learners’ needs and interests. However, it was not until 1996 that the full power of CALL in language learning was articulated. Pennington (1996), in a widely acknowledged edited volume, claimed that CALL could increase the variety of learning opportunities and the quality of learning experiences by
making input more learnable and accessible to individual learners.

Whilst there was no shortage of positive claims for the efficacy of CALL, there was little actual evidence beyond the level of personal anecdote to support the claims of the pre-Web enthusiasts. Moreover, studies in which the use of CALL has been compared with traditional instruction have not tended to show a significant difference (Bradin Siskin, 2001). As Chapelle et al. (1996) noted, CALL research that compared achievement levels between experimental and control groups in pre- and post-test studies, either yielded positive or neutral results. Then again, other studies dealing with CALL drill-and-practice lessons did not report any greater achievement over ordinary instructional methods. Difficulties such as these, one might speculate, arose largely for two reasons. First, the technology has been changing rapidly and secondly, when it came to the use of IT in the (language) classroom, researchers were either unclear of what they were looking for in terms of increased learning performance or had inadequate tools to measure the phenomena under inspection.

This last point was illustrated particularly well by the Apple Classrooms of Tomorrow (ACOT) research and development project that ran from 1985-1998 among a cross-section of schools, universities and research agencies in America (ACOT, 1995). ACOT classrooms were technology-rich environments where teachers and students had immediate access to a wide range of equipment and software designed to promote thought, collaboration and communication. The results from the first two years of ACOT showed, for example, that students maintained their performance levels on standard measures of educational achievement in basic skills. The findings also indicated that teachers valued the opportunity to use computers in their teaching, as it made their duties more interesting. Most significantly, ACOT study sites showed evidence of effectiveness in supporting growth in competencies that were not assessed particularly well by traditional measures (for example, the deep understanding of concepts and problem-solving skills). This led researchers to devise more suitable measures of students' performance and attitudes in high-access technology environments. Such assessment tasks involved, for example, students using multimedia software tools to create concept-maps to demonstrate their understanding of the interrelationships between facts, concepts and principles. Notably, ACOT also pioneered the systematic assessment of student portfolios of work - showcase collections of best work over an extended period of time.

The success of the ACOT project in the nineties had a significant impact on the way the computer was perceived as a teaching and learning tool. But just as language teachers were beginning to appreciate how computers could be best used in the classroom, the nature of the medium changed radically with the availability of globally networked computers.

**The Internet Age**

The introduction of the Internet and its most popular interface, the World Wide Web, has generated fresh debate concerning the usefulness of wide area networks in serving learning objectives, and this has led to a great deal of effort being spent in the attempt to identify effective approaches. As Gilster (1997, p. 81) has remarked, 'education on the Internet is a grand experiment'.
As far as language learning on the Web is concerned, practitioners note that the technology has advantages over the previous generation of CALL because it is seen as being cheaper and easier to develop resources that offer the possibilities for co-operative and collaborative activities between students at the same and different institutions (Felix 2001). At the same time, technology, ideas and implementations on the Web are changing very quickly, and this poses, once again, new challenges for researchers to understand the optimum conditions for collaborative and cooperative learning on the Web. Some interesting findings are beginning to emerge.

Ganderton (1998), for instance, examined the reading processes of six intermediate high school learners of French performing information retrieval tasks and free browsing on French language sites on the Web. The analysis of data collected suggested, amongst other things, that participants did not appear to read longer continuous portions of text at any one time, as in print-based reading. In fact, they avoided long text and tended to browse in a desultory manner, dipping in and out of sites (Towndrow, 1999). Ganderton's study drew attention to two other needs: first, the need to define the kinds of tasks best suited to Web-based instructional reading materials, and secondly, to assist language learners in using the facilities of the Web, such as search engines, to perform academic tasks.

In a pioneering research study, Vilmi (1999) worked with 240 students in a global e-mail writing project. Teams of students from Helsinki, Paris and Hong Kong were involved in a task-based activity that required them to exchange information in order to design a robot. Apart from practising the use of technical vocabulary, the project showed how IT could be successfully used to foster collaborative effort across distance. Vilmi's project also highlighted some of the difficulties involved in organising large international ventures. In particular, it was noted that students needed short assignments and regular deadlines to work most efficiently. Notably, it was also realised that tasks can be perceived as too demanding and stressful when students have to depend on considerable information input from their peers. The need to rely on peers, it seems, introduces a higher level of stress. These discoveries led Vilmi to make modifications in the design of the project that allowed for individual written work to be done within a framework of options.

There is evidence to suggest that cultural factors might have a significant influence on the effectiveness of learning with IT. In a recently completed study involving 15 Chinese scholars studying academic reading comprehension skills in an on-line learning environment, Towndrow (2001) found differences in motivational responses to difficulty. While some participants were optimistic in their approaches to challenge and were disposed to use considerable amounts of effort to successfully complete the tasks set, others found their progress ultimately hindered by their own negative affective responses to the technology, materials and pedagogy used on the course. These discoveries are considered to be of particular use to the on-line teaching and learning community as they highlight the shortcomings of learning environments that attempt to apply an acultural approach to language learners' needs and
interests. This is often done in the mistaken belief that neutrality on the Web is the best way to reach the widest possible audience.

**DISCUSSION**

The above review of literature and research suggests that whilst there can be few certainties concerning the role and use of IT in language learning, practitioners are making some progress in understanding the nature of the media they are working with and the best ways in which they can be deployed. Thus, it is not unreasonable to state that computers can be shown to have a useful role to play in language education under the conditions of informed use.

Three areas are suggested where steps can be taken by language teachers to maximise the potential of IT. It should be noted that the success of each one depends on developing a long-term strategy. Experience shows that immediate gains in extracting value from IT are unrealistic and it is recommended, therefore, that IT be taken on board incrementally. After a while, strategies can be combined to produce results that truly repay the time and effort invested in them.

Firstly, busy teachers are recommended to start using digital media in their classrooms by taking advantage of the vast amount of information that is now available on compact- and video-discs, and in educational software packages. However, as far as ‘home-grown’ materials are concerned, it is probably not worth producing IT-based materials with the sole purpose of replicating print-based forms. For example, it needs to be realised that electronic slides are not any better than overhead transparencies when it comes to the manner in which information is presented on the large screen. In fact, when used badly, computer-based presentations are a hindrance to communication for both the presenter and the audience.

Secondly, there is great merit in working with computers when they are used to do things that could not have been achieved by any other means. For instance, novice computer users can create high-fidelity content that integrates audio, video, pictures and text using desktop movie-making software (Apple 2001). School projects nationwide in America have consistently shown that students working with interactive media find it motivating, fun and meaningful especially when the focus on learning is equally spread between product and process. Additional value is added to this kind of work as it can be shared and distributed easily within the global educational community.

Finally, IT can perhaps be of greatest benefit to language teachers when it is used to overcome the limitations of what an individual can be reasonably expected to produce given his or her duties and responsibilities. When teachers work in teams and share their digital resources the personal qualities of team members can be optimised and this can lead to personal growth. However, simply bringing people together does not necessarily lead to advancement. What is required is for language teachers to collaborate on projects and this involves embarking on a joint effort that creates a value that is greater than its individual parts. Put another way, collaboration involves creating something, for example, a bank of materials or an on-line database of resources, which could not possibly have been achieved without the input of colleagues.
CONCLUSION

In closing, this review set out to show that IT was appropriate and useful in language education. In general, the literature and research findings portray a positive view of the computer as an aid to language learning and this should encourage Singapore teachers. Clearly, given the speed at which IT is developing, practitioners are constantly being challenged to find effective methods of maximising the power of the computer in the language classroom.

Teachers are advised to adopt a long-term strategy that aims beyond simply replicating print-based materials towards embarking on projects with IT that could not be achieved by any other means. Importantly, IT can and should be used to allow individuals to transcend the limitations of individual enterprise. This leads to a call to teachers to collaborate by sharing their digital resources. Ultimately, collaboration between language teachers requires breaking away from a competitive mindset. Competition often creates and reinforces rivalries. It is through learning to understand the virtues of collaboration that we will be able to maximise the power of IT as tool in language teaching and learning.

IMPLICATIONS

- Implementing IT needs to be seen as an incremental process. It is unrealistic to expect immediate gains. By taking a longer-term view, strategies can gradually be combined to produce results that truly repay the time and effort invested in them.

- One way of starting with digital media in the classroom is to use what is already available on compact- and video-discs, and in educational software packages.

- There is little value in producing IT-based materials that simply replicate print-based forms. Inferior computer-based presentations can actually hinder communication.

- Computers are most effective when they are used to do things that could not have been achieved by any other means, such as using interactive multimedia ware in film production. Learning can then be motivating, fun and meaningful, especially when the focus on learning is equally spread between product and process.

- Teachers need to be aware that the effectiveness of computers for teaching and learning can be undermined by cultural and affective factors, reading behaviour and unrealistic expectations of student collaboration.

- When teachers share their digital resources and work collaboratively IT can lead to achievements beyond the scope of any individual.
SOURCES


