Using new technology in the classroom

Computer technology is becoming an important aspect of language education, yet many teachers are struggling with the questions of how, when and where they should be using computers in the classroom. This book guides and encourages teachers through this process by drawing on some recent Australian work. The nine chapters discuss CALL and non-CALL programs, the effect of computers on the learner and the teacher, the pedagogical implications of computer-assisted learning and evaluation issues. The benefits and limitations of the Internet and the implications of new technology for future teaching and learning are also discussed. The book consists of a brief overview of current theory followed by strategies and practical suggestions from practising teachers. It will be useful to ESL teachers as well as to trainers running professional development courses.

The Professional Development Collection consists of short, practical books on teaching topics drawn from recent research projects. Its aim is to help teachers keep up to date with specific areas of classroom practice by drawing together research, theory and practice. Other books in the series include Monitoring learner progress, Teaching disparate learner groups and Developing critical literacy.

Kristine Brown
Series editor: Anne Burns
Using new technology in the classroom

Kristine Brown
Series editor: Anne Burns

National Centre for English Language Teaching and Research
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Introduction to the series

This book is part of a series that draws on recent research projects conducted in the Australian adult ESL context. The aim of the series is to explore some of the findings from these projects and some of the general literature in the area in order to suggest implications for classroom practice. Thus, the series attempts to draw together research, theory and practice in a way that is accessible to practising teachers.

The focus in this book is on the application of technology in the English language classroom. Computer technology is becoming an important aspect of language education, yet many teachers are perplexed by the questions of how, when and where they should be using computers in the classroom. This book aims to guide and encourage teachers through this process by drawing on recent Australian work.

The main body of the book summarises, in point form, the principal findings on the use of technology and then offers practical suggestions for activities that will help teachers to examine the issues for themselves in their own classrooms. The findings and the suggestions are supported, and in some cases expanded upon, by quotations from the papers themselves. For ease of reading, the supporting quotations appear on the left-hand pages, opposite the findings or suggestions to which they are addressed. However, the right and left-hand pages are equally important elements in the discussion and both contribute towards a fuller understanding of technology in the classroom.

At the back of the book there is a list of references from which quotations have been taken. This list provides a broad overview of the current work in the area of computer technology in the language classroom. Other useful works are listed under 'Further reading' in the bibliography.

Introduction

English language teachers have always been concerned with the use of new technology. The technology may have changed over time, but the challenge of managing it and of finding creative ways to utilise it is much the same.

… it is no longer a question of whether we should use computers in education. There is no longer an option. The questions to be answered are how, when, and where we should be using them, what the roles should be and who should be engaged in those roles. (Corbel 1996a:5)

However, the immense changes in technology since the advent of the computer are of a different order from technological changes in past years. The potential uses of the computer in the classroom are requiring us to do more than simply learn to operate a new machine. They are requiring us to change the way we think about and use information, and to change the way we communicate. This is important for both teachers and students.

For many teachers, the issue of computers in the classroom engenders feelings of insecurity, anxiety – and even downright terror. Others seek answers with great enthusiasm. Almost all of us, however, need some guidance, some encouragement, and some examples to follow.

This book aims to guide, encourage, and give examples by presenting the findings of research into computer use in English language classrooms.
What new technology is being used in the classroom?

Applications or types of computer-based technology seen to be relevant in the ESL classroom are:

> computer-assisted language learning programs (CALL); that is, computer programs specially designed to teach language. Nowadays many of these programs are in CD-ROM format.

> non-CALL programs; that is, computer programs that are not specifically designed for language learning but which are used for this purpose. Examples include word processing, databases, games (especially simulations and problem solving), and encyclopaedia packages.

> the Internet and its various applications such as the World Wide Web for accessing and retrieving information, electronic mail (e-mail) to exchange and distribute electronic messages, and Internet Relay Chat (IRC) to converse with other Internet users by keyboard.

What are the teaching issues?

Findings related to the classroom can be broadly viewed as coming under the following inter-related topics:

> reasons for exploring the use of computers in the ESL classroom – from affective, pragmatic, and pedagogic viewpoints

> issues and concerns relating to computer use in the ESL classroom – from affective, pragmatic, and pedagogic viewpoints

> issues related to particular types of applications; that is:
  - CALL programs
  - non-CALL programs
  - Internet applications

Terminology

There are a number of terms used to describe teachers’ and learners’ abilities with computer technology.

The term computer literacy is frequently used in the research literature (and in the media). There is, however, some ambiguity about this term. It is used in some cases to refer to basic computer skills, that is familiarity with, or ability to use, a computer. It is used in other cases to refer to new literacy skills pertaining to computer use (Kaufmann 1992:6). The broader term technological literacy and the narrower term on-line literacy to refer to ability with networked computer operations have the same ambiguity as computer literacy.

An alternative term for use in relation to teachers and learners is educational computing. Corbel rejects the term computer literacy and similar terms because they represent ‘an increasingly outdated view of literacy as being something that one either does or doesn’t have’ (Corbel 1996a:5). He points out that almost everybody in Australian society uses, either directly or indirectly, computer-mediated electronic texts. What varies is their skills and confidence in their use.

The term educational computing encompasses:

> the use of computers as a tool in everyday work; for example, lesson preparation

> the emerging forms of communication and textual practices based on computer networks such as the Internet

> Computer Assisted Language Learning (CALL).

This booklet addresses all of these aspects.
Working with computers is seen as a prestigious activity… This may be especially important for those… who have suffered from real or imagined stigma or loss of employment potential, with an attendant loss of self-esteem, because of the level of their literacy skills.
(Kaufmann 1992:22)

The class consisted of mature-age male adults with high oracy levels in English but lacking formal education in both L1 and L2. The students had low levels of confidence and self-esteem. Introducing computers offered a way to motivate [them] as well as offering them the opportunity to develop computer skills. Although some students were initially reluctant to participate, the experience astounded both myself and my students. They became competent in using computer functions, learned to correct errors privately rather than publicly, were self-paced and responded to feedback and the level of difficulty presented to them.
(Loria 1995:18)

Computers may help to overcome the difficulties posed by a heterogenous class with the provision of a readily available range of materials, diverse in their level of difficulty and subject areas. The ability of many computer programs to provide instant feedback further frees the teacher to spend time with a larger number of learners than would be possible if the teacher was solely responsible for the correction of the work.
(Kaufmann 1992:21)

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**What Researchers Say**

How does the use of computers in the language classroom affect learners?

**Findings**

> The use of computers can have a positive effect on the self-esteem of the adult learner and lead to a sense of empowerment.

> The learner can work privately without anyone else observing the task level or any errors being made.

> Alternatively, learners can work in a group, which is beneficial for low level students who may develop confidence from other students’ input.

> The common assumption that older learners will have problems with computer technology does not appear to be borne out by research. Teacher anxiety may be of greater significance than learner reluctance to use the technology.

> Computers allow for flexible access as learners can use computers at times that suit them, either during or in addition to class times. Flexible access also means that expensive resources are being used more efficiently.

> Computer managed learning can be a cost-effective way to provide individualised teaching and to coordinate and manage learning and assessment.
Many teachers and learners mention the high motivational value of computers. While this does not, of itself, say anything at all about what is being learnt, it provides an opportunity for learning which teachers may exploit. (Kaufmann 1992:22)

… instructors tended to be over-protective towards older learners, assuming them to be incapable … [They] also tended to be pessimistic about the potential of low-income or minimally educated elderly people. [Any learner reluctance was] magnified, rather than reduced, by the instructor [and] the learner was then directed towards less challenging activities. (Kaufmann 1992:25)

Suggestions for the classroom

> If you have not used computers in your class, talk to your students about using them. Find out who has used them before, who has not, what their feelings and attitudes are. Share your own experiences and feelings too.

> Take students’ computer familiarity and experience into account when pairing students for any computer work. Form pairs in a way that ensures that less experienced students are with more experienced ones.

> Place students in pairs for any new computer activity you give so that they can support each other.

> Take students through any new computer activity the first time you use it in class.

> Think strategically about ways to get the most out of existing computer resources for your students.

> Think about how you could use computer resources to help you cater for disparate groups. Depending on learners’ existing computer skills, you may wish to focus on different groups in turn at different stages of the course.
... there will be a need for new strategies with electronic texts ...
(Corbel 1996a:9)

... we will develop new sorts of reading skills, ones based around text that is modular, layered, hierarchical and loosely associative.
(Bernhardt 1993:173)

Authoring programs have played an important role in enabling the teacher to produce materials that take into account, and build on, the background knowledge and culture of the student.
(Kaufmann 1992:30)

WHAT RESEARCHERS say

Computers and the teacher

What are the pedagogical implications of computer-assisted learning?

Findings

> There is value in the instantaneous and specific feedback provided by some computer-assisted language learning programs.

> Learners can take as long as they like with the activities.

> There is a much greater range of commercially produced language learning software than there has been in the past. There are also more ‘authoring’ packages which allow teachers to create their own materials.

> Learners have an opportunity to develop familiarity with the basic computing skills in our classrooms that they will increasingly need outside them.

> Computer use constitutes a new literacy demand and we should be assisting students with this. It involves:
  - new texts (for example, combining print and image)
  - new textual processes (for example, new writing strategies)
  - new textual practices (for example, changes in how, when, where, and with whom individuals use these new texts Corbel 1996a:8–11).
Think about or talk to other teachers about the questions below.

- How are computer screens different from printed pages?
- What strategies do we and our students need to make sense of these new texts?
- How are the new strategies different from the ones we use now?
- Do you write differently when you use a computer? If so, how? Is the difference related to the strategies you use or to the stages of the writing process, or both?
- How can we teach students new skills and strategies to understand and produce texts which successfully blend print and image?
- How will the literacy of the future be different from the present and the past?
- What kinds of challenges and opportunities does the new literacy offer to those who have not mastered print literacy forms?

> Think about some issues or questions you could investigate through action research.

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Reflection

> Think about or talk to other teachers about the questions below.

- How are computer screens different from printed pages?
- What strategies do we and our students need to make sense of these new texts?
- How are the new strategies different from the ones we use now?
- Do you write differently when you use a computer? If so, how? Is the difference related to the strategies you use or to the stages of the writing process, or both?
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- How will the literacy of the future be different from the present and the past?
- What kinds of challenges and opportunities does the new literacy offer to those who have not mastered print literacy forms?

> Think about some issues or questions you could investigate through action research.
In what ways could the new technologies impact on a teacher's self-image?

**Findings**

> There can be unrealistic expectations about the potential of computers. It needs to be recognised that the teacher is the deciding factor in whether or not using computers for language learning will be successful in the classroom.

> Reduced contact with the teacher may concern some students and teachers.

> Many teachers lack the confidence to use computers with their classes.

> When technology is used, the teacher's role may change from expert to adviser, and there is need for attention to this in professional development.
Pragmatic issues and concerns

Will the technology be cost-effective in terms of time, money and facilities?

Findings

> Computer equipment and software is expensive and represents a major financial commitment.

> There is wide variation across teaching centres in the number of computers and access to them.

> Technology is constantly changing and this means an on-going need for training (formal and informal).

> Teachers need support to move forwards, from using computers to enhance traditional work, to using them in new ways.

> There is also a need for trained support personnel. Many teachers are concerned about being left to cope alone with no technical backup.

> Along with the recognition of the need for training, there is an acknowledgment that teachers use a wide variety of sources to get information about computer programs – many of them informal and from outside the organisation; for example, family and friends, magazines and newspapers, bookshops and libraries. Teachers themselves initiate and direct a substantial amount of their learning about computers.
Suggestions for increasing your computer skills

- Enrol in a short course related to educational computing. These are increasingly being offered by professional development associations.
- Join a professional association that has a special interest group related to using technology for language learning.
- Subscribe to a journal that includes papers on computers in education and/or language learning.
- Team up with a colleague to try out new computer programs and ideas.
- Set aside time to develop your own competence. Be modest and realistic in your goals. Begin with simple operations and programs.
- Explore the opportunities for developing formal or informal networks at your centre or with other centres.
- Become familiar with computers and different types of programs in your everyday life.
- Read the computer sections of newspapers. They are informative about educational programs and practices and also about broader trends, innovations and issues.
- Involve students as tutors. Be sure that they benefit from taking on such a role, and that other learning opportunities they might have are not jeopardised.
Does the use of computers in the classroom enhance language learning?

Findings

> Some questions that are raised are about how computing use can be integrated with the curriculum and with specific classroom activities.

> Other questions relate to whether computers promote oral language skills. While there is ongoing debate about this, it appears that computers are used most often for developing literacy skills and for reinforcing and revising language skills such as grammar and vocabulary.

> However, some teachers believe that speaking skills are developed when groups or pairs work together at a computer.
Reflection

> Share ideas with your colleagues at a staff meeting about how you have used computers in your classroom.

> Read the two quotes from Armstrong and Yetter-Vassot (opposite) and discuss the following questions with colleagues:
  - What could computer technology allow us to do that we cannot already do in the classroom?
  - How can computer technology empower our learners?
  - Is it important to encourage learners to develop the notions of learning and knowledge outlined by Armstrong and Yetter-Vassot? Why?
  - How do computers do this? Think of your own experiences with computers, if you have not used them with learners.

WHAT RESEARCHERS SAY

... let us adopt the technologies which will allow us to do those things that we cannot presently do in the foreign language classroom, or which will significantly improve those things that we already do well.

(Armstrong and Yetter-Vassot 1994:481)

The use of technology is not about how many bells and whistles we can add to the classroom. It is about empowering the learner. It is about encouraging students to leave behind the notion that learning means rote memorization. It is about exploration and the realization that there are multiple pathways to knowledge.

(Armstrong and Yetter-Vassot 1994:483)
WHAT RESEARCHERS say

The introduction of technology into schools and universities is not uniform. In Australia at least, this process in usually decentralised and much of the choice and the timing depends upon the priorities, funds and judgment of the school principal or head of department. Similarly, the infrastructure available to support technology use (for example, levels of access, technical support, hardware and software) varies greatly from place to place. Consequently, there is an understandable tendency for the language teacher to concentrate on pertinent factors associated with the local setting. Already, the language teacher is giving careful thought and consideration to the needs and goals of his or her students at the local level. So both technologically and pedagogically, the focus is very much governed by parameters locally defined: in fact, this has always been the case in CALL.

Levy 1999:24–31

6 Computer assisted language learning (CALL) programs

What are CALL programs?

Findings

> CALL programs are designed especially to teach language. Programs not so designed, but which can be used for this purpose, are called non-CALL programs. The most common example of a non-CALL program is word processing.

> Three common types of CALL programs are:
  - text reconstruction, where all letters of a text are replaced with blanks and the learner reconstructs the text from contextual clues (for example, Storyboard)
  - text manipulation, where learners must perform various types of manipulation such as re-ordering a jumbled discourse or retyping a text which has had punctuation deleted (for example, Textplay)
  - drill and practice, where the learner does intensive practice on a grammar, vocabulary or other point (for example, Choicemaster).

> These three types may be further divided into authoring programs, where the teacher may enter his or her own exercise, and dedicated programs, where the context is fixed. Storyboard, for example, is an authoring package that allows the teacher to write in a text related to class work (without having to have any programming knowledge). Some drill and practice programs ask the teacher to add feedback about both correct and incorrect answers.
Suggestions for the classroom

> The following lesson outline is an example of how Storyboard was used in an adult literacy class comprising L1 and L2 students with high oracy levels but lacking formal education (from Loria 1995, with permission NSW AMES).

Teaching sequence –
Lesson: Describing a process using Storyboard

Pre-computer activities

Building the field activities
Brainstorming: Using a diagram provided, students were asked to work in groups and describe the process for manufacturing soft drinks. Their suggestions were written on the board and appropriate vocabulary noted.
Discussion: Teacher and class discussion of text purpose.

Modelling the text activities
Model text: Learners were shown a written text of a procedure for making soft drinks and asked to identify the text type, language features, characteristics, schematic structure and temporal conjunctions.
Discussion: Teacher and students discuss differences in language features between a procedural text and description of a process.
Identification activity: Students identify the passive in the text.
Discussion: Teacher and students discuss how passive is used in the text.

Joint construction of text
Reading: Class read printed text ‘China cups’, a procedural text authored on Storyboard (see text below). Use of passive and conjunction highlighted.
Reading: Class read another procedural text ('Glassmaking').
Conversion activity: Joint class–teacher activity – rewriting description from active to passive on board.

Listening activity
Listening: Class listen to procedural text ('Margarine – a triumph of technology' in Progress to Proficiency (Jones, L. 1986).
Identification activity: Students identify language features from transcript of the procedural text.
Repeat listening: Class listening repeated with transcript and stages of process numbered on diagrams.

Suggestions for the classroom

Using the computer –
Individual construction using Storyboard

Cloze activity: ‘China cups’ text completed on computer.
Reading activity: Without pre-teaching, students were presented with the flow chart ‘How instant coffee is produced’ (see below).
Writing activity: Students typed in the correct language features, processes and conjunction in Storyboard text, ‘How instant coffee is produced’ – students worked at own pace and teacher corrected individually.

China cups (skeleton version)

China cups … from a mixture of dry clay powder and water.
When the dry clay powder … at the factory … in a container. Water … and the two … together. After the excess water … the mixture … into flat shapes (cakes) and then … into a machine. Next it … in sausage form and then … into moulds. At this stage handles … and the cups … into a kiln.
After the rough edges … of the cups … in the kiln, then, … and then … in the kiln again.
After the second refining the cups … for imperfections and imperfect cups …. Finally the cups … and subsequently … to the shops.

How Instant Coffee is Produced

- Pick coffee beans → Dry in sun → Roast beans in ovens
- Mix with hot water → Grind → Cool rapidly in refrigerator
- Strain → Freeze → Grind frozen liquid
- Pack in jars → Dry in vacuum oven

Suggestions for the classroom
Evaluating CALL software

What criteria should be used when selecting CALL software?

Findings

> All issues related to CALL can be subsumed under one major issue, namely the need for CALL software to be critically evaluated before purchase or use. This is essential in order to:
  
  - avoid wasting precious resources on inappropriate programs
  
  - determine whether a program is compatible with accepted principles of second language learning
  
  - predict whether a program is likely to encourage learners to use it.

> Teachers would be well-advised to use an established checklist to evaluate software. One example is provided on the following pages.

WHAT RESEARCHERS say

... the fact that learners enjoy using computers is not, of itself, sufficient reason to justify their use. It is important that the activity should be a meaningful one, preferably integrated with the class curriculum ... or ... part of a well planned and integrated series of activities [in an individual study program.]

(Kaufmann 1992:19)

The bottom line on buying a ready-made program is this: if the package cannot be modified or adapted in any way by the teacher it had better be very, very good.

(Underwood 1984, cited in Bryant 1995:24)
Checklist for evaluating software

The following checklist, from ‘Evaluating Language, Literacy and Numeracy Computer Software’ (Bryant 1995) summarises the criteria in 1994 by a committee of representatives from the NSW Adult Migrant developed English Service (AMES), the Board of Adult and Community Education (BACE), the NSW Adult Literacy Information Office (ALIO) and the NSW State Library System.

Evaluating software
A guide for those involved in adult English language, literacy and numeracy teaching and learning.

1 What pedagogy is the program based on?
Does it:

- offer a sense of progression
- relate to learning outcomes
- state objectives clearly
- move from strong learner support to an independent understanding and creation of text
- show differences between spoken and written English?

2 Is the content appropriate for the learner/learning situation?
Is it:

- free of race, gender and/or age stereotypes
- challenging of stereotypes
- factually correct
- more than drill and practice
- using an appropriate audio component
- interesting and challenging?

3 What view of language and maths is presented in the program?
Are they presented:

- as whole text
- in a context of use
- with attention given to structure at the level of text and grammar?

4 How does the program regard learners?
Are they seen as:

- problem solvers
- active participants in society
- experienced adults?

5 What feedback is provided?
Does it:

- offer immediate feedback
- offer positive feedback
- offer options of help and/or a remedial path
- allow for a repetition of instructions
- include advice to call on a teacher/tutor

6 How easy is the program to use?
Does it:

- require key boarding skills
- include an introductory module
- use language appropriate to the learners
- record and print student progress
- require a high degree of interaction
- offer appropriate support materials (eg manual, workbook)
- provide ways of responding that are consistent and easy to use?

7 How flexible is the program?
Does it:

- allow for appropriate entry and exit points
- include an authoring component
- allow for use in a range of learning situations
- allow for different types of responses?

8 Is the screen layout appropriate?
Is:

- the use of colour, graphics and text helpful to learners in understanding and responding
- the text legible
- the screen uncluttered
- the use of upper and lower case letters appropriate?

9 What are the technical requirements?

Does the available hardware meet the specification of the software (RAM, sound card, speed, hard disk memory, screen card)?
Suggestions for developing skills for evaluating CALL software

> Organise an informal staff discussion to evaluate a piece of software using the guidelines on the previous pages. Add your own questions to those listed.

> Read a journal article on CALL issues.

> Collect catalogues about new software and evaluate how they are described.

> Read reviews of CALL software. These are increasingly being published in language teaching newsletters and journals.

> Share ideas with colleagues about which software you use and how you use it. For example, talk about:
  - how you integrate it with your class work
  - if and how you ‘author’ programs.

> Before you buy a program, organise a demonstration of it, or obtain a demonstration copy. Ideally you should use the program before buying.

Because of the pressures to adopt new technologies and the general climate of adoption, we will need to take care to guard against novelty effects, especially those that superficially indicate the value of a new technique or product for language learning on the basis of novel and limited exposure. (Levy 1999:24–31)

[Teaching] still relies on input from a great range of sources – the repertoire of which is continually expanding with CALL products now part of many teachers’ delivery of language programs. [We need to consider] our expectation of language teaching and learning resources and [be] clear about what a resource can and can’t do. (McFeeter 1999:55)
In the early stages of the course they [argued] that word processing required more time than the handwritten work, and that they found it difficult to think and write on the screen at the same time. It has not taken longer than a few weeks, however, for the student to totally change their opinion, and they now voluntarily word-process all their class work and homework assignments. They now enjoy using a computer to write and seem to feel a sense of mastery and accomplishment in learning to use the word processing features. They have also started spending more time writing and often spend their individual learning hours in the computer lab. (Golebiowski 1994:33)

[Students in my class] have tended to work together at the computer, commenting on the work in progress and creating a lot of natural, non-contrived conversation, relating to the content of the project, language-related issues and the way of using the software in the manipulation, correction and revision of the text. (Golebiowski 1994:33)

Non-CALL programs are programs that are not specifically developed for language learning. Examples include:
- word processing packages
- data-bases programs
- simulation games
- problem solving games
- encyclopaedia-type programs.

This section focuses on findings about word processing, which appear to offer the following benefits:
- computers appear to motivate students to write
- computers facilitate the processes of editing and revising
- neat screen display and printout may help facilitate the logical organisation of ideas
- the neatly printed final product is likely to be motivating in itself, especially for learners with low literacy levels
- students may produce higher quality work overall than students working with a pen, especially in writing arguments and reports
- the screen appears to facilitate conferencing and peer commenting during the writing process.

continued p 39 >>
There is an enormous body of literature on using WP in writing instruction. It is useful for new teachers to be familiar with some of this literature and also vital that they are aware that almost anything which can be said in favour of using WP can be countered by negative arguments and evidence …

Even if research shows that WP is beneficial in teaching writing, it must be recognised that the benefits do not occur automatically. (Tapper 1994:22–23)

**Findings**

> However it is not the computer itself that creates these benefits:
> - teachers need a reason to incorporate word processing in their curriculum and to make the reason clear to students
> - the benefits will depend on whether or not students like it and how it is introduced
> - teachers and students need to be realistic in their expectations of what can be achieved
> - students need to become familiar with the technical skills so that the writing process is not impeded
> - teachers must ensure that students have the strategies and language knowledge to revise and edit their writing
> - teachers must accept the fact that students will approach word processing differently. For example, there will be considerable variation in how comfortable they are composing straight to screen.
Suggestions for the classroom

(the following taken from Tapper 1994:24)

> Share ideas with colleagues on approaches and issues related to word processing in the classroom.
> Pin up and hand out instructions of basic procedures.
> Set aside time for key boarding practice.
> Discuss with students and demonstrate how word processing features can be used to prepare for writing, to draft and to revise.
> Discuss the difference between fluency and accuracy and encourage students to hold off on too much editing while writing.
> Encourage revision and discuss the way this is made easier with a computer. Be ready for the discovery that students who do not normally revise may still not revise when using a computer.
> Explore ways to have pair or group writing work, but also provide time for individual self-discovery.
> Be sensitive to student privacy when writing.
> Watch out for weaker students. They may not always speak out and ask for help.
> Don’t force word processing on students. Some may find it burdensome.

What Researchers Say

At the moment and in the near future it is likely that learners in [many educational locations may] have to share a computer. Although this will limit the type of word processing activities that can be done with a class, there are still many exercises utilising a word processor that can satisfactorily be carried out with two or even three learners per computer. [For example] ... sentence completion, text transformation, substitution, insertion, reordering, paragraph or text completion, oral dictation, brainstorming and parallel writing (see Hyland 1990).

(Kaufmann 1992:42–43)
The Internet is really no more than a collection of computers around the world that are connected or networked together. Despite the fact that these thousands of computers differ in their make, computing power and operating systems all of them are able to communicate with each other using a common language … Computers connected to the Internet can transfer text files, graphics, sound and video using [this] language. (Javed 1996a:3)

What is the Internet?

Findings

> Through a system of powerful ‘server’ computers and smaller ‘client’ computers, such as those we use at home, we can exchange and distribute electronic messages, search databases and retrieve information, and transfer software and files.

> E-mail is the most basic Internet service. It allows you to send messages to other connected users wherever they are. It does not depend on computers or software being compatible with each other. It works like ordinary postal mail except that it takes only a few seconds to get through. Mailing lists are electronic discussion groups where people can send messages to a number of people at the same time.

> Internet Relay Chat (IRC) allows you to talk to other people using the keyboard. Everything you type is instantly transmitted around the world to other users who are sitting in front of their computers that are also connected to IRC, and who can answer back right away. More than one person can talk at the same time. There are hundreds of channels on numerous topics.
Our guess is that much of the interest in using computers as telecommunication devices has to do with the notion that, when using e-mail and the Internet, there are people out there listening, and in various ways they will talk back.

(Garton and Heimans 1995:12)

While there is undoubtedly a significant learning curve with any application of computers in education, the tools necessary for using the Net are in themselves no more difficult to learn than some of the extra features on recent word processing programs ... The main aspect in developing networking strategies, as with many features of educational computing and TELL (technology enhanced language learning) is your mind-set: this can be described in terms of the capacity for tolerance of ambiguity, supposedly a characteristic of good language learners, also essential for Net beginners.

(Garton and Heimans 1995:11–12)

How can using the Internet benefit the language learner and what are its limitations?

Findings

> As with CALL and non-CALL programs, the Internet has the potential to develop English language skills in the classroom. However, as with all technology we need to be realistic about what it can offer in our own teaching context, and ensure that sound pedagogical practice guides our use of it.

> Internet technology in the classroom can:
  - be a rich source of authentic texts
  - provide opportunities for real communication with other English language learners
  - provide a real audience for student-generated texts
  - give authentic practice in reading and writing skills
  - be motivating
  - encourage risk-taking and independent learning
  - offer the interactive nature of spoken conversation without the pressure of face-to-face contact
  - promote cross-cultural discussion and exchange
  - encourage thinking in the target language and negotiation of meaning, for example, through chat sites.

> Obstacles relate in the main to:
  - time
  - access
  - expense
  - learning the technology and attitude to learning (by both teachers and students).
A LISTSERV (a program which handles distribution of e-mail to multiple-member mailing lists) ... was established ... and students from six participating sites took part in an exchange of e-mail postings. It was generally found that teachers needed to spend a considerable amount of class time in teaching and learning the technology before students could use it effectively for literacy tasks. Teachers found that student motivation, interest and retention in classes was positively influenced by their involvement in computer-mediated communication ...

... At the start students used the list to share their ideas on issues of public debate such as gun control, gambling and euthanasia. Other models of e-mail exchange between students — such as two groups of students jointly constructing a story — are also emerging. It is becoming evident to all involved in the project that considerable planning and research is needed before students can use the technology in a positive and constructive way. Most participating sites are helping their students to develop home pages and international e-mail links.

(Javed 1996b:14)

The pedagogical issues related to the application of on-line technologies ... need to be further explored and researched.

(Javed 1996b:14)

Suggestions for exploring the Internet’s potential

- Read a manual specifically aimed at helping language and literacy teachers understand and use the Internet. Examples are Corbel (1999) and Javed (1996a) listed in the reference section.
- Keep up to date with electronic communications initiatives by reading professional language and literacy journals and newsletters.
- Read a practical textbook on using Internet applications in the classroom, such as Warschauer (1995a and b) listed in the references at the end of this booklet.
- Explore and become familiar with Internet applications yourself before trying them in class.
- Join a mailing list related to teaching language and literacy. You will find lists of these in many of the reference books and articles listed in the reference list.
- Explore home pages established by language and literacy organisations. Again, the reference list contains examples.
- With any activity you design:
  - keep it simple
  - be sure the purpose is clear
  - test it out before using it with your students (for example, try it out on some colleagues),
  - take students through the activity the first time you do it in the classroom.
While we agree that educators should not be easily seduced by the power of technology, we are also reminded of these words by Socrates: ‘If men learn writing, it will implant forgetfulness in their souls, they will cease to exercise memory because they rely on that which is written, calling things to remembrance no longer from within themselves, but by means of external marks.’ Just as Socrates was powerless to stop the spread of writing, so are we powerless to stop this technological evolution. (Armstrong and Yetter-Vassot 1994:481)

How the future pans out should be interesting to say the least: no doubt competent ‘knowledge engineers’ will be able to deal effectively with future Luddites who dare to espouse the negative view, though they might have problems with Jean Baudrillard if he is still around and if his poetic insight is still in as good a form as in the following wry and prophetic comment:

‘The computer will take over everywhere from the operation of thinking, leaving the brain to lie fallow, as the mechanistic technologies of the nineteenth century have already done with the body. People are becoming increasingly zombie-like. It looks as if their brains have been removed and they are merely functioning on their spinal cords.’ (Browne 1996:42)

What are the implications of the new technology for our future as teachers and language learners?

> Think about the two quotations opposite. What do they mean for us in our personal and professional lives?

Armstrong and Yetter-Vassot use Socrates’ warning to suggest that as we cannot stop the introduction of the new technology, we should be positive about it. Browne uses Baudrillard’s warning to suggest we should be cautious. Which view do you agree with most?
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