



UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

Analytical Survey

**INFORMATION AND
COMMUNICATION TECHNOLOGIES
IN THE TEACHING AND LEARNING
OF FOREIGN LANGUAGES:
STATE-OF-THE-ART, NEEDS
AND PERSPECTIVES**

UNESCO INSTITUTE
FOR INFORMATION TECHNOLOGIES IN EDUCATION



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Information and Communication Technologies in the Teaching and Learning of Foreign Languages: State-of-the-Art, Needs and Perspectives. Analytical Survey

This analytical survey sets out to give a general overview of the availability of technology for foreign language (FL) teaching and learning today, to outline the various uses of information and communication technologies (ICTs) in this sector, to provide a few, selected studies of best practice, illustrating meaningful deployment of these resources, and to point towards future developments and possible implementation in the coming decade. It highlights the importance and the role of the teacher in ICT-rich foreign language learning environment and shows how such environments can contribute to cross-cultural understanding.

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INTRODUCTION

Purpose of the study

This study sets out to give a general overview of the availability of technology for foreign language (FL) teaching and learning today, to outline the various uses of information and communication technologies (ICTs) in this sector, to provide a few, selected studies of best practice, illustrating meaningful deployment of these resources, and to point towards future developments and possible implementation in the coming decade. It highlights the importance and the role of the teacher in ICT-rich foreign language learning environment and shows how such environments can contribute to cross-cultural understanding. Methodological implications of the use of the new media in language learning and language teaching are considered, and suggestions are made for the use of the Internet as a forum for exchange between practitioners and researchers.

Comments and conclusions focus on the relevance of ICTs in foreign language teaching/foreign language learning (FLT/FLL) to achieve overall language learning objectives, the potential of the new media for improving the quality of foreign language teaching and for increasing the number of successful foreign language learners, as well as providing support for endangered languages throughout the world.

The report does not claim to be exhaustive, but covers different situations in Africa, Asia, Europe, and America.

The advent of the information and knowledge society

The World Summit on the Information Society (WSIS¹) held in Geneva, Switzerland in December 2003 emphasised that we are in the midst of an information revolution, where the accelerating convergence between telecommunications, broadcasting multimedia and information and communication technologies is creating new products and services, as well as redefining ways of conducting business and commerce. The impact upon education and training is only just beginning to be felt, and there is an increasing awareness that changes of paradigm are needed, if the new media are to be used effectively and to the advantage of all.

The proposed action plan of the WSIS states that, to benefit the world community, the successful and continued growth of the new dynamic brought about by ICTs requires global discussion. It is the aim of the present publication to contribute to this discussion by indicating how language learning and teaching in the 21st century might surf the wave created by the different technical resources now available. Effective implementation will require partnerships with public and private entities, common formats and standardization, development of information resources, databases, knowledge, and information infrastructures that are equally available for all countries and regions. However, for this to happen, the prerequisites for effective use of the new resources for foreign language learning and teaching should be clearly established. Involvement of all the actors is essential from the outset, as the contribution by Graham Davies (*Aspects of Technology Enhanced Language Learning: a UK Perspective*) in this volume clearly illustrates.

The challenges for foreign language learning and teaching

In a world divided by clashes of cultures and beliefs, the potential of the new media for fostering intercultural understanding and exchange is enormous. In the history of mankind, access to information and knowledge has never been so straightforward at a local, regional, national, or global level. Judicious deployment of ICTs can encourage and sustain cultural and linguistic diversity in individuals and in society in general. Facilitating access to other cultures and languages is the chief goal of the language teaching profession, and using ICT resources effectively in their teaching represents one of the chief challenges facing language teachers today. In their contribution to this study (*Modeling a Field-Based Internet Resource for Modern Foreign Language Learning: the Case of RussNet*), Dan E. Davidson and Maria D. Lekic demonstrate the potential of ICT-driven language learning, highlighting the flexibility of the media available.

One important aspect that has evolved in the study of the use of ICTs in foreign language learning and teaching is that, as a subject area, it differs greatly from most other subject areas in the curriculum: it is both skill-based and knowledge-based. In this respect it has more in common with a subject like Music than, for example, History or Geography. This

¹ The World Summit on the Information Society, <http://www.itu.int/wsis/map/index.html>

has implications both for the types of hardware and software that are used in FLT/FLL, but also for FLT pedagogy and methodology. Increasingly, reference is made to the need for teachers and learners to acquire the “new literacies” involved in the appropriate use of the new media. This issue is addressed directly in the article on *Web Literacy for Language Teachers* by Bernard Moro in this study as well as in the article on *Information and Communication Technology in Foreign Language Teaching and Learning – an Overview* by Anthony Fitzpatrick, and is taken up later by other contributors.

From interactivity to passivity

Observers have noted that the Internet is moving away from its original model of cooperative communication based on exchange, and tending towards the logic of a mass broadcasting medium, resulting in a concentration of producers and the progressive disappearance of interactivity. This tendency towards passivity in the use of the new media can, we believe, be counterbalanced effectively in an approach to FLT which encourages cooperative, collaborative procedures, where teachers abandon traditional roles and act more as guides and mentors, exploring the new media themselves as learners and thus acting as role models for their learners. Case studies² show that there is closer interaction between teacher and students when the new media are employed. Language learners who have experienced this kind of approach are most likely to transfer the skills acquired to their daily practice in the use of the new media in the mother tongue. And, above all, this experience should lead to the development of a “user culture”, implying appropriate behaviour, which respects other people as well as the diversity of their opinions.

Linguistic and cultural diversity

At the Geneva summit, and elsewhere, leading figures in politics and education have warned of the dangers of the tendency for the World Wide Web to be dominated by one, or very few, world languages. Gaining access to information and sharing of knowledge is restricted to those who master those languages, as there is still a very low level of linguistic diversity on the Internet. This situation, with English predominating, constitutes a significant obstacle for the majority of the world’s population. Nor is it just content that presents a problem; there is also a dearth of applications and training manuals in the languages of many users. In many cases, taking full advantage of the Internet requires training in a foreign language. In the online discussion forum held prior to the symposium in Geneva, for example, language was identified as the principal barrier to successful use of ICTs.

Against this background, the importance of foreign language learning and teaching grows commensurately. And the solution is not merely to increase the teaching of English in the world, even if one argues that it has become the lingua franca of education, business, commerce, politics, and most other forms of human interaction on a global scale. For language represents a cognitive universe, and the risk of an excessively dominant language imposing itself brings with it the risk of standardization of expressions and “cultural uniformity”, albeit for an elite group. The accompanying marginalization of those who do not master the tools to gain access represents an increasing danger to stability and peace. And it should not be forgotten that the preservation of linguistic diversity also implies the promotion of marginalised languages, in particular those, which do not possess written forms of expression. In his article in this study (*Of Digital Divides and Social Multipliers: Combining Language and Technology for Human Development*), Mark Warschauer demonstrates how the preservation of an endangered language may benefit from using the various tools and methods offered by ICTs.

Bridging the “digital divide”

For many developing countries, ICTs are considered a critical catalyst to enable the country to “leapfrog” ahead in technology-application, by skipping some stages of development, and becoming a member of the post-industrial society more quickly than would otherwise be possible. In her contribution, *Informatizing Foreign Language Teaching in China*, Fang Xu shows how tertiary education in China is taking up this challenge in the field of foreign language learning and teaching. She highlights some successes, but underlines the pitfalls which are encountered along the way. In a similar vein, Mounira Soliman (*Computer Enhanced Learning in the Egyptian Classroom*) depicts problems

² c.f. the case studies cited in *The Impact of Information and Communications Technologies on the Teaching of Foreign Languages and on the Role of Teachers of Foreign Languages*, Fitzpatrick, A. (ed.), European Commission, Brussels, 2003.

encountered in Egypt, where resources are limited and where the morale, motivation and involvement of teaching staff are seen as key factors in the successful introduction of new media. She highlights the impact of using technology on learning outcomes, the effect of integrating web-based and face-to-face instruction as well as the change in the role of instructors and students.

Yet, the problems addressed in the contributions from China and Egypt are also mirrored in Andreas Lund's article on *Teachers as Agents of Change: ICTs and a Reconsideration of Teacher Expertise*. Writing about the impact of ICTs in the highly technologized society of Norway, he observes that teachers still find it difficult to decide how and to what extent such technologies fit into classrooms and other settings of formal schooling. The "divide", then, seems to be more in the minds of the actors rather than in specific societal contexts. In all three studies research demonstrated that where ICTs are successfully implemented, teachers are a crucial factor, if not the most decisive element in their successful integration. The three articles indicate that the new media do not automatically enhance teaching and learning, but actually transform such practices. All show that the conditions favouring successful, innovative and future-oriented ICT practices in foreign language learning and teaching encompass many different levels: classroom, educational organization (e.g. school/university), and regional/national level.

In euphoric descriptions of the educational possibilities offered by ICTs in the information society, it is all too easy to forget that many developing countries, for example in Africa, are ill-equipped to face the challenges raised. Salam Diakite (*The Potential of ICTs for Transforming Language Education in Africa*) points out that formal education in Africa is one area that still seems to have benefited least from the use of advanced technology, "certainly because educational technology requires precise organization, not only in itself, but also for its efficient application within the education system". Again, he sees the key to success in a system which employs professional, well-trained teachers, where schools are free to plan their own systems of work, where teachers are autonomous in their classes, and where learners are encouraged to discover and solve problems for themselves.

The authors of this study emphasise that the training of teachers should focus on three main areas: on technical aspects of ICTs, on development of content, and on the potential possibilities and challenges of ICTs. The development of distance learning, training and other forms of education and training areas is seen as promising and as part of essential capacity-building programmes, which now no longer need to be confined by geographical or time limits. And it would seem that the field of foreign language learning and teaching lends itself ideally to the much called – for promotion of international and regional cooperation in the field of capacity building.

In advocating the intensive and effective deployment of broadcast and more traditional audio-visual media in Africa, Salam Diakite echoes a demand made at the Geneva summit, where delegates pleaded for a closer integration of the traditional broadcast media with ICTs. They would like to encourage the use of unused wireless capacity, including satellite systems, to improve low-cost connectivity, especially in developing countries. Broadcast radio and television language learning programmes have a long and successful tradition and have much to offer. The experience in the United Kingdom, reported by Graham Davies in *Aspects of Technology Enhanced Language Learning: a UK Perspective*, may serve as a model for cooperation in this field.

The potential of ICTs in language education

ICTs can expand access to language programmes and improve the quality of teaching and learning in general. The World Wide Web expands the classroom context and provides access to current, up-to-date materials from the country or countries of the target language, offering learners and teachers a plethora of materials in different modes, bringing the foreign culture and language to life and making it more tangible.

In environments where teaching staff are not able to fulfil all requirements of the curriculum with regard to the skills and knowledge required, ready-made, high quality audio-visual and other programmes may provide sufficient backup for them to offer appropriate courses without having to engage in time-consuming and expensive (re)training. Andreas Lund's article points out that there is a strong tradition of Computer Assisted Language Learning (CALL) addressing materials, software packages and technologies that aid and promote cognitive development and linguistic performance, but emphasises that we must pay more attention to how technologies are embedded in larger social and cultural practices for them to be truly effective. The professional isolation of teachers may well be relegated to the history books, if they learn how to use the potential for networking, which ICTs offer.

The affordances and deployment of multiple media are well illustrated in the contribution by Dan E. Davidson and Maria D. Lekic, where they not only show how different exercises can offer practice in basic skills and how learners may use new information to solve problems, but also how they can bring the Russian-speaking world into the classroom.

Summary

The positive affordances of ICTs in FLT/FLL have been recognised in most educational contexts; the technology and materials are available, but ongoing training is essential if we are to reap the benefits of the rich learning environment, which ICTs offer for foreign language learning. As training and education become increasingly time and place independent, new models must be found to integrate the new media into a principled approach to teaching and learning, which enriches and supplements traditional materials and well-tried delivery systems in existing institutions.

The different contributions in this study show some of the potential of the new technologies for language learning and language teaching. They also warn us of being over-optimistic. Above all, they recommend careful analysis of specific needs for different educational contexts before deploying the media, and advocate conscientious planning at all stages of the introduction and implementation of new programs and programmes.

CONTRIBUTING AUTHORS

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Andreas Lund is a researcher at the University of Oslo, Norway. Since the mid-1980s he has worked with ICTs in language learning and teaching as well as in teacher education. His Ph.D. thesis focused on teachers' beliefs about technologies and teachers' practices in technology-rich learning environments. From a sociocultural perspective, Lund has written extensively on relationships between learners, teachers, and technologies. His current work centres on how ICTs might be employed in developing higher order skills.

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empirically based study of adult second language acquisition during study abroad; his Bilingual Associative Dictionary of English and Russian will appear in 2004. Davidson was elected to the Russian Academy of Education in 1997 and holds honorary doctoral degrees from the Russian Academy of Sciences, Almaty State University, and the State University of World Languages, Uzbekistan. He has received awards for distinguished service to the profession from the American Association of Teachers of Slavic and East European Languages (AATSEEL) in 1995 and the Association of Departments of Foreign Languages of the Modern Language Association (ADFL/MLA) in 1997.

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Maria D. Lekic is associate professor of Russian at the University of Maryland and director of the multimedia division of the American Council of Teachers of Russian (ACTR). In the latter capacity, Dr Lekic oversees the design and operation of the principal online field-based resource-sharing networks for the Russian and Central Asian language studies fields in the U.S.: RussNet and CenAsiaNet. She is author or co-author of several of the major textbook materials used today in the U.S. at the college and pre-college level, including the widely used video-based course *Russian Stage One: Live from Moscow!* and *Peers*. She has served as an ACTFL-certified tester-trainer for the Russian oral proficiency interview and has contributed to a broad range of Russian language-related testing initiatives, including the ETS Reading and Listening tests, the Simulated OPI (SOPI) at CAL, web-based test programs for Russian at the American Institute for Research, computer-mediated testing for reading and listening at CAL, and testing of the U.S. astronauts at the Johnson Space Centre. She is currently project director for the first Internet-based pilot advanced placement curriculum and examination for American students of Russian.

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INFORMATION AND COMMUNICATION TECHNOLOGY IN FOREIGN LANGUAGE TEACHING AND LEARNING – AN OVERVIEW

Anthony Fitzpatrick

This first section draws heavily upon contributions by the present author to two publications which appeared in 2003: *The Impact of Information and Communication Technologies on the Teaching of Foreign Languages and on the Role of Teachers of Foreign Languages*, a report commissioned by the Directorate General of Education and Culture of the European Commission¹, and *Challenges and Opportunities in Language Education: the Contribution of the European Centre for Modern Languages 2000–2003*, Council of Europe². We are grateful to these two European institutions for permission to reprint sections of those publications.

The use of ICT in educational environments

The technology

As description should precede evaluation, a review of the technologies currently in use in education needs to be given before their usefulness and relevance for FLT/FLL can be assessed.

Table 1 gives a general overview of the affordances and limitations of various technological resources widely in use today in education. It is taken from Chapter 7 in W. D. Haddad & A. Draxler (2002) *Technologies for Education: Potential, Parameters and Prospects*, a report prepared for UNESCO and the Academy for Educational Development³. The report is downloadable from the Academy for Educational Development web site: <http://www.aed.org/publications/TechEdInfo.html>

Table 1. *Affordances and limitations of modalities*

| Mode | Instrument | Affordances | Limitations |
|--------|---|--|--|
| Text | Books/magazines | <ul style="list-style-type: none"> • Portable • Durable • Can present complex information • Sequential structure guides learner • Little eyestrain • Moderate cost of development | <ul style="list-style-type: none"> • Difficult to modify (as in localization, updating, etc.) • Requires literacy plus higher-order thinking skills • Content is difficult to extract for use in other resources • High per-unit cost of publication |
| | Web page | <ul style="list-style-type: none"> • Dynamic and easy modified • Hyperlinks enable nonsequential navigation • Low cost of development and very low publishing costs • Supports interactivity (e.g. navigation, user-entered information, etc.) • Can support assessment | <ul style="list-style-type: none"> • Nonsequential structure may obscure critical information or cause confusion • Reading may cause fatigue • Requires PC, electricity, connection • Potential additional system requirements (e.g. Java, plugins) |
| Images | Printed photos, maps, and schematic drawing | <ul style="list-style-type: none"> • Concrete, specific, detailed information • Appropriate for learners with “visual intelligence” • Engaging and motivating for many learners | <ul style="list-style-type: none"> • Low information value relative to text • Resistant to reuse by learners • “Visual literacy” skills required for best use • High cost to reproduction |

¹ See <http://europa.eu.int/comm/education/policies/lang/languages/download/ict.pdf>

² Camilleri Grima, A. & Fitzpatrick, A. “Teachers and Learners: New Roles and Competences” in *Challenges and Opportunities in Language Education: the Contribution of the European Centre for Modern Languages – 2000–2003*. European Centre for Modern Languages/Council of Europe, Strasbourg, 2003.

³ Nunes, Cesar A.A., Gaible, E. “Development of Multimedia Materials” in Haddad, W. D. & Draxler, A. *Technologies for Education: Potential, Parameters and Prospects*, UNESCO and the Academy for Educational Development, Paris, 2002.

| Mode | Instrument | Affordances | Limitations |
|--------------------|---|--|---|
| Images (continued) | Digital photos, maps, and schematic drawing | <ul style="list-style-type: none"> • Affordances similar to printed photos • Easily copied, shared, and used • Low costs for reproduction and publishing • Can be data-based or Web-served for delivery to handheld computers and other “anytime, anywhere” devices | <ul style="list-style-type: none"> • Limitations similar to printed photos • Require PC and electricity, possibly an Internet connection |
| Audio | Radio | <ul style="list-style-type: none"> • Can present contemporary and topical information easily • Highly accessible and potentially engaging format (no literacy skills required) • Widespread adoption in developing countries • Moderate production costs • Highly scalable • Low-cost hardware | <ul style="list-style-type: none"> • Information is not durable; learners can’t “review” a broadcast • Poor presentation of complex concepts • No visual component (e.g. schematics, maps, photos) • Synchronous form requires system-wide coordination (e.g. announcements, class schedules, etc.) |
| | Digital audio (Web- and CD-based) | <ul style="list-style-type: none"> • Can present contemporary and topical information easily (Web) • Information is durable (e.g. it can be reviewed many times) • Medium is durable • Moderate production costs • Low reproduction costs; easily scaled • Easily catalogued and reused (by developers and users) • Can be indexed or catalogued to enable nonsequential access | <ul style="list-style-type: none"> • Requires robust PC and/or high-speed Internet connection • High storage “overhead” (in terms of hard drive capacity) • May not support presentation of complex concepts |
| Video | Analog | <ul style="list-style-type: none"> • Highly accessible and potentially engaging format (no literacy skills required) • Sequential structure guides learner • Concrete, specific, detailed information • Appropriate for learners with “visual intelligence” • Engaging and motivating for many learners • Moderate hardware costs | <ul style="list-style-type: none"> • High production costs; moderate reproduction costs • Complex information may be difficult to present effectively • Information may prove difficult for some learners to analyze/synthesize |
| | Broadcast | <ul style="list-style-type: none"> • Same as analog video • Can present contemporary or topical information easily | <ul style="list-style-type: none"> • Same as analog video; however, costs may be higher |
| | Digital (Web- and CD-based) | <ul style="list-style-type: none"> • Same as analog video • Can present contemporary or topical information easily • Easily catalogued and reused (by developers and users) • Can be indexed or catalogued to enable nonsequential access • NOTE: “moderate hardware costs” is not applicable | <ul style="list-style-type: none"> • Same as analog video • Requires robust PC and/or high-speed Internet connection • High storage “overhead” (in terms of hard drive capacity) |
| Simulations | Interactive (Web- and CD-based) | <ul style="list-style-type: none"> • Active-learning characteristics engage learners via several parts to reinforce concepts • Quantitative elements are supported (and reinforce conceptual learning) • Engaging and motivating for many learners • Can support assessment | <ul style="list-style-type: none"> • Requires robust PC and/or high-speed Internet connection • Potential additional system requirements (e.g. Java, plug-ins) |

The advantages of multimedia learning environments

The authors of the above-mentioned report list the following benefits of using multimedia environments for teaching and learning:

“Multimedia can:

- enhance learning in different locations and institutions of diverse quality;
- present opportunities to students working at different rates and levels; provide (tirelessly, without holding up other students) repetition when repetition is warranted to reinforce skills and learning; and
- compensate, in the short term, for high student populations and limited numbers of trained and experienced teachers – in combination with robust teacher development initiatives and improvements in teachers’ working conditions.

Updates to contentware can ensure that teachers and students encounter and have the chance to work with current and authentic sources. Such encounters tie learning to the most important events of our time and underscore the general idea that knowledge itself is not fixed and finalised, that there is a universe of discoveries and a library of analyses that can be available to students.”

There is little to add to this in general terms, but it is worthwhile considering the particular advantages afforded to FLT/FLL by the new media.

Technological resources currently deployed in language learning

Audio devices: The most popular and most widely used devices appropriated by modern language teachers remain the CD player and the audiocassette recorder. More recently, the Web has served as an additional source of authentic listening materials thanks to the possibility of fast downloads using MP3 software.

Video: The use of moving images linked to sound provides learners with exposure to all important elements of spoken communication: gestures, proxemics, pronunciation, intonation, all embedded in natural, cultural contexts. And devices like DVD players, videocassettes, web sources, the laserdisc and video cameras readily supply these. Thanks to modern technology, scenes can be located, isolated and replayed at random and there is an abundance of literature suggesting how to exploit film/video sequences meaningfully. Different forms of visual support can now be offered (e.g. optional sub-titles in the mother tongue or target language to assist understanding and facilitate access to the language).

Television and radio broadcasts: Both satellite and terrestrial radio and television programmes offer cheap access to contemporary, authentic, and potentially culturally rich programmes for the language learner. The immediacy of current affairs programmes ensures that learners’ exposure to the language is up-to-date and embedded in the real world of native speakers. Linked to modern recording equipment, broadcast radio and television also offer the advantages of the audio and video devices mentioned above. A number of broadcasting companies still produce broadcasts, which are at their most effective when combined with face-to-face courses in educational institutions. Broadcasts are particularly useful for reaching sectors of the population who might not normally think of taking up language learning, but who might be wooed by attractive “taster” courses highlighting interesting or exciting elements in the target culture.

Telephone: ISDN has gone a long way to overcoming the problem of the relatively poor quality of analogue transmissions, which has so far prevented this medium from being widely used for language teaching. Audio exchanges via the Internet now also provide possibilities for real time synchronous oral communication. The principal uses of the telephone to date have been limited to supplementary tutoring for those engaged in distance education. However, with the advent of digital quality and lower connection costs, there is now considerable potential for its extended use – including the possibility of conference calls.

Computers: With the introduction of the multimedia computer, the learner and teacher have at their disposal an instrument, which can combine all the advantages of the above-mentioned media in a compact and easily accessible form. The computer may be used as a **local machine** (stand-alone) or within a network. Computer Assisted Language Learning (CALL) software, CD-ROMs, and office software applications have become commonplace in many teaching/learning environments, and the case studies in Graham Davies’ article in this volume illustrate how teachers are making use of them. An inventory of current CALL software, including teacher

evaluations of their usefulness/efficiency can be seen at web sites like the *ICT4LT* (<http://www.ict4lt.org>), *Lingu@net* (<http://www.linguanet-europa.org>), and *GrazVoll* (<http://www.ecml.at/projects/voll>) home pages, which also give links to other relevant sites.

The advent of the computer

Computers have been used systematically in the teaching and learning of foreign languages (FLT/FLL) in universities since the 1960s, but it was the introduction of the personal computer (PC) in the late 1970s that made computers accessible to a wider audience. By the mid-1980s computers were in widespread use in American and European schools and the acronym CALL had been coined. Today, experts in the field prefer to talk about information and communication technology (ICT) and FLT/FLL rather than CALL, emphasising the important role that computers play in enabling teachers and students of languages to engage in world-wide exchanges and communication. The growing importance and globalization of ICT in FLT/FLL was reflected in the establishment in 1986 of *EUROCALL* and in 1998 of *WorldCALL*, European and global organizations of professional associations that aim to outreach to nations currently under-served in the area of ICT and FLT/FLL.

The use of ICT is widespread in contemporary society and it impinges upon almost all forms of human interaction. Its presence and usage have brought about changes of patterns in communicative behaviour, above all in the spheres of business and administration, and governments throughout the world have become increasingly aware of the need to provide education and training to meet the challenges and opportunities, which the global economy, fuelled by developments in ICT, presents.

The new technologies are breaking down borders and barriers at a faster rate than is possible in physical terms. Sudden, unexpected encounters with other languages and cultures confront people throughout the world with new choices, opportunities and challenges. Thanks to the WWW, access to authentic materials has never been easier; vast linguistic resources and an exhaustive range of materials are available in almost all languages in the world, ready for immediate exploitation.

Web-based learning

Undoubtedly, web-based learning will continue to expand and provide one of the chief resources for language learning in the 21st century. Whether they are large scale undertakings like *The E-language Learning Project*⁴, the web-based language learning system proposed as a Sino-America e-language project sponsored by US Department of Education and the Chinese Ministry of Education, or smaller schemes like the one described by Mark Warschauer in this volume related to the preservation of an indigenous, but dying language.

In a study of web-based language learning materials, conducted by the International Certificate Conference within the wider context of a report on materials available for language teaching and learning in Europe for the Directorate General of Education and Culture of the European Commission in 2001⁵, conclusions were drawn regarding requirements from such materials:

1. Web-based language learning materials should offer more than simple online feedback on correct or incorrect input (similar to traditional computer assisted exercises on CD-ROM), but rather offer a platform for communication and interaction within a virtual, tele-cooperative classroom. The features of such learning environment need to be defined, also in view of a possible link between learning in a self-study and tele-cooperative mode, net meetings, and contact lessons and meetings in a real classroom.
A sample of good practice mentioned in the report is the *Net Languages* platform (<http://www.netlanguages.com>) developed for EFL and Spanish by International House, claiming to be the world's leading virtual language school.
2. The report also strongly recommended the creation of a platform offering links to providers of online language classes and learning materials. In addition, potential learners should be provided with a quality guide, outlining salient points to look for before enrolling for a class of this nature like the one provided on the ECML web site under the ICT in VOLL pages: http://www.ecml.at/projects/voll/menu_top.htm.

⁴ Yong Zhao: *The E-language Learning Project: Conceptualizing a Web-Based Language Learning System*, Michigan State University, Michigan, 2002. This E-Language project, a joint project of the U.S. Department of Education and the Chinese Ministry of Education, intends to deliver quality foreign/second-language instruction through a combination of modern technologies to language learners in the United States and China. The initial target audiences include English as second language (ESL) learners in the United States and English as foreign language (EFL) learners in China as well as Chinese learners in the United States. Other languages may be added later. The project aims to provide language instruction in Chinese and English to middle and high school students and their teachers. See <http://ott.educ.msu.edu/elanguage/about/whitepaper1.pdf>

⁵ Fitzpatrick, A. (ed.): *European Language Learning Materials Survey: Consolidated Report*, European Commission, Brussels, 2003. http://europa.eu.int/comm/education/socrates/downloadfile/lingua_en.pdf

3. It was felt that projects related to the less widely used and taught languages (LWUTL) could best be launched and promoted using the resources on the web. The development of a non-language specific platform with authoring options could be a promising venture, focusing on the development of a framework for a web-based learning environment.

Managing a virtual learning environment requires special qualifications and skills on the part of the teacher, so training measures in this area are to be encouraged. With regard to this, the *WELL Project* (Web Enhanced Language Learning) or the *ICT4LT Project* (ICT4LT web site), which has developed a substantial set of web-based training materials in Information and Communication Technology for Language Teachers, could serve as examples of good practice. The WELL Project in particular aimed to promote wider awareness and more effective use of web resources for modern language teaching. It provided a starting point for discovery and also a forum for the exchange of good practice amongst more advanced practitioners.

Prerequisites for successful integration of ICT

The vast potential of ICT should not blind us to the fact that quality, not quantity is required here, as in other areas of education. Studies have shown that technology is most successfully deployed in the language classroom when:

- there is a real reason for using it;
- alternative activities are to hand, if problems arise;
- training and support is given to learners;
- the use of technology is integrated and ongoing;
- the activities engaged in are stimulating and worthwhile to the learners;
- communication is taking place between learners;
- learners are asked to use language in meaningful ways.

How ICT is used in FLT/FLL

1. Presentation

Text-based materials and audio-video materials may be used to present or recycle new language to learners:

- Text-based material on the Web or on CD-ROM, e.g. *Lire Français*: <http://www.lire-francais.com>
- Audio recordings with supporting text on the Web or on CD-ROM, e.g. *Randall's ESL Cyber Listening Lab* (<http://www.esl-lab.com>), which contains a variety of listening quizzes, such as airport announcements: <http://www.esl-lab.com/airport/airportrd1.htm>
- Video recordings with supporting text on the Web or on CD-ROM, e.g. *Funambule*: <http://www.funambule.com/cgi-bin/tv5.asp>; *Deutsche Welle*: <http://dw-world.de>: the *LINC* series of CD-ROMs (University of Antwerp): <http://www.camsoftpartners.co.uk/linc.htm>
- *PowerPoint* presentations on an electronic whiteboard. Ideas on using *PowerPoint* for whole-class teaching may be found at the *ICT4LT* web site at the following locations:
Module 1.3, Section 7: http://www.ict4lt.org/en/en_mod1-3.htm
Module 1.4, Section 4: http://www.ict4lt.org/en/en_mod1-4.htm

2. Practice

A wide range of different exercise types are possible with ICT, incorporating the presentation of stimuli in varying combinations of text, audio, and video materials format. ICT also offers the possibility of analysing learners' responses, with appropriate feedback and branching:

e.g.

- Grammar exercises, e.g. CLEF (Computer Assisted Learning Exercises for French): <http://www.camsoftpartners.co.uk/clef.htm>

Listening and pronunciation

- Listen, repeat and compare, e.g. the TELL Consortium *Encounters* series of CD-ROMs: <http://www.camsoftpartners.co.uk/encounters.htm>

- Automatic Speech Recognition, e.g. Auralog's *Tell Me More* CD-ROM:
<http://www.camsoftpartners.co.uk/tmm.htm>

Authoring

As well as purchasing ready-made materials, teachers may wish to create their own exercise materials using a variety of **authoring tools**. See Module 2.5 at the **ICT4LT** web site, *Introduction to CALL authoring programs*:
http://www.ict4lt.org/en/en_mod2-5.htm

Examples of authoring tools include:

- Camsoft's *Fun with Texts* and *GapKit* packages:
<http://www.camsoftpartners.co.uk/fwt.htm>
<http://www.camsoftpartners.co.uk/gapkit.htm>
- Wida Software's multi-purpose package, *The Authoring Suite*:
<http://www.wida.co.uk>
- *Hot Potatoes*, a popular multi-purpose web-based authoring tool, developed at the University of Victoria, Canada:
<http://web.uvic.ca/hrd/halfbaked>
Samples of exercises developed with *Hot Potatoes* can be found at:
http://www.ecml.at/projects/voll/Graz_2001/data_driven_learning/tools/index.htm
- *MALTED* (Multimedia Authoring for Language Teaching and Educational Development) – an EC-funded project:
<http://www.malted.com> and <http://malted.cnice.mecd.es> from which the *MALTED* software can be downloaded.
- *I4LL Authoring Tool* (Integrated Internet-based Interactive Language Learning). An eLearning environment which is being developed at the Language Centre of the University of Ghent with the aid of EC funding: <http://i4ll.rug.ac.be>

3. Computer Aided Assessment (CAA)

Computer Aided Assessment (CAA) is playing an increasingly important role in FL teaching and learning. Module 4.1 at the **ICT4LT** web site covers the subject in detail: http://www.ict4lt.org/en/en_mod4-1.htm

A number of CAA programmes are available both commercially and publicly:

- Web-based testing systems, e.g. *WELTS*, a testing system created as part of the WELL Project:
<http://www.well.ac.uk>
<http://www.well.ac.uk/languageexercises>
- *CLIC*: a freeware application, developed by Francesc Busquets, for the development of multimedia activities for language learners:
<http://www.xtec.es/recursos/clic/eng/index.htm>
- *Dialang*:
<http://www.dialang.org>
- *Question Mark Perception*:
<http://www.qmark.com>

4. Reference

CD-ROMs and the Web provide language learners with a source of information for language learning tasks and activities.

- Online dictionaries, e.g. *Cambridge Dictionaries Online*:
<http://www.dictionary.cambridge.org>
- *Link Everything Online*:
<http://dict.leo.org>
- *Canoo Net, Die neuen Regeln der Rechtschreibung*:
<http://www.canoo.net/services/GermanSpellingRules/ueberblick/index.html>
- Encyclopaedias on CD-ROM, e.g. *Encarta*
- Newspapers and magazines on the Web:
Kidon Media-Link: <http://www.kidon.com/media-link/index.shtml>
- Concordancing tools. For a comprehensive survey of concordancing tools and resources, see:
http://www.ict4lt.org/en/en_mod2-4.htm
http://www.ecml.at/projects/voll/graz_2002/ddrivenlrning/authoringtools/index.htm

5. Publishing

A number of tools exist to help learners work on their writing/publishing collaboratively, often linked in a local area network. Language learners use ICT to help them publish their work in the following ways:

- Word-processors and Desk Top Publishing (DTP) software;
- audio recording and editing tools to record interviews, discussions, etc.;
- digital cameras and camcorders to record presentations, interviews, role-plays;
- *PowerPoint* as an aid to public presentations;
- Web pages using Web authoring tools, e.g. *FrontPage*, *Dreamweaver*.

6. Communication

Language learners and teachers can use technology to help them communicate with one another:

- E-mail allows language learners to communicate with “Web pals” in other countries. See the following web sites:
European Schoolnet: http://www.eun.org/eun.org2/eun/en/index_eun.html
Windows on the World: <http://www.wotw.org.uk>
The Hands On Europe project: <http://www.pioneer.cwc.net/Home.htm>
Das Bild der Anderen project: <http://www.bild-online.dk>
- Tandem Learning. See the web site of the International Tandem Network at the University of Bochum: <http://www.slf.ruhr-uni-bochum.de/email/idxeng00.html>
- Computer mediated discussion, e.g.
Linguanet Forum: <http://www.mailbase.org.uk/lists/linguanet-forum>
- Web-based learning environments, e.g.
NetLearn: <http://www.nll.co.uk>
Merlin: <http://www.hull.ac.uk/merlin>
- Audioconferencing (synchronous and asynchronous), e.g. using the *Wimba* software environment: <http://www.wimba.com>
- Videoconferencing:
 Robert O’Dowd, *Videoconferencing for foreign language learning*:
<http://www.geocities.com/Athens/Rhodes/8247/vcing.html>
- MOOs: <http://www.well.ac.uk/wellclas/moo/moo.htm>

7. Simulations

The computer can act as a stimulus which generates analysis, critical thinking, discussion and writing. Programmes which include simulations are especially effective as stimuli. Examples of language learning tasks which “simulate” real world tasks are:

- WebQuests:
 The *WebQuest* page: <http://webquest.sdsu.edu>
LanguageQuest: http://www.ecml.at/projects/voll/graz_2002/pthinking/marianewebquest/menu_webquest.htm
Treasure Hunt: <http://www.well.ac.uk/wellproj/workshp1/treasure.htm>
TalenQuest: <http://www.talenquest.nl>
- Action Mazes:
<http://web.uvic.ca/hrd/quandary>
- Adventure games:
Who is Oscar Lake? <http://www.languagepub.com>
- *Sunpower (Communication Strategies for Business Purposes)*:
<http://www.sunpower.fh-koeln.de/BEENGL.HTM>
- *Expodisc* (Simulation of a business trip to Spain):
<http://www.camsoftpartners.co.uk/expodisc.htm>
- “Real-life” simulations:
A la rencontre de Philippe: <http://web.mit.edu/fl1/www/projects/Philippe.html>
- Videoconferencing can be used to simulate real world tasks, e.g. negotiations in business English:
 Robert O’Dowd, *Videoconferencing for foreign language learning*: <http://www.geocities.com/Athens/Rhodes/8247/vcing.html>

Developments in Computer Assisted Language Learning

Warschauer (1996, <http://www.gse.uci.edu/markw/call.html>⁶) summarises the main phases of Computer Assisted Language Learning (CALL) as follows:

- i. Behaviourist
- ii. Communicative
- iii. Constructivist/Integrative

and points out that each of the above stages corresponds to advances in technology and to pedagogical approaches.

Behaviourist

Behaviourist CALL was conceived in the 1950s and was informed by the behaviourist-learning model. It featured repetitive language drills, referred to as drill-and-practice (or, pejoratively, as “drill-and-kill”). In this paradigm, the computer was viewed as a mechanical tutor, which never grew tired or judgmental and allowed students to work at an individual pace. It was used chiefly in the 1960s and 1970s.

Communicative

Communicative CALL emerged in the late 1970s and early 1980s when behaviourist approaches to language teaching were being rejected at both the theoretical and pedagogical level. It was at a time when new personal computers were creating greater possibilities for individual work. Proponents of communicative CALL stressed that computer-based activities should focus more on using forms than on the forms themselves, teach grammar implicitly rather than explicitly, allow and encourage students to generate original utterances rather than merely manipulate prefabricated language, and use the target language predominantly or even exclusively. Communicative CALL corresponded to cognitive theories, which stressed that learning was a process of discovery, expression, and development. Popular CALL software developed in this period-included text reconstruction programmes (which allowed students working alone or in groups to rearrange words and texts to discover patterns of language and meaning) and simulations (which stimulated discussion and discovery among students working in pairs or groups). For many proponents of communicative CALL, the focus was not so much on what students did with the machine, but rather how they interacted with each other and the programme while working at the computer.

Constructivist / Integrative

Communicative CALL came under fire in the late 1980s. In the early 1990s, critics pointed out that the computer was still being used in an ad hoc and disconnected fashion and thus “finds itself making a greater contribution to marginal rather than central elements” of the language learning process (Kenning & Kenning, 1990:90). This corresponded to a broader reassessment of communicative language teaching theory and practice. Many teachers moved away from a cognitive view of communicative teaching to a more social or socio-cognitive view, which placed greater emphasis on language use in authentic social contexts. Task-based, project-based, and content-based approaches all sought to integrate learners in authentic environments, and also to integrate the various skills of language learning and use. This led to a new perspective on technology and language learning, which has been termed **integrative CALL** (Warschauer 1996), a perspective which seeks both to integrate various skills (e.g. listening, speaking, reading, and writing) and also integrate technology more fully into the language learning process. In integrative approaches, students learn to use a variety of technological tools as an ongoing process of language learning and use, rather than visiting the computer lab on a once a week basis for isolated exercises (whether the exercises be behaviourist or communicative). The case studies cited by Warschauer in this volume illustrate this approach.

The assumption of **cognitive/constructivist theory** is that teachers do not pour information from their “store” into the heads of waiting and willing students, but that students actively interpret and organise the information they are

⁶ Warschauer, M. (1996). “Computer-assisted Language Learning: An Introduction” in S. Fotos (Ed.), *Multimedia Language Teaching* (pp. 3–20). Tokyo: Logos International. <http://www.gse.uci.edu/markw/call.html>

given, fitting it into prior knowledge or revising prior knowledge in the light of what they have learned. They “construct” new knowledge based upon their prior learning and experience. Having and manipulating language data in multiple media provide learners with the raw material they can use to recreate the language for themselves, using their own organising schemes.

As a result of the increasing complexity and sophistication of the media now available and which learners can use independently to achieve their own individual learning aims, the teacher’s role has changed radically. She/he has become a facilitator of learning rather than the font of wisdom, and will find, select, and offer information in a variety of ways on the basis of what her/his students must learn in order to meet diverse needs. The teacher’s mastery of the new skills and literacies in a new pedagogical framework is the key to successful deployment of the new media in language learning and teaching.

The new role of the teacher

Educationalists, researchers and administrators have recognised that the introduction of the new media into educational institutions calls for a change in learning and teaching patterns. Experts polled for a *Delphi Study* (Vollstädt, 2003), conducted for the German Federal Ministry of Education and Research, believe that the new media will lead to a major change in the **culture of learning**. The reasons given for this supposition are the learning efforts and learning possibilities linked to the new media. They believe that the new media:

- call for and facilitate more independence on the part of the learner, more self-directed activities and the organization of learning processes;
- encourage interactive work;
- facilitate direct feedback;
- call for a change in the role distribution of teacher/learner, where learners take on teaching functions;
- enable contents to be continually updated with minimum efforts;
- provide faster access to teaching materials;
- provide greater opportunities for individual forms of learning;
- but also demand more social learning in group and team work.

But experts emphasise that new teaching and learning media alone do not automatically lead to a new **culture of learning** but simply offer the opportunity for change. Teachers’ attitudes to the new media and appropriate concepts for their use and for the orchestration of learning will decide whether the desired outcomes can be achieved and whether a major shift in the culture of learning is possible.

The multiplication of learning spaces beyond the institutional context (school, university, teaching institution) is of particular relevance and will change the character and contents of school-based learning and allow teachers to take into consideration the complexity and individuality of learning. Experts polled in the Delphi Study cited above were of the opinion that there will be a considerable growth in the importance of learning processes outside school. Nevertheless, they emphasised that the chief place for learning will remain the school/teaching institution.

In addition, it should be stated that the new media are not seen as a panacea for teaching/learning problems, nor are they a replacement for present models of language learning. ICT alone cannot provide a comprehensive basis for language learning. ICT must be integrated into present, proven, and successful practice if full benefits of their advantages are to be reaped. Their adoption should represent a complement and addition to present models, contributing to an evolution towards the concept of a new **culture of learning**.

The new media and the culture of learning

The new media not only facilitate a changed culture of learning in institutional contexts, they also demand such changes. They provide new opportunities and challenges by:

- offering a wider range of teaching contents (especially teaching methods);
- enabling more self-directed learning, offering a range of choices, individual learning pathways and freer forms of learning;
- offering teachers and learners the chance to plan and organise courses together (empowering learners to influence the choice of teaching contents);

- freeing learning and teaching from the limitations and constraints of the traditional classroom by opening up and using spaces outside the school/teaching institution;
- facilitating communication between learners and between learners and the teacher via the Internet.

ICT competencies required of language teachers

Language teachers working in a media-rich environment will, like their counterparts in other disciplines, need to:

- recognise the individual learning problems of learners;
- make a careful and considered choice concerning the use of the media;
- check the truth of information content offered;
- develop efficient search techniques and be capable of conducting effective research with the help of the computer;
- be able to use standard software confidently and competently;
- make wise and critical choices of information found.

These new competencies are often related to what has become known as “the new literacy”. Basically, we can identify five types of new literacy in relation to ICT that teachers need to understand and master alongside learners. They are: *scientific, digital, critical, linguistic, and cultural literacy*.

Scientific literacy relates to the ability to think scientifically in a world, which is increasingly shaped by science and technology. This kind of literacy requires an understanding of scientific concepts as well as an ability to apply a scientific perspective. *Digital literacy* relates to the ability to use ICT adequately and apply them in a principled way to the subject matter at hand. For the language teacher, it refers in particular to web literacy, i.e. the ability to make use of the World Wide Web for language research; to the use of linguistic tools and standard programmes for exercises and testing. *Critical literacy* implies the ability to evaluate the credibility, usefulness, and reliability of any given sources of information. It also encompasses skills in sifting and identifying the relevant and important in the flood of information which threatens to engulf the unprepared. *Linguistic literacy* in this context refers to the ability to recognise different genres as they develop, to track developments in language use and usage and to adapt materials (authentic or not) for teaching. *Cultural literacy* relates to observing and recording changes in the society or societies of the target language together with implications for language teaching. Such changes may be of a general nature leading to convergence between own, native culture and the target culture, or to changes particular to the target culture.

Furthermore, in order to function adequately in the world of the new media, teachers need to acquire and master a whole range of new skills ranging from the technical to the organizational and conceptual.

They need to become completely computer-literate in a practical sense, and have the confidence to use the available technology adequately. They should be able to cope with the most common problems arising from the use of computers very much in the way that average car drivers can cope with commonly occurring problems with their motor vehicles, i.e. no specialist knowledge of the machine, but knowing what to do when routine breakdowns occur. This task will undoubtedly become easier for the teachers of tomorrow, who are the learners of today.

Given the momentum gathered in the nature of innovations inside and outside the institutional environment, new organizational and pedagogic models are called for, including ICT for teacher education using a learning by doing and reflecting approach. The innovative potential of languages going online must be fully grasped, where teachers can build and sustain language communities, dismantle them when they have exhausted their function, and link minds and hearts in order to negotiate everyday concerns or even complex issues. Language is a social activity which requires real partners for communication, and teachers increasingly need to recruit new partners with whom their learners may practise the target language.

It becomes clear that new conceptual skills are required of teachers when one considers the quantum leap required in moving from well-trying controllable media like the textbook with its well-ordered, supplementary materials, to the more open, inquiring approach when exploiting the new media to the full. Teachers must move forward to a role in which they are designing learning experiences and planning encounters for/with their learners with the target language environment in mind, or rather, at hand.

New attitudes and approaches

As mentioned above, language teachers are now required to take on new roles and come to the classroom situation with appropriate attitudes and approaches. As in contexts of autonomous learning, the teacher is now increasingly having to function as facilitator and guide to the learners. Other new and important teacher roles are those of mediator, researcher, designer of complex learning scenarios, collaborator, and evaluator.

The teacher as facilitator and guide

As facilitators, teachers must in many ways know more than they would as directive providers of information. Facilitators must be aware of a variety of materials available for improving students' language skills. In contexts such as these, where bottom-up processes are adopted, this focus on choice and independent use of materials by students under the teacher's guidance has been identified in terms of a pedagogy of resources, in parallel with other pedagogies like the pedagogy of time, the pedagogy of choice, and the pedagogy of cooperation by Rita Balbi (1993)⁷.

As facilitators, teachers have to be flexible, responding to the needs that students have, and not merely dependent on what has been set up ahead of time by curriculum developers and their idea of who will be in the classroom. Teacher education is a key element to success in this more flexible language classroom, where teachers will have the ability to use and to recommend multimedia and other resources effectively. Teachers must not only know about and understand the functions of different media available in a media-rich environment, they must also know when best to deploy them.

In the joint construction of projects with their learners (a pedagogy of cooperation between learners, and of teachers with learners), teachers need to guide learners in the use of word-processing, graphics, and presentation programmes. The integration of audio-visual elements will bring home to learners the fact that the foreign language environment of the target language is as vibrant and multi-faceted as the society in which they live.

The presentation of material in a creative manner also aids the development of cognitive processes (Camilleri, 2000)⁸. In order to help learners to extend and develop their mental and social abilities, to learn how to learn, the teacher himself/herself is a key figure in guiding learners and at the same time practising skills alongside them, skills like hypothetical thinking, analysis of points of view, and the application of different symbol systems including the graphical, the musical, and even the mathematical as is now possible through the integration of multimedia environments in the language learning process (cf. Camilleri, 1998).

The teacher as mediator

The role of mediator is not new for language teachers; it has always been their task to act as intermediary between two cultures while they introduce learners to new linguistic and cultural concepts. However, the immediacy offered by the new media forefronts this role and gives it a new importance. Within the relatively safe confines of traditional textbooks, teachers could introduce relevant aspects of the target language and culture in small, manageable chunks. Access to the "real world" of the target culture and, at times, confrontation with it, requires new strategies and approaches that need to be learned and practised.

Indeed, a more rewarding and promising point of departure is perhaps one which takes into account the multilingual environment that many learners live in and bring with them into the classroom.

The teacher as researcher

To keep abreast of developments in relevant fields of knowledge and walks of life, particularly in the countries of the target language, teachers need to know how and where they can access information for their own and for their learners' use. Reflective practice and action research are now becoming part and parcel of the daily lives of teachers. Teachers need to keep up to date with knowledge generated in the field of modern languages and applied linguistics, not only for the sake of their learners, but also for their own professional development. Familiarity with the use of electronic tools

⁷ Balbi, R. "Autonomous Learning in the Classroom" in *Workshop 13A Language and Culture Awareness in Language Learning/Teaching (L2 and L1) for the Development of Learner Autonomy (age 11–18)*, Council of Europe, Strasbourg, 1993.

⁸ Camilleri A. "The Development of Cognitive Processes" in Anne-Brit Fenner and David Newby (eds.) *Approaches to Materials Design in European Textbooks: Implementing Principles of Authenticity, Learner Autonomy, Cultural Awareness*, European Centre for Modern Languages/Council of Europe, Strasbourg, 2000.

for language analysis like concordancers will, for example, enable teachers to further develop their own linguistic and professional competence and increase their confidence in the use of the language. Research often takes the shape of “reflection-on-action”. Action research involves a self-reflective, systematic, and critical approach to enquiry by teachers in order to identify areas of difficulty, to embark on a period of study, possibly in collaboration with others, and to bring about informed changes in practice as a result.

Teachers-as-researchers should be able to adjust continually to varying demands made upon their professional competence and knowledge. These demands vary from, for example, the level of learner competence they are asked to deal with, to the increasing responsibility placed on them to participate in the administration and evaluation of the educational institution. For those concerned with mainstream education, the propriety and reliability of information sources must figure as one of the main criteria for the selection of background material.

The teacher as designer of (complex) learning scenarios

In order to orchestrate successful learning scenarios, teachers need to learn how to put together tasks and materials to guide their learners to successful execution and conclusion of their projects. Unlike work with conventional teaching materials (textbook, workbook, audio and video materials), which have been graded, pre-assembled and collated in a chronological order, the design of learning scenarios nowadays is much more complex, requiring higher order skills involving researching and evaluating source materials, setting overall aims and objectives, and breaking down tasks into meaningful and manageable sequences.

The complexity of learning environments also demands that teachers are able to switch between a variety of roles: from one who encourages learners to establish their own learning objectives to one who sets meaningful learning tasks, to a guide throughout the various stages of the learning process, to presenter of information and as evaluator both during and at the end of a task. The flexibility demanded of teachers is related not only to the changing nature of current methodologies, or to the changing type of learners they face from year to year, or from group to group, but also to the range of roles they have to perform within the same course and with the same group of learners.

The teacher as collaborator (with other teachers)

The investment of time and effort required in this new teaching and learning environment implies a sharing of responsibilities and tasks among teaching staff. Collaboration with colleagues will lighten the burden and make the efforts more fruitful and rewarding. New management patterns must emerge to ensure fair distribution of workloads, and revised job descriptions will be necessary to share and coordinate the tasks in hand.

The teacher as orchestrator (technology, learners, curriculum)

Teachers will need to develop fairly sophisticated management skills in order to be able to provide a healthy balance between the different elements, which make up the new learning environments. Mastery and confidence in the use of technology needs to be applied to the learning inclinations and abilities of individual learners whilst covering the prescribed syllabus or curriculum which is often set by outside authorities for teaching institutions.

When the teacher is conversant with the learning styles of the students, and is able to synchronise learner styles, learning method and tools, then the symphony orchestrated and conducted by the teacher with the learners as performers will surely be timed correctly and well in tune. This is a highly sophisticated task, as the teacher needs to be able to identify with some precision the learning styles of learners, to choose from and apply with efficacy the relevant learning techniques, tasks and materials, and thus to initiate and successfully sustain the learning process, often within set frameworks which are less than ideal or conducive to collaborative learning.

The teacher as evaluator and self-evaluator

The first evaluation task for a teacher is undoubtedly that of selecting materials, methods, and other means for the learners to work with. Furthermore, evaluation of both the learning process and the product, i.e. student level of competence acquired, calls for a radical revision of current models of evaluation like examinations.

If task-based, project oriented work in the foreign language classroom using the new media is to become the norm, or at least form an important part of activities, then models of evaluation need to be revised radically. Standard multiple-choice examinations are, for example, hardly likely to test the learners' newly acquired skills in (foreign language) web literacy. A portfolio-based approach to assessing language competence and skills acquired would seem to be a more appropriate way of recording progress in the target language. As the skills to be acquired by learners are largely identical to those to be mastered by teachers-in-training, this form of evaluation should be practised in initial and INSET training courses, providing teachers with first hand experience of the system and with direct relevance to their own situation.

Current models of teacher education practices (Heyworth, 2003⁹) are beginning to reflect a trend towards empowerment through introspection with self-evaluation and assessment. Teacher self-evaluation also includes self-assessment of the teacher training and development programmes they undergo, self-reflection on the impact of personal professional growth on the learners' progress, as well as on development of the teaching team. All this augurs well for the chance for teachers to succeed in their task of raising learners' awareness of learning processes and empowering them to carry out meaningful self-assessment, using their own resources.

Consequences for teacher training

In their chapter "Teacher Professional Development in the Use of Technology" in *Technologies for Education: Potential, Parameters and Prospects* (op. cit), Sam Carlson and Cheick Tidiane Gadio¹⁰ give a very comprehensive overview of the theoretical principles and methodology as well as the content required for professional development programmes for teachers in Information and Communication Technologies. In the Table 2 (see p. 23) they illustrate how, when designing or implementing any teacher professional development programme for technology, it is important to situate that programme within the context of a theoretical framework for adult learning.

The figure represents a theoretical framework, developed by Reeves and Reeves¹¹, and is based on 10 dimensions of interactive learning. Each of these dimensions is presented as a continuum, with contrasting values at either end. Together with Carlson and Gadio, we believe that teacher professional development in the use of technology should be designed and implemented to move teachers (and, eventually, students) toward the right-hand end of this continuum.

Referring to the framework, they state:

"This framework emphasizes the potential of web-based instruction to contribute to pedagogical reform, rather than technology's rich multimedia features or its ability to access information resources around the world. Stated more simply, technology can promote effective instruction that is more student-centered, interdisciplinary, more closely related to real life events and processes, and adaptive to individual learning styles. Such instruction encourages development of higher order thinking and information-reasoning skills (rather than memorization of facts) among students, and socially constructed (collaborative) learning, all of which are increasingly required in today's knowledge-based global economy."

Conclusion

The media literate teacher will have to master a wide range of skills and competencies. Above all, teachers will need to focus on the design of situations, sequences, and activities conducive to learning languages by encouraging learners to participate in collaborative efforts. The management of learning scenarios where learners and teachers complement one another's skills, expertise and knowledge in collaborative efforts must, we believe, form the basis of the education of the language teachers of tomorrow.

⁹ Heyworth, F. "Introduction – a New Paradigm for Language Education" in Frank Heyworth (ed.) *Facing the Future. Language Educators across Europe*. European Centre for Modern Languages/Council of Europe, Strasbourg, 2003.

¹⁰ Carlson, S. & Gadio, C.T. "Teacher Professional Development in the Use of Technology" in Haddad, W. D. & Draxler, A. *Technologies for Education: Potential, Parameters and Prospects*, UNESCO and the Academy for Educational Development, Paris, 2002.

¹¹ Reeves, T.C. & Reeves, P.M. (1997). "The Effective Dimensions of Interactive Learning on the World WideWeb" in Khan, B.H. (ed.). *Web-Based Instruction*. Englewood Cliffs, NJ: Educational Technology, pp. 59–66.

OBJECTIVE



Table 2. Theoretical framework for adult learning

| Interactive learning dimensions | End of continuum | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | End of continuum |
|-----------------------------------|------------------|---|---|---|---|---|---|---|---|---|----|------------------|
| Pedagogical Philosophy | Instructivist | | | | | | | | | | | Constructivist |
| Learning Theory | Behavioral | | | | | | | | | | | Cognitive |
| Goal Orientation | Sharply Focused | | | | | | | | | | | General |
| Task Orientation | Academic | | | | | | | | | | | Authentic |
| Source of Motivation | Extrinsic | | | | | | | | | | | Intrinsic |
| Teacher Role | Didactic | | | | | | | | | | | Facilitative |
| Meta-Cognitive Support | Unsupported | | | | | | | | | | | Integrated |
| Collaborative Learning Strategies | Unsupported | | | | | | | | | | | Integral |
| Cultural Sensitivity | Insensitive | | | | | | | | | | | Respectful |
| Structural Flexibility | Fixed | | | | | | | | | | | Open |

The role of the learner

Like the teacher, the learner also has to adjust to a new role in the learning process. The learner is increasingly seen as subject rather than object with responsibility and autonomy considered key elements in language learning. She/he is called upon to take on new responsibilities, often working without supervision, and this requires a greater commitment which is manifested in processes, such as the willingness and opportunity to take greater responsibility for own learning, reflection on and optimising learning strategies, and making choices concerning individual learning style preferences. Classes are likely to become much more learner-centred, with learners' time and effort devoted to authentic reading, writing, and speaking tasks related to authentic communication with (native speaker) partners. We have listed above many of the opportunities provided by the new media for such exchanges. However, the approach suggested must take into account and optimise cognitive and metacognitive aspects of learning, such as learning processes, learning styles, preferences of individual learners.

For the first time, learners of a language can now communicate inexpensively and quickly with other learners or speakers of the target language all over the world. They have access to an unprecedented amount of authentic target-language information, as well as possibilities to publish and distribute their own multimedia information for an

international audience. Having and manipulating language data in multiple media formats provides learners with the raw material they can use to recreate the language for themselves, using their own organising schemes. Collaboration and cooperation with fellow learners will make this experience richer and more rewarding, and will prepare learners for similar activities and use of media beyond the constraints of the classroom in professional and private domains. Well designed tasks and activities will encourage students to explore and be creators of language rather than passive recipients of it, thus promoting and furthering the idea of the learner as an active participant in learning.

At this stage, one is tempted to repeat the inventory of literacies listed above as essential for the language teacher and emphasise that they are equally important for the learner. We have argued that the former, perceived difference between the teacher as “provider” and the learner as “receiver” merges into one concept of individuals sharing learning spaces. In such spaces, where the teacher remains a learner and the learner takes on teaching roles, it is clear that similar skills are required of both. This shift of perspective is challenging and exciting, where the foreign language classroom becomes a springboard to meet a broader set of educational aims than was envisaged in the past.

Future perspectives

Ministry views in Europe

In a survey of European ministries of education in 2003¹², the majority expected a high increase in the use of ICT in foreign language learning/teaching within the next ten years; some expect increases of up to 300% in certain educational sectors. The chief prerequisites needed to encourage the use and the development of ICT materials for foreign language learning in their view were as follows: to establish the necessary infrastructure, i.e. soft- and hardware, access to computers and the Internet; a solid financial support policy; cooperation between commercial publishers and educational institution.

All stressed the vital role of the teacher, pointing out that regular training for teachers in the use of ICT is needed, that it is necessary to overcome the divide between ICT and languages, that networks of cooperation and support must be built (using the Internet for distribution), and that it would be desirable to create a qualitative certification system for the use of ICT in FL teaching. Within ten years, primary school pupils of today will possess computer skills, which are at present far beyond those of the average language teacher. If language teachers are to retain their credibility, they must engage themselves in an intensive programme of professional development in the area of ICT.

Future Scenarios

At the EUROCALL 2002 conference in Finland, Gilly Salmon from the UK Open University ventured her own predictions on future scenarios in FLT/FLL¹³. She identified four likely possibilities.

In her **first scenario**, she sees technology as a delivery system where high importance is given to content management systems, integrated learning management systems, multimedia, industry standards, DVDs, digital and cable TV. The associated pedagogy is that of the transmission model of teaching, where information is transferred from experts to novices. And a key role for language teachers would be that of the content and cultural expert, developing multimedia programmes and building online libraries and pathways through resources.

The **second vision** is one of an increasingly global society where language and cultural understanding has become a paramount skill. Requirements of society are met through sophisticated learning object approaches, with information technology providing the basic tools. E-learning provides the basis for pedagogy in this model, where computer-based courses are offered from desks at work or in learning centres. Learners work and learn almost simultaneously. Flexibility and instantaneous access and exchange are the keywords with the costs of travel, training facilities and trainers slashed compared to the current situation. Thanks to ambient intelligence in devices, each device that is connected to electricity is also connected to the Internet. Hence educational providers are able to think both creatively and in a very integrated way about learning devices.

¹² See Appendix I in: <http://europa.eu.int/comm/education/policies/lang/languages/download/ict.pdf>

¹³ Salmon, G. “Future Learning Encounters” in <http://www.atimod.com/presentations/download/Eurocall.htm>

Her **third scenario** is one, which provides portable learning for mobile lifestyles. Travelling users replace travelling information. Learning is time independent and individual. Learners are seen as electronic explorers and adventurers. Learning devices are carried, worn, or embedded in person's bodies and pedagogy is extremely varied so that individuals can make choices based on their cognitive preferences and styles.

Technologies are highly portable, individual, adaptable, and intuitive to use. Mobile technologies are seen as essential communication and learning tools. Main technologies in use are Personal Digital Assistants (PDA) and Palm Tops, 3rd generation mobile phones (UMTS), GPS, unfolding keyboards, blow up screens, wireless and personal networks, low orbit satellites, national and international communications networks, high bandwidth, infra-red connections and e-books. All learners have laptops, palm tops, and text mobiles.

Teachers are as mobile as their students, many are portfolio teachers working for several educational institutions and providers, all over the world, at any one time. They not only have a highly developed awareness of the ways in which traditions of learning and expectations vary in different cultures, but also the ability to work across disciplines and levels of education.

They focus on promoting the concepts of ownership of the learning process, active learning, independence, ability to make judgements, self-motivation and high levels of autonomy. They provide and support resource-based learning, working with skilled technicians and e-librarians.

Finally, she outlines a model where learning is built around learning communities and interaction, extending access beyond the bounds of time and space, but offering the promise of efficiency and widening access. The key technology is the developed, entertaining, effective Internet to allow immediate and satisfying interaction between students and students, and between teachers and students, which implies a common means of communication, i.e. language skills.

In this scheme of things, technologies provide asynchronous and synchronous group systems to support a wide variety of environments for working and learning together. Learners connect through both low and high bandwidth devices and systems. Hence the technologies are seen only as mediating devices, promoting creativity and collaboration.

The kind of learning propagated here would appeal to a very wide range of people including the increasing numbers and percentages of "grey learners" who have a great deal to offer to others, a desire to learn through non-traditional means and who have the time and resources to access networked technologies.

The pedagogy is based on notions of a very strong social context for learning related to a model of acquisition, argumentation and application. A key activity for learners is finding and interacting with like-minded individuals anywhere and by being intellectually extended by dialogue and challenge from others. Learners express themselves freely through speech and text. The roles of reflection (an essential tool of expert learners), professional development and the sharing of tacit knowledge are of critical importance. Learning is contextualized and given authenticity by the learning group.

In this model, teachers would think globally but be able to turn their ideas into local and contextualized action. They see the technologies as yet another environment for learning rather than as tools. They are experts at mentoring individuals online and may be seen as companions in a democratic networked learning process, rather than teachers as such. They know when to take part, when to provide expert input, when to act as a peer and when to stay silent. They also have very highly developed skills at online group development for learning and in the use of online resources to stimulate groups ("e-moderation"). They know how to welcome and support learners into the online world and to build effective online communities. They act as intelligent agents and facilitators. They have the ability to visualise others in their situations. They know how to allow a sense of humour and fun to manifest itself online. They know how to build gradually on the processes of exchanging information and how to turn this into knowledge sharing and ultimately into knowledge construction.

In her conclusions, Gilly Salmon states that it is likely that elements of all the scenarios described will be reflected in future reality and that there will be a variety of players and processes involved. Institutionally, she believes that we will probably see further combinations of the above scenarios, such as universities with corporates or colleges partnering media companies. However, she emphasised how important language teaching will be in all of the models, and that language teaching cannot continue merely in traditional ways.

All of the above present special issues and opportunities for language learning, and many of the approaches outlined in the last scenario are directly concerned with language teacher development.

What the practitioners say

Practitioners and experts in the field of ICT and language teaching polled at the EUROCALL 2002 conference and at the ECML workshop on ICT in *Vocationally Oriented Language Learning in 2002* agreed broadly on future developments in the field of ICT and FLT/FLL.

All agreed that there would be an overall increase in the use of ICT in FLT/FLL and that this would be fuelled by greater acceptance of the new media thanks to increasing miniaturization and the availability of user-friendly machines. This would go hand in hand with the integration of the media into everyday teaching, where increased use of ICT will be seen as an integral part of the curriculum and teaching material (not just as peripheral resources). The present fascination with technology will fade giving way to an informed and principled approach to the use of ICT.

On the other hand, this move towards increased use of ICT, including large-scale developments in distance education which is time- and place-independent, would be counter-balanced by a greater appreciation and demand for face-to-face learning where there would be improved chances for cooperation and collaborative learning.

Echoing the findings of other groups of experts, ministry officials and policy-makers, all the practitioners questioned perceived an acute need for teacher training. They felt that, as long as teachers lack confidence in their ability to master the new technologies, ICT will not find widespread use in the language classroom. Indeed, many believed that, if steps are not taken to facilitate the introduction and competent and confident use of ICT in language teaching, there is a very real danger that CALL and TELL (Technology Enhanced Language Learning) will suffer the same ignominious fate of the language laboratory in the 1960s.

Lessons learnt

“The main reason for non-use [of ICT] is insufficient access to hardware and lack of technical support. Very few teachers dislike/fear ICT once they have seen the possibilities.” Ros Walker, University of Hull.

Lessons learnt from research and the case studies reported in the study prepared for the European Commission in 2003 (op. cit.) indicate that the ingredients necessary for the successful introduction of ICT in FL teaching and learning in institutional contexts where multimedia laboratories have been introduced are:

- ready access for all learners;
- the presence of a full-time technician devoted to servicing and maintaining the functioning of the multimedia laboratory;
- the employment of a full-time webmaster;
- adequate training for all new teachers and in-service training for others;
- meaningful use of the multimedia laboratory classes for intensive practice;
- learner-centred approaches to learning;
- a total commitment by senior management to the implementation of ICT in language learning classes with vision, support, and proactive leadership.

TEACHERS AS AGENTS OF CHANGE: ICTs AND A RECONSIDERATION OF TEACHER EXPERTISE

Andreas Lund

Introduction

While information and communication technologies (ICTs) continue to make a tremendous impact on – and transform – working life, teachers still find it difficult to decide how and to what extent such technologies fit in classrooms and other settings of formal schooling. At the same time, research shows that where information and communication technologies are successfully implemented, teachers are a crucial factor and even the most decisive element in successful integration of ICTs (Becker, 1994, 1999; Lankshear, Snyder, & Green, 2000; Zhao, Pugh, Sheldon, & Byers, 2002). Consequently, the following question arises: Under what conditions do we see successful, innovative and future-oriented ICT practices emerge? This is a very broad question as it involves conditions on several levels: classroom, educational organization (e.g. school), and regional/national level. Currently, there is much debate on how teachers are expected to work in a knowledge society (Hargreaves, 2003). Teachers are caught between demands that promote standardization, efficacy, and curriculum goals on the one hand, and demands for creative, future-oriented, and innovative use of ICTs on the other. The present article isolates some salient aspects of networked ICTs in language learning and teaching that may explain why ICTs do not automatically *enhance* teaching and learning but *transform* such practices. It goes on to suggest a way forward that may increase teacher professionalism to embrace technology-intense settings.

Learning in the 21st century

The latter half of the 20th century saw great advances in cognitive psychology, which also produced new insights in issues related to learning. In many ways, a computer metaphor dominated the leading perspective on learning with the (individual) mind seen as processing input that matched or was slightly ahead of the learner's abilities. In language learning, the *acquisition* metaphor along with comprehensible input (Krashen, 1982, 1992; Krashen & Terrell, 1983) formed some basic assumptions of foreign language learning. However, mentalistic and individual approaches do not satisfactorily explain the perhaps primary function of language; its basically social and cultural nature that serves to reproduce a culture as well as renew it. In the 1990s, learning (including language learning) increasingly became influenced by Vygotskian (Vygotsky, 1978, 1986) and neo-Vygotskian social and cultural approaches (Engeström, Miettinen, & Punamäki, 1999; Wells, 1999; Wertsch, 1998; Wertsch, del Rio, & Alvarez, 1995) that regarded human conduct as interwoven with its immediate and historical environment. The interplay between humans and their environment produce certain opportunities, *affordances*, and these are mediated by available tools in the form of e.g. signs, language, or technologies. In the sociocultural perspective the notion of such cultural tools, or *artifacts*, constitutes an essential prerequisite for learning. Hence, this perspective is able to bring a much needed social, cultural, and basically interactional perspective to technologies in education. In the case of language learning, the underlying metaphor of *acquisition* is challenged by that of *participation*; learning a foreign language should be framed as a process of increasingly mature engagement in authentic and meaning-making communicative practices. ICTs offer opportunities for such practices. With digital and networked technologies we can create new spaces that afford current and future-oriented communicative activities.

It follows that the image of the individual learner processing input gives way to an image of learners collaboratively negotiating meaning as well as building knowledge and skills and that such processes are mediated by available tools. In the case of language learning, it involves an emphasis on language learning as socialization, as exploring and exploiting the affordances that are produced by the learning environment (Lantolf, 2000; Roberts, 2001). Technologies increasingly form a crucial part of this learning environment. Consequently, we need to adopt a perspective that embraces humans, technologies, and contexts as an overall, integrated unit, not as discrete items to be studied separately.

This shift in theoretical approach represents the first major challenge that faces language teachers who work at integrating ICTs in their practices. I would argue that at least some of the slow-moving process and disappointing results

of ICT integration in education stem from the fact that technologies have been regarded as merely add-ons to existing practices. They have been applied to curricula, tasks, activities, and exams that basically take the individual learner's mental processing capacities as the point of departure. But digital and networked technologies primarily invite joint efforts, negotiated problem solving, and shared outcomes. The result is that teachers find themselves at the interface of two approaches to learning: one is traditional and with institutional legitimacy in the form of policy documents and exams, the other is emerging and has innovative potential but is still far from materializing in classrooms, in school thinking, and in educational policies. The result is that we see innovations in practices of individual teachers who advanced milieus (that tend to burn out after a while) but rarely in the form of sustained efforts on a broader scale and with organizational or political support.

The typical in-service course for teachers has also been traditionalist in nature. Usually it is either a general introduction to generic skills, such as word processing or use of the Internet. Teachers are then expected to transform these acquired skills into productive learning and teaching processes without taking the nature of technologies, how they affect the subject they teach, and the contextual variables into consideration. We need a broader view of ICTs in education and language learning, a view that focuses not only on how such technologies can be applied, but also on how they change our conception of knowledge and our relationship to it. These are fundamental questions of epistemology, too far-reaching to be pursued here, but they are currently attracting a lot of interest (Gobbo & Girardi, 2001; Lankshear, 2002; Lankshear, Peters, & Knobel, 2002; Lea & Nicoll, 2002; McCormick & Scrimshaw, 2001).

To summarize, the first major challenge for education in general and teachers in particular is represented by *a changing perspective on learning, teaching, and knowledge*. This is a process that accelerates as ICTs increasingly make their impact and force us to reconsider how such technologies may affect classroom practices. However, first we need to take a closer look at the nature of digital technologies. What makes them so special?

ICTs as agents of change

The way we have come to regard learning, as participating in social practices and not just as cognitive processing, has a fundamental impact on the way we regard the role of technologies. ICTs are seen as mediating our communicative efforts, whether it is in the form of a cell phone (including short message service – SMS), an electronic bilingual dictionary, or a Learning Management System (LMS or “platform”). But while they mediate our communicative efforts these technologies also influence such practices. The three examples above tell us that:

- Technologies accumulate communicative practices, they can act as tools for cultural reproduction in the sense that they store historical insights in and conventions of language use. Spell checkers, evolving translation facilities in cell phones, and online chat forums all embody important historical, social, and cultural aspects of human conduct. In this perspective technologies serve as *artifacts* – they encapsulate certain insights that enable people engage in diverse communicative activities.
- Technologies influence future practices because they open up new spaces or opportunities for communication. The cell phone has brought about a (youth) culture of hybrid language practices (multi-lingual, acronymic, iconic), hypermedia has blended and embedded text in colors, font types, images, sound, and video, the Internet provides opportunities for asynchronous and synchronous communication where new genres (the web page, many-to-many mode online discussion) and new conventions (turn-taking in chat and e-mail) are constituted (Lund, 2001).

In sum, ICTs carry dimensions that are both traditional and future-oriented. They serve as a cultural, collective memory as well as new opportunities for communication. What is more, such opportunities are not curriculum-oriented or confined to schooling. On the contrary, they are more often found *beyond* the classroom and in emergent but no less authentic practices that connect people regardless of time, place, and culture. For teachers who want to integrate ICTs, a dilemma emerges: if they want to exploit communicative technologies to the full it means teaching *beyond* the curriculum and to develop new classroom practices that may not be compatible with a traditional view of language as a system to be acquired and the result of such acquisition to be tested.

The field of Computer-Assisted Language Learning (CALL) needs to acknowledge such perspectives. While there is still a strong tradition of CALL addressing materials, software packages and technologies that aid and promote cognitive development and linguistic performance, there is a growing attention to how technologies are embedded

in larger social and cultural practices. CALL simply cannot escape such perspectives unless it wants to end up as a backwater phenomenon¹.

But just as technologies may afford and change communicative practices they are also changed through the intentions and expectations learners, teachers, and policy makers bring to them. For instance, to young learners technologies represent creativity, exploration, adventure (games!), and generally transcending constraints of the classroom. To the policy maker, technologies are often framed in terms of efficiency, user competence, and economic growth. To the teacher, technologies are sought employed to improve learners' performance and facilitate the exam-oriented curriculum, only to find that his/her efforts take an unforeseen turn or are disrupted by the intentions of the learners.

What we see, then, are different *cultures-of-use* (Thorne, 2002). Technologies are not the same to everyone, they are not deterministic and unambiguous in the way they have an impact on users. On the contrary, users approach them from very different positions and from very different perspectives. I would argue that this is a second reason why ICTs in education have failed to achieve the success they were expected to. ICTs are much too sophisticated, too much of historical-cultural constructions to be approached instrumentally, i.e. as neutral tools that merely facilitate certain communicative operations. ICTs are primarily social in nature, i.e. they mediate a cultural heritage and they have the potential of developing a culture as the people who constitute it make technologies serve their own intentions and needs.

Hence, the second major challenge for teachers is to adopt *a transformational perspective on ICTs*. Technologies provide a largely untapped potential for language practices but this potential will often be at odds with curriculum and exam-oriented educational policies. Currently, we are witnessing a multitude of emerging language practices. David Crystal (2001) refers to such computer-mediated communication (CMC) as "Netspeak" and estimates its impact as follows:

"The phenomenon of Netspeak is going to "change the way we think" about language in a fundamental way, because it is a linguistic singularity – a genuine new medium. (...) For Netspeak is something completely new. It is neither "spoken writing" nor "written speech." (...) It is, in short, a fourth medium. In language studies, we are used to discussing issues in terms of "speech vs. writing vs. signing." From now on we must add a further dimension to comparative enquiry: spoken language vs. written language vs. sign language vs. computer-mediated language. Netspeak is a development of millennial significance."

The implication of Crystal's assessment is that we are not just adding a dimension to communicative processes. What we see is a new perception of what it means to be literate in the 21st century.

Literacy in the 21st century

Literacy used to be synonymous with reading and writing, often viewed as decontextualized skills. This functional view of literacy has fitted a basically tutorial and mechanistic paradigm of CALL. Today, however, learners and teachers are facing the challenge presented by *multiliteracies* (Cope & Kalantzis, 2000). With multiliteracies, learners can be prepared for the future and not just for the literacy of the print era. As communication modi (text, sound, graphics) have increasingly become digitized, can (thus) be manipulated, have converged in multimedia, and as these forms have become networked and globalized across time, space, and cultures the notion of literacy changes fundamentally to "socially made forms of representing and communicating" (Kress, 2000:157). 21st century literacy encompasses language, culture, power, and technologies. It is, in essence, multidisciplinary. Perhaps the best illustration is found in the web sites and homepages created by young people; extended representations of their own selves as they reach out to others: "the digitalization of all communication and information unites all these literacies on the computer screen" (Soetaert & Bonamie, 1999:126). In this perspective, computer literacy is not a single competence but implicates diverse and changing contexts in which computers are put to use (Warschauer, 1999).

The implications of multiliteracies are not just communicative. With their focus on globalization, diversity, and technology The New London Group aims at establishing multiliteracies as a counterforce to market logic and untamed liberalism:

¹ Indeed, the term CALL may already be obsolete. There is no parallel in e.g. Computer-Assisted Natural Science or Computer-Assisted Aesthetic Subjects.

“In this way, just as global geopolitics have fundamentally shifted, so has the role of schools. Cultural and linguistic diversity is now a central and critical issue and, as a result, the meaning of literacy pedagogy has changed as well. Local diversity and global connectedness mean not only that there can be no standard; they also mean that the most important skill students need to learn is to negotiate regional, ethnic, or class-based dialectics; variations in register that occur according to social context; hybrid cross-cultural discourses; the code switching often to be found within a text among different languages, dialects, or registers; different visual and iconic meanings; and variations in the gestural relationships among people, language and material objects. Indeed, this is the only hope for averting catastrophic conflicts about identities and spaces that now seem ever ready to flare up.” (New London Group, 2000:14)

This is quite a dramatic statement and one that places the ability to negotiate across differences at the heart of literacy, as a condition for learning in a diverse and sometimes antagonistic world. Moreover, this involves a significant extension of people’s literate repertoires. Reading and writing in light of cultures and technologies transcend merely encoding and decoding of text. It also involves the ability to be prepared for the non-standardized, the uncommon and the unexpected, all parts of an epistemological shift that targets pluralism and change instead of a fixed and stable subject matter.

So, a third major challenge for (language) teachers would be *to replace a literacy perspective with a multiliteracy perspective*. How learners can be “apprenticed” into such a multiliterate discourse and how teachers can assist in such processes are currently questions with only tentative responses². These questions are of a pedagogic or didactic (as the European term would be) nature since they address how learning processes can be operationalized and made visible in educational settings. Hence, some didactic issues will be treated next.

Didactics in the 21st century

So far, we have identified three major challenges for teachers. The first involves a view of learning as social, situated, and tool-mediated; the second involves a view of ICTs as transforming learning processes and extending opportunities for learning; the third involves a move from literacy to multiliteracies as a fundamental competence. Together, these changes present the classroom, the principal arena for organized learning, with a new understanding of didactics.

Historically, didactics have focused on three aspects of teaching:

- subject matter (*what* constitutes a school subject and what its curriculum should be);
- ways to effectively plan and arrange for subject matter to be transferred to or developed by learners (*how* a subject is “taught”);
- for what purposes a subject is learnt and taught (*why* the subject is taught, including its socio-political rationale).

However, with a social and cultural perspective on language learning, the relational aspects of didactics gain importance. I find Harry Daniels’ (Daniels, 2001:4) definition to sum up such aspects: “Didactics – the study of the relationship between pupils, teachers and the various branches of knowledge grouped into educational subjects.” With the impact of networked ICTs, however, didactics must also address relations between and among participants in distributed language communities and how participants position themselves around technologies. ICTs afford new opportunities for agency and output, e.g. in the form of e-mail, asynchronous discussion lists, and synchronous chat. With such added opportunities, designing learning environments and activities conducive to empowering language learners becomes essential. ICTs have tremendous potential of making this happen, but it requires language teachers being able to work under extremely complex, uncertain, and demanding conditions.

For example, the didactic dimensions of *what*, *how*, and *why* are expanded by *where* (offline/online spaces) and *when* (synchronous/asynchronous). The consequence for classroom work is that focus expands from (individually) digesting and negotiating pre-packaged subject matter (textbooks) to jointly building, interpreting and negotiating knowledge. Also, the distance between in-school and out-of-school communicative practices is reduced. It is at the intersection of such approved practices on the one hand (linguistic standards, curricular goals, standardized tests) and emerging, creative, and non-standard variants that language teachers will have to work. There is a precarious balance between engaging learners in the reproduction of a language and in allowing for emergent and non-standard variants.

For teachers, it is important that they take part in such emerging practices. How can a teacher teach something he/she has not herself come to understand and practice? In the case of language learning, how can teachers take part in

² To what extent teachers appropriate (see below) changing literacies is an open question. A British study found that student teachers embraced a broader concept of literacy and that to them electronic text “does not supplant print culture but it changes it”. On the other hand, some teachers were “literally ignorant” due to “an appalling lack of in-service training” (Goodwyn, Clarke, & Adams, 1997: 238-39).

electronically mediated discourses if they are not familiar with hypertext, do not write e-mails, chat, inhabit discussion lists, navigate multimedia, and traverse the World Wide Web? At this point, didactics meet multiliteracies.

Let us illustrate some of the points made so far in the form of some snapshots from the classroom. Although they are fragments and, thus, do not do justice to the more longitudinal aspects of learning and teaching with technologies, they should serve to exemplify some of the challenges teachers are up against.

Classroom snapshots

To observe the format of an article, the following classroom observations can only be briefly introduced and analyzed. However, they should illustrate some of the issues above and how they materialize within the classroom context³.

Example 1: building an online identity

The following entries are from young (17) Norwegian learners. They have been told by their teacher of English to go online, enter a virtual classroom, and post a message to tell the other learners when they have succeeded. No other instructions were given, as this was the very first time this class made its way into the online environment. The teacher observed the activity but did not interfere. The four short messages below (all by girls, incidentally) appeared within two minutes of each other:

FROM: Christine
SUBJECT: YoYo!...
ChRiS10nE in tha House!.. ;)

FROM: Cecilie
SUBJECT: (none)
Hello, I'm in and going bananas

FROM: Helen
SUBJECT: hey everybody!!
I'm in too! really cool yea?? hehe! see yah!

FROM: Sara
SUBJECT: Aloha!!
Hey Hey Hey! I'm in!!!!;c)..... Yo ganxhstas!wazzup??

This short excerpt should be enough to tell any teacher of EFL that there are linguistic practices out there that are far removed from the curriculum. Idioms, spelling, punctuation, and use of emoticons (“smileys”) add up to a genre not taught in schools. It is a hybrid form that draws on “hip-hop”, “rap”, and “street” variants. Also, the mode is one-to-many and with a very strong sense of place and one’s own position in it. The online environment opens up new communicative opportunities to these learners and seems to offer a whole new set of conventions. The learners exploit these as they establish an easily recognized online presence. New (and not educationally approved) language variants are intimately tied to identity. For a teacher, it would be necessary to know such practices and to have an understanding of multiliteracies as well as the socializing function of language in order to participate in such practices. Also, these practices do not supplant but add to the more established ones. The result is that for the teacher it is important to keep the precarious balance between tradition and creativity, between cultural reproduction and cultural renewal. There is a series of registers involved.

Example 2: online turn-taking

The next example shows how learners come to master the multilogue nature of the online discussion. This is a different class from the one in example 1, although the age (17) is the same and the subject is still EFL. Their teacher, Tom, has for some time arranged online discussions on several topics. Usually, the topic is related to a text the class has read, and

³ All names have been changed and all entries are true to original spelling and grammar. Where utterances overlap, it is indicated by square brackets. All postings appear in the original form, except that they have been stripped of standard functions provided by the software, i.e. date, reply functions, queuing, etc.

Tom then introduces the topic in an online posting. Often, his message is slightly provocative or raises a question. On this occasion, the topic is relationships. Tom's initial posting follows:

FROM: Tom

SUBJECT: Relationships

It is not always easy to stay friends. Sometimes we do or say things to each other that are hurting or disrespectful. The closer we get, the more we can hurt each other, and the more we know about each other the more it hurts. How do we behave and treat each other to make a relationship last?

The posting results in a series of responses. Mostly, learners address the topic in general, some address the class as a whole, and some address Tom directly. One such example is given below:

FROM: Harald

SUBJECT: Re: How to make it(friendship) last...

Tom, why are you looking so pessimistic about this issue??? The more you know the more it hurts... In my opinion the more you know the better; it's great to have someone you're confidential with, someone you really trust. You don't tell "secrets" that friends have told you to others, NO MATTER WHAT; it's a matter of principles... Even if you're not friends anymore, you keep your mouth shut. I don't see where you're trying to go with this, Tom. In a relationship(friendship) there are certain rules/principles that you don't try to follow; YOU FOLLOW!!! For instance: You don't hit on/sleep with your (best-)friend's girlfriend(and x-girlfriends). You tell each other if there is something that bothers you. What I have written is just my opinion; but I think most individuals who have a very close friend, would agree with me(or at least they should...) I have a very close friend(Per), and I can't imagine him telling things to others that could hurt me(I can't imagine him telling anything to others...) So, Tom, I don't see where you're going with this.

To me, the high degree of contact, the way learner Harald approaches his teacher, is surprising. It is as if the online environment once again affords certain conventions and makes it easier to invest oneself in the text produced. The *lifeworld* of Harald is what carries his posting. Also, it is openly critical of the teacher's views, but perhaps as a result of misinterpretation. For instance, Harald's response results in the following posting from Elisabeth:

FROM: Elisabeth

SUBJECT: (none)

Harald: I share your opinions, but what I also mean, and what I think Tom ment is that the better you know a person, the more it COULD hurt (it doesn't HAVE TO hurt...) When you know a person THAT well, you know that persons thoughts and even feelings, and it's sometimes easy to say or do something hurtful...But I agree 100% when you say that it's great and SO valuable to have a friend THAT close...)

In the above postings, we see elements of the linguistic variants so dominant in example 1. What is more interesting, however, is the way turn-taking takes on new forms in multilogues. Harald addresses his teacher (while knowing the whole class can read his text). Elisabeth addresses Harald directly, but includes Tom (or at least an interpretation of his message). Again, the whole exchange can be read by the class. As such threads unfold, we see how turn-taking moves beyond the dialogue and into the multilogue modus, so crucial when negotiating or collaborating online. Again, the question that arises is to what extent teachers can guide and lead such practices.

Example 3: agency

This example is taken from the same class as in example 2. The learners have been asked to pretend they are in the middle of a conflict between motorists and environmentalists and describe how the conflict develops or can be resolved. Peter has given a rather violent account of a clash between two opponents, and teacher Tom feels he has to intervene:

T: How can you, how can you take a baseball bat and beat...

Peter: (*unintelligible*)

T: What did you]

P: [golf club

T: and well, what's so much better about using a golf club? What about ethics, er, here at the end? Eh...this is almost like "Natural born killers", just a lot of violence. Of course, the English is good and the fluency is good...

Two scripts intersect. On the one hand we have Peter's violent Quentin Tarantino-like scene, inspired by his out-of-school experiences and his lifeworld. On the other hand, we see the teacher's script, which addresses ethical and

linguistic issues. The latter might be called an official or institutional script since it conveys aspects of the curriculum and larger educational and moral concerns. This is a common occurrence in networked environments; learners often exploit the new communicative environment to challenge conventions, limits and generally experiment with practices that may even be unwanted. Chat sessions are notorious in this respect.

However, Tom does not merely disapprove of Peter's effort. He sees an opportunity for a third script, one in which Peter's voice is still heard but where it is attuned to the larger curricular issues. As they talk, it appears that Peter would like to moderate his own online conference. Whether he does so in order to improve Tom's impression of him is pure conjecture. However, Tom makes use of the opportunity and upgrades Peter's privileges so that he is made teacher's assistant with the right to create and run conferences. He is also aware of Peter's recent history of endorsing violent descriptions:

T: Then you'll have to sort of start to provoke a few around here, so ...

Peter: Yeah

T: ...but just keep it, eh... down to... yeah, well. [*softly*] So you like Quentin, do you?

Peter: Yeh

[*pause*]

T: Which one? Would you like to create a new one, or... do you like to run one of these, of these...

Peter: Ehm... do I have to choose one of them?

T: No. No you don't, you can, eh... I'll just, eh... I'll just put you up here as a, as a teacher's assistant and then you can, eh... create topics and edit, edit topics. I'll just have to wait for the site to load here... it's taking pretty much time.... just log on to *NiceNet* and then call, call me

The softly spoken reference to Tarantino is a move from the teacher's to the learner's script, thereby acknowledging Peter's lifeworld. Peter, on the other hand seems to offer to enter the teacher's script by volunteering to start a conference topic and it results in the following posting:

Conferencing Topic: Take responsibility!!!

FROM: Peter

SUBJECT: Take control of your life!

People often take the easy way out by giving their responsibility to others. In school, at home, etc. For example: If you get a bad grade at school, the easy way out is to blame it on the teacher. Is this the right thing to do? No! Take control of you own life!!!

Peter does not abuse his newfound autonomous power but posts a straightforward initial message. The result is 13 replies from classmates; most of them seriously discussing the point, only one is off target. Peter does not make a second appearance and he does not moderate or activate the proceedings in any way. Still, this is an important incident. It illustrates how networked technologies create opportunities in the form of new spaces and new scripts, but that it takes a particular form of teacher expertise to tap this potential for learner agency and empowerment. Such expertise will be discussed below.

Example 4: teachers at the interface

When teachers integrate networked technologies into the foreign language classroom, new opportunities arise (as briefly illustrated above), but teachers also *lose control*. Loss of control is one of the more salient findings when researching teachers in ICT-rich environments (Lund, 2003a). However, loss of control is not necessarily a negatively charged concept. Traditionally, teacher authority and control have been connected with the teacher's responsibility of attaining goals in the curriculum and preparing learners for exams. In the networked classroom loss of control equals a transfer of power and empowerment of the learner. Also, loss of control means that answers no longer are to be found with the teacher or the approved textbook, learners are no longer just an audience. Let me by means of a couple of quotes illustrate how teachers perceive their role under such conditions. On one occasion, when online discussion activity is particularly intense, Tom turns to me (the researcher at the time) with the following comment:

One of the problems right now is to keep track of what they are occupied with, because I come across maybe one of 20 messages sent, there are 10–12 different conference topics. Some lose their connection, one got an error message, see, so there are so many things to consider, and, like, I don't know what are in the four responses to *Haifaiv*. (...) so, eh.... What we should have, you know, maybe two – three teachers, one who was writing messages to trigger

writing (...) and one who could help with technicalities, he need not be an English teacher by the way, (...) and one who was there as a teacher of English (...) that would have been all right. (...) So you cannot trust the net (...) because it may suddenly go down, or it is so slow that you, uh... the machine crashes, certain web pages do not open, some addresses are not available, you get a proxy error, so, looking at it this way you, in fact, miss the classroom where you hand out tasks and they sit there and reply, each with his own pen, and you have total control, while this is like wild west, you see.

While Tom points to the fragility of the technology as a potentially disruptive element, his other concern is how activities and lessons could be organized. He points to a collaborative effort, a small community of educators who might participate in the educational events from different positions. It is an interesting glimpse into a teacher's perception of future-oriented practices.

At another school, teachers Helen and Marie have, in fact, created such a small community. When it comes to ICTs, Helen is the more knowledgeable of the two and they form a master – apprentice relationship; Marie regularly participates in Helen's classes to learn the ropes and Helen regularly stops by Marie's classes to lend support. In addition, they have appointed ICT savvy pupils as technical assistants. During a lesson that is similar to Tom's (above), Marie articulates the following concerns:

Suddenly, you are, you are not the active party any more, you are the facilitator as the term goes, it's a bit new to me and I have not quite got used to it, even though we have been doing it a few years. (...) Not being in the driver's seat doesn't bother me, because I am still at the wheel, but it does bother me that I am not active, that I become passive, like... you are supposed to be energetic and be active (...). It is so good the way we, when have French sessions and we work and five learners call my name at the same time, that I like, because then I feel useful, see? Hehe. (...) They [= *the learners*] are used to this [= *collaborative project work*], everybody's doing... but I'll be darned if I know what they're doing, you know, hehe. (...) This is the most difficult phase, until they have decided on what they..., basically they are completely free, it is supposed to be about literature but it seems they have shelved that, they may just as well write about politics or history or whatever they want from the country in question. I have told them that they are free to choose.

The passage above illustrates several points. Marie has difficulties reconciling herself with what she sees as a passive role, here described as not being consulted by numerous learners simultaneously. She keeps looking for a middle ground between the bipolar variants of instructor and "guide on the side" but finds herself in an educational *horror vacui*, cut off from the lively interactions she finds so stimulating in her French class. These concerns address the much needed development of didactics in ICT-rich learning environments where simplified metaphors like instruction and facilitation do not capture what emerges as a need to explore teachable moments, what we referred to above as new scripts and spaces.

Thus, when loss of control emerges as one of the salient features of the technology-rich classroom it should therefore not be interpreted as erosion of a teacher's position but that the situation in an ICT-rich setting is less predictable and controllable. The response is not to abdicate power, but to develop expertise that captures rapid changes in situations and relations.

The above examples show that ICTs do not enhance traditional practices, they transform them. Such transformation emerges partly in the form of new opportunities (spaces, scripts, authenticity, genres, etc.), partly as increased learner agency, and partly as the need for teacher expertise that so far has not been properly researched. If teachers do not develop the expertise called for, they will – like Marie – be left in an educational limbo where, paradoxically, uncertainty is the only stable feature. Hence, the final section will turn to a possible direction for didactic development that embraces the transformational potential of technologies and in particular the teacher expertise needed to cope with such transformation.

Conclusion: Teachers as agents of change

Expertise is a notoriously vague concept. In the present article I do not consider expertise as a clearly defined state of knowledge, a level of competence, or as a set of discrete, decontextualized skills. Neither is expertise seen as unquestioned authority in a particular field or school subject, nor is it a property found in a particular teacher. Rather, expertise is developed by people partaking in progressively more sophisticated and demanding activities that, at least in the case of ICTs and (foreign) language learning and teaching, involve multiliteracies. The implication is that

expertise presupposes and involves participation in emergent practices. On the basis of this assumption, I would point to three aspects of expertise that might guide teacher education and in-service training:

- Expertise is equal to the process of maneuvering in **complex relationships** where humans and artifacts form social practices that are never fixed or can be pinned down in a “didactic method.” The permutations are endless. For a teacher, expertise involves the ability to design and take part in activities and practices that can open new opportunities for learning, not just enhance existing ones. In this perspective, expertise is relational – the ability to realign humans and artifacts around meaning-making and future-oriented practices. Tom’s series of online discussions (above) is a typical example.
- Expertise is equal to acknowledging and determining the **distributed nature of knowledge**, across humans as well as artifacts. In the digitally networked knowledge society, cultural tools increasingly carry accumulated knowledge and insights. How to design practices that involve the mastery of such tools is a new challenge for teachers. It means breaking away from a view of knowledge, e.g. in the form of a school subject, as something found in a place (e.g. a textbook) and transmitted to a learner. For language learning, it means developing critical, digital, and cultural literacies in order to tap into and make sense of hypermedia, linguistic variants, and make connections between content located in different “nodes” (e.g. servers and folders).
- Expertise is equal to **transforming classroom practices** in accordance with the relational and distributed aspects of knowledge construction. This involves teaching beyond the classroom and, ultimately, beyond the curriculum. From research we know that digital networks open up new spaces, new opportunities, but that teachers are not prepared to exploit such opportunities. Largely, curriculum-oriented practices are looking to history, towards a cultural-historical consensus of what it means to be proficient in e.g. French or Spanish. The 21st century calls for future-oriented practices in school settings.

A view of ICT-related teacher expertise as it is outlined in the three characteristics above may seem to place the technologies too far in the background. However, the intention is to make them transparent, seamlessly interwoven into the practices they enter into. Consequently, teachers’ need for instrumental mastery of technologies is observed, but made secondary to the social practices they enter into since these are challenging and changing traditional classroom activities. After doing several classroom studies of literacy learning and development, Kris D. Gutiérrez and Lynda D. Stone (2000) observe that “we have begun to recognize how much we have underestimated the complexity of classroom life and its relationship to literacy development.” In this article I argue that such complexity increases considerably when technologies are included in our notion of literacy.

The implication is that *teachers will need to become agents of change* since they are the ones closest to the practical manifestations of the above perspective. It is their situated expertise that may prove to be the most important factor in developing the didactics of the digital and networked learning community. When teachers acknowledge the transformational potential found in technologies, they can truly integrate them in their practices, i.e. they can *appropriate* them (Lund, 2003b) so that such technologies become a seamlessly interwoven component in their professional repertoire.

In his introduction to a volume on teaching in the knowledge society, Andy Hargreaves (2003: xvii) makes the following bold assertion:

“We are living in a defining moment of educational history when the world in which teachers do their work is changing profoundly, and the demographic composition of teaching is turning over dramatically. The vast cohort of teachers who entered the profession in the expansionist decades of the 1960s and 1970s are retiring. Teaching is becoming a young person’s profession again. Whoever enters teaching and however they approach their work will shape the profession and what it is able to achieve with our children for the next thirty years.”

Hargreaves’ perspective of teaching embodies social, formational, and future aspects of the teaching profession. The responsibility of realizing such aspects rests squarely on the shoulders of a new generation of teachers. This is an interesting and perhaps quite daunting situation for prospective educators. At the same time, it means that there is a unique opportunity to make future-oriented, technology-integrated, dynamic and authentic practices the backbone of teacher education. We know that given the right support (e.g. institutional organization, educational policies), such teacher expertise can be developed. However, it implies a radical shift away from the bureaucratic view of teachers as merely providers of a pre-designed curriculum. Technologies influence language production, our use and understanding of language, and how we are socialized through taking part in communicative activities. In short they transform important aspects of our social lives. This is the real and truly challenging perspective for language teachers.

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WEB LITERACY FOR LANGUAGE TEACHERS

Bernard Moro

It is our belief that in the long term, what happened with video technology in the teaching sector will also take place with information technology (IT). Despite massive training efforts from educational institutions, it took some twenty years for the VCR to be used in class. And it really took off only when teachers had their own home setup and felt comfortable enough to use it in a classroom context. But that technology did not bring about the kind of pedagogical changes that the web portends today.

Over the last fifteen years of involvement in teacher training for IT and Language Learning, we have found that using the Internet is certainly THE Trojan horse for getting language teachers to use IT at last. Although using the technology really goes against the grain of most of our literary-oriented colleagues, they are aware of the crucial resources lying in store only a few mouse clicks away, and eager to explore them without wasting too much time searching and trying to understand the technicalities.

In this new light, evidently the teaching profession is undergoing tremendous changes. For the first time in the history of teaching, material can be brought to the classroom without having been filtered by inspectorial or editorial authorities – the teacher is the last protection against the crude reality of the web. This is a responsibility not to take lightly, as it implies that the teacher is not only looking for material on the web, but also validating it for class use. The selection process involves sifting both in terms of quantity – as web material on any subject matter is infinitely more abundant than any course book chapter – and quality. There also must be processes whereby resources are made available to learners. Which form is it going to take? Word format, html-format, on paper, digital only, individually accessed, collectively delivered? None of these are innocent. Paper-based delivery entails intact – actually stonewalling – teacher power. Digital means far more freedom to the learner. Word format means the resource has been already tampered with by the teacher. Html-format respects the nature of the original web-based document,

From visual information to textual information

Nothing is accidental in an advert.

The *visual* first attracts your eyes at an emotional level, in this particular case, the tall silhouette of this slender girl, which you will follow upwards (regardless of your gender as a viewer) until you reach the next step.

The flight of birds in the sky is obviously both visual AND textual information. Its direction leads your eyes to the *left*, not accidentally again in a US-made ad referring to a product whose history is closely imbricated to how the *West* was won.

The next step is the *catch phrase*, whose graphic structure is also of a visual nature, and whose meaning is sufficiently enigmatic to make the viewer-reader want to explore further down.

The *copy*, in smaller type —to make us look closer— is carefully crafted, usually by a team of professional writers. It addresses the reader personally, almost intimately, makes her/him a close friend. This speaks to our intellect.

The *product logo* is obviously again of both kinds, as is the brand name.

Finally the *best line* leaves an ultimate subliminal message printed in the viewer's mind.

In other words, this approach has led the potential client from an emotional or aesthetic sensation to a more intellectual comprehension of the message. The advertising experts have moved us from viewing to reading, the better to seduce us.

Guided tour around an advert

Figure 1

collective delivery suggests the teacher is still in charge, individual access indicates that the learner has been sufficiently armed with methodology to explore on his own.

In which order? Should the teacher pre-establish didactic routes in the areas of knowledge identified? The teacher is becoming much of the Zen master, pointing at the universe for the disciple to explore and retain for himself. The master opens a door, which the disciple must walk through all by himself. This is probably the most radical change brought by the advent of the web. It used to be that the teacher led the charge to, and through, knowledge. No longer. Now the teacher must create the means for the learner to discover the relevant and discard the unnecessary. This poses the vast problem, upstream, of training teachers to cope with the new paradigms of their profession.

One is how to cope with the visual information that is now a common feature of the press, and to an even larger extent, of the Internet. Most teachers have learned their trade with reference to written, not picture-based, documents. Even young learners today, who do handle visuals because they form the foundation of their contact with the world, do not necessarily understand what processes are at work when they “read” images. So our first goal has been to create an online pool of resources aimed at teachers and learners alike, whereby they could apprehend the visual nature of the press they mostly deal with. This is what our http://LanguageLearningResourceCenter.org/english/read_the_press/ web site is all about.

We first demonstrate how the cognitive relationship between visual and copy is crucial to the effectiveness of an advert (Fig. 1).

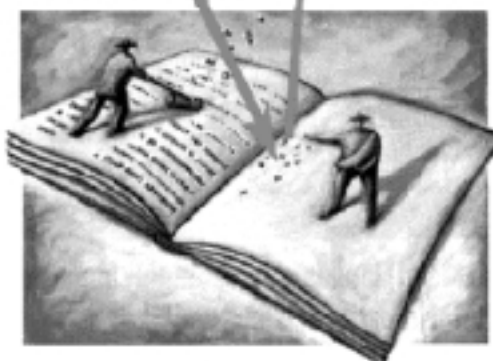
From there, we show that the press page being itself a carefully-composed combination of visuals and text, the same approach can be applied for a better understanding of articles, especially with non-native readers (Fig. 2).

Peripheral Information: analyze visuals and titles

LANGUAGE
SOWING THE SEEDS OF SPEECH
BY JAMES GEARY

Ry the year 2000, an estimated 100 million people will be speaking the world's other languages?

Tease, fragrant as a grown-up, mowing, cutting, instead of sowing.



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Title-visual complementarity

Both the alliteration of the title and the graphics of the visual play on our emotions.

The title and the visual of a press article often carry the same concepts, and this allows for a faster understanding of the contents of the article.

So by going back and forth between the title and the visual, you can grasp that the article is about the growth of new languages, and the disappearance of others, as the character to the left is mowing, cutting, instead of sowing.

Figure 2

In this article page entitled *Sowing the Seeds of Speech*, for example, the visual (a man sowing characters onto a blank page, another leaving an empty swath in a fully-written page) does help a lot to anticipate the written contents of the article, which deals with both the disappearance of certain languages and the birth or development of others. There definitely is in the press we language teachers use an almost constant, complementary interaction between what we are looking at and what we are reading.

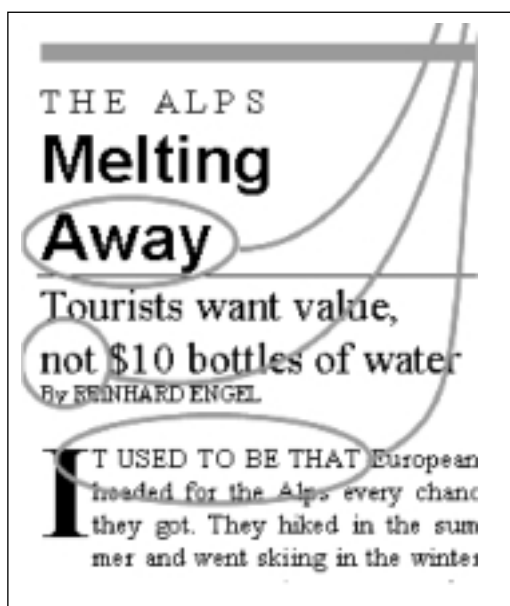


Figure 3

We have turned this into a set of strategies to be applied to most of the articles our students are likely to deal with.

In particular we focus on the way many titles are actually references to what forms the cultural background of most native readers. Here, *Melting Away* (Fig. 3) alludes of course to the snow gradually disappearing from Alpine resorts, but is also a subliminal hint to the sacred manna, which would melt away from the hands of the greedy in the Bible. Obviously not all similar references can be detected, but awareness of their potential presence is per se a key to more intelligent reading.

For years we have heard teachers telling their students to *highlight the salient information in the text*. This instruction means nothing if the learner does not know which information *is* salient. And if he does, then he does not need to highlight it. What we wanted was an approach that would have been, again, of the visual kind. Looking at the text as *visual* information, and dealing with it in that way. Hence this strategy:

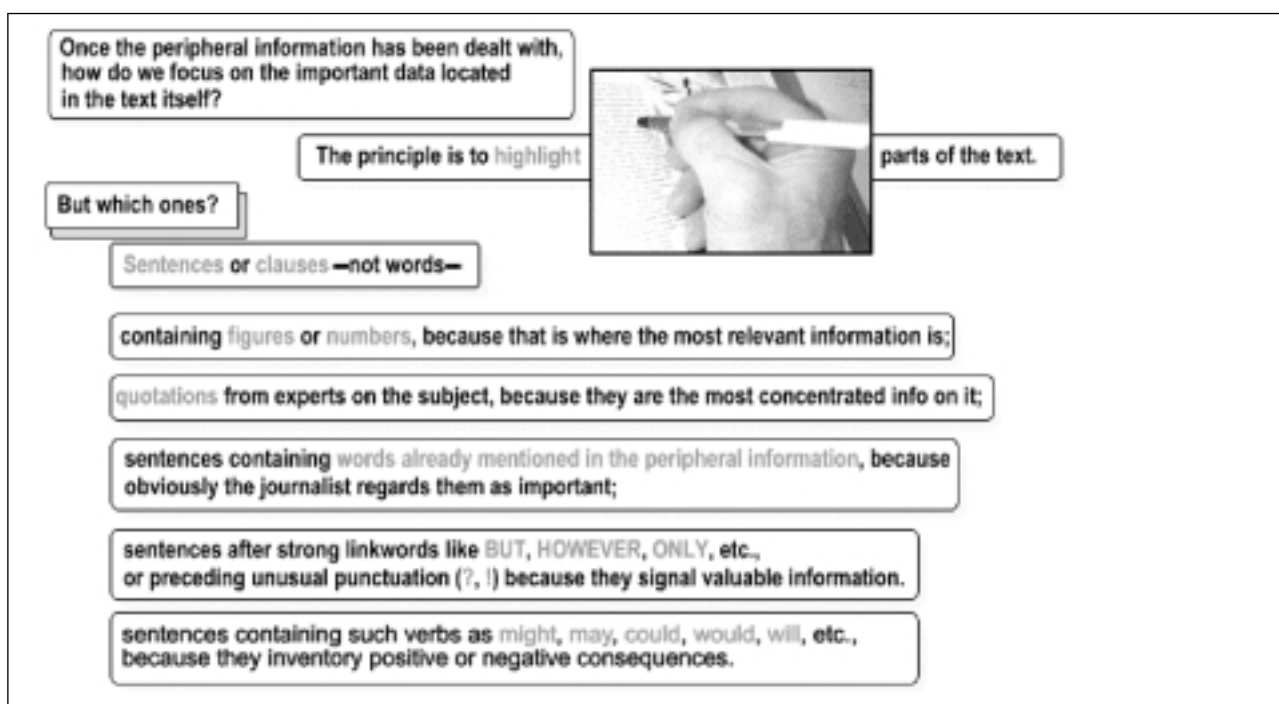


Figure 4

And it worked, precisely because the approach is systematic and non-intellectual. The technique – easily transferable to other languages – has been acknowledged as very efficient by all sorts of teachers and students across the board, from bright candidates for trilingual business schools to intermediate-level language learners.

Another goal has been to address specifically the area of training we refer to as *Web Literacy*. Render the teacher capable of surfing the Internet and tapping it for documents relevant to his area of pedagogical interest with minimal pain and waste of time is what we set out to do. The best option, we felt, was to produce an online course with such pragmatic approach that teachers could access and benefit from it on their own.

This was why we designed and built <http://www.ecml.at/projects/voll/literacy/> our *Web Literacy* web site.

When in the preliminary stages, we met Josef Huber, Assistant-Director of the Graz-based European Center for Modern Languages, who was interested, and the ECML decided to sponsor the project as an example of good prac-



Figure 5

tice and a useful resource for language-teaching colleagues. We shall now describe and justify the structure of the site and focus on some of its most illustrative entries. This is the English-speaking homepage, bearing in mind that a full French section is also available (Fig. 5).

We felt our colleagues should get familiar with all the basics of using Internet Explorer's environment when browsing (Fig. 6).

There is first a kind of static knowledge of the interface essential to using it in all of its power: what does what and for what reasons. We therefore set out to present the standard Windows Internet interface, IE5x, as a dashboard where the user is invited to click on all the details, menus, buttons, and icons and see for himself what purpose they serve.

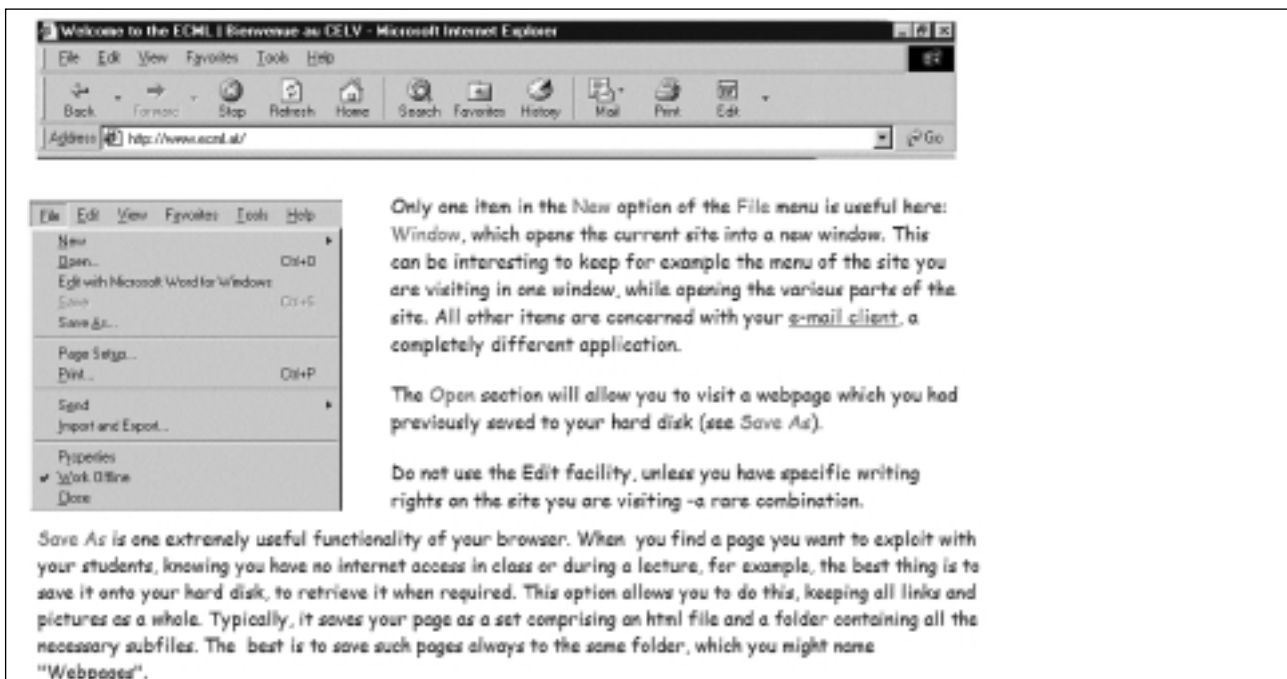


Figure 6

The Internet surfer has two goals in mind. One is to go places, a process that seems easy enough, but the variety of ways to do it is so vast as to require clarification (Fig. 7).

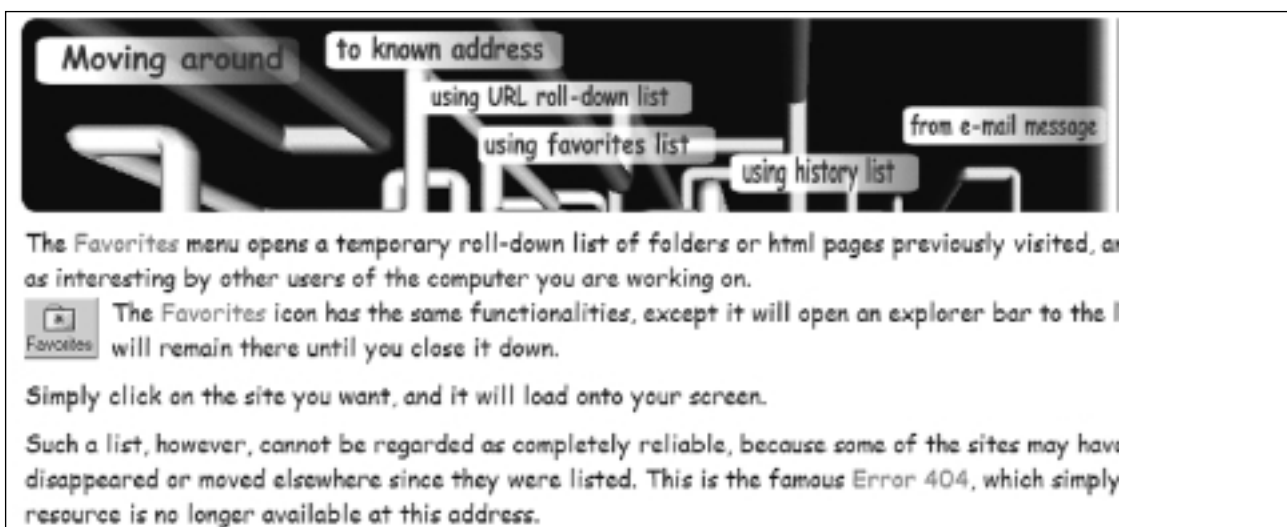


Figure 7

Another is to retain data for further use, not a complicated operation if you know, one, what depth of information you wish to keep: address, links, list of contents or contents themselves; textual or visual; two, how long you want to keep it; three, whether you want to use it offline or online; four, whether you have the right to use it with your learners (Fig. 8).

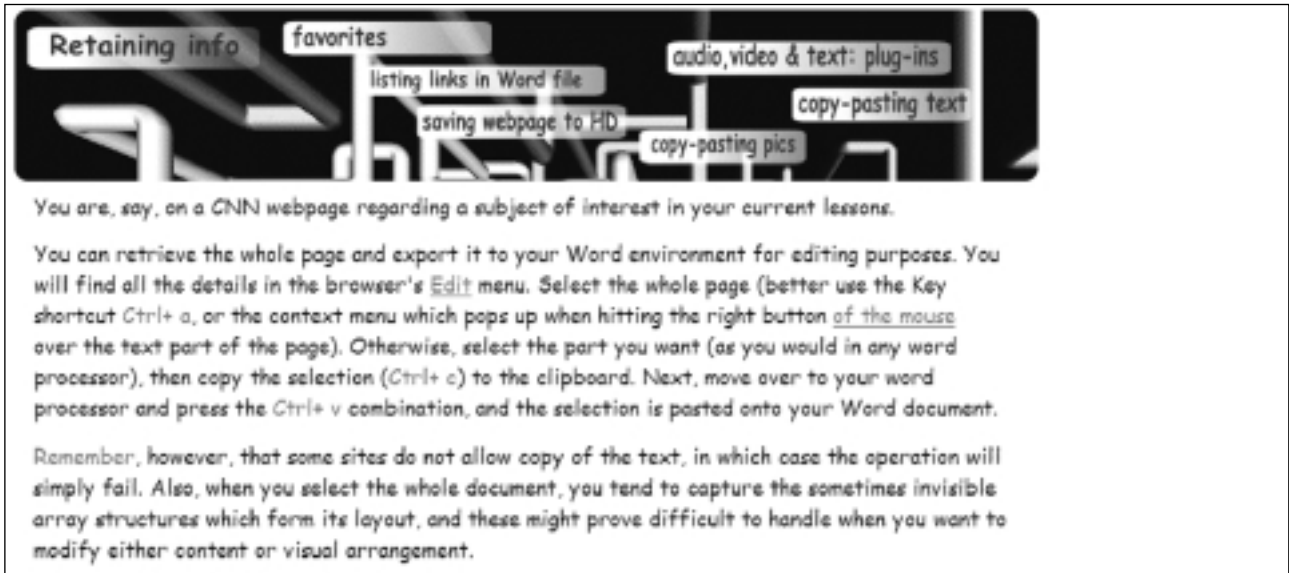


Figure 8

Search technology has evolved tremendously over the last few years. Initially, if the title of your homepage started with “Aaa”, you would find your site listed on top of the search engine. We document how progress was made and allow our users to better understand the processes that lead to listing a web site on top of the engine result page rather than lower down. This is of course instrumental in making their own searching processes more efficient. However, we also cover the limitations, and particularly how Mammon, the god of commerce, has spoiled the goods and enrolled search engines to lure defenseless customers (Fig. 9).

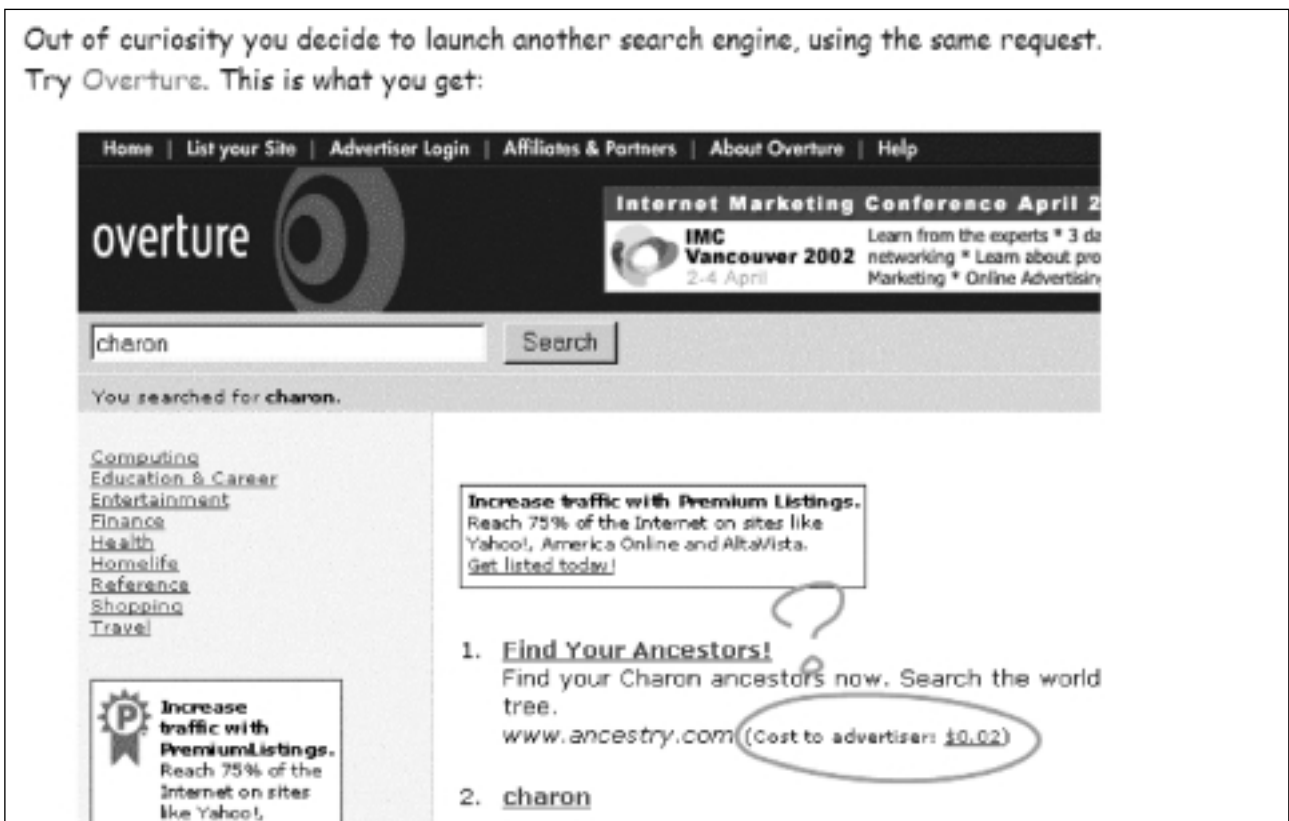


Figure 9

Searching is a logical operation that requires thinking before you put hands to keyboard, and few newcomers realize this. Which sort of environment might shelter the resource you are seeking is a key question. We examine how requests should be worded out, which unconscious thought patterns are implemented when selecting the would-be appropriate site in a listing, i.e., in particular, what we refer to as *Lexical Awareness* (Fig. 10).



Figure 10

We also document why in certain cases a thesaurus is more appropriate than a search engine, which approaches – peripheral or heuristic – is best when trying to reach an unknown resource.

Once it is found, quickly validating content for class or individual learner use is critical. In his mediating role, the teacher must rapidly detect where the resource originates from, whether the source is reliable, if cross-referencing and checking is possible. In a way the teacher acts as a journalist, or even an editor, making sure material is both safe – unstained by racist, biased, or revisionist discourse – and relevant with regard to the areas of knowledge his learner is concerned with.



Background color is, strangely enough, a factor, but even more important is the visual to textual ratio. The URL – the address – also holds many clues for the connoisseur.

We help in this approach with one concrete example that declines virtually all the problems a web-browsing teacher might encounter.

The web is a jungle where all sorts of traps lie in wait for the unsuspecting traveler. Advertising is one, in more versatile and efficient forms it has ever reached in the

Figure 11

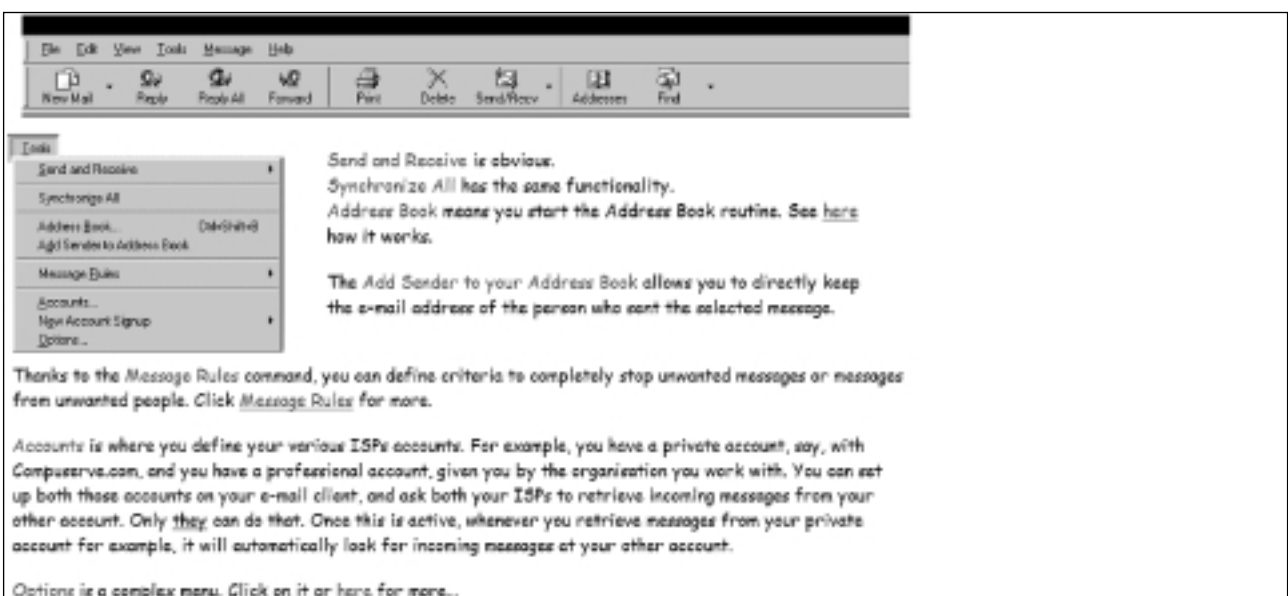


Figure 12



non-virtual world, such as traffic viruses or commercially-biased search engines. We give examples and demonstrate how they work. But there are others, like spyware, the sneakiest invention around, or plagiarism, which has become a plague in today's easily accessible scientific corpora.

Electronic mail is a web-related facility often taken for granted, because it is typically the first utilized by untrained users. We examine the software environment of Outlook, the most widely-used tool around, and see how it can be tuned and curbed to better help and defend the user (Fig.12).

And yet e-mail generates its own series of traps, that we document in detail. One being heavy contents:

People use e-mail to gain time. The rule is to convey information in as compact a form as possible. Avoid lengthy pages. Observe: the average message is 50-75 words max. Beyond that, nobody in their right minds will read you.

Avoid heavy attachments, which take a lot of time to upload, but even worse, a lot of time for the recipient to download. If you are on a fast bandwidth environment, things will go quick on your side, but very, very slow on the receiving end. People will have to wait for your cumbersome message to go through before they can access their important mail. They will hate you. Some may even decide to stop messages beyond a certain weight altogether, or filter out any messages from you after a few bad experiences.

When you send pictures as attachments, check out that they are sampled down in jpg format to at most 100kb before sending them out. (Click here for more). Otherwise warn your recipients that something heavy is coming their way.

Chain-messages are also a pain:

Figure 13



Figure 14

Another category is humanitarian causes, such as the *Plight of Afghan Women* or *Help Land Mine Victims*. These are very well-written and designed to draw the attention of the compassionate among our apprentice surfers.

Yet another, the *luck chain*, is a better-known sort, that which brings disasters on you and your loved ones should you fail to forward the message to your whole address-book.

All of these of course, are rubbish, but of an insidious sort. There are two types of vandals operating on the web. One, the more intelligent, create real viruses that wreak havoc in systems worldwide. Another, the lesser-gifted, try to get newcomers to generate their own chaos.

See how it works:

You receive one message and send, say, thirty. See what you get after only three stages from your initial forwarding. This is exponential growth. And though the resources of the web are vast, they are not infinite so this evidently slows down the network. Now imagine what happens when you get a chain mail that contains, say, a slideshow about the benefits of Zen meditation. You compile exponential growth with heavy content.

1 → 30 → 30²=900 → 30³=810,000

Figure 15

There *is* an e-mail etiquette, though many newcomers tend to write as if the relative informality of web-based exchanges precluded all good manners. We document the do's and don'ts:

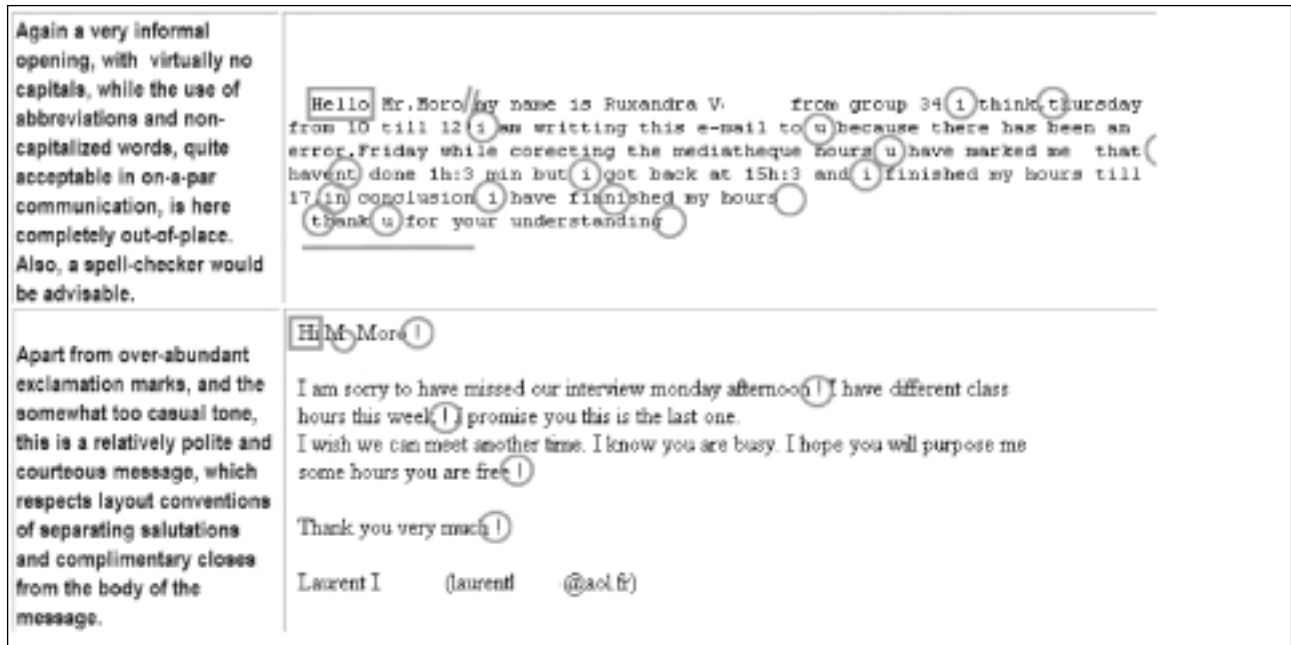


Figure 16

etc...

There is no question that given this new environment, teachers must be helped and accompanied in their approach not only to the latest technical tools but also, and mostly, to how they will alter pedagogical postulates and thinking. We definitely have a busy future.

OF DIGITAL DIVIDES AND SOCIAL MULTIPLIERS: COMBINING LANGUAGE AND TECHNOLOGY FOR HUMAN DEVELOPMENT

Mark Warschauer

The purpose of language teaching goes beyond memorization of grammar rules and vocabulary, or even the development of individual communication skills. Rather, the purpose of foreign language teaching, and indeed of any educational process, is to enhance the human and social development of students and their broader community (Warschauer, 2000, 2002).

This broader function of language education is one of the reasons why the use of technology in instruction can be so important. Through introduction of technology, language students can master the kinds of information and communications media that will allow them to use their new language in potentially powerful ways, such as for national and international communication, investigation and research knowledge production and dissemination, and publication of texts and multimedia documents (Shetzer & Warschauer, 2000).

This, then, begs the question of how technology is best introduced into language education, especially in contexts of socioeconomic disadvantage. Educators have long been concerned about an international *digital divide* between those individuals, communities, and nations with greater access to technology and those with lesser access (Bolt & Crawford, 2000; Warschauer, 2003b). What strategies are useful to overcome such divides and assist language learning with technology, for purposes of broader human and social development, in diverse socioeconomic contexts?

A common metaphor for approaching this question is the notion of a *bridge* – so as to *bridge the digital divide*. While this metaphor has some merit, it also is problematic, because it suggests that we must reach across a chasm. However, those with lesser access to technology are not on the other side of a chasm, but rather of a continuum, and they have many individual and social resources that can be drawn up in their educational endeavors. I thus prefer the metaphor of *multiply*, especially since that is another way of contrasting with the term divide. I believe that educators should ask how we can use new technologies to draw and amplify the existing linguistic, educational, and other resources of individuals and their communities to foster greater development and social inclusion.

For the past decade, I have been conducting international research and project development related to the use of new technologies in language education projects, especially among marginalized or disadvantaged groups (for an overview, see Warschauer, 2003b). Some of this work has been in cooperation with other colleagues who have written for this book, and the chapters by Mounira Soliman and Fang Xu, both of whom I have collaborated with, reflect the multiplicative perspective that I emphasize. In this chapter, as the sole US contributor to this volume, I will focus in particular on three examples initiated in the US, with one example from an elementary school and two from universities.

Project “Fresa”¹

US primary and secondary education are badly divided, with relatively small number of students achieving well in school and the larger number suffering scholastic problems (Kozol, 1991; Noguera, 2001). These divisions in education are greatly impacted by language, with Spanish-speaking students near the bottom of most educational and social indicators (Cheng, 2001). For this reason, language instruction among Spanish-speaking students is a high priority. This takes place through both English-as-a-Second-Language (ESL) programs and bilingual education programs.

For the most part, technology is poorly used in elementary and secondary ESL or bilingual education programs (Warschauer, 2003a). Students in these programs, as in other programs that are considered remedial, most frequently use computers for isolated drill-and-practice exercises, with little opportunity to use technology in more empowering ways (see discussion in Becker, 2000). Many believe that ESL students do not have requisite language skills to undertake authentic research, communication, or publishing tasks with computers.

¹ I discussed this project previously in Warschauer (2003b).

Two teachers at Mar Vista Elementary School, in Oxnard, California have organized a curricula project for their bilingual education students called Project *Fresa*, or Strawberry Project, which integrates high levels of authentic communication and knowledge production with mastery of new technologies.

The project takes as its main focus the local strawberry (*fresa*, in Spanish) industry. The students in the two classes are almost all children of Spanish-speaking migrant workers in the strawberry farms that surround the school. The children begin the project by formulating their own research questions about the conditions of strawberry workers. They then use these research questions to generate interview and survey questions, enrolling their family members, relatives, and neighbors as respondents. They usually conduct the interviews in Spanish and then translate responses into English. Afterwards, the students learn to record in spreadsheets and to produce graphs in various formats of the data they have gathered (analyzing, for example, which types of graphs best display what types of information). The graphs are incorporated into PowerPoint presentations together with photos and quotations from the people they have interviewed.

With the guidance of the teachers, they then search for further information about the conditions of strawberry workers on the Internet. They also invite guest speakers into their classroom from environmental and workers' rights groups. Based on the information obtained from the Internet and guest speakers, students write letters via e-mail to the strawberry growers expressing any concerns they might have about strawberry workers' rights. In past years they have also sent e-mails to elected officials, such as the state governor, with real and informed inquiries about agricultural laborers' rights. After engaging in this kind of work, they then begin an e-mail exchange with children in Puerto Rico who live in a coffee growing area to compare notes about the two industries and the condition of workers. At the end of the year, the students at Mar Vista hold a public presentation, to which their parents and other community members are invited to view the multimedia products they have created.

Compared with using the computer for drills and exercises, this kind of project-based teaching has several strengths. Students learn to actively master technology, rather than use it in a passive manner. They engage in their own research, data collection, analysis, and interpretation and produce quality products, such as letters to elected officials and data-based presentations. They also learn to speak out and take action on issues of importance to their community. Through gathering and evaluating information from a variety of sources, including workers, non-governmental organizations, businesses, and politicians, students involved in Project *Fresa* gain a better understanding of how different players shape the strawberry industry and the conditions of its workers.

Language learning is a central element of the entire process, but language and technology are viewed as means to important ends – increasing the students' and community's knowledge and power – rather than as ends in themselves. Nevertheless, there is a great deal of focus on language throughout, with teachers providing scaffolding and assistance at the point of need. Whether in helping students formulate research questions, write letters to growers, or understand presentations by guest speakers, the teachers contribute linguistic support throughout the project.

Perhaps most interestingly, this project was carried out with only a single computer in each classroom. The teachers had students work in groups, with one group at the computer and other groups carrying out different tasks. Students at the computer drafted their writing collaboratively, or keyed in work that had been written by hand elsewhere. The project thus demonstrated that *high-touch* (learning that touches students' lives and motivates) can be more important than *high-tech* (having large amounts of advanced equipment) in integrating technology in the language classroom.

Hawaiian Multimedia²

A second example, drawing on many of the same principles as that above, took place in a Hawaiian language class at the University of Hawaii. Hawaiian was formerly the national language of the sovereign nation of Hawaii, but the language and its speakers were badly repressed by the US government after the US overthrew of the Hawaiian monarchy at the end of the 19th century (Wilson, 1998). With almost no native speakers of Hawaiian left in the islands, Hawaiian youth have recently begun a language revitalization movement to protect their heritage and culture. Hawaiian is now taught in schools and universities throughout the state of Hawaii, and most of the students in the courses are those with Hawaiian or part-Hawaiian ancestry (a group encompassing some 20% of the state's population.)

² My research on this project was presented in Warschauer (1999).

Students in this university class, and in many Hawaiian language programs in the state, make extensive use of new technologies (see Warschauer & Donaghy, 1997). The purpose of this is multifold. First, computer-mediated communication provides opportunities for learners of Hawaiian – who are small in number and spread out over several islands – to interact with each other. Students in this class, for example, had an e-mail exchange with community college students on the other side of the island of O’ahu. Second, technology, through, for example, electronic archives of native speaker video, can help preserve the few elderly voices who still speak the language fluently. Third, with Hawaiian groups lacking funding for other media (such as newspapers, radio programs, or television programs) or even for the publication of large numbers of books, online materials serve as an important source of community information and authentic language resources.

It was this last purpose that motivated a major project of the class. Students worked as a group to create a web site that reported on the history, culture, and current affairs of the Hawaiian people. Pages they created covered issues, such as Hawaiian sacred chants, the 19th century Hawaiian monarchy, and a sociolinguistic overview of Hawaiian Creole English. All web pages were written in the Hawaiian language, and students devoted great care to both the language and design of their sites as they recognized they were creating a valuable resource for the broader Hawaiian-speaking community. Work on the web pages was supplemented with an e-mail exchange with other Hawaiian-language students at a community college across the island.

Sharing Stories³

A third example comes from a French language course at the University of California, Berkeley. Students in the class, almost all of whom were either immigrants themselves or children of immigrants, carried out an online exchange with a group of students in a working-class community in France. The latter group were almost all immigrants or children of immigrants as well. The students discussed and debated a number of themes related to immigration, culture, and identity with their online partners (alternating between French and English, so that both classes could practice their language skills.) Based on information gathered in the discussions, students wrote a series of essays, which they also shared with their exchange partners for further comment. These included a descriptive essay about the lives of their family today, a narrative essay about the historical roots and immigration of their family, and an argumentative essay about what it means to be an immigrant. Students thus had ample opportunity for authentic communication in their target language, while also tackling important cultural issues related to their own identity and to the identities of speakers of their language of study.

Common Themes

What, then, are some common themes that have arisen in these three projects, and others like them (for further examples, see Barson, Frommer, & Schwartz, 1993; Feldman, 1995; Jor, 1995; Kern, 1995; Livesy & Tudoreanu, 1995; Meskill & Rangelova, 1995; Shetzer & Warschauer, 2001; Soh & Soon, 1991; Thalman & Vilmi, 1995; Vilmi, 1995; Warschauer, Shetzer, & Meloni, 2000) and how do they relate to the issues raised in the beginning of this paper?

In these three cases, technology is being used to multiply the opportunities for groups that are often at the margins of US society – recent immigrants and indigenous people. This multiplicative effect took place in several ways. First, students were drawing on their own cultural and social resources, for example, the knowledge that existed in their family and community about their social conditions. This knowledge was multiplied through the technology-enhanced activities of the project – whether they be digital audio-recording and photography of community contexts, uses of technology to analyze community-based data, or sharing of knowledge with others in the community through digital presentations and web sites. This is a key element that is central to effect use of new technologies with marginalized groups and communities throughout the world, both in education and other realms (see discussion in Warschauer, 2003b): technology must be used in ways that can build on and maximize the pre-existing strengths and resources of the community, including their knowledge, values, and community ties.

³ This project was discussed in an article by Kern (1996), in my edited book, *Telecollaboration in Foreign Language Teaching*.

Technology is also often used to place a group in contact with distant exchange partners. This can help multiply students' opportunities of understanding, even of their own cultural values. As Bakhtin (1986) explained,

“In the realm of culture, outsidership is a most powerful factor in understanding. It is only in the eyes of another culture that foreign culture reveals itself fully and profoundly... A meaning only reveals its depths once it has encountered and come into contact with another, foreign meaning: they engage in a kind of dialogue, which surmounts the closedness and one-sidedness of these particular meaning, these cultures. We raise new questions for a foreign culture, ones that it did not raise itself; we seek answers to our own questions in it; and the foreign culture responds to us by revealing to us its new aspects and new semantic depths” (p. 7).

These projects also involved communication and interaction with others.

In addition, the mastery of technology that is built into such projects multiplies the real life skills that students get out of the course. As one of the students in the above-mentioned Hawaiian course explained to me, “It’s like a double advantage for us, we’re learning how to use new tools, like new technology and new tools, at the same time we’re doing it in Hawaiian language, and so we get to learn two things at once.” This principle – active mastery of technology rather than passive use – has been key to progressive education projects going back over the last century, most prominently in Freinet’s Modern School Movement in France (Cummins & Sayers, 1995; Freinet, 1974).

Also, students’ sense of agency, power, and motivation is multiplied as they learn that they can use the Internet not only to surf the Web but also to “make waves (Shneiderman, 1997, p. vii) – that is, to put forth their own individual and community perspective and attempt to make a difference in the world. This is consistent with the perspective on literacy put forth by Freire, who emphasized that students must learn to read and write the world in addition to reading the word (Freire & Macedo, 1987).

Finally, it is important to point out that students’ also achieve specific linguistic benefits from this type of interaction. The research and communication involved puts them in touch with many authentic texts (and, in some cases, native-speaking correspondents), both of which can assist their language development. Kern (1996), for example, in writing about the French-English e-mail exchanged described above, discusses how students learned for the first time how French people actually distinguish between using the *Tu* and *Vous* forms in authentic interaction.

Students’ writing for publication, and interaction with others about their online writing, also helps sharpen their language, as students revise their work in response to feedback, or attend to detail merely in anticipation of publication. As Volosinov (cited in Warschauer, 1997, p. 482) explained, “Words, intonations, and inner-word gestures that have undergone the experience of outward expression” acquire “a high social polish and lustre by the effect of reactions and responses, resistance or support, on the part of a social audience.”

Also, students participating in online exchanges have opportunities to notice, save, archive, and reuse expressions that others have used, thus facilitating a learning through incorporation of collated words known as lexical phrases. Research has found that in online exchanges students learners acquire chunks of unanalyzed language that they then put to productive use, a process that can lead students to master similar patterns (Bolander, 1989; Wong-Fillmore, 1976). This has led Weinert (1995) to conclude that “‘lexical phrases’ which exist somewhere between grammar and the lexicon may be given a more central role in language teaching and may provide a suitable compromise between approaches which rely too heavily on either the notion of linguistic competence or communicative competence”(p. 199).

In summary then, students are also provided opportunities to multiply their authentic uses of language and corresponding linguistic knowledge and skill.

Conclusion

In an era of globalization, mastery of international languages – especially English – and of new information and communication technologies is critical for diverse people to have a full voice in social and economic affairs. Fortunately, language and technology can be well integrated to multiply students’ linguistic, educational, and social advantages. The key element in this is not necessarily the number of computers in the classroom but rather how they are best used to amplify students’ own individual and collective resources. These resources include their own sense of identity, their values and

history as members of a community, and their desire to cross cultures to make their views known and to learn from others. To achieve this multiplicative effect, students should be viewed not as *behind a screen* but rather *in front of a keyboard* (Pimienta, 2002) – in other words, ready and able to use their linguistic, technological, and social resources, with necessary scaffolding from the teacher and in collaboration with class or distant partners, to assert their voice in the world.

Acknowledgments

This paper draws in part on a plenary speech by the author given to the WorldCALL conference in Banff, Canada in May 2003 entitled *Of Digital Divides and Social Multipliers: A Global Perspective on Language, Technology, and Development*.

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ASPECTS OF TECHNOLOGY ENHANCED LANGUAGE LEARNING: A UK PERSPECTIVE

Graham Davies

1. Background: languages in crisis

This report should be read in the context of a crisis situation in the teaching and learning of Modern Foreign Languages (MFL) in the UK and the recently announced government plans to tackle the crisis.

The introduction of the National Curriculum (see Section 2.1) made it compulsory for all secondary school children in England and Wales to study a Modern Foreign Language up to the age of 16, but this has been accompanied by a steady decline in the number of 16–19 year-olds continuing to study a Modern Foreign Language, the current figure being below 10%. As a result, university languages departments have been forced to close due to lack of recruitment of suitably qualified candidates: v. the report resulting from the Nuffield Languages Inquiry, *Languages: The Next Generation* (2000), which makes depressing reading.

Something clearly needed to be done. In 2002 the Department for Education and Skills (DfES) published a document entitled *The Green Paper 14–19: Extending Opportunities, Raising Standards*: <http://www.dfes.gov.uk/14-19/greenpaper/>.

While the Green Paper has several positive things to say about the future of Modern Foreign Languages, e.g. increasing the number of specialist Language Colleges (see Section 3.1), it has also set alarm bells ringing. The Centre for Information on Language Teaching (CILT) and the Association for Language Learning (ALL) have both expressed their concern:

- CILT's response: http://www.cilt.org.uk/green_paper_response.htm
- ALL's response: http://www.all-languages.org.uk/14-19_green_paper.htm

Nevertheless, the plans set out in the Green Paper appear to be going ahead. A document entitled *Languages for All: Languages for Life – a Strategy for England* was published by the Department for Education and Skills (DfES) in December 2002. The document describes the government's plans to transform the nation's capability in languages, including two radical new initiatives:

- A commitment to offer every primary school pupil aged between 7 and 11 the opportunity to study at least one Modern Foreign Language.
- The development of a new *Keystage 3 Framework for Teaching MFL: Years 7, 8 and 9* (i.e. for children aged 11–14 in the first three years of secondary education) – **but** Modern Foreign Languages will no longer be a compulsory element of the National Curriculum for children beyond the age of 14.

The *Languages for All* document is peppered with references to information and communication technology (ICT), which is perceived as playing a key role in the strategy, for example:

- maximising the potential of ICT in primary schools and secondary schools;
- enabling individual learners to assess and record their own achievements through ICT;
- raising the quality and widening the range of online teaching and learning materials;
- expanding e-learning and providing more exposure to native speakers through online systems;
- setting up international partnerships and using e-mail to communicate with schoolchildren in other countries;
- setting up virtual language communities.

These are ambitious plans, to be overseen by the newly appointed National Director for Languages, Dr Lid King. A good deal of groundwork has already been done. The National Advisory Centre on Early Language Learning (NACELL) has been in existence for some time, providing support and resources for teachers in the primary schools sector, and the DIALANG web site, which was set up with the aid of European Commission funding, offers a range of self-assessment tests in a variety of languages. The DIALANG tests are geared closely to the six levels of the Council of Europe's *Common European Framework for Languages*, which is also mentioned in the *Languages for All* document, the government's aim being to introduce a new voluntary recognition system to complement existing national qualifications frameworks and the Common European Framework.

The plans set out in the *Languages for All* document should be read in connection with the Consultation Document produced by the e-Learning Strategy Unit of the DfES, <http://www.dfes.gov.uk/elearningstrategy/strategy.stm>, which refers to a number of different possible uses of ICT that are relevant to the teaching and learning of Modern Foreign Languages, e.g.:

- access to online resources;
- establishing links with schools overseas, using e-mail and videoconferencing;
- assessment and testing, including automated test generation and adaptive feedback;
- automated language analysis;
- creation of virtual learning communities for groups of schools in which there are insufficient numbers of learners to warrant the appointment of a specialist member of staff for each school;
- addressing the requirements of minority groups, special educational needs children, gifted and talented children, and speakers of community languages.

2. Survey of ICT initiatives in the UK

The use of ICT in the teaching and learning of Modern Foreign Languages in the UK goes back over 20 years and has been the subject of a series of initiatives at national level.

2.1. The National Curriculum

The National Curriculum has undoubtedly had a significant impact on the use of ICT across the curriculum. The information that follows relates only to the National Curriculum for England. There is separate provision for Wales, Scotland, and Northern Ireland – links to relevant web sites can be found from the main National Curriculum web site.

The National Curriculum was introduced in 1988, making the learning of at least one Modern Foreign Language compulsory for all secondary school children up to the age of 16 – but this situation is about to change (see Section 1). The current National Curriculum contains several references to the teaching and use of ICT.

General Teaching Requirements

Language teachers who are already in service can no longer avoid ICT. Here is the message from the National Curriculum web site under the heading *General Teaching Requirements/Use of Information and Communication Technology Across the Curriculum*: <http://www.nc.uk.net/nc/contents/ict.htm>:

Pupils should be given opportunities to apply and develop their ICT capability through the use of ICT tools to support their learning in all subjects.

Programme of Study for Modern Foreign Languages

ICT is now mentioned in several places in the *Programme of Study for MFL, Key Stages 3 and 4*: <http://www.nc.uk.net/nc/contents/MFL-3--POS.html>:

Pupils should be taught:

- (h) techniques for skimming and for scanning written texts for information, including those from ICT-based sources;
- (j) how to redraft their writing to improve its accuracy and presentation, including the use of ICT.

Pupils should be taught about different countries and cultures by:

- (a) working with authentic materials in the target language, including some from ICT-based sources [for example, handwritten texts, newspapers, magazines, books, video, satellite television, texts from the Internet].

During key stages 3 and 4, pupils should be taught the knowledge, skills, and understanding through:

- (d) producing and responding to different types of spoken and written language, including texts produced using ICT;
- (e) using a range of resources, including ICT, for accessing and communicating information.

It should be pointed out that there is no mention of computer assisted language learning (CALL) software here because the National Curriculum is more concerned with *outcomes* and towards enabling pupils to meet stated *learning objec-*

tives. This is one of the reasons why there is a greater emphasis on the use of *generic software* in the UK and why there have been no specific recommendations at national level for CALL software. Schools tend to purchase “safe” software, e.g. *text-manipulation packages*, or software that relates directly to coursebooks that they are using. The National Curriculum is more concerned about the way in which children learn about and use ICT and not how teachers use CALL software in the classroom (Davies 2000).

2.2. The Teacher Training Agency (TTA)

The National Curriculum for Initial Teacher Training (ITT) has had a significant impact on the use of ICT in the classroom. The following statement appears at the Teacher Training Agency’s web site: <http://www.tta.gov.uk/teaching/ict>:

ICT is more than just another teaching tool. Its potential for improving the quality and standards of pupils’ education is significant. Equally, its potential is considerable for supporting teachers, both in their everyday classroom role, for example, by reducing the time occupied by the administration associated with it, and in their continuing training and development. It covers the wide range of ICT now available, e.g. computers, the Internet, CD-ROMs and other software, television and radio, video, cameras and other equipment.

ICT is now an integral part of the initial teacher training National Curriculum. The curriculum aims, in particular, to equip every newly qualified teacher with the knowledge, skills, and understanding to make sound decisions about when, when not, and how to use ICT effectively in their subject teaching. The TTA has also produced *exemplification material* to relate the curriculum to each subject in both phases.

The web version of the above statement contains a link to the *exemplification material* that it mentions, and this can be downloaded as a (somewhat dated) *Word* document.

2.3. New Opportunities Fund (NOF) training initiative

Teachers who are already in service have been given the opportunity to increase their expertise in the use of ICT in teaching their subject to the level expected of Newly Qualified Teachers (NQTs) through the New Opportunities Fund (NOF) training initiative. The NOF initiative is one of the most extensive ever undertaken in in-service training (INSET). Funded with £230 million of National Lottery money, the initiative has offered ICT training to thousands of teachers in all subject areas, as well as to school librarians. A nominal sum of £450 was allocated to each full-time teacher in the maintained sector, but schools and local education authorities have had the flexibility to channel the funds where most needed. Training under the first phase of the NOF initiative, which began in April 1999, was to come to an end in December 2003.

The initiative includes the delivery of INSET courses at selected venues all over the UK. Schools wishing to take advantage of the NOF initiative have to use the services of an Approved Training Provider: see the list at the Teacher Training Agency’s web site: http://www.tta.gov.uk/teaching/ict/training_providers.htm.

It was assumed from the outset that NOF training should target teachers who had already reached a level of general competence in ICT, although there has been considerable confusion amongst teachers and school management alike with regard to this issue. Many positive reports have been received from teachers who have undergone NOF training, but there are several lessons to be learned. The following is a digest of feedback from trainers and trainees who have contacted the author of this document:

- Schools were faced with a bewildering array of approved training providers (57 in England) which made the task of choosing a suitable provider very difficult. Only three providers were subject specialists: Languages, Science, and History. *A smaller number of subject-specific training providers would have made more sense.*
- NOF trainers were not supposed to teach basic ICT skills, such as finding one’s way around Windows and using a word-processor. It was assumed that such general training should have been provided by schools, local education authorities, or other training providers, but in many cases it is clear that this simply did not happen, and NOF trainers found themselves having to deliver training in basic ICT skills. *It would have been better to provide a two-tier training system: NOF1 for basic skills and NOF2 for applied subject-specific skills.*
- Some schools were attracted by the idea of one training provider covering all subjects in the curriculum but this proved beyond the competence of many training providers, who failed to take note of the specific needs of MFL teachers. Training has often been delivered by ICT specialists rather than subject specialists, leading to complaints that the training offered was too generic, too technical, and often incomprehensible. *The lesson to be learned is that ICT training – including basic skills – has to be in the hands of subject specialists rather than general ICT specialists.*

- Particularly where the percentage of training online in a course is high, *the support of the school is essential*. Some teachers could not ensure access to ICT facilities, their progress was not monitored by management, and no technical support or time allocation was offered.
- Schools must have the *necessary hardware and software* in place and in good working order before teachers can effectively embark on full-scale training. Sufficient access should be available to teachers of all subjects, not just the traditionally ICT-based subjects, such as Maths and Science.
- Online training has featured in the courses of several NOF providers but sometimes this has consisted of little more than the provision of a folder of materials and a discussion forum. *The lesson to be learned is that considerable and regular intervention by tutors is essential in online training*.
- An effective system for assessing teachers' basic and applied subject-specific skills before they embarked upon a NOF course – i.e. some form of externally managed *placement testing* – should have been used.
- A standardised system of *assessing teachers' competence at the end of a NOF course* should have been used.
- The pace of work for teachers following a NOF course during term time has often proved stressful. *Ideally, teachers should be allowed time off to follow training courses*. An alternative approach has been adopted by some local education authorities, whereby trainees are supplied with laptops preloaded with subject-specific software and tasks, to be carried out in trainees' own time and at their own pace with support from a local professional development centre.

2.3.1. NOF case study: CILT

The following is a case study of an approved NOF training provider, namely the Centre for Information on Language Teaching (CILT). I am grateful to Clare Dugard of CILT for providing this information.

CILT is the only training provider in the NOF programme that focuses specifically on MFL: <http://www.cilt.org.uk/nofict/index.htm>. All other training providers cover a range of subject areas or a specific subject area other than Modern Foreign Languages.

The CILT-NOF course consists of:

- Two contact days of face-to-face training with MFL-ICT specialists (one day at the start of the course, the second day at the end).
- Eight term-time weeks: one-to-one distance learning with an online tutor.
- Web-based materials, containing extensive subject-specific reading and tasks for completion, feedback on which is provided by online tutor.
- Areas covered include: word processing, data processing, presentation software and hardware, electronic communications, the World Wide Web, ICT resource evaluation.
- Classroom-based project for trainees to put theory into practice.
- Certificated accreditation upon successful completion of the course.
- One year's free membership to the *CILT Direct* information and discount scheme for all accredited participants.

A school is charged £400 for each participant on the course – which is claimed back from NOF.

Successes

The CILT-NOF course has seen three distinct phases of development since 1999 and has enjoyed the enviable position of a very high level of customer satisfaction and a dropout rate of less than 10%, which paints a very different picture from that emerging from reports on the NOF scheme as a whole. MFL teachers who complete the CILT-NOF course have reported on the following positive outcomes:

- Teachers were given a rare opportunity to reflect on their general MFL practice, as tutors were in the main MFL advisory teachers with broad expertise and teachers were expected to reflect in detail on learning objectives and outcomes.
- The focus on learning gains was of benefit not only to teachers in their daily practice, but also to pupils, as teachers were encouraged to share learning objectives and outcomes with them more explicitly, often using the facilities of ICT to do so. One teacher even commented that she felt more confident about an upcoming Office for Standards in Education (OFSTED) inspection as a result of the focus on learning gains!
- The confidence, the mastering of basic ICT terminology and concepts, and the new appreciation of potential learning gains through ICT acquired through training on the CILT-NOF course have empowered MFL teachers to stake their claim to equal access to ICT facilities vis-à-vis other subjects.

- Some teachers have reported significant improvement in their relationship with the school ICT technician, with greater mutual understanding of roles and objectives. Most teachers read and worked with the Attainment Target Levels in the National Curriculum for ICT for the first time during the course.
- MFL departments training together on the course have generally reported that a closer working relationship has resulted, which brings many other benefits, not least the potential for resource sharing facilitated by ICT.
- Those teachers with good ICT skills already became acquainted not only with a greater breadth of ICT applications for potential exploitation in MFL, but also of the contexts in which ICT has an impact on effective MFL teaching and learning. The overriding rationale for pre-existing use of ICT by these teachers was motivation, or development of pupil ICT and/or presentation skills.
- Those teachers with a very low level of ICT skills were pleasantly surprised to realise how quickly they could exploit their basic skills effectively in MFL teaching and learning, such as with the use of an electronic worksheet, to reach out to pupils with a range of learning styles.
- Teachers have exploited their CILT-NOF Certificate or Project to further their careers, in the context of job interviews and threshold applications.
- Many teachers have used the course as a catalyst to investigate a CD-ROM, for example, which has sat in a cupboard gathering dust for many months, or to use an item of hardware, such as a scanner or interactive whiteboard, that they have never tried to use.
- Teacher attitudes to completion of an Action Plan at the end of the course have been very positive and reflect a desire to take further what they have learnt and to regard their training in the application of ICT to MFL as an ongoing process.
- Despite perceiving ICT as an extra burden on their workload at the outset, and indeed during the first few weeks of the course, some teachers commented at the end of the course how they were already saving time in lesson preparation by using word-processing and other applications. Having to use conventions, such as storing files in folders, naming files appropriately, exploiting read-only areas on a network, and observing etiquette when e-mailing as a matter of course in their training, reinforced these practices for the majority of teachers.
- The potential for international communication was remarked upon by many teachers. Having planned an e-mail exchange in Unit 3, for example, they then wanted to go ahead and try it out. Teachers also became aware of the ability to post files on the Internet and share applications in the context of synchronous communication.
- Some teachers remarked on improvements in class dynamics in general as a result of the classroom-based project. Pupils appreciated the effort made by the teacher to extend the classroom experience and enjoyed working in new contexts. Teachers were able to build their relationship with individual pupils as all pupils worked on differentiated tasks at their own pace. Collaboration between pupils was also facilitated.
- Many teachers implemented ideas from the unit tasks in lessons before embarking on their classroom project, which was not a requirement of the course. For some, this was the first time they had used ICT in an MFL lesson.
- The MFL-specific focus was key to the success of the CILT-NOF course. Many schools report on their MFL department as being the “best-trained in the school” and some departments have demanded a refund from their Approved Training Provider due to dissatisfaction and have then redeployed the funds on the CILT course.

Failures

Some useful lessons were learned during the early days of the course and various elements were adapted over time as a result of both internal and Teacher Training Agency evaluation processes. These improvements have now been fully implemented and the CILT-NOF course provides an excellent training model for future INSET provision. Approaches that were found to work less well and were adapted include the following:

- Teachers did not have the time to contribute to a forum for trainees, in addition to the e-mail contact they were having with their tutor. Furthermore, for many, this was the first time that they had used e-mail and undertaken distance learning, so use of a forum was a step too far at first. Teachers are now encouraged to join the http://www.camsoftpartners.co.uk/docs/UNESCO_Grahams_Report.htm#linguanet, an online discussion list for MFL teachers, as part of their follow-up to the course.
- The expectation that teachers (and management) would have read and understood NOF documentation from the TTA was rarely upheld. It was also found that communication within senior management teams and teachers in schools often left a lot to be desired! CILT therefore introduced a learning contract to clarify the role and demands on the parties involved – Teacher, ICT Coordinator, Headteacher, and CILT Director – which was signed by all before acceptance of a teacher onto the course. The level of basic skills required before starting the course was clearly stated on this document and teachers were also expected to complete a needs analysis form as part of this process, which was also exploited for reflection and forward planning at the end of the course.
- A small number of schools work under such a level of pressure that a distance-learning course is untenable. A number of strategies were instigated to ease time pressures as much as possible. For example: given but flexible dead-

lines; the opportunity to familiarise oneself with the web materials prior to the first Contact Day; extended courses lasting 9–12 weeks and incorporating a holiday where possible; reworking of the order for completing unit tasks; and an official deferral option.

- The organization of courses in response to school demand resulted in a fragmented programme, which relied on the often unstable ICT facilities of individual schools. CILT has now developed a network of trusted venues around the country that are used on a termly basis, which allows CILT to advertise nationally a term or more in advance.

Outcomes

As mentioned earlier, the CILT-NOF training model has proved a success and the web materials and hands-on workbook used in the course have received much praise. Evidence suggests that many MFL teachers are still in need of basic MFL-specific training, despite having completed NOF training with their provider. CILT therefore intends to continue to offer a course aimed at the NOF/ITT Expected Outcomes, adapted for the new market but following a similar model and exploiting materials already developed. Furthermore, CILT is looking to extend the model to provide for those teachers who wish to undertake a post-NOF ICT structured training programme. A series of intensive hands-on one-day workshops is also being developed to focus on specific elements of ICT in MFL. The relationship between CILT and the TTA has been further strengthened in the field of ICT training for teachers, and future collaboration is likely.

2.4. Office for Standards in Education (OFSTED)

In April 2002 the Office for Standards in Education produced a general report on the UK government's strategy to boost the application of ICT in teaching and learning *ICT in Schools: Effect of Government Initiatives*.

The report made important observations on the use of ICT in schools, including a number of successful case studies, but it was also critical of training initiatives, especially training delivered under the NOF programme. Relevant quotations from the report follow:

- NOF training remains unsatisfactory in its overall effect. Training in around six out of every ten secondary schools and half the primaries has so far failed to tackle adequately those issues relating to the quality of ICT use in classrooms. Training materials for specific subjects at secondary level have often failed to excite teachers. In many secondary schools, the programme has simply ground to a halt. (p. 3)
- In spite of this poor overall picture, there have been some improvements in the NOF training, especially where providers have acted on feedback from schools and from the Teacher Training Agency's quality assurance. Teachers have improved their basic ICT skills and the extent to which ICT is used in classrooms has risen, especially in primary schools. (p. 3)
- The NOF training is most successful where senior managers in schools take an active interest in teachers' progress, where there is effective peer support, and where groups of teachers meet for part of their training. Teachers left to their own devices to use distance-learning materials in their own time rarely make the same headway. (p. 3)
- Unfortunately, the training often lacks sufficient relevance to individual subjects [...]. For many secondary school teachers, the training materials do not sufficiently engage them or make them want to explore the application of ICT to their subject. (p. 4)
- Pupils with severe physical disabilities enjoy access to a wider range of everyday materials and learning activities through the use of special switch and keyboard systems. (p. 14)
- Teacher intervention is [...] crucial in lessons involving web-based research. (p. 16)
- In MFL, for example, pupils frequently retrieve information to develop their learning through comparisons with other countries and communities, and benefit from using authentic French or German web sites. (p. 18)
- Training has been most successful in schools where ICT is recognised school priority, where staff are already competent users of ICT and where senior managers have taken a strong, active interest in teachers' progress through the training. (p. 23)
- Many teachers have found online support to be unsatisfactory. This was usually because access was unreliable or because mentors were dealing with too many teachers and their responses were therefore often infrequent, shallow, or unhelpful. Successful online mentoring operated at ratios of under 30 teachers to each mentor. (p. 23)
- Personal individual access to a computer by teachers, especially at home, has continued to be one of the strongest influences on the success of ICT training. (p. 24)
- The reasons why teachers and schools fail to persevere with the training vary widely. The most frequently cited by teachers include lack of time, technical and organizational difficulties, poor support from trainers

or mentors, poor match of training materials to needs, expectations to complete exercises or compile portfolios that are unrelated to teachers' current work, and the lack of good subject-specific ideas and resources. (p. 24)

- Some providers experienced major problems with their online systems to such an extent that teachers became frustrated by repeated failure to access their web sites. Teachers who were left to their own devices to use distance learning materials on CD-ROM frequently made little headway and did not complete the training. (p. 24)
- In view of the range and complexity of ICT equipment in most secondary schools, effective technical support is necessary to ensure that teachers are free to concentrate on teaching. This means having technicians who are sufficient in number, well qualified and sympathetic to the educational purposes of ICT, and ensuring that support is quick and easy to obtain. (p. 26)
- In the most effective LEAs, there is a clear ICT strategy for education, led and managed by a senior officer, and developed in consultation with schools to ensure that they are clear about its purpose and committed to its delivery. (p. 27)

The above statements refer to the NOF programme as a whole. Another OFSTED report was published in June 2002, entitled *ICT in Schools: Effect of Government Initiatives (Secondary Modern Foreign Languages)*. The report states:

“In many schools it is too early to evaluate the effect on pupils' achievement, as the increase in opportunities to use ICT in MFL is very recent and the ability to use a foreign language effectively has to be built up over sustained periods of time. Where evidence is available, there has been little or no effect so far in about one school in four.”

2.5. The National Grid for Learning (NGfL)

The National Grid for Learning was initiated in April 1998 by the Department for Education and Skills (DfES). The aims of the initiative were set out in a consultation paper entitled *Connecting the Learning Society* (October 1997). Essentially, the NGfL aims to link all schools, colleges, and universities to the Internet, providing them with information and resources. The Virtual Teacher Centre (VTC) is part of the NGfL. BECTA (see Section 2.7) was responsible for setting up the NGfL, and there are many seamless links between the BECTA, NGfL, and VTC web sites. The total amount to be spent on the NGfL and related initiatives in the period 1998–2004 is £1.8 billion.

The NGfL contains a vast volume of information for teachers, including downloadable materials, case studies and selected links to web sites that offer high quality content and information. Web sites approved by the NGfL are allowed to display the NGfL and VTC badges, e.g. the ICT4LT web site (see Section 4.1). Every subject in the National Curriculum is covered. The NGfL is undoubtedly an impressive collection of resources, but it the site is now so big that it is difficult to locate specific materials and advice. There is a comprehensive section on Modern Foreign Languages in the VTC: <http://vtc.ngfl.gov.uk/docserver.php?temid=69>.

2.6. Centre for Information on Language Teaching (CILT)

The Centre for Information on Language Teaching has been active in the area of MFL-ICT since the early 1980s. CILT is shortly due to merge with the Languages National Training Organisation (LNTO) to establish a single National Centre for Languages.

In collaboration with the Council for Educational Technology (CET), CILT helped organise the first major conference focusing on MFL-ICT. The conference bore the title “New technological developments for language learning and teaching” and took place in 1981 at Queen Mary College Halls of Residence, London. The CET was the forerunner of the British Education and Communications Technology Agency (BECTA) – see Section 2.7.

In April 1982 CILT ran the first of a series of annual workshops on MFL-ICT at St Martin's College, Lancaster. As a result of the first workshop the newsletter *CALLBoard* was launched, and CILT announced that it had commissioned its first publication on MFL-ICT (Davies & Higgins 1982). This publication was to be the first of many: see the titles in the CILT Infotech Series under References at the end of this report. CILT continues to be active in promoting MFL-ICT in a variety of ways:

- i. **CILT's Resources Library** contains a selection of software titles, which are described in CILT's Information Sheets: <http://www.cilt.org.uk/infos/info0.htm>

- ii. **The Comenius Network:** The network of Comenius centres was set up in 1992: <http://www.cilt.org.uk/comenius/index.htm>. It provides regional access to the services of CILT and its national partners, and draws on the expertise of regional partners in providing support for language teachers. There are a total of 14 Comenius Centres, including the National Comenius Centre of Wales. Each centre provides:
 - a resource base, which may be visited by teachers;
 - access to information from all the national agencies working in the field of languages;
 - a programme of in-service training and other events.
- iii. **New Opportunities Fund (NOF):** CILT is the only MFL-specific training provider in the NOF training initiative: <http://www.cilt.org.uk/nofict/index.htm>. See NOF case study: CILT.
- iv. **NACELL:** The National Advisory Centre on Early Language Learning (NACELL) was set up in the CILT Resources Library in June 1999 as part of the DfES Early Language Learning (ELL) initiative. The ELL initiative is being managed and coordinated by CILT on behalf of the DfES. The remit of the initiative is to promote and develop the provision and quality of Modern Foreign Language teaching and learning in the primary sector.
- v. http://www.camsoftpartners.co.uk/docs/UNESCO_Grahams_Report.htm#linguanet was established in with support from the DfES by CILT and BECTA. It aims to be a virtual language centre providing online information and resources for language teachers, learners, and researchers. There is also a lively discussion forum. Information on other discussion lists can be found at: <http://www.cilt.org.uk/discussion.htm>.

2.6.1. CILT in Scotland, Wales and Northern Ireland

Scotland, Wales, and Northern Ireland have their own branches of CILT:

- Scottish CILT: <http://www.scilt.stir.ac.uk/>
- Wales: <http://www.ciltcymru.org.uk/>
- Northern Ireland CILT: <http://www.qub.ac.uk/edu/nicilt>

2.7. British Educational and Communications Technology Agency (BECTA)

The British Educational and Communications Technology Agency has been active in the area of MFL-ICT since the 1970s, focusing mainly on the secondary education sector. Under its old name, the Council for Educational Technology (CET), it joined forces with CILT in the organization of the first major conference focusing on MFL-ICT in 1981 (see Section 2.6). The Microelectronics Education Programme (MEP) was launched in 1981 under the auspices of the CET, leading to the establishment of a network of support centres and teams of advisory teachers responsible for offering advice and training in a range of different subject areas, including MFL, for primary and secondary education teachers. A number of MFL software packages and MFL-ICT printed publications were produced under the MEP initiative. A national centre, the Microelectronics Education Support Unit (MESU) was then set up as a successor to the CET. The MESU was renamed the National Council for Educational Technology (NCET), to be renamed yet again (in 2000) as BECTA.

BECTA continues to be active in all subject areas and is responsible for setting up and maintaining the National Grid for Learning (NGfL): see Section 2.5. A recent addition to the BECTA web site is the ICT Advice section: <http://www.ictadvice.org.uk/>. This covers all areas of the curriculum. The Modern Foreign Languages section is about to be substantially expanded and modified. BECTA also maintains an Educational Software Database: <http://besd.becta.org.uk/>.

The BECTA site includes many relevant information sheets for MFL teachers, e.g.

- *Text manipulation*
<http://vtc.ngfl.gov.uk/docserver.php?docid=2534>
This sheet looks at the use of text-manipulation software and lists a bank of tried and tested activities.
- *A word processor is more than a writing machine*
<http://vtc.ngfl.gov.uk/docserver.php?docid=2536>
Ideas for using word processing in language learning.
- *Using databases*
<http://vtc.ngfl.gov.uk/docserver.php?docid=2537>
Ideas for using databases in language learning.

In Scotland, the Scottish Council for Educational Technology (SCET) – now known as Learning and Teaching Scotland – has played a role similar to that of BECTA: <http://www.ltscotland.com/>.

2.8. Northern Ireland: Classroom 2000 (C2K) initiative

The Northern Ireland Network for Education (NINE) has tackled the provision of ICT for schools head-on by setting up the ambitious Classroom 2000 (C2K) initiative: <http://www.c2kni.org/>. Classroom 2000 involves consultation with teachers, schools, advisers, and inspectors on software titles that are to be provided for schools as part of a major investment in hardware and software for the whole province: <http://webforia.nine.org.uk/c2kconsult.htm>. The following software titles have been approved for MFL:

- *Tell me More*
- *Fun with Texts*
- *En Route*
- *En Marcha*
- *Writer's Workshop*
- *Textease 2000*
- *Unterwegs*
- *Le Français Actuel*

2.9. The British Council

The British Council began to initiate a series of outreaching activities relating to ICT and English language teaching and learning from the early 1980s onwards, organising training workshops, developing software, providing an information service, etc. An early landmark was the British Council Special Course entitled *Computers in English Language Education and Research*, which took place at the University of Lancaster in 1984. This course was a landmark in two ways: (i) it led to an important publication (Leech & Candlin 1986) and (ii) brought together the group of enthusiasts who went on to found EUROCALL at the University of Liège in 1986. The British Council continues to be active in the area of EFL-ICT and offers a free LearnEnglish web site: <http://www.learnenglish.org.uk/>.

2.10. EUROCALL

The origins of EUROCALL date back to a British Council course that took place in 1984 at the University of Lancaster (see Section 2.9). The name was coined at a meeting at the University of Liège in 1986, which brought together a number of ICT enthusiasts who had attended the 1984 course. At the 1986 meeting it was decided that the EUROCALL group would aim to meet on a regular basis, running conferences and workshops, setting up research projects and disseminating information about ICT and language learning and teaching. Throughout the 1980s a number of EUROCALL conferences took place in different EU countries, and several (unsuccessful) funding applications were made to the European Commission.

Following the 1991 EUROCALL conference in Finland, renewed efforts were made to set up EUROCALL as a formal organization. The outcome was that another funding application was made to the EC in 1993 under the Lingua Programme. This time the application was successful, and the funding that was awarded enabled EUROCALL to set up its headquarters within the CTI Centre for Modern Languages (CTICML) at the University of Hull (see Section 2.11) and to establish itself as a professional association with fee-paying members. Following the closure of the CTICML in early 2003, EUROCALL's headquarters are being relocated at the University of Limerick, Ireland.

EUROCALL now has around 400 members in more than 30 countries. EUROCALL is one of the Founding Members of WorldCALL, an umbrella organization that embraces a number of professional associations worldwide that promote the use of new technologies in language learning and teaching. WorldCALL held its second conference in Canada in May 2003. One of the principal aims of WorldCALL is to outreach to nations that are currently underserved in access to new technologies in language learning and teaching.

2.11. ICT in further and higher education

There have been number of initiatives addressing the needs of the further and higher education sectors.

NCCALL

The National Centre for CALL (NCCALL) was set up at Ealing College of Higher Education in 1985, focusing on the further education sector (post-16). NCCALL functioned as a resources centre and offered regular training courses as

well as developing a number of software packages, but its funding came to an end in 1990 and since then there has been no major initiative focusing exclusively on further education.

CTICML

In 1989 the Computers in Teaching Initiative Centre for Modern Languages (CTICML) was established at the University of Hull, acting as a resources centre and running regular training courses in MFL-ICT for the higher education sector. The CTICML did not develop software, but it collaborated closely with NCCALL until the closure of the latter in 1990.

In 2000 the CTICML was renamed the C&IT (Communications and Information Technology) Centre and was finally closed down in early 2003. The old CTICML/C&IT Web address at <http://www.hull.ac.uk/cti> is now just an archive site.

The CTICML/C&IT's CALL software database can now be found at the CALL@Hull web site: <http://www.fredriley.org.uk/call/resources/swdb.htm>. Other former CTICML/C&IT materials have also been transferred to http://www.camsoftpartners.co.uk/docs/UNESCO_Grahams_Report.htm#cticml.

LLAS

Some of the CTICML/C&IT materials have been transferred to the web site of the LTSN Centre for Languages, Linguistics and Area Studies (LLAS), University of Southampton, which continues to be active in the area of MFL-ICT in the higher education sector and has published *The Good Practice Guide*, a collection of commissioned articles written by recognised authorities in their field, including CALL and web-based language learning experts: follow the link from the LLAS homepage: <http://www.lang.ltsn.ac.uk/>.

WELL

The Web Enhanced Language Learning (WELL) project was set up in 1997 with assistance from the higher education Fund for the Development of Teaching and Learning (FDTL) in order to promote wider awareness and more effective use of the World Wide Web in Modern Foreign Languages teaching across higher education in the UK. The funding period came to an end in August 2001. The web site is still available as an archive, but it has suffered from substantial losses of valuable information.

2.12. Curriculum Online

Curriculum Online (COL) is a recent government initiative. It was supposed to have been launched in September 2002 but has been beset with problems from the outset. COL has the noble aim of providing ring-fenced funding – known as e-Learning Credits (eLCs) – to schools to enable them to buy software and online services to support their teaching, but it has also been accused of creating market distortions, in particular in view of the involvement of the BBC in providing a substantial amount of free online teaching materials.

Tom McMullan describes the COL initiative as being a government plan for “backdoor nationalization of the UK educational content marketplace” (*Wired to Learn*, Adam Smith Institute: <http://www.adamsmith.org/policy/publications/education-pub.htm>). See also Nigel Paine's article, “Curriculum Online, whose call?”, in the ByteBack section of the *Connected 6* Web magazine (NGfL Scotland) at: <http://www.ngflscotland.gov.uk/connected/connected6>.

The COL web site is now active, but it is not very user-friendly. It is not easy, for instance, to browse a range of language-specific titles, and it is impossible to locate a title, a publisher or a retailer by name. The MFL section is particularly chaotic, and COL has been criticised for outsourcing the evaluation of approved software packages to agencies that charge a substantial fee to publishers wishing to have their software evaluated. COL is, however, a major government investment. It remains to be seen how teachers will react to it in the longer term. Currently they appear to find the whole initiative confusing.

2.13. Nesta FutureLab

NESTA FutureLab is a new high-tech educational initiative sponsored by the Department for Education and Skills (DfES). They are beginning to work on MFL-ICT and have produced the following articles and reports:

Future directions in language teaching and learning,
Keri Facer, Head of Learning Research, NESTA FutureLab:
<http://www.nestafuturelab.org/articles/learn04.htm>

Literature review in languages, technology and learning,
James Milton, Centre for Applied Language Studies, University of Wales, Swansea:
<http://www.nestafuturelab.org/reviews/lang01.htm>

21st century technologies for learning languages,
Ben Williamson, Researcher, NESTA FutureLab:
<http://www.nestafuturelab.org/articles/tech09.htm>

Computer Assisted Language Learning: Where are we now and where are we going?
Graham Davies, Free-lance Consultant:
<http://www.nestafuturelab.org/articles/learn23.htm>

A recent call for funding bids under the NESTA FutureLab “ideas incubator” programme highlighted MFL as a priority area.

2.14. The commercial sector

2.14.1. Software developers and retailers

There are a number of developers and retailers of MFL software in the UK. These include general education software retailers, who offer a good selection of MFL materials in their catalogues:

- AVP: <http://www.avp.co.uk/>
- Rickitt Educational Media (REM): <http://www.r-e-m.co.uk/>

There are also two long-established specialist developers and retailers of software for MFL and EFL/ESL:

- Wida Software: <http://www.wida.co.uk/>
- Camsoft: <http://www.camsoftpartners.co.uk/>

Information provided from Camsoft’s database indicates that around 2,500 state and independent secondary schools in the UK (out of a total of around 5,500) have bought some kind of CALL software during the last five years. Text-manipulation packages, e.g. *Fun with Texts* and Wida’s *Storyboard* (part of Wida’s *Authoring Suite*), are the most popular form of CALL software in UK schools.

According to Camsoft’s database, CD-ROM sales to schools boomed in the period 1995 to 1997. After that, sales dropped steadily, reaching their nadir in 2000. Sales of CD-ROMs began to increase slowly in 2001 and have now reached quite a respectable level. The majority of schools buy text-manipulation packages or associated materials. The current CD-ROM market leaders are:

- *En Route* (French). This package ties in with an established coursebook.
- *Unterwegs* (German). This package ties in with an established coursebook.
- *All-in-One Language Fun*. Multilingual materials for young learners: English, French, German, Spanish, and Japanese.
- *The Ten Games* series produced by AVP (French, German, and Spanish).
- *French Grammar Studio* (French).
- *Wenlin* (Mandarin Chinese). The popularity of *Wenlin* is due to the fact that schools with Language College status are encouraged to offer a lesser taught language, such as Mandarin Chinese, Japanese, Russian, Arabic, etc.
- *Who is Oscar Lake?* An adventure game, which is available in English, French, German, Spanish, and Italian.

Training materials for teachers on CD-ROM are also popular, namely:

- *ICT4LT*: The offline version of the ICT4LT web site.
- *Virtual Language Learning Revisited*: Information on web-based language resources, which accompanies the book *Beyond Babel* (Felix 2001).

CALL authoring software used to be quite popular, but nowadays very few UK schools buy any kind of authoring package from Camsoft, apart from *Fun with Texts*. The current trend is to author materials for the Web, using authoring packages, such as *Hot Potatoes* and *Quia*.

There is an identifiable demand for software for interactive whiteboards. Many schools in the UK are being equipped with interactive whiteboards. Such software incorporates an old idea, namely whole-class teaching with ICT. The Leicestershire Comenius Centre web site contains a section on interactive whiteboards, plus a case study: <http://www.leics-comenius.org.uk/>.

2.14.2. Online languages from the BBC

The BBC is not strictly commercial in the same sense as the commercial operators described above, as it is supported by public funds, but it has been marketing language courses in printed, audiocassette, and video format for many years. More recently, the BBC has begun to develop free online language courses. The following report has been provided by Mick Webb, Editor, Languages: BBC Interactive (BBCi), Factual and Learning.

Background

BBC Languages has been a specialist area of education production for many years and the brand still enjoys a nationwide reputation as a distinctive provider of trustworthy and high-quality products. This has stemmed, historically, from a unique service of Radio and Television programmes and a powerful range of support materials. The portfolio has ranged from the main European languages to Japanese and Russian, short tasters to full-length courses, with special interests that include leisure and business. The current narrowband site grew up around the need to support Radio and Television programmes, it has recently developed as an independent category, with the launch of its stand-alone courses in Spanish, French, German, and Italian.

Content

The online materials include: *Quick Fix* – an online phrase-book with printable survival phrases in all of Europe’s majority languages; video clips and activities to support the *Talk* range of short beginner’s TV/book-based courses in French, Spanish, Italian, and German; a weekly topical news update for advanced learners in French and Spanish based on BBC foreign-language news services; The *Steps* range of online beginner’s courses, which provide an introduction to the spoken language through a flexible, bite-sized approach. They integrate audio and video in a variety of entertaining interactive formats.

Objectives

Our main public service objective is to use the flexibility of online delivery systems (“in your own time” and “in your own home”) to encourage British people to convert their oft-quoted interest in language learning into practical action. The BBC broadcasts big-audience TV programmes, such as the Holiday Programme, which are an ideal vehicle for motivating viewers to visit the language site and try out its products. The level of the courses does not extend beyond UK entry-level (A1 in the Council of Europe’s Common European Framework) but suggestions are given to students as to how they can take their studies further.

Results

There has been encouraging level of subscriptions to the online courses (around 12,000 people took up the option of tracking their progress through the first six months). Feedback from users is very positive. However there are difficulties caused by long download times of some features, which are experienced by users with slower modems. Our next major challenge is to reach the more committed learners who attend adult classes and centres and to encourage tutors to take advantage of these online products, either by integrating them into courses or using them as support material.

2.14.3. NetLearn Languages: distance learning

NetLearn Languages offers a range of courses in EFL and MFL for group language learning and private language learning online. Extensive use is made of online tutor support and synchronous videoconferencing. For further information see: <http://www.netlearnlanguages.com/>.

2.14.4. Vektor: distance learning for advanced level students

Vektor has been producing CALL materials since the 1980s, including interactive videodiscs and a range of multimedia CD-ROMs. More recently, Vektor has developed an online distance-learning scheme for schools and colleges that find

it difficult to offer classes in a wide range of Modern Foreign Languages at advanced level because they are not able to meet the minimum required number of students to make the classes viable. The appropriate use of ICT – CD-ROMs combined with tutor-supported distance learning – means that more students can study Modern Foreign Languages at an advanced level. The scheme began in 1998 when Vektor, together with a group of schools and colleges, started to run advanced level courses in French, German, and Spanish under the name *A Level 2000*. Further information can be obtained from the Vektor web site: <http://www.vektor.com/>.

3. Case studies: examples of good practice

Three distinct and different case studies are described in Module 3.1 at the ICT4LT web site:

- Cox Green School, Maidenhead, a standard comprehensive school;
- St George’s School, Sleaford, a school with Technology College status;
- Ashcombe School, Dorking, a school with Language College status.

Each of the above schools has provided the ICT4LT web site with a detailed case study of its activities in the area of MFL-ICT. The full case studies are not included in this document, as they are available at the ICT4LT web site, where they are regularly updated. Only a summary of each case study is therefore given here.

3.1. Specialist schools

The “special status” category of two of the above schools requires a definition. The following explanation is extracted from the DfES web site, <http://www.standards.dfes.gov.uk/specialistschools/>:

“The specialist schools programme was initiated in 1994 as a cornerstone of the government’s drive to raise standards of education. Specialist schools are required to develop a particular specialist character and ethos and through that character to raise standards in their chosen specialism, and more generally across the school. This should be in partnership with their sponsors, other schools and the community at large. Specialist schools are required to be a resource for other local schools and the community, and to disseminate good practice.”

Specialist schools are granted government funding once they have qualified for designation, and their status is continually reviewed and renewed upon satisfactory performance. Each school has to raise at least £50,000 in sponsorship in addition to the government funding that they receive.

The Specialist Schools Trust manages the Specialist Schools Programme on behalf of the DfES. These schools, in addition to teaching the National Curriculum, emphasise one of eight specialist subject areas:

- Technology Colleges;
- Language Colleges;
- Arts Colleges;
- Sports Colleges;
- Engineering Colleges;
- Business and Enterprise Colleges;
- Science Colleges;
- Mathematics and Computing Colleges.

The mission statement for Language Colleges is defined as follows at CILT’s web site:

“Language Colleges will raise the standards of achievement in Modern Foreign Languages for all their students across the ability range. They will be active learners in a learning society with their local families of schools and their communities, sharing resources and developing and sharing good practice. Language Colleges will promote an educational culture which is international, technological and vocational. They will raise the Post-16 participation rate in Modern Foreign Languages, and provide young people with the skills needed to progress into employment, further training or higher education according to their individual abilities, aptitudes, and ambitions.”

Schools with Language College status are encouraged to offer a lesser taught language, such as Mandarin Chinese, Japanese, Russian, Arabic, etc. See CILT’s web site for further information: <http://www.cilt.org.uk/languagecolleges/index.htm>.

3.2. Cox Green School, Maidenhead

Cox Green Comprehensive School is a state school without any special status. It has, however, succeeded in attracting external funding from a local business in order to finance its language centre. The language centre at Cox Green School shows what can be done under energetic and enthusiastic leadership. Richard Hamilton, Head of the Modern Foreign Languages Department, is virtually a “one-man-band” – a language teacher turned ICT expert, who has succeeded in raising standards among students taking the GCSE examination as a result of regular use of ICT, and he has also managed to convince less than enthusiastic staff of the advantages of using ICT as an integral part of their teaching. The students at Cox Green School use the language centre both as part of their regular weekly class-contact hours and as a self-access centre. *Integration* is the watchword: the work carried out in the language centre is tied in closely with the work done in the “normal” MFL classroom. Richard has opted for a battery of stand-alone computers as he lacks the time and expertise to manage a network, and technical support for a network is not forthcoming from other quarters. He also makes extensive use of his student’s ICT skills, involving them in setting up new hardware and software and in the day-to-day management of the centre’s resources. The software that is used in the centre cannot be classed as “leading edge”. The emphasis is on *content* rather than the delivery medium: a large volume of materials has been developed in-house and slotted into a small number of authoring packages, namely *Fun with Texts*, *GapKit*, and *Topguns*.

3.3. St George’s Technology College, Sleacombe

St George’s School is a state school with Technology College status, which means that (i) the school is committed to promoting technology as a subject discipline throughout the school, and (ii) benefits from considerable technical expertise in-house and within the local education authority. It has had a prestigious language centre – the Brealey Centre – since 1985, thanks to a generous donation from a businessman who had been a student at the school. The Brealey Centre at St George’s is an example of the “high-tech” approach to the use of ICT in MFL. In contrast to Cox Green’s centre, networking within St George’s and to the outside world is a significant feature of The Brealey Centre. The school enjoys fast connections to the outside world and makes extensive use of the Internet.

3.4. Ashcombe School, Dorking

Ashcombe School is a state school with Language College status, which means that it is committed to promoting languages as a subject discipline throughout the school. It also enjoys a high level of technical support. Ashcombe School demonstrates that a strong commitment to ICT, tight management, technician support, and recognition of the need for staff training are the recipe for success. It has a well-developed web site, which enables it to share its knowledge and experience with other schools. Students have regular classes in its two MFL-ICT multimedia labs, so access is regular and integrated into the language teaching programmes as a whole. The emphasis is on ICT as a means of enabling students to practise key skills, especially listening and speaking.

3.5. Special Educational Needs

ICT offers a range of possibilities for children with Special Educational Needs. Wilson (2002) describes a number of case studies.

The following case study has been provided by Hilary McColl, based on data collected in an urban secondary school in Scotland.

Shopping for French Cheeses was chosen as the first theme for an Access 2 class in S3. This aspect of *Life in Another Country: French* was selected from the *Transactional Language* content grid, and relates to the topic *food and drink*. There were six students in the group, four boys and two girls, all from the Resourced Location in the school, and all of whom would have been withdrawn from modern languages prior to this year. They came to lessons in the Modern Languages department for two periods a week.

One of their first tasks was to access the site <http://www.fromages.com/>, where they found their way to a long list of French cheeses, which they printed out. They took this list along to their local supermarket delicatessen counter where they ticked off the French cheeses that were on sale there, and added one or two which weren’t on their list. They asked the man behind the counter what he thought was different about French cheeses and reported this back later. They bought samples for a cheese-tasting session they planned to organise.

Back in class, they accessed the *Fromages* site again and clicked on the cheeses which they had identified. This brought up detailed descriptions of the cheese (in French or English), place of origin, etc. (which they found on a map). They made printouts, which they used with a map for a wall display.

Before the cheese-tasting they learned the names of the cheeses and made printed cards to go alongside the samples. They included some British cheeses for comparison. They learned that the French cheeses should be served with bread, whereas local custom dictates crackers or oatcakes. They also learned how to express their opinions in French (*miam miam / j'aime ça / je n'aime pas ça / c'est bon / c'EST moche / pouah! / c'EST dégoûtant / ça sent mauvais...*) and the cheese tasting session was used as part of their assessment for Outcome 2. A survey of opinions provided data for a bar chart revealing the most and least popular cheeses, French and local.

The web site and the local community provided the stimuli for a whole range of activities which embraced far more than was required for the two outcomes. On a future occasion it may be possible to consolidate community links by asking students to prepare handouts that the supermarket could copy for customers. Later in the programme, in their S4 year, students will be able to refer back to this experience when they learn how to buy cheese in a French shop as part of the *Transactional Language* unit.

The second theme, on personal identity, related to the content of the *Personal Language* unit. This time students studied the French Foreign Legion. The main stimulus was a visit to the class by a former legionnaire who lived locally. The Internet was used to gather more information and to generate discussion. Following this, students started more intensive language work on the *Personal Language* unit but were unable to complete it by the end of the year.

Next year the teacher plans to complete the *Personal Language* unit in the first term and to spend the rest of the year on *Transactional Language*. This will allow the students to complete the Access 2 Modern Languages Cluster by the end of S4. One student who has experienced particular difficulty with work in the foreign language will be entered for the Access 1 unit which involves only the study outcome. All of the students reached the end of S3 with one unit successfully completed (*Life in Another Country: French*).

From *Access in Modern Languages* (publication code 9051) published by Learning and Teaching Scotland, November 2001.

4. EC-funded projects and resources

The following are selected examples of EC-funded projects in which ICT has played a key role and in which the UK has been an important partner:

- The ICT4LT and TALLENT projects focus on the development of ICT training materials for language teachers.
- The Lingu@NET Europa project has created a resources centre for language teachers.
- The European Language Council (ELC) is a wide-ranging project focusing on Modern Foreign Languages in the Higher Education sector in Europe. Three projects that have developed out of the work of the ELC relate to MFL-ICT.
- The Language Resources Centre project.

4.1. The ICT4LT project

A SOCRATES-funded project, coordinated by Thames Valley University: <http://www.ict4lt.org/>.

Key features:

- Offers a bank of web-based ICT training materials for language teachers in four languages: English, Italian, Finnish, and Swedish.
- Web site access is free of charge.
- Off-line materials (CD-ROM and printed books) are offered for sale.

See Davies (2002) for a discussion of training needs for MFL teachers and for an analysis of the pattern of visits to the ICT4LT site and what it implies for current and future training needs.

4.2. The TALLENT project

TALLENT (Teaching and Language Learning Enhanced by New Technologies) is a SOCRATES-funded project, coordinated by the University of Limerick: <http://www.solki.jyu.fi/tallent>.

Key features:

- production of printed ICT training materials for language teachers;
- delivery of regular face-to-face courses at different EU locations.

4.3. Lingu@NET Europa

Lingu@NET Europa is a project funded by DG EAC, aiming to provide information and access to bank of quality-assured language teaching and learning resources on the Web: <http://www.linguanet-europa.org/>.

4.4. European Language Council

The European Language Council (ELC) is an association of HE institutions in Europe, coordinated by the Freie Universität Berlin. The ELC has generated the following projects focusing on MFL-ICT:

- Thematic Network Project 1 (1996–99): Sub-group on New Technologies and Language Learning;
- Thematic Network Project 2 (2000– up to now): Subgroup on New Learning Environments;
- DIALANG, diagnostic language testing: <http://www.dialang.org/>.

For further information, see the ELC web site: <http://www.fu-berlin.de/elc>.

4.5. The Language Resources Centre project

The Language Resources Centres project, which is coordinated by CILT, aims to improve and develop support for language teaching and learning by sharing expertise between established and emerging Language Resource Centres. It brings together a consortium of 17 partner organizations from 13 European countries. The web site includes a forum where registered visitors can air their views and ask questions: <http://www.lrcnet.org/>.

5. Global information technology report

ICT is unquestionably having a major impact on people's lives worldwide. A recent report, produced jointly by the Center for International Development at Harvard University and the World Economic Forum, attempts to assess the challenges and realities of the networked world in which we live:

- Kirkman et al. (2002) *Global Information Technology Report 2001–2002: Readiness for the Networked World*, Oxford, Oxford University Press: <http://www.oup-usa.org/reports>;
- Substantial sections of the report are available in PDF format at: http://www.cid.harvard.edu/cr/gitrr_030202.html.

An important chapter in the report is entitled *The Networked Readiness Index (NRI): Measuring the Preparedness of Nations for the Networked World* (Kirkman et al. 2002). The NRI ranks 75 countries according to their capacity to take advantage of ICT networks, bearing in mind key enabling factors as well as technological factors, e.g. business and economic environment, social policy, educational system, etc. Higher ranked countries have more highly developed ICT networks and greater potential to exploit the capacity of those networks.

The UK stands at position No. 10, i.e. a significantly high position.

6. Conclusions and recommendations

Over the course of the last 25 years a number of lessons have been learned concerning the use of ICT in MFL learning and teaching, some of which were highlighted in an article entitled *Lessons from the Past, Lessons for the Future*, which

was commissioned for a Council of Europe publication (Davies, 1997). The online version of this article has been revised substantially on a regular basis in order to bring it up to date with new developments, especially in the light of the extensive use that schools have made of the Internet in the last few years.

All the above initiatives have contributed in some way to the raising of awareness about ICT among language teachers. As for measuring the **impact** of ICT in education, concrete evidence is difficult to obtain, although a recent report on a research study conducted by BECTA, *ImpaCT2*, has produced significant data: <http://www.becta.org.uk/research/impact2>. The *ImpaCT2* study shows that schools using ICT in the classroom get better results than those that do not, and there is a significant correlation between the use of ICT in MFL and good GCSE examination results.

So what conclusions can we draw from the UK's experiences in the last 20 years?

Hardware standardization is essential

The UK got off to an early start compared to many other European countries, which was helped by the development of computers specially designed for education in the early 1980s by companies, such as Research Machines (Oxford) and Acorn (Cambridge). By the early 1990s, however, the negative effect of relying on specialist hardware began to be felt, as it denied users access to software produced for more widely available computers. Other countries had similar experiences, notably Denmark, Sweden, and Canada. The majority of UK schools now make use of standard PCs. Acorn computers are no longer produced, and Research Machines' computers are now PC-compatible.

The teacher is central to the process of the implementation of ICT

Angela McFarlane, Professor of Education and Director of Learning Technology, Graduate School of Education, University of Bristol, writes:

“What we do know, whether from personal experience as teacher or learner, or as the result of 20 years of research into the question, is that ICT has an impact on learning, for some learners, under some conditions, and that it cannot replace a teacher. We know that a key factor in impact at school level is and remains the teacher, whose role in managing and integrating the ICT-based experiences learners have with the rest of the curriculum and culture is vital and probably always will be.” *Times Educational Supplement, ICT in Education Online*, 26 April 2002, p. 17.

Wise words – which should be heeded by all policy makers who regard ICT as the panacea. The evidence that is currently available suggests that only a minority of language teachers are making effective use of ICT – and this situation is unlikely to change dramatically in the foreseeable future.

Undoubtedly, there will be an expansion of ICT-based learning of Modern Foreign Languages, but it is more likely to supplement conventional modes of learning rather than replacing them. Language learners in particular cannot acquire certain skills, for example conversational skills, without face-to-face contact with an experienced teacher, although software tools that facilitate synchronous and asynchronous oral communication are now available and are beginning to be used in distance learning environments.

Continuity is essential

Many of the initiatives mentioned above were short-term, which lessened their impact. Even a five-year project is too short. The first year is spent in establishing the initiative – recruiting staff, equipping premises, setting up a dissemination infrastructure, etc. – and the last 18 months suffer from staff applying for other jobs as they see the end of their terms of employment approaching. Centres that have enjoyed a long period of continuity, e.g. CILT and BECTA, have been more effective – but they too have also suffered from staff changes and restructuring.

Commercialization and dissemination have to be tackled in a professional way

Many of the outcomes of national and EC-funded projects suffer from a lack of attention to commercialization and dissemination. A study commissioned by the EC's Lingua Bureau (Davies, Bangs, & Betts, 1994) found

that software products resulting from EC-funded projects often failed to reach their target audiences. Blin, Chénik, & Thompson (1998) came to similar conclusions. Educational institutions often make the fundamental mistake of assuming that there is a market for a software package without undertaking any kind of needs analysis or market research. Having completed their work, they then hunt for a publisher, and are all too frequently surprised that no publisher is prepared to risk publication. Software developers in educational institutions need to contact a publisher at the earliest opportunity: the example of the TELL Consortium, which came to a marketing arrangement (a little belatedly) with Hodder & Stoughton: <http://www.hull.ac.uk/cti/tell>.

The Web is not the panacea

While the increased use of the Internet has brought considerable benefits to education, there is a current undesirable trend to perceive the Internet as the *only* manifestation of ICT. Uschi Felix, an acclaimed international expert on the teaching and learning of languages online, is enthusiastic about the usefulness of the Web, but she is also realistic and does not hesitate to mention its shortcomings compared to other delivery media, e.g. the problems associated with bandwidth and plug-ins, and the lack of universal standards for accessing the Web. She also points out that CD-ROMs are still more reliable in delivering graphics, sound and video and advises the use of:

“[...] hybrid approaches designed to avoid potential technical problems, such as downloading activities from the Web on to a self-contained Intranet, integrating CD-ROMs and the Web, or running audio conferencing or videoconferencing with Web activities.” (Felix 2001:189–190)

With the advent of broadband many of the problems associated with the Web are being overcome, but an educational institution needs an extremely fast connection. A 2000 kbps broadband connection – which is typical of the kind of connection provided to most schools – is simply not fast enough to enable multiple users to enjoy the media-rich language learning materials that are currently available on the Web.

Local initiatives operated in conjunction with national initiatives work best

The message contained in the OFSTED report (see Section 2.4) is worth repeating here:

“In the most effective LEAs, there is a clear ICT strategy for education, led and managed by a senior officer, and developed in consultation with schools to ensure that they are clear about its purpose and committed to its delivery.” (p.27)

The ICT strategy may take various forms. The Local Education Authority (LEA) may, for example, have an active MFL adviser who works in liaison with a Professional Development Centre or Comenius Centre, or there may be a school with Language College status that has a commitment to outreaching activities.

High quality training is crucial and the content must be relevant to the intended users

High quality training has to go hand in hand with the provision of hardware and software:

“Decision making on policies and programs to promote ICT-use often relies too much on absolute numbers rather than qualitative aspects of connectivity. There is a tendency to believe that more is better – more Internet users, more computers, more computer labs. However, a focus on extending ICT coverage without complementary training or content can dilute users’ experience with ICT, leaving users with poor quality access or turning them off from the technology completely.” Kirkman et al., 2002:23–24

The message that comes across loud and clear, as the NOF initiative comes to an end, is that generic training in ICT is not effective. ICT training has to be delivered by subject specialists who are ICT-literate.

Online learning requires considerable human intervention and the technology must be reliable

Distance learning and distance training are very much in vogue at present, but it is clear that many schemes already in operation have not been thought through very carefully. The OFSTED report referred to above (Section 2.4) indicates

that distance learning tutees cannot be left to their own devices and that mentor support is an essential part of the distance learning process – ideally with under 30 tutees per mentor.

Felix (2001) underlines the importance of technology being reliable:

“Our studies confirm strongly that the biggest hindrance to learning with technology is malfunctioning technology.” (p. 352)

Davies (2003) comes to similar conclusions:

“Online training is playing an increasingly important role, but practical aspects of training can be delivered better in face-to-face workshops. A judicious mix of online and face-to-face training is therefore desirable. Online training works best when there is substantial peer group and tutor support. The technology for delivering online training must be robust, the user interface must be transparent, and hardware must be easily accessible to trainees. Content must be relevant and consist of a mix of theory and practical aspects. Trainees need adequate time to complete assignments set by tutors, and tutors need time to mark them. Distance training is a labour-intensive delivery medium, and this has to be carefully costed. Above all the needs of the students have to be borne in mind when setting up an online course; it is for their benefit, not for the benefit of educational administrators. Training is not cheap, but it is more expensive in the long term not to invest in training.” (p. 212)

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This is a comprehensive bibliography of CALL publications, including other bibliographies on the Web.

ICT4LT Resource Centre bibliography: <http://www.ict4lt.org/>

Select the Resource Centre at the ICT4LT site to locate this comprehensive bibliography and other web links.

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The British Council: <http://www.britishcouncil.org/>

British Educational and Communications Technology Agency (BECTA): <http://www.becta.org.uk/>

C&IT Centre: see CTICML

CALL@Hull: <http://www.fredriley.org.uk/call/langsite/>

Centre for Information on Language Teaching (CILT): <http://www.cilt.org.uk/>

Computers in Teaching Initiative Centre for Modern Languages (CTICML), University of Hull. The CTICML has now closed. The CTICML archives are located at <http://www.hull.ac.uk/cti> and at the CALL@Hull web site: <http://www.fredriley.org.uk/call/>

Council of Europe's Common European Framework for Languages:

http://www.coe.int/T/E/Cultural_Co-operation/education/Languages/Language_Policy

Curriculum Online (COL): <http://www.curriculumonline.gov.uk/>

Department for Education and Skills (DfES): <http://www.dfes.gov.uk/>

DIALANG: <http://www.dialang.org/>

EUROCALL: <http://www.eurocall-languages.org/>

ICT4LT (Information and Communications Technology for Language Teachers): <http://www.ict4lt.org/>

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Languages National Training Organisation (LNTO): <http://www.languagesnto.org.uk/>

Lingu@NET: <http://www.linguanet.org.uk/>. See also the Lingu@NET Forum: <http://www.mailbase.org.uk/lists/linguanet-forum>

NACELL (National Advisory Centre on Early Language Learning): <http://www.nacell.org.uk/>

National Grid for Learning (NGfL): <http://www.ngfl.gov.uk/>.

National Curriculum: <http://www.nc.uk.net/>

NESTA FutureLab: <http://www.nestafuturelab.org/>

New Opportunities Fund (NOF): <http://www.nof.org.uk/>

Office for Standards in Education (OFSTED): <http://www.ofsted.gov.uk/>

Specialist Schools Trust: <http://www.specialistschoolstrust.org.uk/>

Teacher Training Agency (TTA): <http://www.tta.gov.uk/>

Virtual Teacher Centre (VTC): <http://vtc.ngfl.gov.uk/>

Web Enhanced Language Learning (WELL) project: <http://www.well.ac.uk/>

WorldCALL: <http://www.worldcall.org/>

This paper draws in part on a plenary speech by the author given to the WorldCALL conference in Banff, Canada in May 2003 entitled *Of Digital Divides and Social Multipliers: A Global Perspective on Language, Technology, and Development*.

THE POTENTIAL OF ICTs FOR TRANSFORMING LANGUAGE EDUCATION IN AFRICA

Salam Diakite

The impact of new information and communication technologies (ICTs) on globalization is so significant that it is no longer exaggerated to say that the 21st century will most certainly be that of advanced technological communication and culture. In other words, future economic growth and development are likely to come neither from the availability of natural resources, nor from manufactured goods, but from easy access to information and communication networks and their interactive multimedia applications.

Unfortunately, such information and communication technologies, appear to be widely and efficiently used everywhere and in every domain of daily life, but in Africa. In other words, what has now become a dominant indication of modernity in the North is hardly known in most African countries, except among the elites in a few privileged capital cities.

To draw attention to this situation, the United Nations Economic Commission for Africa (ECA) in its *Proceedings of African Development Forum 1999* (published in 2000) clearly states that:

“Over the past 15 years, the industrialized world had shifted its focus from connecting people to connecting nodes of information that people could universally access, share, and grow. Focus on convergence technologies had brought information affluence, unprecedented benefit and wealth resulting from net media. In contrast, the developing world had focused on teledensity with emphasis on telephony rather than universal access to the Internet. Accordingly, the progress in teledensity had not yielded the corresponding benefits and wealth which information affluence had created for the industrialized world. Indeed, the information between nations was growing and threatened to explode into an irreparable gulf between rich and poor nations.” (p. 5)

Since the last decade, Africa’s political leaders and policy makers seem to have committed themselves to “harnessing information and communication technologies towards development”. Areas like agriculture, industry, commerce and trade have ever since been at the heart of this technological advance. Computerized research works have contributed to increase production and productivity in rural areas.

Ironically however, formal education in Africa is one area that still seems to have benefited the least from the use of advanced technology, certainly because educational technology requires precise organization, not only in itself, but also for its efficient application within the education system. Wèdemeyer (1967) put it so eloquently when, about four decades ago, he wrote:

“Alone of almost all the areas of human endeavor, education has been singularly reluctant to keep pace with the development of technology, and singularly resistant to the radical notion that conventional educational means are insufficient, perhaps even incapable, of serving society’s needs IN THE LATER HALF OF THE TWENTIETH CENTURY.” (p. 134)

In many developing countries, one can, generally speaking, identify four distinct levels in the development of state educational systems:

- (a) **simple rote-learning methods** to teach basic skills often impaired by unmotivated and poorly trained teachers;
- (b) **introduction of formal system of education** with still some rote learning and a fixed and centrally determined curriculum and a rigidly controlled instruction;
- (c) **educated and trained teaching** with still an officially recommended syllabus, although teachers can take the risk to venture outside of it; quite often, little effort is made to encourage creativity among students;
- (d) **teaching with well trained teachers:** schools are free to plan their own systems of work; teachers are autonomous in their classes; learners are encouraged to discover and solve problems for themselves.

Of these four, the last one is where traditional audio visual equipment, such as record players, repeatcorders, short wave radio receivers, movie cameras, and video recorders, has timidly found its ways in many Sub-Saharan countries since the early 1970s, thanks to the international cooperation policies which followed the *independences* in Africa.

Mali, Niger, and Ivory Coast first introduced school television in their educational systems in the late 1960s. The programs were actually designed as pilot projects with a greater emphasis on the observation and development of basic teacher competencies in biology and physics classes. Later, in the mid 1970s, OMBEVI (Malian Office for Cattle and Meat), with

the pedagogical and financial assistance of USAID, developed and implemented a series of English language training pilot projects for a few civil servants, selected for advanced training in their respective fields in the USA.

The courses were more or less designed for specific purposes, that is, vocationally oriented. To be accepted and register in any American universities, the participants were expected to score at least 500pts on the TOEFL (Test of English as a Foreign Language), after six months of intensive training in their home country. The instructional materials, which were sent from Princeton English Language Testing Center were computer edited, adapted and stored on discs for future use; the supporting video materials were regularly updated. Servicing and maintenance were supported both financially and technically thanks to bilateral and multilateral cooperation.

Two programs, namely the **Development Leadership Training (DLT)** and **Women In Development (WID)** were successfully carried out and completed in accordance with the terms agreed upon by both parties, USAID and the Government of Mali.

Although no official evaluation was made, either by USAID or by the Malian educational authorities, to assess the impact of the information and communication equipment used within these two projects, there is reason to believe that the participants learned much faster than they would have done, had they remained in traditional language classes. Almost all of them were able to score at least 500 points within the required amount of time. Upon their arrival in American universities, they did not need to take any additional preparatory courses in English before starting their programs. Such was not the case before these pilot programs were designed and implemented.

The instructors were primarily Master's and Ph.D graduates of British and American universities, with some specialization in ESL/EFL. Moreover, most had been teaching in the Department of English Language Education and Research of the Ecole Normale Superieure (in Bamako, Mali) for several years. In addition, they were quite familiar with manipulating the audio and video equipment used within the above mention projects.

What are the perspectives?

Indeed, if the primary objective of NEPAD (New Partnership for African Development) is to take advantage of the context of globalization to reduce the gap between Africa and developed countries, then, the development of a modern information and communication network, capable of facilitating the circulation of information throughout the continent and with the rest of the world is without any doubt a sine qua non condition. Without it, envisaging any inversion of the current trends, *the marginalization of Africa*, is no less than an illusion. No wonder why NEPAD, within its development strategies, has retained *information science and telematics* on the one hand, and *the promotion of the human resources with a special attention to health, education, and training*, on the other hand, among its priority sectors.

This is to say that the appropriation and the generalization of the effective utilization of new ICTs in Africa will bring opportunities for individuals and will help, in a much shorter time, to resolve the shortage of teachers, a serious challenge that has faced most African countries for more than forty years now.

Let us however be true to ourselves. The development and production of educational technology will cost in terms of money, time, and manpower. In fact, today more than ever before, the use of educational technology requires a reordering of educational thinking: it *does have* significant implications for curriculum development, course planning and delivery, teacher training, and even the building of classroom facilities.

Just not long ago, it was not rare to hear in many developing countries that "ICTs are not socially neutral", owing to the fact that not even one percent of the urban populations in Africa could afford these technologies, let alone the grassroots. To give just one example, objections were raised here and there to authorised use of calculators in exam rooms. The general feeling, in those days, was that either school authorities provided every candidate with such technologies, or no one should be allowed to bring them in class.

The introduction of information and communication technologies has also proven to be costly in terms of the human expertise needed to operate electronic systems, such as closed circuit television networks, Internet and Intranet installations and maintenance, etc. This has often raised serious questions about resource allocation. If more money should be allocated to electronic technology required for education in general and for improved language education in particular, what will this mean for other academic subjects? Why not invest that money in

the development of basic education skills, such as the **three R's** (**R**eading, **wR**iting, and **aR**ithmetic) and adult literacy? What will be the cost-benefit of such technologies? Who will pay for them?

Another reality, one must admit, is that although electricity and telephone lines are becoming more extensive throughout Africa, they are not, surprisingly, becoming significantly cheaper; few local authorities and parents' associations can in fact afford to equip their high schools and undergraduate colleges with adequate information and communication software, and sustainable subsidies from foreign donors are becoming scarce.

With regard to foreign/second language education, although the first experimental projects in French speaking West African countries have been fairly successful in speeding up participants' language learning skills (listening and speaking in particular), the overall picture is, at present, somewhat mitigated and a bit disheartening: video recorders in most schools remain locked in storage closets because few teachers know how to incorporate them into their instructional programs, most of the early teachers trained to this end having either retired, or quitted teaching for other jobs.

In many state owned language schools and college departments, the equipment itself is virtually ineffective in promoting greater subject matter achievement and more positive feelings toward language learning, owing to lack of servicing, maintenance and regular repair work, and, in some cases, the amount of time needed to prepare a lesson.

Indeed, when language laboratories were first introduced in the mid 1960s, it was hoped that within a decade all the high schools would be provided with such technological equipment. Just the opposite happened. Today, not a single high school in Mali, for example, is equipped with a language lab. Most African countries, at present, are unable to keep up with the pace of technological advance. This poses, once again, the problem of sustainability. Once donors withdraw their technical and financial assistance, a whole project is doomed to failure.

Nonetheless, the potential of information and communication technologies for transforming the teaching and learning of foreign languages, such as Arabic, English, French, German, Portuguese, Russian, and Spanish, in Africa cannot be denied.

In retrospect, repeat orders, for example, have for a long time been quite effective in promoting understanding of foreign language radiobroadcasts. Such programs, taped from short wave radio receivers (the BBC English lessons among others), helped bring authentic, stimulating, and timely cultural materials into the classroom. And for those students whose learning style was eye oriented, video visual components contributed to increase quite significantly their interest and motivation for learning.

Distance language education programs carefully designed in partnership with carefully chosen institutions in Great Britain, the USA and, why not, English speaking African universities, for example, will hopefully help boost the learning and teaching of English as a second/foreign language. Language students in African universities will then have the possibility to take required courses for Master's and Ph.D degrees offered abroad via videoconferences (live and/or prerecorded). This of course will compensate for the shortage of qualified teachers.

Through Internet and Intranet services, language data banks can be consulted anytime by both teachers and students, thus reducing the need for traditional libraries, still costly and difficult to provide with up to date language references on a regular basis. A few universities in a couple of French speaking African countries are already providing their students and faculty members with such services. These *Digital Campuses* are, for the time being, sponsored by foreign donors, USAID and the Intergovernmental Agency of the French Speaking World (AIF), among others.

That foreign/second language learning and teaching research networking may prove to be an area that will help improve language education in Africa cannot be emphasised enough. Among many other benefits which can be derived, the following are worth mentioning:

- publication of students' theses and dissertations on innovative experimentations;
- exchange of information and language teaching experiences between language departments and institutions;
- more knowledge on the linguistic features of African languages themselves.

For such networking to be successful there must be regional leadership in order to come up with topics and areas of research, which can build up shared interests among language teachers. This will help increase collegiality and knowledge sharing on the one hand, and communication and interaction on the other hand.

Four key activities can result from language education electronic networking in Africa, namely:

- i. establishment of national and regional data banks on efficient methods and techniques of teaching foreign language in multilingual and multidialectal environments;
- ii. production and electronic circulation of bulletins and newsletters;
- iii. development of distance training workshops;
- iv. development of collaborative language research projects.

Obviously, we need to ascertain that our efforts are not disproportionately higher than the profit we will make of them. To this end, a few recommendations are worth considering:

- carry out some evaluative studies of the impact of traditional technological equipment in foreign/second language teaching and learning process in those developing countries where initiatives are being taken to introduce and generalise the use of advanced information and communication technologies into their language teaching practice;
- carry out a survey of teachers' and school authorities' attitudes towards such technologies, given that any new technology can easily be proven inadequate or useless if the beneficiaries (teachers in particular) show the slightest resistance to the use of such a system;
- clearly define teachers' and learners' roles in ICT-based language classrooms;
- develop adequate pre-service and in-service teacher training and retraining programs in courseware design which best fits with current theoretical approaches to second/foreign language learning strategies;
- work out flexible schemes for easy access to ICTs, and adequate action plans for sustainability in favour of less privileged language institutions; this will include financing, evaluation, and adaptation to new situations;
- provide for continuous training and retraining of the servicing and maintenance personnel;
- foresee the application of ICTs to African languages, starting with vehicular cross border languages in literacy and post literacy programs.

Some words of caution

Research on foreign/second language education in African universities has, so far, had little effect on educational policy making. Much of it has been undertaken either as part of political expediency dictated by unexpected changes of political regimes or in reaction to donors' initiatives. This has therefore contributed to create a sort of uninterested environment, which does not encourage language teachers' commitment and participation in any projects they do not directly identify themselves with.

Secondly, donor agencies have often funded surveys and research works directly related only to their own programs. In other words, they have, up until now, determined the areas for research and the terms of reference, a situation which tends to hinder the capacity of African foreign/second language researchers to produce alternative research agendas which fit their local realities.

Finally, it must be emphasised that foreign/second language learning and teaching are first of all *social interactions*. Although electronic research and networking can offer teachers exciting possibilities to improve their language teaching approaches, methods and techniques, one essential focus should remain the development of personal contacts and relations if any significant increase is to be gained from the integration of information and communication technologies in language education in Africa.

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MODELING A FIELD-BASED INTERNET RESOURCE FOR MODERN FOREIGN LANGUAGE LEARNING: THE CASE OF RUSSNET

Dan E. Davidson and Maria D. Lekic

Introduction

Field-wide resource-sharing via the Internet has multiple advantages for the education professions. It can provide a common virtual location for accessing the most up-to-date classroom-tested materials; it can also serve as a creative stimulus to teachers and developers to adapt existing sources for their own pedagogical needs, and to exchange materials, in turn, with their peers. From the point of view of professional recognition and rewards, the integration of technologies into the classroom and electronic publications is now increasingly acknowledged by university and school authorities as evidence of professional achievement and, hence, considered for promotion, tenure, or National Board Certification® for accomplished teaching. (See Standard IX, NBPTS, 39–40.)

The need to prepare larger numbers of persons to communicate effectively in world languages has never been more apparent than in the post 9/11 world. Cognizant of the available research on the acquisition of foreign languages, the U. S. Department of Education, the Ford Foundation, and other funders have made grants in recent years to national professional and policy-focused organizations to test the concept of “LangNet.” (Collins and Davidson, 54ff.) The brainchild of a distinguished leader and thinker in foreign language study and research, Richard D. Brecht, director of the National Foreign Language Center at the University of Maryland, LangNet is an integrated language-learning support network enabled by a comprehensive web-based search-and-retrieval system linked to a relational data base. The purpose of LangNet is to make available the best language learning and teaching resources, maximally customized for use by individual learners and classroom-based students. The materials have the capacity to provide “style-sensitive” diagnostics and tasks based on the profile and learning plan and environment of each learner. Although ultimately, LangNet will support language study at all levels in all the major world languages, its initial focus has been on the less commonly taught languages, where the need for external language support within the U.S. and European systems is the greatest (see www.langnet.org). The present study reports on RussNet, the field-wide language learning support network for the Russian language, now in its sixth year of service and one of the most developed examples of LangNet.

RussNet, the Field-Wide Language Learning Network for Russian

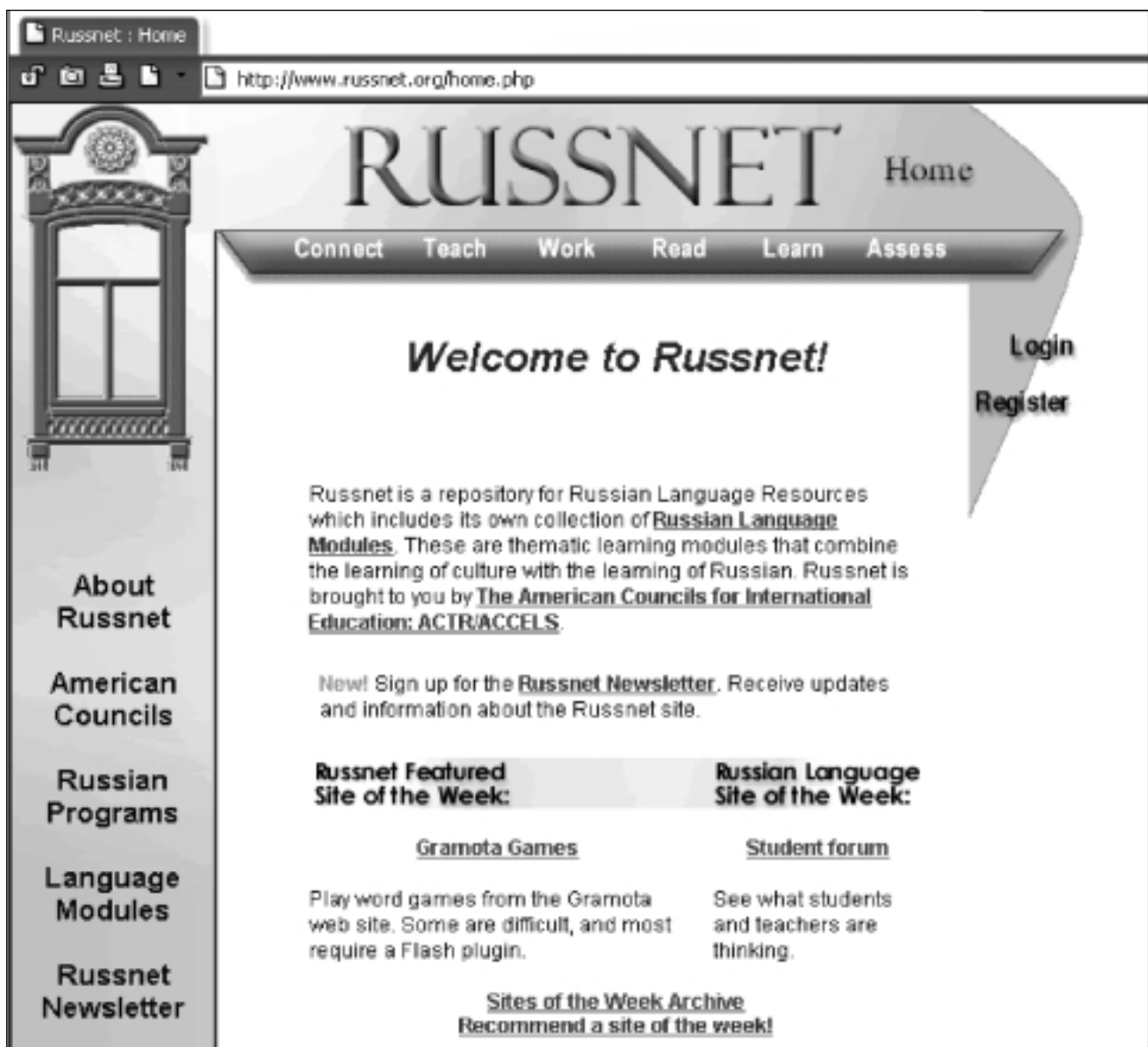
The study and teaching of Russian provide a good example of the challenges facing many of the world’s educational systems in the support of strategically important languages and regions of the world. Enrollments in Russian language at institutions across Europe and North America have generally declined over the past decade. At two- and four-year colleges and universities in America, enrollments have stabilized somewhat in the past two years, after plummeting from 44,000 to 23,000 between 1990 and 1998. (Brod, p. 10ff) To be sure, part of the decline was due to the breakup of the Soviet Union in 1991 and the apparent concomitant loss of Cold War-driven demand for analysts and academic researchers in Soviet-era specialties. But the decline was also part of a larger pattern of loss of interest among the learner population in the kind of preparation being offered by most language and literature programs generally, whose faculty members specialize primarily in literary criticism or linguistic theory.

Two new categories of learners have emerged among those electing the study of Russian during the past decade. One group is comprised of members of the Russian heritage community, which in the U.S. now totals more than 1.6 million persons, four times the number of Russian/American heritage speakers in 1990. (Similar increases among Russophone heritage populations can also be observed in most countries of the European Union.) The second new category of learner includes a broad range of pre- or in-service professionals in fields, such as business, education, energy, finance, government, information science, health care, humanitarian assistance, international development, law, media, or

social work – students with a typically strong, if instrumental, motivation for studying Russian. These students study the language alongside their primary areas of specialization. For the most part, they lack the time to devote multiple semesters engaged in traditional reading and translation courses focused on the meticulous decoding and slow reading of nineteenth century classical texts. Their focus is on developing the competencies in the target language necessary to function effectively in their chosen fields, which are largely outside of philology and the humanities.

Among today’s special purpose learners, students in business and finance occupy the largest share of current U.S. enrollments in Russian. For that reason, RussNet, which is administered by the American Council of Teachers of Russian (ACTR) and associated with LangNet, has made the integration of Russian language study and business education a particular priority. Business Russian is available to individual or classroom-based learners over RussNet; it may be used in conjunction with existing elementary, intermediate, or advanced-level Russian courses, or undertaken as a self-standing sequence of independent study courses. RussNet/Business Russian currently provides more than

Figure 1. Welcome to Russnet!



1,000 hours of customized, interactive, and authentic tasks at all levels of language competence, some of which are available in a range of learning-style-sensitive formats.

The vocabulary and usage taught represent the norms of contemporary Russian business discourse, language data that is not readily available even to experienced teachers of the language. Beginning students learn how to introduce

themselves as representatives of a firm and to review quarterly reports and currency exchange rates as they master the Russian number system; advanced-level modules are based on actual Russian business case studies. Modules are self-paced, multi-level, culturally authentic, and well supported technically with on-demand grammatical information, indigenous case studies, and extensive guides for use by teachers and instructors. Of the more than 12,000 currently registered users of RussNet from all over the world, more than half are engaged in the study of business Russian. Most are engaged in independent study of the language, taking advantage of the new technology not only to learn specific texts, discourse rules, lexical items, and grammar points, but mastering the principles of self-managed learning as well. (Garrett, 2.)

Providing Access to Under-Served Populations and Less Commonly Taught Fields

One of the most significant contributions of RussNet to U. S. secondary education has been its pioneering role in the development of the first U.S. Internet-based school-to-university articulation curriculum and examination program, developed in close cooperation with the Advanced Placement® Program of the College Board. The wide-ranging RussNet programs for school-age learners have already created access to the study of Russian language and culture for historically under-served rural and inner-city populations within the U. S. For university-bound high school students, the opportunity to undertake advanced-level study prior to entering the university increases the student's level of preparation and overall competitiveness for university study. It has the additional advantage of permitting successful students to continue work in the given subject at a more advanced level upon admission to university studies. Until recently, such advanced work was rarely available to students outside elite suburban and private institutions. Furthermore, for separate economic reasons, smaller or cross-disciplinary fields (such as Russian, economic geography, environmental science) were not included among courses offered in the schools for Advanced Placement®. The new RussNet-based school-to-university curriculum, examination, and teacher support **programs**, being piloted across the U.S. in 2002–2003, will serve as models for the professional associations of Chinese, Japanese, and Italian teachers, who hope to broaden access and provide similar advancement for these critical languages in the nearest future.

RussNet/LangNet as Change Agents

More generally speaking, RussNet is an important test case for LangNet and for the foreign language field as a whole. Far from replacing school or university-based courses with Internet-mediated modules, RussNet is empowering programs of Russian at all levels to expand course offerings into much-needed, new areas, while providing necessary support to teaching faculty through online tutorials and regularly scheduled workshops in the use and customization of learning modules. The long-term intent of the program is to permit departments and faculties to redesign current course offerings and to be able to respond affirmatively to requests from learners for specialized courses in Russian for business majors, lawyers, or law-enforcement professionals. Only then will foreign language study become truly mainstream. Beyond school and university courses, RussNet also serves as a learning resource for in-service professionals. It is intended as a virtual classroom for academics, business executives, diplomats, journalists, or other professionals who require quality-assured learning resources, whether to explore and master new discourse domains, or undertake a refresher courses. Such is the lifelong nature of all serious foreign language acquisition and maintenance.

RussNet represents but one example of the way in which donor agencies and a professional language association can cooperate in combining cutting-edge information technology with second-language acquisition research to generate new and innovative models for more relevant and improved language learning. The RussNet initiatives are scalable, cost-effective systems that can adjust as circumstances in the field and local conditions change, as well as in response to the needs of teachers and learners. The modules and the templates are also replicable for use in other languages. LangNet and RussNet have already received substantial replication and extension, thanks to further investments by private funders, such as the Dodge Foundation and the Ford Foundation. In addition to the U. S. Department of Education, other U.S. federal funders have also supported the expansion of these programs to other specialized fields with Russian and also to additional languages, such as the creation of CenAsiaNet for support of Azerbaijan, Kazakh, Turkmen, and Uzbek.

Modular-Based versus Learning Objects Approaches

From the point of view of materials development, LangNet is a large relational database consisting of learning objects (content objects, learning objects) that are “tagged” according to learning-specific goals or categories, e.g. level, mode, typology, focus of attention, and targeted area of functional competence (for full taxonomy, see Ingold, 144ff). A content object is a raw text selected exclusively on the basis of thematic orientation and level of difficulty. A learning object is a content object organized to facilitate its use by an L-2 learner, e.g. glossing, rating for proficiency level, and task types, sequenced for maximum benefit, such as pre- and post-reading tasks arranged functionally, and not along traditional grammar/lexical lines.

In the case of RussNet a module is an extended set of learning objects organized flexibly to permit both linear and non-linear approaches to its use. RussNet modules provide alternative channels and suggestions on how to proceed through the materials, depending on the needs and interests of the learner. In effect, any learning object within the module can normally be taken out of context and used as a self-standing learning object, or re-configured to suit the needs of the teacher or learner within the demands of specific local conditions. The modular approach leaves the decisions about sequencing and progression up to the teacher for that reason. If a given learning object, for example, is too difficult or too easy for a specific learner cohort, the teacher can elect to replace that object with another learning object with the same general set of tags.

Texts of all kinds (printed, graphic, video, audio) may serve as background material for the module. For example, mixed classes of heritage and non-heritage learners of Russian may pursue entirely different source materials in the course of working with the same module, while addressing the same overall learning standards (Fig. 1). For example, Russian heritage learners pursuing the module on Russian history, view the classic Eisenstein film, *Ivan the Terrible*, while the non-heritage work with a basic text containing similar information in a more accessible, though still authentic written source (Fig. 2).

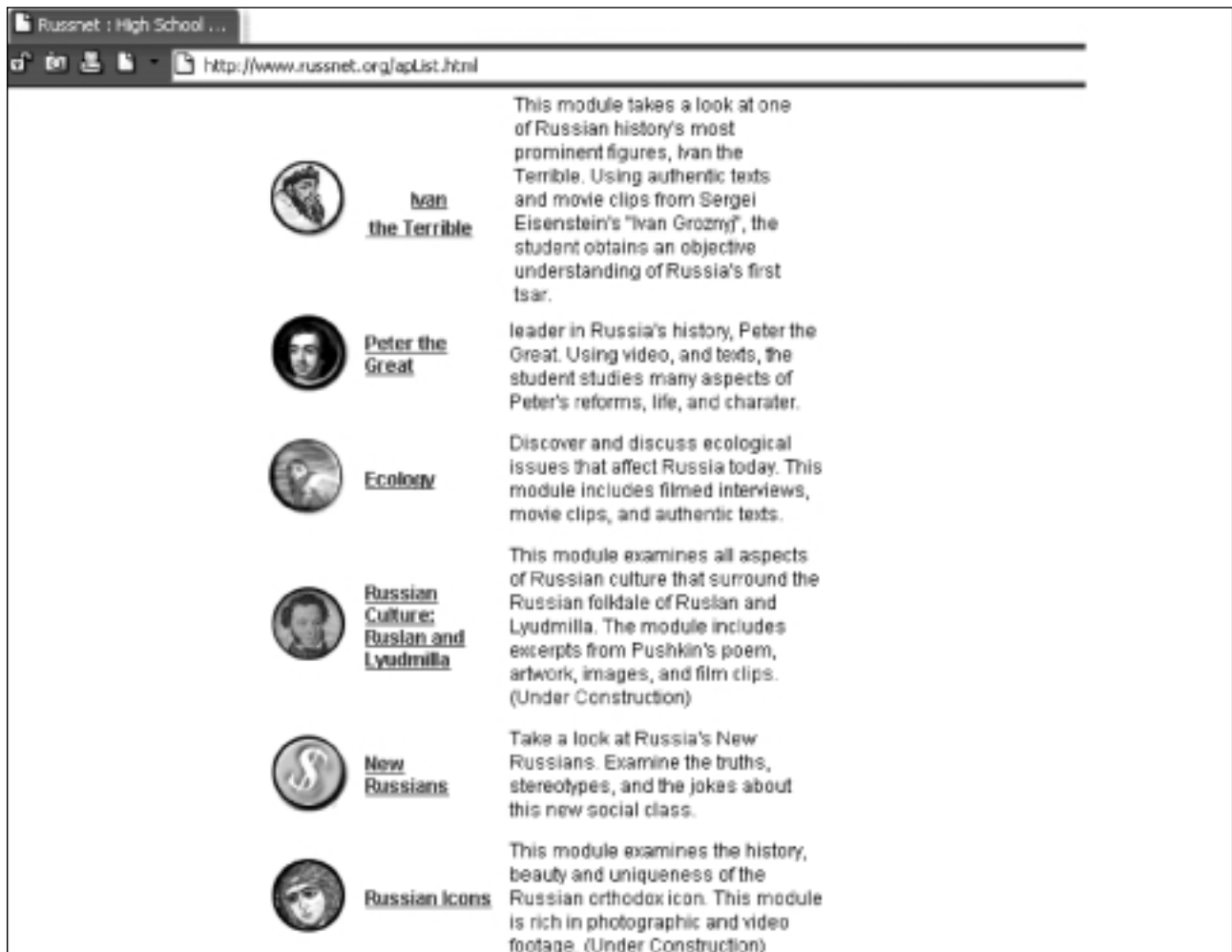


Figure 2. Some Russnet modules

| | |
|-------------------------------|--|
| Title | The Map of Turkmenistan Türkmenistanyň Ayratyn Goralýan Ýerleri |
| Description | Introduction to the geography of Turkmenistan, including the names and location of cities, mountains, bodies of water and the bordering countries; plural formation of nouns with the suffix -lar/-ler |
| URL/Location | |
| Use requirements | IE, Netscape, etc.* |
| Language | Turkmen |
| Key Ideas | Geography |
| Proficiency Level | 0+/1 |
| Objective | Familiarizes with Turkmenistan’s geography, major cities, mountains and bodies of water as well as with Turkmenistan’s location in relation to other Central Asian countries.(FLRGen, FLRSc) |
| Learning History | Foreign language learner |
| Strategies | Getting in back, Making meaning |
| Object Category | Learning Object |
| Skill | Reading |
| Text Mode | Orientalional, Instructional |
| Content Domain | Geography |
| Competence | Lexical, structural |
| Study Situation | Alone |
| Author | W.D. Kuzmenko, J.W. Rahmanov Editor: P. Gurbanow |
| Publisher/Source | Ministry of Nature protection of Turkmenistan Ashgabat 2000 |
| Copyright StatusSource | © |

Figure 3. Example of a tagged “learning object”: Turkmenistan

The role of the teacher in RussNet is therefore collaborative in the true sense of the word. On the one hand, the teacher oversees and shapes the curriculum and progress of individual students through the modules based on their individual

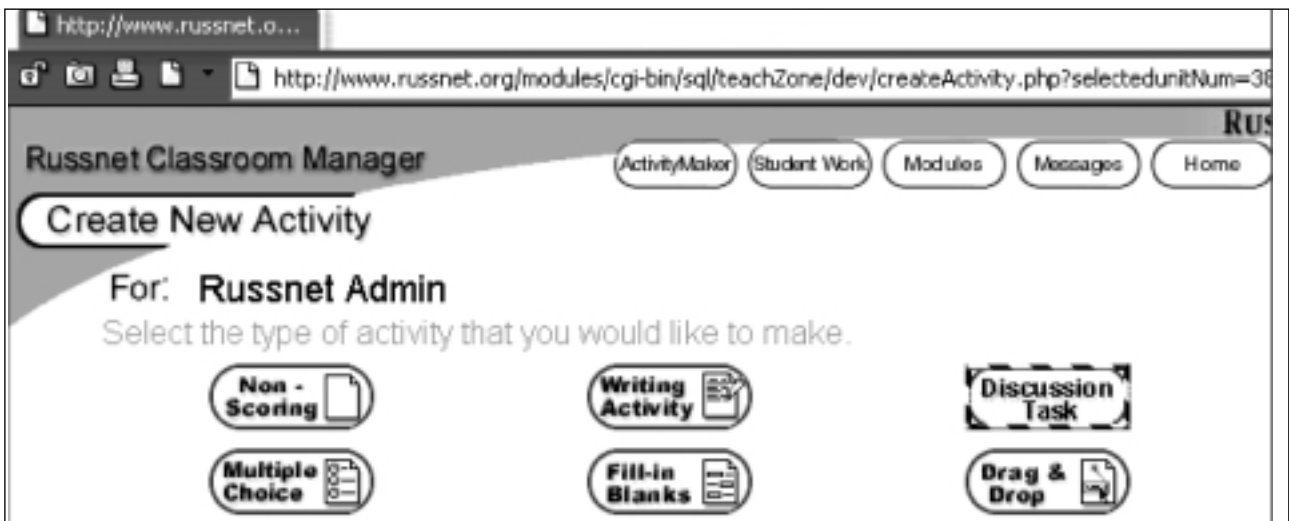


Figure 4. Activity maker

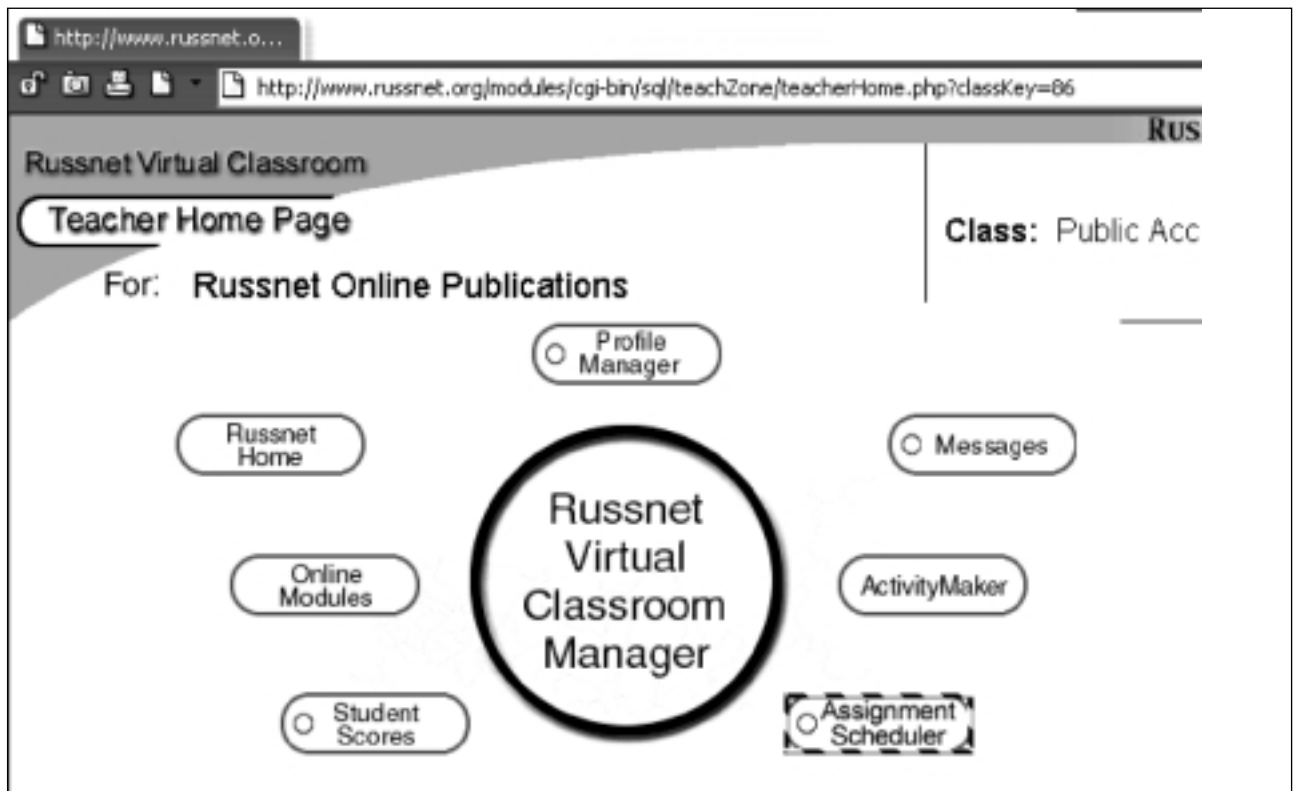


Figure 5. Virtual classroom

needs and abilities, on the other hand, he/she has the option to enter the module directly and add, edit, or move activities, tasks, visual, audio, or other support materials, as needed by her learners. For the latter purpose, teachers are provided with authoring tools that permit the teacher to create the following forms of activities: text input, drag and drop activities, multiple-choice activities, and glossing.

| Scores Recorded from Russnet's Online Modules | | | | | |
|--|----------------|----------------|------------------|---------------------------|-------------------------------|
| Matryoshka | | | | | |
| Unit 1 No mistakes recorded # | | | | | |
| Activity Name | Date Completed | Number Correct | Number Incorrect | Total Number of Questions | Review Activity in New Window |
| Exercise 1 | 2002-12-03 | 4 | 0 | 4 | <input type="radio"/> |
| Exercise 2 | 2002-12-03 | 4 | 0 | 4 | <input type="radio"/> |
| Exercise 3 | 2002-12-03 | 7 | 0 | 7 | <input type="radio"/> |
| Exercise 5 | 2002-12-03 | 6 | 0 | 6 | <input type="radio"/> |
| Exercise 6 | 2002-12-03 | 6 | 0 | 6 | <input type="radio"/> |
| Exercise 7 | 2002-12-03 | 20 | 0 | 20 | <input type="radio"/> |
| Exercise 8 | 2002-12-03 | 6 | 0 | 6 | <input type="radio"/> |
| Exercise 9 | 2002-12-10 | 22 | 6 | 22 | <input type="radio"/> |
| Exercise 10 | 2002-12-03 | 5 | 3 | 5 | <input type="radio"/> |
| Exercise 10 | 2002-12-10 | 5 | 0 | 5 | Repeat <input type="radio"/> |
| Exercise 11 | 2002-12-10 | 4 | 0 | 4 | <input type="radio"/> |
| Exercise 12 | 2002-12-10 | 9 | 3 | 8 | <input type="radio"/> |

Figure 6. Score report

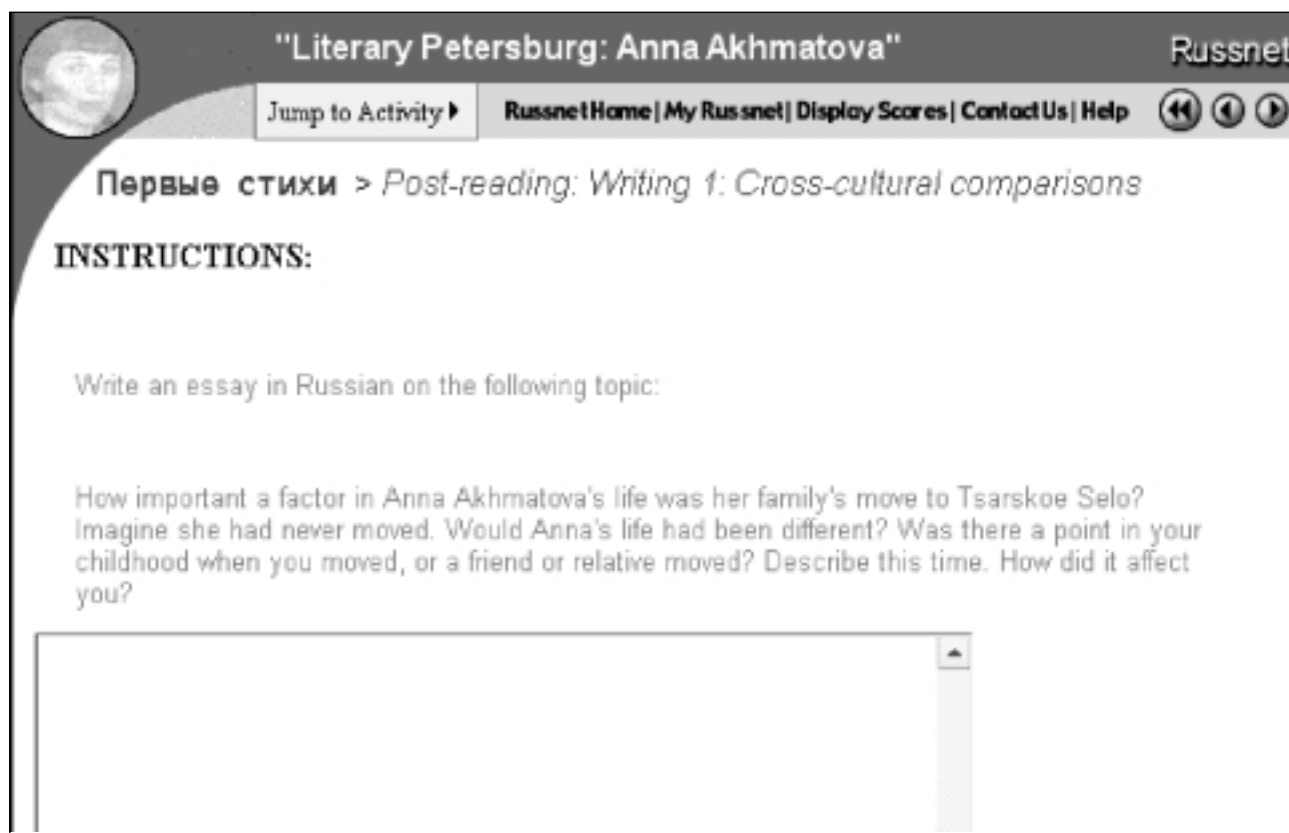


Figure 7. Writing task

Classroom management issues are transacted via the “Virtual Classroom” location on the site, while only the teacher has access to individual and aggregate score reports on learner performances on each activity and assessment. Individual learners may also have access to their own score reports.

Verbatim records of student work in the target language have for some time served as a vital source of interlanguage data for researchers and materials developers alike. Internet sites like RussNet have the added advantage of providing controlled conditions for the elicitation of L-2 data from a broad range of backgrounds and learning environments, with the possibility of incorporating statistical controls for learner demographics, cognitive styles, and other individual learner variables.

The RussNet Design for Teacher-Generated Materials (Technical Aspects)

1. *Packaging/formatting of the materials.* Teachers are now able to upload and manipulate (resize & crop) images to make icons and cover images for their projects. They may also select from six color schemes for the layout of the materials. As teachers create activities, a drop-down menu is automatically compiled that allows students to effortlessly navigate through the materials. The result is that teachers' materials are automatically assembled in an attractive, cohesive, and functional interface.
2. *Homogenization of activity data.* The data structure of activities created through the authoring tools are consistent with those of Russnet's online modules. The result is that the materials and the data they generate (scores, answers, student writing) can be integrated seamlessly with data generated through the professionally developed modules.
3. *Vocabulary tool.* The vocabulary tool allows teachers to add glosses to words in texts that they upload to the system. The vocabulary is generated from a global dictionary database and the tools search for possible matches as a teacher inserts a new text. Using a series of regular expression algorithms, the program checks for all possible inflected forms of the same word when searching for matches. The teacher is then presented with a list of potential matches and can decide whether to keep or reject what the program has returned. The teacher then selects words in the texts for which no relevant match was found and adds her own vocabulary entry to the database. Thus, the database is constantly growing.

4. *Categorization drag and drops* is a new type of activity which enables teachers to create activities where the students practice categorizing items according to teacher or system-specified parameters.
5. *Constructed response evaluation*. Sentence parsing and vocabulary checks provide both writing practice in Russian as well as interim assessments for learners interested in developing expository writing skills.

Next Steps:

1. *Assignment scheduler*. It is now possible for teachers to select freely from the Russnet modules and their own material to create customized learning plans for their students. An interface for this integration will allow a teacher to present a learning plan to an individual, a specified group of students, or the entire class. The teacher will also be able to determine whether any particular activity should be presented as practice (with feedback) or as a test (no feedback).
2. *Free-form drag and drop*. This activity type will allow teachers to upload their own images and create any drag and drop activities they can imagine.
3. *More intelligent forms of feedback*. Several feedback models are currently in experimental use for parsing student responses and making grammaticality and/or spelling judgements about student input. Different forms of computer-generated error analysis and student feedback are currently the object of a controlled experimental study conducted by American Councils' researcher, Ken Peterson. So-called "smart tutorials" were developed by ACTR for Russian nominal and verbal morphology for CALL applications, beginning in the mid-1980s. Eventually, it is hoped that the feedback mechanisms developed for this research will be incorporated into the activities created by the authoring tools.
4. *Meta-tagging/standardization*. As the volume of materials continues to grow on Russnet, so too grows the potential for creating effective searching mechanisms and diagnostic tools. One area that has been explored for aiding intelligent searches is to meta-tag materials for linguistic features, level-specificity, etc. It is vital, however, that the field adopts a standard of tagging that is broadly compatible and interoperable with the tagging systems of other content developers.

Implications for a New Generation of Learners

It is useful in times of rapidly developing technological advances to recall past successes and failures. The explosion of interest in language laboratory technologies of the 1950s failed for the most part to deliver major improvements in the learning of modern foreign languages in public education, despite the substantial investments in hardware typical of that era in North America, Europe, and the former Soviet Union. Language learning pedagogy and technologically focused learning materials of the time rarely engaged the full potentials of the available technology. Today's foreign language learners are both far greater in number and exceedingly more diverse in terms of learning goals than those of the 1950s. In order to meet the needs of this population, a coordinated field-wide effort is required, for no single institution or publisher of foreign language materials has the financial or intellectual resources to address the multiple demands that exist at any one time in the foreign language field.

The present study has reported on the coordinated efforts of the principal professional association of teachers of Russian in the U.S. (ACTR) to mobilize distance learning technologies for the improvement of teaching and learning in the Russian field. Advancement of the field necessarily includes expansion of access to the field beyond those learners currently served, to provide both for institutional and "just-in-time" learning opportunities for today's more demanding and diverse populations. RussNet today encompasses two national editorial boards, a full-time technical support staff of four, dozens of professional materials developers, and a potential population of contributors limited only by the size of the profession and its ability to generate new ideas for the teaching of Russian language and culture. Every teacher and learner of the language is, in fact, a potential contributor to the resource and the Russian field is stronger in 2003 as a result of RussNet. The demands placed on the field by a new generation of learners require nothing less.

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- National Foreign Language Center: www.nflc.org
- RussNet: www.russnet.org

COMPUTER ENHANCED LEARNING IN THE EGYPTIAN CLASSROOM

Mounira Soliman

Abstract

Despite the wide spread efforts of the Egyptian government to introduce information and communication technology in public education, so far attempts to use technology in the teaching and learning contexts are mostly individual, lone efforts on the part of both instructors and students. This paper discusses the attempts and challenges involved in using technology to teach literature to students of the Department of English at an Egyptian state-funded university. It highlights the impact of using technology on the learning outcomes, the effect of integrating web-based and face-to-face instruction as well as the change in the role of instructors and students. It also sheds light on the shortcomings of these experiences resulting from shortage of research and lack of methodology on integrating literature and technology, students' uneven access to technology and the widening digital divide and, finally, lack of support from the administration.

Introduction

One of the major issues addressed in recent talk on educational reform in Egypt is the integration of technology in the educational process. Toward this end the Ministry of Education has been investing a lot of money and effort into fitting up schools with computer labs and multimedia classrooms. The full potential of these efforts has not been made the utmost use of mainly due to lack of teacher training so that teachers can make proper use of these resources in integrating technology in their teaching (see for further discussion Warschauer, 2003 & in press). The Ministry of Higher Education shares the same vision, emphasizing the importance of educational technology as a way of improving the educational system. It also is investing money and effort to equip universities with computer labs and establish departments of instructional technology (see Mansour). But, like the Ministry of Education, it faces the same problems as in minimal teacher training programs, poor administration and shortage of facilities. Efforts, therefore, to introduce technology in the educational process so far are mostly individual attempts to overcome some of the difficulties that face both teachers and students. Consequently, these efforts can only be described as attempts to improve the effectiveness of the existing educational set up.

This paper reports on the author's attempts over the past three years to integrate technology in the teaching of literature to students of the English Department at an Egyptian state-funded university. While these efforts admittedly work toward enhancing the teaching process, improving the learning outcomes, and changing the roles of teachers and students they are not without shortcomings which can be summarized in the following points: first, lack of a pedagogical perspective in integrating technology and literature, second, technology access and the widening gap between students who use technology and those who do not, and, finally, the lack of support from the administration.

Tertiary Education in Egypt

As Abdel-Malek (2002) points out, there are two ways to approach educational reform either to upgrade the quality of the existing educational process or to restructure the whole system. So far Egypt has been following the first reform approach. Tertiary education, for example, suffers from problems like low calibre staff, a drop in professional and ethical standards amongst professors and students alike, and inadequate facilities (Abdel-Malek, 2002). To overcome these problems attention needs to be given to curriculum development, teacher training, improving the learning situation and incorporating technology in the teaching and learning process amongst other issues. This, however, is not an easy task due to a number of factors amongst them resistance to change by both faculty and administration and insufficient resources. In addition, there is also the bias for certain disciplines like the study of engineering, business, and medicine so that efforts and resources are more readily channeled into these fields rather than, for example, the study of humanities.

On the other hand, the demotivated performance of teachers and students alike and the unsatisfactory learning outcomes are encouraging remedial efforts to overcome such problems. In recent years, for example, a number of private educational institutions were established in an attempt to create new opportunities for tertiary education. These private institutions are attracting a large body of students and teachers. Perhaps one of the major attractions of these institutions is the modern educational outlook they present, particularly the technology component that they attempt to integrate in the teaching/learning process or at least make available through computer labs and Internet facilities.

Foreign universities are also starting to play an important role. Already the American University in Cairo, for example, reputedly offers a better educational standard (at a much higher cost). The soon to be inaugurated French and German universities are also expected to offer higher educational standards. The German university in particular is publicizing its interest in science and technology, offering majors in information technology, media technology, management technology, biotechnology, amongst other fields (Tadros, 2002). While these initiatives are looked upon favourably as efforts to enhance higher education in Egypt, they raise serious questions as to the fate of state-funded universities, the quality of the students who graduate from these universities, and the calibre of the teaching staff. Can individual attempts of reform, on the other hand, help retain a minimum standard of excellence in public tertiary education? And how do efforts to introduce technology fit into this agenda?

Information Technology and Tertiary Education

One of the proposed national projects for tertiary reform in Egypt is information technology (IT) in higher education. The aim of the project is to catch up with the IT status of advanced higher education institutions worldwide and to improve the quality of graduates (Said, 1999). The objectives of the project aim at facilitating communication by making computers and Internet facilities accessible to all higher education students through a network infrastructure; between Egyptian universities; developing the human ware that would utilize this infrastructure and upgrading and developing the appropriate educational content that would match this technological set up (see Said, 1999).

The suggested implementation plan involves the collaborative effort of the government, which is responsible for securing the necessary resources, universities for providing additional funding to establish internal infrastructure and connectivity, colleges for initiating IT projects and activities and, finally, departments for implementing these projects and establishing interdisciplinary activities between different departments (Said, 1999).

Now let us take the case of Departments of English at Egyptian universities as an example to compare the current situation with the proposed plan.

Departments of English at State-funded Universities

English Departments, particularly in state-funded universities, attract a large body of students who are not interested in the study of literature as much as in acquiring the English language. Their interest in learning English is strongly related to the possibility of securing a good job after they graduate. And since the medium of instruction in English Departments is the English language, students mistakenly believe that they are in for an intensive four-year English language course. This unfulfilled expectation, of becoming fluent speakers of the English language, is one of the major problems facing English literature majors. Related to this is students' low language proficiency so that most students joining English departments have studied English in school as a foreign language (EFL) rather than as a second language (ESL). This means that the material taught in the literature class is reduced to the level of comprehension rather than being taught at a strictly literary level. Due to this language barrier, much of the literariness of the text is lost.

Other problems facing English majors at Departments of English include large classes and tight teaching schedules which means limited classroom interaction, scarcity of teaching resources and a very low-tech environment, absence of extracurricular activities as well as students' deep-rooted belief in rote memorization as the only means of learning and meeting the requirements of an exam-oriented educational system. Unfortunately, these factors combine to create a teaching situation that is mostly teacher – rather than student – centered.

The learning environment provides little space for discussion and assimilation of information and, therefore, does not really foster students' confidence and ability to express themselves. This, together with the discrepancy between the literature classroom experience and the students lived realities create a sense of disinterest in the study of literature.

On the other hand, students' great enthusiasm for technology is only matched by their eagerness to learn English. Egypt is one of the fastest growing markets today (amongst developing countries) for technology consumption. The last estimated number of users in the year 2001 was 600,000 and it is expected to exceed 2.6 million by the year 2006 (see NUA Internet Survey, <http://www.nua.com/surveys/>). The increasing number of students currently hooked up to the Internet is an indication of students' desire to become part of the modern world which is what technology represents to them. This desire is being met with an increasing number of cyber cafés opening up all over the country and recently on university campuses as well. Currently, this is one of the cheapest and most accessible ways for students to access the Internet since the prospect of buying a personal computer is not feasible to all students because it is very costly. This enthusiasm for technology is, therefore, a golden opportunity because it provides the necessary motivation – if nothing else – that is currently missing from the educational process. Due to lack of guidance, however, this enthusiasm is misdirected. The biggest attraction for many students who frequent cyber cafés or can access the Internet from their homes is chatting, for example. But to their credit, most students are aware that many of the activities they engage in on the net are a waste of time and potential. Many of them admit that all they do is “checking e-mail, getting forwards, chatting, searching for stupid stuff like jokes, funny articles, ringing tones for my cell phone, I don't know ... silly stuff, nothing important” (personal interview with a freshman student at the English Department, Cairo University). Simplistic as this statement may appear, it tells a lot about the nature of Internet practice of Egyptian youth and can, therefore, help teachers determine some of the features which they should address when attempting to integrate technology in their teaching curriculum.

The following are three examples of integrating technology in an introductory course to literature administered to freshman students of the English Department at Cairo University, a state-funded university. This is a one-year course, conducted over two semesters. The class meets twice a week, a total of four to six hours. The goal of the course is to introduce students to literature by familiarizing them with different literary genres, literary elements, and tools for analysing a literary text.

The idea of incorporating technology in the teaching/learning process was an attempt to overcome some of the problems, which most Departments of English suffer from while drawing upon students' enthusiasm for technology and making use of some of the Internet features which attract them most. These features are mainly e-mail, chatting, and web browsing. These in turn can be interpreted as an interest in informal writing which would be equivalent to e-mail (since it is unlikely that students would engage in formal e-mail communication), communicational interaction through chatting, and, finally, searching for information as well as sharing it (funny articles and forwarded jokes).

I. Internet presentations

As research has pointed out, one of the advantages of the Internet is that it has made possible the combination of different types of learning that were conducted separately before the widespread use of the Internet (Meskill, 2002). So that searching for information on the net, for example, need not depend solely on search engines nor does it need to be an individual activity that involves only a student and a machine. Interaction and sharing information with others has become a significant attribute of technology especially in certain countries where accessing information, let alone sharing it, is not easy. Certainly in Egypt, due to scarcity of resources, locating and retrieving information is a very hard task and that is what makes *information* in the end more precious than is usually the case and not willingly shared with others.

One of the objectives of the literature course as mentioned above is for students to develop a literary sense, to be able to analyse a text and express a critical opinion. To do that, they need to be exposed to a lot of information that includes background material on different authors and literary eras, to look up references and read critical analysis of literary texts, etc. that would enable them to formulate a point of view that would not necessarily reflect the teacher's. However, in the absence of proper research facilities in the Department (including the absence of computer labs), Internet presentations become one of the better means to introduce information in the class in a way that would not be teacher-centred. For that to happen, however, students needed to become computer literate which was a very hard task to accomplish especially when most of them have never sat in front of a computer before let alone used the Internet. So instead of conducting a

training course for the whole class, only a few students were chosen to form a nucleus group that would act as technology mediators. They were given basic training in e-mail communication, Internet browsing, and net-surfing techniques at a public access computer lab in a public library. Their job was then to search for information online, assimilate and present it to their colleagues in class. Presentations were to be delivered using different forms of visual aids like wall charts, overhead projector, or handouts. Examples of presentations included biographies of literary figures, information on literary movements as well as presentations on topics as varied as war poetry and film adaptations of literary texts.

Different methods like search engines, treasure hunts, guest books of web sites and discussion forums were all used for locating and retrieving information from the Internet; and presentations usually started off with an explanation of the method used to locate and retrieve information online so that students could benefit not only from the literary content but become technology oriented as well.

It was clear that students real benefit from this experience was not only the vast amount of information to which they were exposed and which was not previously available to them, nor the chance to develop new skills that would create for them new learning opportunities but, more importantly, the social dimension fostered through technology, i.e. developing an understanding of how valuable it is to communicate, exchange and share information and ultimately the pleasure one gets from working with and for others. As one student put it, “the presentations helped me work for a need of helping people and the importance of coordination to do something” (Noha, 2001). This is perhaps the real potential of using technology.

II. Online Collaborative Projects

A lot of research has been conducted on the nature of electronic communication and the emergence of a new category of language that falls in between written and oral communication. This electronic language borrows some of the characteristics of both genres so that it becomes a combination of the logical and systematic processing of ideas that is central to writing and the interactivity of spoken language. This is particularly clear in asynchronous forms of communication like e-mail and conferencing. Conferencing, for example, gives people the space to think and write at their own pace and then share their thoughts with others when they are ready to do so. The ongoing feedback gives discussants a chance to evolve their ideas (Meskill, 2002).

One of the reasons why many students shy away from engaging in class discussions is their fear of speaking up in front of a whole class and being told by the instructor that their point of view is wrong. And because there is a clear dichotomy in students' minds between right and wrong, it is hard for them to grasp the fact that there could be a diversity of opinions, all of them valid. This becomes a problem in the literature class since instruction depends more on discussion of different points of view rather than on lecturing. Outside the classroom, however, amongst their peers, students do not have a problem in expressing their thoughts on different topics. It is mainly the inhibiting atmosphere of the classroom with the teacher as the authority figure that prevents students from becoming more interactive. Online collaborative projects usually help in overcoming this problem by creating an interactive space where peer students can freely express their opinions away from the paradigm of right and wrong.

An online project was, therefore, introduced between a group of students who represent a traditional literature class at the Department of English at Cairo University and another group of literature majors from a private Egyptian university. The goal was to create an atmosphere where students could engage in web-based communication and freely share input and ideas with their peers. Both classes were studying Shakespeare and the project, which was conducted via the conferencing software Nicenet (The Internet Classroom Assistant), depended on representative groups of students who were of the same level of language proficiency as well as computer and Internet skill. Of course, access to Internet facilities was problematic since students of the private university could work at an open access university lab while students of the state-funded university could only work either at a cyber café or a public library but this did not hinder the latter group from participating perhaps as much as their peers from the private university.

Research has shown that being visible online creates a sense of personal accountability (Sengupta, 2001) that is not really noticeable in face-to-face interaction. This is probably due to the nature of online communication being, as mentioned before, a combination of written and spoken interaction. The feeling that students' thoughts remain online, visible for whoever wants to comment on them, motivates students to try and produce a better quality of work. This became clear from the analysis of the web-based conferencing data which showed a more sophisticated and creative input on the part of students engaging in online discussion which was probably due to their exposure to different ideas

as well as the ability to access and exchange information online. Also a much higher level of interaction than is usually observed in traditional classroom discussions was noticeable despite the fact that students did not know each other prior to the activity. Finally, there was also a clear development in the manner of exchanging opinions from a high level of hostility with each group wanting to prove itself right to a gradual understanding and acceptance of other points of view.

III. Online Courses

When determining whether a course is both benefiting and enjoyable to them, students tend to look for key elements like the knowledge and performance of the instructor, interaction between students and professors, and the community atmosphere in the class. Incidentally, these are the same features, which students engaging in online learning consider, and the reason why many of them show more enthusiasm for traditional learning and less satisfaction with distance learning (Carnevale, D. in Rivera et al, 2002).

Current debate on the effectiveness of distance education falls into three main categories: student outcomes, attitudes concerning the learning process and satisfaction with the medium of distance learning (Phipps & Merisotis, 1999; Rivera et al, 2002). Most studies, however, focus on either comparing or contrasting the virtual and the face-to-face class, with results varying in favor of one medium or the other. Few studies tend to highlight the benefit of combining the two modes of instruction as a way of overcoming the shortcomings of each medium and enhancing the learning process.

In a traditional literature classroom at an Egyptian state-funded university, the shortcomings explained earlier in the paper affect the elements that make a literature course both a benefiting and enjoyable experience for students. Therefore, attempts to supplement and enhance traditional on-campus classes with online courses are very encouraging because the problems usually encountered in distance learning could be overcome when students and instructors met face-to-face on campus.

Online learners are usually known to be more motivated than traditional students, have higher expectations, and are more responsible toward their learning (Palooff & Pratt, 2001). This was very clear in the case of students who volunteered to participate in both the traditional on-campus class and the supplementary online course that was offered. But there were also other factors that were taken into consideration like students' computer skills, extent of familiarity with various Internet applications, e-mail and web access as well as students' desire to incorporate technology in their learning. This point in particular was very important because the integration off- and online course did not only mean making use of technology as a medium to enhance the teaching of literature but it also meant that whenever possible, technology itself was treated as a content area and activities were designed to develop students' literary sense as well as Internet skill in net surfing, accessing and retrieving of information, web evaluation, etc.

The course authoring software used was the Internet Classroom Assistant and the course depended on integrating the features of that software like document postings, conferencing topics, link sharing, and assignments. In other words, to be able to work on the assignment students had to go through the whole process, starting off with accessing information and reading documents, participating in the conferencing discussion, and finally submitting the assignment. This interrelated process depended to a great extent on what transpired in the traditional classroom, meaning that both classes (on-campus and online) were indeed interrelated through these features. The conferencing topics, for example, were mostly extensions of discussions on concepts and ideas that were introduced in the traditional classroom but were not given their due because of the shortage of time. The documents and the link-sharing were used to create a virtual library where students could access information and look up references while the online assignments were designed to supplement the formal writing assignments administered in the on-campus class.

It was clear from this supplementary experience of online and on-campus courses that the pivotal feature, which helped make it successful was the discussion forum. For even though online communication is not as rapid nor as spontaneous as face-to-face interaction, it nevertheless provides an opportunity especially for shy and inhibited students to voice their opinions and reflect on other points of view (Feenberg & Xin, 2000; Warschauer, Shetzer, & Meloni, 2000). This was particularly clear in discussions that slightly departed from the assigned syllabus. Students found the virtual classroom and the conferencing feature, in particular, a space where they could express their opinions freely without the restrictions of the traditional classroom that still considers certain topics like politics, for example, as taboo areas.

In general, the conferencing experience was an example of how the two mediums of instruction worked toward enhancing each other. On one level, the interactive and lively online discussion returned to the on campus, traditional classroom once

more to enrich further discussion and vice versa. On another level, some of the problems that occur with online communication like the absence of paralinguistic features and tacit cues (see discussion in Feenberg & Xin, 2000) were easily overcome when students met face-to-face in class. They could then clarify misunderstandings and explain meanings.

Findings

The following findings are a result of taking part in, monitoring and observing the three mentioned examples of technology integration in an introductory literature course to EFL students at a state-funded university over a period of three years. Students' presentations, online postings and e-mail communications were saved and examined closely. Also interviews and student evaluations were conducted and analysed carefully. The analysis of the data showed a significant change of attitude toward the learning process. When students started developing new learning skills, their perception of their role as passive learners also changed. As one student put it, "we were supposed to think not to memorize and to search which I liked much" (Yasmin, 2001). The difference in attitude was quite evident when it came to comparing the students who had participated in the three experiences with their colleagues who did not. Not only were they more motivated and more exposed to a wider variety of teaching and learning techniques, but there was also a growing sense of responsibility and personal accountability as students developed and became more independent. This was also reflected on the instructor whose role evolved more in the direction of facilitation of learning.

A great enthusiasm for the incorporation of technology in students' learning contexts was also clear. Despite the absence of computer labs and Internet access on campus as well as students' average computer skills and sometimes costly and poor Internet connections, yet students were eager to integrate technology in their learning. This was also accompanied by a change of perception especially where the Internet was concerned. When it came to learning, students had for so long regarded the net only as an archive of documents. Other more interactive features like chatting, for example, were considered a pastime, in other words not credible enough as a means of learning. The ability to experience both functions of the Internet – the communicational medium and the electronic archive of information – in the same context created new learning opportunities.

It was evident also that a great collaborative atmosphere amongst students was in fact a key element in the success of these experiences. Because students' Internet skills were not very advanced and they were not really offered any formal training, they depended heavily on each other for help on how to navigate their way around the net, how to access web sites, download information, post and submit assignments online, etc. The collaborative attitude was also clear in the way students readily shared information and material with colleagues who did not have access to technology.

The integration of technology and literature also gave students an opportunity to experiment with different learning styles. The incorporation of technology in the teaching and learning process allowed students to experiment with and choose the most appropriate way of learning. Whereas some students took to more interactive features like online conferencing, others looked for more traditional forms of learning and showed more enthusiasm for using links to look up references and read documents relevant to their study. This in its turn helped in creating a free learning environment where face-to-face and virtual forms of interaction were interdependent and gave way to each other. Indeed, there was always a sense of discussion continuation, especially when the conferencing software was used. In many cases it did not matter whether the discussion was being conducted on or off-line because students were always picking up where they had left off. More noticeable was the fact that learning was not limited to formal learning contexts whether on or off-line but was extended beyond that. Two students, for example, explained how after reading an article by Paulo Coelho which was part of the reading list of the online course, they discussed the author and exchanged his books, "Well, I've heard about the author before but I've never read any of his work so I asked Mai (a colleague) for that novel she had, *Veronika Decides to Die*, but I ended up not reading it because my sister took it from me but I read *The Alchemist* and I started reading *The Valkyries*. I just like the way the author wrote that article so I thought maybe through reading some of his stuff I can get more to the character of the author" (personal interview with two freshman students at the English Department, Cairo University).

Discussion

As far as enhancing the educational process, the integration of technology in the curriculum managed to improve the existing situation mainly by developing certain skills, creating a space for more self-expression, and fostering an interest

in learning but the overall learning outcomes did not undergo a dramatic change. The introduction of technology in the teaching and learning process, although motivating to both students and teachers, is not a miracle performer because it overcomes certain problems but creates other shortcomings. There are three main factors that cause many of these shortcomings: shortage of research on the integration of literature and technology which means lack of methodology, uneven access to technology which turns any attempt to introduce in technology in the curriculum into an exclusive experience for some students and others not, and, finally, lack of support from the administration which means extra burden for both teachers and students.

Lack of methodology

As Porter (1999) explains, there is a lot of research work done on foreign language teaching and second language acquisition in relation to information and communication technology (ICT). Research, however, on technology and literature, as a discipline not as content suitable for the teaching of EFL, is overlooked. This makes the job of the literature teacher quite difficult and made more so by the specific fields which the teaching and research staff are specialized in like linguistics, second language acquisition, literature and the minimal exchange of ideas that takes place between these fields. Therefore, attempts to enrich the teaching of literature through technology integration are mostly borrowed or adapted from research on and methodology of language learning and technology. That is the reason why individual efforts to introduce technology in teaching are looked upon doubtfully. Even if successful, these efforts are still carried out by teachers who have received teacher training in methodology and language teaching and not in literature and this makes their work less credible.

On the other hand, teachers who have not received any teacher training and attempt to incorporate technology in their teaching are at a loss as to the most effective way to do so. They end up recreating their traditional classes and using technology merely as a machine, disregarding its potential. This in turn has a negative effect upon students who do not feel that technology is helping them in any special way and eventually they are discouraged from using it. It became clear, for example, in the online course that students mostly responded to assignments that stressed the importance of electronic literacy and not merely literary content.

Uneven access to technology

Another major concern in integrating technology and literature is students' uneven access to technology, which makes the experience of those with access quite exclusive in comparison to other students. No matter how much collaboration and sharing of information goes on between the two groups (the have and the have not), still, one group is more fortunate than the other. It has access to more information and develops different learning skills. On the other hand, the teacher who must cater to the needs of all students is literally caught in the middle, trying to maintain the balance between the two groups because in the end both of them have to undergo the same standardized exam that is not designed to test the new skills acquired through the integration of literature and technology. In that case, it becomes unfair to promote the learning of one group of students who have access to technology over another group that does not have the same opportunity as well as expect students to spend effort and time on new forms of learning and then neglect to evaluate their performance in these new skills.

In the three examples discussed in this paper, the literature class was always divided into two uneven groups: one with the desire to incorporate technology in their learning and the means as well as the skill to do so, and another group that either lacked the desire, the means, the skill, or all of them. Therefore, there was always a conflict on the part of the teacher between wanting to make technology part of the educational process but at the same time making sure that it was supplementary and not integral so that it would not limit the learning outcome of those students who were not involved in these experiences that made use of technology. In other words, as mentioned before, the attempts to include technology in the teaching of literature were designed to enhance the teaching and learning situation but if they were not successfully implemented, the learning outcomes would not suffer much. This of course meant limiting the potential of virtual learning and of students who were eager to engage in more activities that combined literature and technology. In many cases students' enthusiasm for the Internet was not overly encouraged for fear of widening the learning gap between the two groups by giving an extra voice to those who were already independent learners and inhibiting those who were not.

Lack of administration support

Attempts to include technology in the teaching of literature are mostly regarded by the administration and faculty as efforts to motivate students. As such, they are not discouraged but at the same time are not fully endorsed. This is due to two factors: the shortage of facilities and the lack of information on the real potential of technology and means of integrating it in the teaching process. This lack of support by the administration burdens teachers and students who attempt to combine literature and technology in their teaching and learning contexts because it lays more responsibilities on their shoulders.

Instead of having technology available on campus through open access computer labs, both teachers and students have to resort to alternative options like cyber cafés, public libraries or home access. These options are not always the best choice. Not only because sometimes they can be costly but also because they impose certain limitations on teachers when designing activities and students who do not always find it easy to work at public access computers. In the case of public libraries, for example, students' access to the Internet is limited to an hour at a time due to crowdedness of the place. Some libraries also prohibit the use of diskettes to download and save information for fear of viruses. Many students, especially girls, complain of having to stay out late to work on their assignments at a cyber café after class hours and how this causes them some problems.

Another important issue is the lack of formal training and guidance. Despite the fact that teachers try as much as possible to be there for their students, offering help and monitoring activities, this is not always possible. Sometimes students become very frustrated when they fail to do some activity due to technical problems that under normal circumstances would be taken care of by the assistant in the computer lab. Instead they have to wait until they can communicate the problem to their teacher before they can try again and this slows down their performance and de-motivates them. Also lack of guidance exposes students to many of the hazards of the Internet especially when they access public computers. These problems ultimately make technology experiences hard to implement and not always possible.

Also the fact that these attempts are extracurricular means that both teacher and students have to make extra time and effort to administer them. Again this is problematic especially to students because the schedule is extremely tight and does not allow for extracurricular work and the department is not really willing to create that space since it does not really see its importance and is also hampered by its own administrative problems.

Conclusion: what next?

Despite these shortcomings yet recent developments at several state-funded universities offer some hope. In accordance with the IT initiatives in tertiary education, the faculty of Arts at Cairo University, for example, has established two new computer labs with Internet access. The administration is currently calling upon departments to make use of these labs. Even though ICT integration in the curriculum is not spelt out, it is supposedly the message. This of course is not going to be easy for two reasons: first, students and teachers have to pay to use the Internet and, second, the lack of proper teacher training courses on how to integrate technology in the educational process. Still, this is an indication of the efforts of the university to upgrade its performance and the quality of education it offers to its students. However, as individual attempts have shown, effective use of technology must be accompanied by other factors that support and make legitimate the integration of technology in education. These have to do with changing attitudes, training teachers, and developing curriculum more than simply making facilities available (see discussion in Warschauer, 2003 & in press). In other words, investments in hardware and software will not produce the desired results unless there is also an investment in the human ware. Only then can we fully claim successful attempts to integrate technology in the educational system.

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INFORMATIZING FOREIGN LANGUAGE TEACHING IN CHINA

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Abstract

Informatization in foreign language teaching is of strategic significance to the overall informatization process in China. This article presents an analytical overview of the present practice of integrating information technologies in foreign language teaching (FLT) in this country. The article first explains the status quo of FLT and the situation of technology diffusion in Chinese education. It then illustrates the types of pilot programs integrating technology in FLT and discusses the significance and pilot programs of language teacher education with technology. The analyses suggest that the informatization process of FLT in China is of tremendous complexity, and more well defined pilot programs can help accumulate lessons and experience. Among the contributing factors to success are development of the national economy, social milieu and development of the individual.

For developing countries, such as China, information and communication technology (ICT) has been made a strategic priority as it is considered a critical catalyst for the country to “leapfrog” (Singh, 1999) ahead in technology application, by way of skipping over some stages of development, and becoming a member of the postindustrial society more quickly than would otherwise be the case. So in China, the process of leapfrogging or at least catching up with the West by making investments in information technology is referred to as “informatization” (*xin xi hua*), a term widely cited and used in academia, politics, and business (Foster and Goodman, 2000). To informatize foreign language teaching (FLT) in China is of strategic significance to reaching this national goal. A nationwide language education reform with technology aims to upgrade the national qualities via broad diffusion and learning of both English language and information technology, the two basic tools, which Chinese citizens will be employing to join the global community and make their voices heard (Warschauer, 2000).

This paper attempts to present an analytical overview of the informatization process of FLT in China. The paper first describes the status quo and problems in FLT, and the possibility of technology diffusion in education. Then the paper illustrates pilot programs of various types in the technology-enhanced FLT and language teacher education. Based on the overview and further analysis, the paper suggests that the informatization process of FLT in China is of tremendous complexity, and that success relies largely on development of the national economy, social milieu and development of the individual.

FLT in China: The Status Quo and Problems

Language and literacy development is the core subject matter of FLT. Traditional literacy involves a set of decontextualized skills of coding and decoding texts and is mainly about the specific information obtained through engaging in the activities of reading and writing. FLT in China generally falls into this category of literacy development. A typical English major enters the university with about six years experience of studying English in the secondary school. The student will then follow a four-year course of study that provides foundational training in reading, listening, speaking, and writing. A series of language courses are arranged in line with these skills in separate subjects (e.g. Intensive Reading, Extensive Reading, English Grammar, Oral English, English Composition, with Intensive Reading being largely regarded as the core course). As Dzau (1990) noted earlier, universities in the 1980s used translation methods based on careful explanation of word meaning and usage, and follow-up drills and exercises. This approach was widespread in English language teaching at the secondary school as well. English teaching and learning still focuses on decontextualized language and lacks a real audience or purpose for communication.

In addition, classroom pedagogy has the teacher’s role maintained as the centre of the learning process. This may be accounted for by Chinese cultural orientation that emphasizes hierarchical power and absolute respect to the teacher. Such pedagogical practice is actually not unique to China. Coleman (1987) has distinguished two sets of totally different teaching methodology between “teaching spectacles” and “learning festivals” practiced by educators worldwide. Teaching-spectacle methodology is one in which students are largely passive and behave like an audience watching the spectacle of the teacher-centered performance. Thus lecturing is the dominant form of teaching.

Learning-festival methodology is one where students participate in the activity of learning as they would participate in a festival (p. 97–98). Collaboration, group work and projects become students' frequent learning activities. Teaching spectacles have been widely accepted and largely welcomed in the language classroom in China.

With the advent of computers and other information technology and the continual introduction and deployment of technology in education, the notion of literacy has been expanded and amplified into computer- and Internet-based literacy, which includes computer literacy, information literacy, and electronic literacy (Shetzer and Warschauer, 2000). Electronic literacy is a broader umbrella term that places more emphasis upon seeking, selecting, and evaluating information with a development of higher-order thinking skills and critical thinking abilities, which hardly can be acquired in a traditional classroom without the support of technology and an appropriate pedagogy to exert the best potential of that technology. The expanded notion of literacy helps to redefine and reshape FLT in China. It suggests the need for radical reform in the language education curricula to incorporate technology as an integral part of language classes.

Some Chinese educators of FLT have become aware that today's university graduates need to be able to use the target language actively for sophisticated international communication, collaboration, and research in a variety of academic and professional settings. These educators become a small highly-motivated group who desire to bring changes into the Chinese language education system and expect technology to be a medium of communication, research and knowledge production.

Technology Diffusion in Education

To diffuse technology into education seems a must to any country in keeping up with the needs of the new world economy which, according to Castells (1996/2000), is becoming informational, global, and networked. Research in global economy (e.g. Howkins and Valantin, 1997) indicates that many countries want to create and develop an information society and an information economy that reflects its culture and needs, while being able to choose its optimal role in the global community. Technology diffusion and education reform become an indispensable part of this creation and development process, particularly for a developing country, such as China.

Regarding the overall issue of technology diffusion in this country, the past decade has witnessed not only an unprecedented rate of economic growth but also the appearance of a computer and Internet user community, particularly in the east coastal areas (e.g. Guangzhou, Shanghai), which have become integrated into the global economy (Foster and Goodman, 2000). The semi-annual survey report of China Internet users announced in January 2003 indicated that Internet Users in China (Chinese citizens who use the Internet at least one hour per week) by December 31, 2002 reached 59.1 million (CNNIC, 2003). Though only 4.5% of the overall population, it was a sharp increase of 57.02% over the previous year.

When more and more people are getting their home PC connected to the Internet and thus joining the ever-expanding network society, social pressures are leading to technology diffusion into education. Many parents choose for their children schools providing some ICT education; and many places of work are expecting their new employees to have been equipped with computer literacy skills – the more advanced the better.

The ambitious government policies help to foster the construction of ICT infrastructure in various dimensions of education sectors. Educational statistical data indicate a rapid growth of computers and networks in Chinese higher educational institutions and secondary schools. In 2001, for example, China had nearly 100,000 secondary and elementary schools which had reportedly attempted the use of ICT in education, involving 50 million students, 3 million computers, and 150,000 computerized classrooms (Huang, 2001). On another level, education and research networks have started to flourish since the 1990s. The China Education and Research Network (CERNET) project, for instance, directly managed by Ministry of Education (MOE), aimed at institutes and schools in China using the up-to-date networking technology and at every university being connected by the year 2000. Apart from national networks, provincial and institutional networks (e.g. Jiangsu English Language Teaching and Research Network: JSELTRNET) have also been set up rapidly.

In the language classroom, the diffusion and penetration rate of computer use has been increasing over the years. Take the School of Foreign Languages (SFL) of Suzhou University (located in the east coastal area of China, one hour ride from Shanghai) as an example. The research statistic (Xu, 2002) revealed an increase of 164 computers over the 7 years from 1996 to 2003; the student to computer ratio dropped from 52:1 to 6:1 (see the Table 1 for more details).

Table 1. Progress of technology diffusion in FLT in School of Foreign Languages of Suzhou University in China from 1996 to 2003

| Developmental stages | 1996–1999 | 1999–2002 | 2002–2003 |
|-----------------------------|-----------|-----------|-----------|
| Computers | 24 | 36 | 188 |
| Computer labs | 1 | 1 | 4 |
| Multi-functional classrooms | 0 | 0 | 2 |
| Student enrollment | 1,250 | 1,100 | 1,150 |
| Student to computer ratio | 52:1 | 30:1 | 6:1 |

What is also worth noticing in the table is the year 2002, when a substantial improvement was made on the basis of the previous six years' pilot use of technology in FLT at the school. In fact, these six years also paralleled a gradual increase of university faculties' home access to computers at SFL. The expansion of technology investment at the SFL has thus made it possible for more faculty members to employ technology in classroom language teaching.

Admittedly, physical access to the computer and the Internet in developing countries is much less than in developed countries, and Internet access only reaches a tiny percent of the population (Foster and Goodman, 2000). Due to the problem of regional disparity between the wealthier east and the more impoverished west in China, the inequality of access to computers and other information technology may well continue for a long time. However, the technology diffusion process in both FLT and the overall education system has been continuous because of the stable and rapid development of the national economy. The infrastructure construction and diffusion of educational technology have thus been preparing a positive environment for language education reform to happen, which naturally first takes place in areas with more developed regional economies.

Pilot Programs: Technology-Enhanced FLT

Some developing countries have had success in launching and sustaining effective educational technology programs in public schools. A key to success appears to be well-designed pilot programs with a strong emphasis on curriculum development, teacher training, and pedagogical support (see discussion in Osin, 1998). The government policies and booming ICT infrastructure in Chinese education have led to a group of teachers experimenting in FLT with the help of technology. A great number of pilot projects have been carried out with a combined use of technology; and studies show these pioneering efforts are of considerable significance to the reform and development of Chinese foreign language education.

One type of pilot program primarily promotes the application of network technology to FLT. The School of Foreign Languages of Nanjing University (<http://www.nju.edu.cn>) has developed web-based English reading courseware which provides abundant authentic reading materials, timed reading tasks, a highly interactive discussion forum, and a networked management system for teaching and testing. After being put into use in 2000, about 2,000 students (including both English majors and non-English majors) from four universities and colleges in Jiangsu province took part in this web-based instruction and obtained credits (Wang, 2002). In addition, an English Teaching Materials Bank and Language Self-Learning Center (i.e. "Video on Demand") have also been set up and serve a vast number of students and teachers by means of network technology.

Another type of pilot program is seeking to develop a technology-enhanced project-based language learning curriculum, in which students would make use of ICT to carry out research projects, communicate with other students and scholars around the world, and develop and publish new knowledge – thus simultaneously enhancing their language, communication, research, and technology skills. The School of Foreign Languages of Suzhou University (<http://www.suda.edu.cn>), for instance, has adopted task- and project-based learning in some new and revised courses and carried out over 60 computer-assisted language learning (CALL) projects (<http://call.suda.edu.cn>) since 1996. Among them are student research projects associated with their professional orientations; and cross-cultural e-mail exchange projects with other ESL students across the world (see more details of the completed student CALL projects in Appendix).

Yet another type of pilot program is attempting to create an optimal language learning environment for EFL learners who lack a native language context. Shanghai International Studies University (<http://www.shisu.edu.cn>) is making use of online broadcasting materials from the BBC and VOA and applying them to the teaching of listening comprehension (Dun, 2002); Guangxi Teacher's College (<http://www.gxtc.edu.cn>) is trying to help teachers make use of chat rooms on the Internet to improve professional foreign language teaching (Wang and Luo, 2002); the Foreign Language College of the University of Shanghai for Science & Technology has set up a foreign language instruction web site (<http://www.lwoods.net>); and Guangdong University of Foreign Studies (<http://www.gdufs.edu.cn>) has been constructing a large EFL learner corpus to foster FLT and research.

With respect to the goal of using information technologies in the classroom, Cuban (2001) categorized many reasons why students and teachers should use the computer in the classroom, and they are grouped into the three most common ones. The first is that computer literacy prepares students for intense competition in the information age. The second reason is that students must master basic skills, including reasoning and problem solving, and acquire knowledge faster and better than before. The third is to change how teachers teach to become more constructivist and student-centered. He pointed out that the last one is about changing the school toward a different kind of teaching and a different kind of organization. It conflicts with the second one because most schools measure academic performance with standardized test scores.

These pilot programs of informatizing FLT in China overlap to a great extent in practice in many universities and colleges and they have demonstrated impressive gains in the student learning process as well as outcomes. Students engaged in learning that was more interactive and more closely aligned with real-world challenges and social needs. The new curriculum structure, instead of using the standard test for assessment criteria, emphasizes both the process (e.g. communications, student research, teamwork) and product (e.g. research report, PowerPoint presentation, web page) in the overall assessment. This provides enhanced opportunity for students to develop broad language skills, and to apply these skills using new technologies in communication, research, analysis, and production of new knowledge.

However, some well-informed studies (e.g. Zhong and Shen, 2000) provide a counter-balanced view by revealing that the impact of ICT and networking on some pilot language learning programs in China still seems minimal; and that the computers are commonly used to do no more than transmit information, demonstrate language skills, and facilitate explanations of language points in the textbook. This might fall into the category of "new wine in old bottles" in the sense that the teaching-spectacle methodology is maintained in the new settings of ICT in language education. In addition, some case studies (e.g. Xu, 2002) also pointed out the difficulty of broadening technology-enhanced language educational reform. Such difficulty occurs when the gains in student achievement required a substantial personal commitment of instructors in ways that run counter to economic, professional, cultural, and institutional values and reward systems in the university. As a consequence of these factors and probably many others, pilot efforts have been restricted to a small cadre of highly-motivated faculty members in some universities, and made few gains in broader diffusion of the technology-enhanced reform in FLT.

Pilot Programs: Technology-Enhanced Language Teacher Education

Integrating technology with language teacher education is the cornerstone of the overall informatization process of FLT in China.

First of all, there are about 100 million secondary school children learning English. MOE has established a nine-level curriculum standard and its ten-year plan (by 2010) which extends formal English teaching to the primary level from Grade 3 will triple the number of learners. English teacher resources are barely adequate to support the current 100 million at the secondary school level. One answer to this problem lies in the appropriate use of technology. Government support evidenced by the ever-spreading national networks might make it a possibility. Secondly, an increasing number of secondary schoolteachers of English are and will be graduates among English majors from the normal university and teacher's college, the two basic institutions that provide higher education to prepare future teachers. Whether and how pre-service teachers receive technology-enhanced language education at the tertiary level may potentially affect their future language teaching concepts and methodology in the secondary school classroom. Therefore, informatization in language teacher education plays an essential role in preparing more qualified teacher resources for FLT with technology, and so making informatization a reality nationwide.

The social needs and government ambitions to informatize teacher education have encouraged a small group of teachers in some normal universities and teacher's colleges to pursue an educational goal beyond that of making

students accumulate language information in linguistics and literature. Rather, technology is integrated into some teacher education courses so as to empower both pre-service and in-service teachers with e-literacy skills, such as online reading, research and communication, multimedia authoring and electronic publishing (Warschauer, 1999).

The English Department of Capital Normal University (CNU) in Beijing is a pronounced example of making continuous pilot efforts of carrying out technology-enhanced language teacher preparation and training nationwide. CNU started a curriculum reform in 1996. Three new technology-related courses were designed for pre-service and in-service language teachers.

Table 2. Three new technology-enhanced FLT courses in language teacher education at Beijing Capital Normal University in Beijing, China

| New Courses | Pre-service teacher preparation | In-service teacher training |
|--|---------------------------------|-----------------------------------|
| Introductory Computer Applications | First-year English majors | |
| Computer Applications in English Education | English education students | Secondary school English teachers |
| CALL: Theories and Practice | Graduate students | |

Of the three, “Computer Applications in English Education” has involved the largest number of pre-service and in-service teachers and thus had the greatest impact on English teacher training. Since spring 2000, the course has been given an even larger scope as it joined Gardener Project, a national teacher training program sponsored by MOE, the trainees being selected English teachers from secondary and elementary school teachers nationwide.

These pilot programs in language teacher education, such as CNU programs and many other pilot projects in teacher-training institutions in China, have adopted a combination of various approaches to language teaching and learning, particularly with the dual aim of promoting both language skills and technological skills (see more discussions in Chen, 2001). The focus of this task is to prepare teachers with the ability to keep negotiating, reflecting, and processing classroom changes taking place every day in the communication process between the teacher and the student via the two tools – English language and information technology. In this way, teachers become more flexible and capable of handling complicated situations in the FLT process.

One drawback in teachers’ technological training, as pointed out in Chen’s (2001) study, is a slavish focus on developing courseware (e.g. by using Authorware or PowerPoint), regarding the computer as a machine merely used to deliver course-material. Some other studies (e.g. Xu’s class observation notes, 2002) discovered that, even when teachers do believe that technology has its empowering potential, they do not always know how to make this happen in the classroom. Besides, even when the network access is well provided, some language instructors still dominate the classroom teaching and hardly transform their conventional teaching practice through the use of technology. Indeed, for many educators, though highly motivated to institute CALL in China, technological training in the hardware and software application is far from being enough to meet the goal set by the government to integrating technology seamlessly into classroom teaching.

Informatizing FLT: What are some variables for success?

The question is an open-ended one. Cuban (2001) sketched out briefly the different ways that information technologies are presently being used in the classrooms of the United States. The first generation of computer software, beginning in the late 1960s and extending through the mid-1980s with continuing use today, is called “computer-assisted instruction”, CAI. This use is often called “tutorials” or “drill and kill”. A second strategy for the use of information technology that arose mostly in the 1970s is called “computer-managed instruction”, CMI, in which the software program literally diagnoses what each student knows and can do, guides the student through the next best steps for them in learning, and then records their progress for teachers and parents. Both CAI and CMI de-emphasize the role of the teacher, particularly in interacting with students. The teacher becomes more of a man-

ager, leaving instruction in basic skills to the software. The third use began in the mid-1980s and has surged throughout the 1990s – “computer-enhanced instruction”, CEI. The programs differ from the other two forms in that they provide less structure and more open-ended opportunities that support a particular lesson or unit. Teachers in this use of computers in the classroom and other information technologies are viewed as essential in structuring the experience in interacting with students constantly, since simply sitting students in front of the computer to browse the Internet will not result in the same learning curve as when students are assigned well-designed projects for using the net as a method of information gathering.

When taking a longitudinal view about the evolutionary path of the informatization process in Chinese education, researchers (e.g. Huang, 2001) also marked three “waves” representing the government schemes of using technology to modernize Chinese education. The first, computer education (late 70s to early 80s) emphasized students’ basic knowledge and skills in operating a computer. The second (late 80s to early 90s), computer-based instruction and management, advocated the design and deployment of educational software and courseware. The third one (the 90s till now) is characterized by networked education. It called for every school to get wired by setting up a digital campus – having all the higher educational institutions and key vocational schools establish an education and research network, and having secondary and elementary schools follow up step by step.

A comparison of these three generations of the use of information technology in Chinese education with that in the West demonstrates that Chinese education takes actions a decade later than the West in the educational development of technology. Besides a ten-year lag, the above overview of the pilot programs also indicates that the nationwide language education reform is at its initial stage, not yet being able to catch up with the West through a nationwide whole-scale educational reform with technology. For one thing, the Chinese educational landscape is most complicated due to economic, social, and educational discrepancies between the developed eastern areas and the developing western areas of the country. Some elite universities and colleges are making pioneering efforts that keep up with the latest research development in the field of technology-enhanced language teaching, while many other institutions and schools have not moved beyond the status quo in FLT. For another, the dominant teaching-spectacle methodology, though being challenged by the reforming practice, has for centuries been nourished and bolstered by social conventions, cultural beliefs, and teachers’ professional experience (Cuban, 1993). Such complexity in educational structures gives rise to internal conflicts and contradictions, which complicate the issue and prolong the process of catching up.

Moreover, it depends greatly on the social environment and pressures whether in-service teachers would like to use technology to enhance their language teaching, and whether technology-enhanced FLT in pre-service teacher preparation can lead to a direct methodology transfer into future classroom teaching. Many social factors interact to help teachers decide whether or not to join the reform. Teachers’ professional experience, personal knowledge framework, classroom culture (i.e. students, textbooks, syllabus, the prevailing teaching method, etc.), the institutional culture (i.e. colleagues, leaders, teaching assessment, etc.) and many others, as Roberts’ social constructivist view explains, may play a part in affecting a language teacher’s choice and decision (1998, cited from Jiang, 2003), as well as the overall development process of language education reform.

International studies on language educational reforms with technology in developing countries (e.g. a U.S.-funded language aid program in Egypt including a teacher education program on computers in FLT, 1998–2001, Warschauer, 2002) emphasized the role of human capacity, agency and development in generating innovation in social units, and indicated that development of the individual is of crucial importance to shorten the gap between ambitious government discourse and local educational practice in developing countries. This point sheds some light on the pilot programs in China in the sense that successful education reform in this country demands a long-term development of the individual (i.e. policymakers, educational administrators, teachers, parents, etc.); and that the process of technology diffusion and language education reform is destined to be a lengthy and painstaking one.

“No storms, no rainbows”, as the Chinese saying goes. To conclude, the process of most, if not all, reforms in Chinese history with an ambition to alter the fundamental relations of an old system with a justified cause have been painstaking, yet worthwhile and rewarding. The diffusion of technology in foreign language education is creating a positive environment as a result of the government’s ambitious policies to encourage nationwide educational reform with technology. The pilot efforts of informatizing foreign language education presently undertaken in China have met with resistance and challenges, though they have started to explore some new and positive solutions to the old problems in the language curriculum structure, classroom pedagogy, and educational philosophy.

The enormous complexity of the educational reform of FLT suggests a need to carry out more pilot programs and accumulate more experience and lessons, which should provide critical guidance in the future transition to a whole-scale nationwide education reform. In this transitional period, more higher education institutions engaged in FLT and language teacher education need to work together to undertake the task of empowering Chinese citizens of the next generation to master both English language and information technology. Further, development of the national economy, social milieu, and development of the person (i.e. teachers, policymakers, educational administrators, parents, etc.) are all variables contributing to achieving the developmental goal, whether of informatizing FLT or informatizing the whole country of China.

Appendix

Completed student projects and the related courses from 1997 to 2001 at Suzhou University, China (a partial list).

| Time | Computer-Assisted Language Learning Project | Course Name | Number of Students Participating | Collaborating University |
|-------------|--|---|----------------------------------|---|
| Spring 1997 | Online cooperative learning | Multimedia English Teaching: Theory and Practice (Graduate) | 6 | Capital Normal University |
| | Writing for publication: "Shell's Album" | Comprehensive English (Sophomores) | 45 | |
| Spring 1998 | Cross-cultural E-mail exchange: "Cities Project" | Comprehensive English (Juniors) | 15 | Universities from 8 cities in the world |
| | Multimedia cooperative English learning | Comprehensive English (Freshmen) | 15 | |
| Fall 1998 | Internet for English Learning ABC | Internet for English Learning ABC (Juniors) | 30 | |
| Fall 1999 | Student Research | English for Tourism (Juniors) | 32 | |
| | Internet for English Learning ABC | Internet for English Learning ABC (Juniors) | 32 | |
| Spring 2000 | Online International Writing Exchange (IWE) | Comprehensive English (Teacher Education Juniors) | 15 | Helsinki University of Technology |
| | Online Collaborative International Writing | Comprehensive English (Teacher Education Juniors) | 16 | Chinese University of Hong Kong |
| Fall 2000 | Student Research | English for Tourism (Juniors) | 32 | |
| Spring 2001 | Business Management | Comprehensive English (Juniors) | 30 | |
| | Student Research | English for Tourism (Juniors) | 30 | |
| | Collaborative International Writing Project | Comprehensive English (Russian-English Juniors) | 30 | Chinese University of Hong Kong |

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