Moving to the World-Wide Web

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Abstract

The new technologies of recent decades have brought about changes in how computers are used to assist language teaching. E-mail, computer conferencing, and now the World-Wide Web (WWW), have been increasingly used to enhance language teaching and to facilitate teacher development. With three examples drawn from e-mail and computer conferencing projects in Europe, America and Asia that involve English teachers and college students, this paper attempts to explore why and how computer-enhanced ESL/EFL projects have been extended to the WWW. Moving to the WWW has expanded the scope of the potential audience and made possible the inclusion of multimedia and hyperlinked materials in these projects. It is important to control the right of access and to monitor the quality of students' work, without losing sight of the language focus or sacrificing the human touch in language classes.

文章摘要

近年來，科技日新月異，如何使用電腦輔助語言教學，也引起了廣泛的討論。在加強語言教學及促進老師培訓方面，電子郵件、電腦會議及現今流行的萬維網的應用，日益增加。本文嘗試利用三個來自歐、亞、美洲的電子郵件及電腦會議計劃的例子，探討為何及如何將電腦輔助的英語教學計劃，延伸至萬維網上。使用萬維網教學的好處是增加使用者，同時也可引用多媒體及超連結的教材，但在控制上網權及監察學生作品質素，以至語文學習重點，及師生接觸的機會等方面，都是值得注意的問題。此外，簡化電腦會議系統的操作，讓老師們更有信心地使用這工具也非常重要。
Introduction

This paper aims to review why and how computer enhanced ESL/EFL projects are being extended to the World-Wide Web (WWW), by looking at several examples drawn from e-mail and computer conferencing projects in Europe, America and Asia that involve English teachers and college students.

In the 1960s and 1970s, computer-assisted language learning (CALL) mainly referred to dedicated programs for developing grammar and basic English skills. A broad range of computer software was produced, but the programs often centred on a single activity, such as text reconstruction, gap-filling, speed-reading, simulation and vocabulary games (cf. Underwood 1984). Among them, Storyboard is representative and regarded as first generation CALL (Levy 1997). Warschauer (1996) called this phase of CALL 'Behaviouristic CALL' as it was based on behaviourist theories of learning, using the computer as a tutor for language drills and skills practice.

In the 1980s, 'Communicative CALL', to use Underwood's (1984) term, became the norm. In this phase, two models were emphasised: using the computer as a stimulus for discussion and interaction (e.g. simulations such as Where in the world is Carmen Sandiego?), and as a tool for writing and research (e.g. word processors, spelling and grammar checkers, desktop publishing programs and concordancers).

In the 1990s, the third phase, 'Integrative CALL', seeks to integrate not only various language skills, but also technology (CD-ROMs, the Internet and so on) into the language learning process (Warschauer & Healey 1998). The computer is used as 'a medium of global communication and a source of limitless authentic materials' (Warschauer 1996). E-mail is widely used in keypals, team teaching and interclass writing projects (see Corio 1997). E-mail peer groups provide students with a real audience in writing (Corio & Meloni 1997); and can increase student interaction, e.g. via electronic teacher-student dialogue journals, and enhance cross-cultural communication (Warschauer 1995a).

With the introduction of the WWW in 1994, greater emphasis was put or developing learners' language use in authentic social contexts through task-, project- and content-based approaches. In describing new ways of using computers in language teaching, Boswood (1997) devoted half of his book to lesson plans on working with the WWW, visiting and creating websites for argumentative essay writing, publishing class WWW magazines, distributing multimedia ESL materials, etc. See also Warschauer (1995b) for a collection of online projects for language learners.
Since then, a number of large-scale e-mail projects have moved to the WWW, e.g. The ATT Global Learning Network now residing in I*EARN (see Riel & Levin 1990), as have some computer conferencing projects. For example Project ICONS is introducing videoclips, whiteboarding and Oracle databases to provide new opportunities for research, simulation and debriefing (Jor 1997). In Hong Kong, some language teachers formerly using e-mail in teaching have also been experimenting with the WWW (e.g. Mak 1996; Jo: 1997; Wong 1997; Noakes 1999).

While the use of the computer for language teaching purposes has about forty years’ history, the use of computer networks in teacher education is a relatively new development (Lacy & Merseth 1993). One of the early networks for teachers was the Beginning Teacher Computer Network (Merseth 1991), which was based at Harvard University and provided support for teachers in their first year of teaching. Other similar networks include Teacher-LINK at the University of Virginia (Bull et al. 1989) and the MICH: EdCorps network at the University of Michigan (Swift & Coxford 1988). Such networks have been heralded for their potential to facilitate the professional development of teachers, but some reservations have recently been expressed about their limitations (see e.g. McMahon 1996).

In the following, we will look at three case studies in detail, to find out why these computer enhanced ESL/EFL projects have been extended to the WWW. Firstly we will look at how the English writing projects at Helsinki University of Technology (HUT) in Finland evolved from e-mail discussion lists, then newsgroup, and finally moved to the WWW. Secondly, we will compare the Cities Project in the USA in e-mail and WWW mode. This originated from the HUT project, continues to use e-mail as its major component but publishes the end-product on the WWW. In Hong Kong, we will look at the TeleNex experience in moving from a LAN (local area network) to the WWW. Finally, we will conclude with a review of the advantages of extending projects to the WWW.

**Project 1: HUT Internet Writing Project: Half a decade’s experiment**

The HUT Internet Writing Project started in the autumn of 1993, and developed into three e-mail writing courses in 1994. In the autumn of 1995, students at HUT started to program adventure games on the Internet and the HUT project co-ordinator started editing her students’ papers on the Web (Vilmi 1996a).
Initially, four classes of Finnish students were matched with students studying English as a Foreign or Second Language in the USA, Canada and Japan. 'Triads', groups of three, were formed, each discussing a certain topic for one term and producing a research paper at the end of the term. Some students had regular communication but some were disappointed by penpals who were irregular writers and failed to produce a research paper. The success of the project apparently depended very much on the students' language proficiency and motivation (Vilmi 1996b).

As many teachers were interested in involving their students in e-mail projects, the HUT project soon expanded. In the spring term of 1994, 240 students from eight universities around the world joined in the e-mail discussion. To avoid potential problems caused by undedicated e-mail partners, twenty discussion lists were created at HUT—one list for each topic, and a separate list for the teachers involved. This meant that students could write to a group of peers interested in the same topic, and teachers could plan the activities together. Each student chose a topic to write on, from a list of suggestions, such as AIDS, mercy killing, suicide, etc. Their main tasks were to exchange e-mails and in some cases, to write collaborative research papers. (See Vilmi 1995a for details.) In spite of all the careful planning, there were still problems, as some lists were very popular and generated floods of e-mail messages, while other lists had too few students and thus generated very little communication (see Mak 1995). To solve this problem, the teachers decided to make the project more task-based, and to involve students in smaller teams to produce a final product collaboratively.

**International task-based collaborative projects**

In the autumn of 1994 the project developed into three e-mail writing courses: the *Individual Writing Exchange*, and two international, task-based team activities: the *Robots* activity and the *Environment* activity.

In the first course, students from various countries exchanged individual writings on set topics (such as gender discrimination, violence on TV and abortion), gathered feedback from e-mail, and revised the articles. The students received peer comments in their personal mailboxes through the HUT mailing lists, and published their revised papers on the Web at the École Nationale Supérieure des Télécommunications in Paris. In addition, an international essay competition was organised (see Vilmi & Burns 1995).

In the second course, Robotics students from Paris, and technical students from Hong Kong and Finland designed robots together in small international teams. In addition to using e-mail for discussion, the students
exchanged the drawings by file transfer protocols (ftp), a device for transferring files over the Internet. The students in each international team could read the e-mail messages of their own team only. At the end of the course, each local team gave an oral presentation on the robot designed by their international team. One team actually produced a robot that could work. The final reports and evaluations were published on the Web for peer comments. (See Thalman & VilmI 1995 for details.)

The third course involved students in discussing ways to solve environmental problems. The structure of the course was similar to the Robots activities. (See VilmI 1995b for details.)

All these projects required clear technical explanations, and it was important to meet deadlines promptly. Mailing lists were ideal for this purpose. However, as the projects progressed the e-mails became too abundant for both students and teachers to receive in their personal mailboxes. A more efficient device was needed to distribute the messages and a special newsgroup was created.

Newsgroup—An innovative distribution system

In the summer of 1995, the Computing Centre at HUT created a new system for the project, where HUT received all the e-mails from various countries and distributed them to the local newsgroups at each university involved. By the autumn, these messages were also sorted by university and by subject and put onto the Web at HUT. Later, a program was developed by a student to put the messages automatically from newsgroups onto the Web, updating them every two hours. This enabled students to read and reply to the messages promptly, directly from the Web (VilmI 1996a).

Another useful addition to the system was the HUT Virtual Language Centre, a MUD (Multi-Users Dungeons) made by HUT software students. This enabled real-time chatting about the individual writing topics. Real-time discussions took place every three or four weeks. The HUT e-mail writing project was then renamed the International Writing Exchange, or the IWE, and is now hosted at Missouri University, since there are no resources at HUT for developing the software for the project.

With the advent of the WWW, the HUT students started making culture pages and encouraging students from other countries to link their pages with them (VilmI 1995c). This gives the project a multicultural perspective.
**Language adventure game**

In the academic year 1995–1996, the HUT project co-ordinator, together with Kari Alho, and students on his Software Project course, developed an authoring tool for writing and playing adventure games. The student teams attended an English language course, held the meetings in English, and wrote the documentation in English. The first version of the game consisted of on-the-fly generated HTML (Hypertext Mark-Up Language) pages and a form-based editor for editing the adventures, which has been running on the Web since the summer of 1996, and can still be played globally. However, there were some limitations. The editor is clumsy and has so many bugs that it is too difficult and time-consuming for the teacher to edit students' work. Therefore, even though teachers abroad were keen to try the system, they found it impractical and gave up using it. Due to the popularity of the adventure game idea, both locally and internationally, an improved version is now being developed.

**Internet adventure creation environment**

The new game version is called *Internet ACE* (Adventure Creation Environment), and its development was started in the autumn of 1997 by another Software Project team of seven students. Adventure stories are still written in HTML since many good editors are now available, and it is easier to transfer content in a standard format. However, the Java language will provide a more interactive platform with a lot of creative potential. In the first version of ACE some predefined exercise types, viz. hangman, associate pairs, cloze and multiple choice will be provided, which the game writers can tailor to their particular use. Later, it will be possible to add new exercise types to the system. Another requirement for Internet ACE was that it should be possible to edit and to play the game offline as well as online so as to minimise telephone costs for users.

The language students have to decide on the content for the software. They are encouraged to write imaginary stories, such as adventures, fairy-tales and romances. Also, they have to create grammar and vocabulary exercises linked to the story. The users have to complete these exercises in order to proceed from one part of the story to the next. This means, first, the students must collaborate to write a story and plan the obstacles. Then they can add pictures, sound files and possibly video clips. Finally, students can play the games made by their classmates and by other students around the world.
Internet ACE has now been replaced by Xercise Engine. The original adventure game has been simplified into an authoring tool for creating interactive exercises, which can be arranged into a book or a story, in Java. Xercise Engine may be downloaded from: www.kolumbus.fi/rvilmi/software.htm

Project 2: The Cities Project: From e-mail to the WWW

The Cities Project, initiated by Andrew Hess at New York University, began essentially as an e-mail writing project. After several semesters, it moved onto the WWW. (See Meloni 1995 for a summary of the project.)

In the spring of 1995 an instructor at Virginia Commonwealth University in Richmond VA, and a colleague at The George Washington University in Washington DC, participated in the first Cities Project, the goal of which was the creation of a practical three-city guide that would provide readers with information in four categories: Historic Places, Museums, Monuments and Memorials, and Restaurants. While working on the guide, the students would improve their written English, learn about three different cities in the United States, become proficient in the use of e-mail technology, and make friends in different locations.

The students in each class were divided into four groups, each focusing on one of the four categories. Their first task was to establish e-mail contact with the other students assigned to the same category, the same Net Group.

Within their Net Groups the students first decided how they were going to write their section of the guide, for example, what to include in each Museum entry and how to format this information. Next, they visited relevant places in their own cities to gather the information. They then wrote up the information and sent it via e-mail to their netmates in the two other cities for feedback. Their revised and final versions were e-mailed to their instructors for final inspection.

The instructors put together the final versions of the four sections for their cities, and sent a print-out by snail-mail to the other cities. Each instructor then combined the three separate guides into one three-city guide. The printed guide was photocopied and given to each student.

The second Cities Project was similar but became more international. It included classes in New York, Washington, Paris, Trondheim (Norway) and Hong Kong. Instead of creating a practical tourist guide, the students made
a collection of impressionistic essays about their cities. In evaluating this second project, the instructors agreed that a five-class e-mail project was rather unwieldy because of the tremendous volume of e-mails they were required to read. Therefore, for the third Cities Project the instructors paired up, and only two classes were involved in each project.

The Cities Project on the WWW

There was general agreement that the three Cities Projects were successful in meeting their goals. The students did a considerable amount of writing and improved in accuracy and fluency. They learnt a great deal about the three cities. They certainly mastered e-mail technology. But, as the Web became increasingly popular, the author (Meloni) realised that her students would have a wider audience, a much wider audience, if the travel guides were posted to the Web. Therefore, she decided to make a major change in the Cities Project by shifting the focus from e-mail to the WWW.

The creation of WOW (Washington on the WWW)

In the Spring of 1998, Meloni discussed the idea of a Cities Project with her two classes, and all of the students expressed enthusiasm for the project. Before voting on the categories they wanted to focus on, they were shown the website created by students of Thomas Robb in Japan, The Kyoto Restaurants Project. The students were impressed with Robb's site and most decided that they too wanted to create a restaurant guide. Some students preferred, however, to focus on museums. Therefore, two groups were formed: Restaurants and Museums.

The groups met (in person) and decided how to proceed. They visited the restaurants they chose and wrote up short personal reviews. These descriptions were then e-mailed to the students in the other group for feedback. The Cities Project Web Board (created by Hess) gave the students the opportunity for a greatly expanded audience for the drafts of their reviews, involving nine EFL instructors around the world and many students. On the basis of the feedback from their classmates and from the visitors to the Web Board, the students revised their descriptions and then sent them to the teacher for final approval and posting. (See Meloni & Sanchez 1997 for the details of the web-linked software program.)
Comparing the e-mail and Web Cities Projects

The e-mail and the Web Cities Projects each have their advantages. The principal advantage of the e-mail project was the large volume of messages sent among the subgroups. Students had many opportunities to practise writing. While the Web-based project generated fewer e-mail messages, the students felt tremendous pride in seeing their work posted on the WWW for the whole world to see, and, therefore, were generally motivated to produce superior work. One of the primary goals of an advanced writing course is, of course, to make the students effective editors of their own work. Publishing on the Web gives students the awareness of what editing truly means.

Both the e-mail and the Web-based Cities Projects provided students with authentic writing practice in English and gave them the opportunity of becoming familiar with the city in which they were living. Students reported that they felt more comfortable writing in English and that they themselves noticed improvement. (See Meloni & Miller 1997 for more discussion papers on e-mail, the Web and writing skills.)

The transition of the original e-mail Cities Project to the Web seems to have been a wise move. Moving all e-mail projects to the Web, however, would probably not be advantageous. Each project needs to be evaluated in the light of its goals before a decision is made. All projects could, of course, have a Web component, but perhaps some are more effective as principally e-mail projects.

Project 3: From LAN to the WWW: The TeleNex experience

TeleNex (Teachers of English Language Education Nexus) is the first teacher education computer network to be set up in Hong Kong. Hosted by the Teachers of English Language Education Centre (TELEC) of the Department of Curriculum Studies, University of Hong Kong, the network aims to enhance the professional development of English as a Second Language (ESL) teachers in the local community. The system began operation as a LAN in February 1994, and started migrating to the WWW some three and a half years later. At the time of writing, the migration is still in progress.
The TeleNex network on LAN

TeleNex was set up with a generous donation from the Hongkong Telecom Foundation in September 1993, and began providing free online support to inservice secondary school ESL teachers in Hong Kong five months later. The network consists of six components: (1) Teaching Ideas Database, (2) Grammar Database, (3) Conference Corners, (4) Student Corpus, (5) SCMP Text Bank, and (6) Test Bank. The discussion that follows focuses on the first three components, as only these will initially be available on the Web.

TeleNex is not part of any teacher education course. Teachers join on a voluntary basis, and generally use the Teaching Ideas Database and Grammar Database (both in hypermedia format) when preparing lessons. While modifications may need to be made to the files before they can be used with students of different abilities, teachers generally feel that reading the database files helps them gain insights into teaching English. In fact, the heads of the English departments in some participating schools print out database files and circulate them in their departments as a way of helping their colleagues develop as autonomous professionals.

The conferencing system is the lifeblood of the network. Teachers often use it to discuss the practical problems that confront them every day. Teachers also ask each other grammar questions arising from marking their students’ work.

Through expanding their knowledge base by interacting with the databases and through engaging in conferencing with fellow teachers and university staff, teachers are supported in their professional, social, and personal development (Tsui et al. 1996). In a questionnaire survey (n = 231), teachers indicated that the network was useful to them by agreeing with the following statements:

1. The teaching ideas and grammar files give me insights into teaching. (89%)
2. TeleNex has helped me gain a better understanding of the English language. (80%)
3. TeleNex has helped me improve my classroom teaching. (74%)
4. I can get social/moral support through interacting with teachers in TeleNex. (71%)
5. TeleNex provides the kind of support that I cannot get elsewhere. (69%)

However, although TeleNex was found to be a useful teacher support network, it was available to only about 350 teachers during the first two
years of its operation. The need to provide technical assistance to participating schools and teachers made it impossible to extend the service to a larger group of users.

Migration to WWW

The decision to move TeleNex onto the WWW in 1996 was prompted by two major factors. First, both the developers of the network and the funding bodies felt that the network should be made available to more teachers and schools, a number of which had been on the waiting list for some time. Second, all secondary schools in Hong Kong had been provided with a free Internet account through liaison between the government and Internet service providers in the 1996–1997 school year, and all primary schools would have such access soon (Education and Manpower Bureau 1998). This means that all schools would have easy access to resources on the Web.

Advantages of the migration

Since TeleNex has become available on the Web, a larger number of users have been able to participate as members of the virtual community. As of 30 June 1998, 1,471 people were linked up as users, representing a 4.3 times increase over the days of LAN. With the launch of a network for primary teachers, the number of registered users had expanded to 3,040 by May 2000. The majority of the Web users are secondary school teachers but primary school teachers are also represented. The network gives primary and secondary school practitioners a chance to understand the experiences and problems of Hong Kong students as they go through the different stages of the education system.

The larger population of users has also boosted the number of messages posted to the conference corners, which in turn has helped teachers realise that they need to share ideas and support each other actively if they want to become not just reflective but also collaborative practitioners. Table 1 compares the number of messages sent in to the Language Conference Corner and Teaching Issues Conference Corner between September 1996 and June 1997 (when TeleNex was on LAN) and between September 1997 and June 1998 (when TeleNex was on the Web):
Table 1: Number of messages posted to two major conference corners.

<table>
<thead>
<tr>
<th>Language Corner</th>
<th></th>
<th>Teaching Issues Corner</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Main messages</td>
<td>Responses to main messages</td>
<td>Total number of messages</td>
</tr>
<tr>
<td>LAN</td>
<td>79</td>
<td>100</td>
<td>179</td>
</tr>
<tr>
<td>WWW</td>
<td>143</td>
<td>381</td>
<td>524</td>
</tr>
</tbody>
</table>

On the qualitative side, the migration of the network has attracted a number of new active users to TeleNex. These are playing an important role in initiating and sustaining discussions on TeleNex, and one of the new teachers has even agreed to become a moderator for the network. In short, a bigger critical mass, which is indispensable to the development of any computer network, is being formed.

This in turn is enriching the content of the conferencing messages. For example, when the network was on LAN, many of the discussions in the Language Corner took the following form:

![Figure 1: A typical sequence of messages on LAN.](image)

After migration to the Web, new patterns of messaging are emerging:

![Figure 2: A typical sequence of messages on the WWW.](image)
As Figure 2 demonstrates, even though a discussion typically begins with specific topic, different aspects of the same topic are often explored as user engage in the electronic discussion. This new pattern of conferencing facilitates the construction of knowledge.

**Problems encountered**

The migration of TeleNex has generated a few problems: all the physical resource materials developed during the days of LAN need to be converted into HTML files for the Web. This is an enormous undertaking, as innumerable tasks have to be carried out, including modifying the user interface, writing programs to ensure that features supported on LAN are also supported on the Web, designing a new search engine, producing sound files and creating a large number of pop-up files. Some of these tasks require expertise that was initially new even to the technical team. This has slowed down the conversion process. Professional staff who developed materials for the network are also confronted with problems, as they are having to learn programs for writing and editing HTML files.

In terms of migrating the users of the network, it is important to note that many of them are computer novices. In a baseline questionnaire survey, for example, 53% of the respondents said that they were very apprehensive or somewhat apprehensive about computer operations (Tsui 1995). Some of the teachers even said in interviews that they did not know how to open Windows on the computer. It should not be difficult to imagine how hard it was to encourage these teachers to register online as users of the network. In addition to this, access to computers remains a problem for many. In theory, schools in Hong Kong now have computers which ESL teachers can use to access the Web. In reality, the computers are sometimes restricted to, for example, Computer Studies teachers, and ESL teachers have no easy access to them. In some other schools, the computers are kept in the library for students to use. This creates an obstacle for ESL teachers who want to register and use TeleNex at school. For all these reasons, a number of LAN users and schools have not yet migrated to the Web in June 1998.

Even for teachers who have migrated, retraining is often necessary before they feel comfortable in using the ‘new’ network. The fact that the user-interface of TeleNex on the Web is as user-friendly as that of TeleNex on LAN does not necessarily help a lot. What many teachers require is training tailored to meet their specific needs. This perceived need for retraining means that there is a time, albeit very short, when teachers who have just registered tend not to participate in any network activities. They often feel they need to be retrained first.
**Future direction**

As *TeleNex* has been available on the Web for only a relatively short time, and no formal evaluation has been carried out (as of July 2000). Informally, however, some teachers have expressed appreciation of the usefulness of the network, as can be seen from the following messages sent in by some new users:

Very excited to work on *TeleNex*. It’s a wonderful experience. From now on, I have the support from linguists ...

It’s the first time I have used *TeleNex*. I feel great! I’ll spend more time on it.

I will make use of all the teaching materials [provided by the network] with my students.

Some of the problems outlined above have yet to be solved, but many difficulties are being ironed out. When the more technical problems are out of the way, more effort will be devoted to helping teachers see themselves as members of a collaborative teaching culture, a task which is crucial in enhancing teacher learning and teacher growth through the computer.

The future for *TeleNex* seems to be promising. Given Hong Kong’s commitment to the use of information technology for quality education (Hong Kong Special Administrative Region Government 1997; Education and Manpower Bureau 1998), the network is likely to be more and more widely used for teaching and teacher education purposes. At the time of writing, new funding has just been obtained to enhance the network further. Two new databases providing teaching resources and grammatical information will be developed to cater for the specific needs of primary school ESL teachers in Hong Kong, and corpora of modern English and of student writing will be made available on the network. It is clear that there will be more professional activities in this virtual community.

**Conclusion**

Some researchers have expressed reservations about the WWW. For example, there are problems of control in access and in the quality of web pages, of unclear study focus over whether language skills or technical skills are emphasised and of fear of a diminishing human touch (e.g. Wilkerson 1997). However, these are not insurmountable. For example, regarding control, HUT has used a special kind of newsgroup; *TeleNex* has organised
face-to-face workshops in order to address the 'human touch' issue. The WWW actually has much to offer in terms of language learning and teacher development.

From the projects we have discussed, we can see that the WWW offers a very versatile environment, and a variety of Net resources for language classes. The WWW also provides an ideal place for hypermedia databases and discussion fora to be established to facilitate teachers' professional development. In the early 1990s, information exchange via e-mail and computer conferencing was mainly text-based. Though graphic and sound files could be attached, their quality was not always high. The WWW has broken the frontiers by supporting hyperlinked, multimedia information on various platforms, e.g. IBM compatible, Macintosh, and UNIX. Audio, video, text and images can all be conveniently integrated in one environment. This multimedia advantage has been exploited by all three projects discussed above.

HUT's experience has shown us, because of the unequal student participation in each e-mail group, and the amount of e-mail overloading both students' and teachers' mailboxes, that e-mail discussion lists could be efficiently replaced by newsgroups. The WWW provided a better option for exchanging drawings of robots, and publishing the final written product. The information load was shifted from individual local mailboxes or machines to institutional web-servers. The vision of the HUT Project suggests that the future direction is multimedia and multilingual development on the WWW, a development which will better cater for the needs and the characteristics of an international audience.

The TeleNex example not only utilises the hypertext capabilities of the WWW, it also expands the service scope to all secondary and primary teachers in Hong Kong. The experience of the TeleNex network also shows that a bigger critical mass can be formed on the WWW. Such a critical mass plays a key role in sustaining a virtual community of professionals.

The success of the Cities Project indicates that e-mail is good for increasing students' writing practice, whereas the WWW is strong in its motivating force to learn. However, not all projects are suitable for the WWW. There are many factors to be considered, such as the goal(s) of the course, and the English proficiency levels and learning preferences of the target learners and audience.

As the WWW has developed, many technical problems have been overcome. New possibilities are emerging, and the interactivity between teachers and students, the computer and learners, are being greatly enhanced. The
question now is not whether to teach with the WWW or not, but how to
enhance teaching and learning in an effective way.

Notes

1. An earlier version of this paper was presented at the TESOL Convention, in Seattle WA, on 18th March, 1998. Presentation files are available at home.ust.hk/~lclindam/
T98LM.html

2. Kamyin Wu wrote this while he was working for TELEC at the University of Hong Kong
He thanks Tina Liu for her help in the data collection.

3. About half (57.5%) were secondary school teachers and 11.4% primary school teachers.
The rest of the users were student teachers, parents, civil servants, businesspeople, and
so on. These users could only access certain components of the network, e.g. the Public
Forum for the general public.

4. In May 2000, the registered users included 1,075 primary school teachers, 1,934
secondary school teachers, 119 from tertiary institutions and 276 trainee teachers (BEd,
PCEd, etc.).
Appendix

List of websites referred to in the paper

Environment Activity
www.hut.fi/~rvilmi/autumn94/environment.html

Individual Writing Exchange
www.hut.fi/~rvilmi/autumn94/exchange.html

Global Learning Circles on 1*EARN
www.iearn.org/iearn/circles/index.html

Kyoto Restaurant Guide
www.kyoto-su.ac.jp/information/restaurant/index.html

Language Adventures on the Web (demo v.1.1)
www.hut.fi/~rvilmi/Softwareprojects/Law1demo/

Project ICONS (International Communication and Negotiation Simulations)
www.icons.umd.edu/

Robot Activity
www.hut.fi/~rvilmi/autumn94/robots.html

TeleNex
www.telenex.hku.hk

WOW: Washington on the Web Home Page
gwis2.circ.gwu.edu/~gwvcusas/wowhome.html

WOW: Washington on the Web Museums Page
gwis2.circ.gwu.edu/~gwvcusas/museums.html

WOW: Washington on the Web Restaurants Page
gwis2.circ.gwu.edu/~gwvcusas/restaurantswow.html

Xercise Engine
www.kolumbus.fi/rvilmi/software.htm
or www.hut.fi/~rvilmi/XE/Demo/

Note: All website addresses in this paper were valid as of 15 June 2000.
Moving to the Word-Wide Web

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