

Teaching computer literacy

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Published by the
National Centre for English Language Teaching and Research
Macquarie University, Sydney NSW 2109
for the AMEP Research Centre on behalf of the
Department of Immigration and Multicultural and Indigenous Affairs
Corbel, Chris, 1951- .

Teaching computer literacy.

Bibliography.

ISBN 1 86408 755 2.

Computer literacy – Study and teaching. 2. Language and languages – Computer-assisted instruction. I. Gruba, Paul. II. National Centre for English Language Teaching and Research (Australia). III. Title. (Series: Teaching with new technology series).

371.334



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The AMEP Research Centre is a consortium of the National Centre for English Language Teaching and Research (NCELTR) at Macquarie University in Sydney, and the National Institute for Education at La Trobe University in Melbourne. The Research Centre was established in January 2000 and is funded by the Commonwealth Department of Immigration and Multicultural and Indigenous Affairs.

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Project Manager: Louise Melov

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Cover design: Helen Lavery

Printed by: Ligare Pty Ltd

Acknowledgments

This book reports on research conducted collaboratively with specialist computer teachers at acl Pty Ltd and the authors. We thank the following teachers for so generously sharing their insights and contributions:

Adele Collins
 Ali Baharlou
 Andy Pike
 Fiona Thurn
 Guy Noble
 Ian Brown
 Marina Sherbak
 Najia Haimd
 Rodolfo Cares
 Tim Lever
 Maree Derwent

Series introduction

Teaching with New Technology is a series that provides teachers with practical, research-based approaches to using computer technologies in their language classrooms.

We have deliberately chosen to use the term ‘computer-based technologies’ to highlight the technologies where the computer is an obvious tool. Many other classroom tools and artefacts use digital technology, but they do not involve computers as machines in any obvious way. Such tools and artefacts include VCRs, mobile phones, clocks and language labs. These new computer-based technologies were initially taken up by teachers who had a passion for computer technology. Now that these technologies have been used in language education for almost two decades, many other teachers want to explore their use in their own classrooms. Language teachers are interested in using computer-based technologies both to facilitate language learning and to help their learners acquire the new literacies of the digital age (see, for example, Snyder 2002). In English language education in particular, teachers of immigrants and refugees realise they need to help their learners acquire computer skills since students are likely to take jobs that require familiarity with a range of digital literacies. In many countries where English is being learned as the global language for wider communication, students want to learn English to access the new technologies. While still only 10 per cent of the world’s population is online, digital literacies are increasingly becoming an essential tool for social, educational and occupational worlds.

The goal of this series is to provide teachers who are new to computer-based technologies with practical techniques and lessons they can use in their language classrooms. However, the philosophy behind the series is that, as language teaching professionals, teachers

[I]t is not so much the computer but the kinds of tasks and activities that learners do on the computer that can make the difference ...
 (Hoven 1999: 149)

Introduction

The chapters in this book are organised around the premise that language teachers can help their students gain crucial computer literacy skills. Not all teachers want to become full-time computer trainers but each, we argue, has a role to play in helping their student gain the skills needed to live and work in the Information Age. To frame our discussions, we first define ‘computer literacy’ and explore reasons why it is important to the language learner.

What is computer literacy?

Our rapid uptake of computer usage demands new ways of thinking about what we teach, how we teach it and, increasingly, how we justify our pedagogical choices. For the English language teacher, there is a great urgency to look beyond traditional forms of print media in order to consider how we prepare students for careers that require active participation in the new literacies of the digital age. Indeed, the concept of literacy, as Alvermann and Hagood (2000: 193) point out, is ‘on the verge of reinventing itself’. Although traditionally defined as the ability to read and write, an understanding of what it means to be literate needs to be extended.

Whether through a perspective that it is a fluency with knowledge structures and enabling strategies (Potter 2001: 4; Silverblatt 2001: 2–7), or an ability to use and produce digital information (Gilster 1997: 1), or an ongoing negotiation through a multiplicity of discourses (Cope and Kalantzis 2000: 9; Snyder 2002: 3), coming to terms with new concepts in literacy helps us to understand, decipher and control the influence and meaning of digital information in our lives (Kasper 2000). One foundation for gaining such control is through the mastery of essential computer skills.

While technology offers new ways to teach the traditional literacies of reading and writing, learning how to use digital technology has become itself a vital stepping stone to being ‘literate’ in the twenty-first century. (Goodwin-Jones 2000: 11)

want more than hints and techniques; rather, professional teachers want to understand the research and theory on which teaching approaches are built. They are also interested in understanding the issues surrounding the use of computer-based technologies that still need to be explored and in conducting research in their own classrooms. While this series focuses on the adult learner, many of the activities can be used in classrooms of children and young adults.

Although the various features of the new technologies often overlap in use inside and outside the classroom, teachers (and learners) need to be able to approach teaching and learning with these new technologies in incremental stages. Therefore, each book in the series focuses primarily on one aspect of using computer-based technologies in the language classroom.

Each book:

- summarises the principal findings about the use of computer-based technologies to support teaching and learning in language programs;
- offers practical suggestions for teaching using these technologies;
- provides detailed lesson plans for some suggestions; and
- raises issues that teachers can explore in their own classrooms.

Many of the suggestions for teachers to explore involve action research, a research methodology for practitioners to investigate their own work practices. In educational settings, action research provides teachers with a tool for:

- planning what and how they will investigate;
- teaching based on what they want to investigate;
- observing their practice; and
- reflecting on their observations.

This process is then reiterated, with teachers changing their practice based on their observations and reflections, and then beginning the cycle again (for example, Kemmis and McTaggart 1988; Burns 1995). An extensive bibliography is provided for teachers who want to explore any of the concepts and findings discussed in this series. The bibliography, which includes both referenced materials and materials for further reading, is organised by chapter at the end of each book.

As noted by several researchers (US National Research Council 1999: 9; Council of Australian University Librarians 2001: 2), basic computer literacy – the learning of specific hardware and software applications – is a prerequisite for engaging with the new ‘digital’, ‘silicon’ or other ‘electronic literacies’. If our students are unable to effectively operate a personal computer, we argue, they would lack the requisite foundation on which to build the sophisticated skills that are now needed to fully participate in today’s digital society.

Locating computer literacy

In the literature on computers and learning, four perspectives can be identified:

- the skills perspective;
- the textual practices perspective;
- the sociopolitical perspective; and
- the information perspective.

Numerous books are available that introduce everyday users to some of the key concepts and new skills needed to work with computers. Follman (2001), for example, provides a succinct history of the Internet and how it works. Gilster (1997), although published some years ago, provides advice that remains relevant on how to navigate through a ‘flood of online information’ using a variety of hypertext techniques. In books such as these, gains in both understanding and using digital literacy practices are seen as utilitarian skills for survival in the Information Age.

With a view squarely on practical outcomes, Corbel (1997) focuses on teachers who want to gain practical skills in their work with electronic texts. Throughout the work on computer literacy, Corbel considers the techniques to teach and learn the most popular suite of applications – Microsoft Office. Teachers are advised to think of documents in terms of their textual structures – for example, through effective use of the ‘outline’ view. At its heart, Corbel asks us to reconsider how the flexibility of digital texts affects our work styles and related literacy practices.

Solidly grounded in literacy studies, there is a large body of work concerning the impact of new text types and textual practices on traditional views of literacy. Major works in this area include edited

books by Tuman (1992), Snyder (1997), and Reinking, McKenna, Labbo and Kieffer (1998). In essence, these books consider how digital technologies change the way we work with, and seek to understand, the ever-broadening range of texts available to us.

Encompassing a broad agenda with a self-proclaimed ‘manifesto’, prominent literacy theorists calling themselves the *New London Group* put forward the concept of ‘multiliteracies’ as a way to explore ‘literacy learning and the design of social futures’ (Cope and Kalantzis 2000). In this perspective, teachers are urged to facilitate literacies out of the perceived needs of learners that arise out of a situated community through overt instruction and critical framing in order to come to a transformation of practices. Topics of concern include the appropriate roles of schools, addressing differences in culture and developing curriculum innovation.

More recently, Snyder introduced the term ‘silicon literacies’ to extend earlier work concerning the influence of hypertext and computer technologies on textual practices and understandings (Snyder 1997; 2002). Online literacy (Snyder and Beavis 2004) is a further extension. Other researchers prefer the term ‘electronic literacies’ (Warschauer 1999) to describe the activities that take place among language-learning students and computers.

The concept of information literacy has emerged from the work of library and information studies. ‘Information literacy’ is defined as an understanding and a set of abilities that enable individuals to ‘recognise when information is needed and have the capacity to locate, evaluate and use effectively the needed information’ (American Library Association, in Council of Australian University Librarians 2001: 1).

‘Fluency’ versus ‘accuracy’

What is striking about much of the writing that surrounds computer literacy is that it does not focus on the acquisition of basic skills. Rather, the works talk implicitly about an extended and more elaborated form of computer literacy. Thus writers discuss the nuances of silicon literacy and digital literacy, for example, or they pluralise literacy to signal a more complex view of it. Why is this?

The following, from the Council of Australian University Librarians' *Information Literacy Standards*, provides a clue:

A 1999 report of the US National Research Council promotes the concept of 'fluency' with information technology and delineates several distinctions useful in understanding relationships within information literacy, computer literacy and broader technological competence. The report notes that 'computer literacy' is concerned with rote learning of specific hardware and software applications, while 'fluency with technology' focuses on understanding the underlying concepts of technology and applying problem solving and critical thinking to using technology.

(US National Research Council, in Council of Australian University Librarians 2001: 2)

In the above excerpt, we see that computer literacy is viewed in a basic way which implies that it is less interesting and valuable than information literacy. The word 'rote' here, for example, can be seen as being somewhat dismissive. Nonetheless, its appearance here is instructive in that it connects us to a recurring debate in communicative language teaching concerning the appropriate balance between form (grammar) and function, between accuracy and fluency, and between language usage and use (Widdowson 1978). Indeed, the excerpt explicitly uses the term 'fluency' as it frames the concept of information literacy.

Fluency in information, silicon and digital literacies is an admirable goal. But how are the basics – that is, the *accuracy* – to be taught and learned? The issue of accuracy is notably absent in the research literature. In work thought likely to address the issue most comprehensively (Reinking, McKenna, Labbo and Kieffer 1998), we found attention focused on broad transformations of education, text and society. With the exception of work by Murray and McPherson (2003), there is little on how to teach the basic skills that might underpin such transformations.

The aim of this book is to help language instructors teach computer literacy skills. Within the context of teaching English as a second language (ESL) in adult immigrant learning centres, we focus on the ways instructors can define, use and integrate computer literacy skills in their own techniques and sequences. In the remainder of this book, we hope to reduce the gap between theory and practice in computer literacy.

Linking computer training and language learning

The first challenge faced by ESL and other second language instructors who set out to teach computer literacy is to motivate students in their use of technology. By working on a computer, they may suggest to students, you will learn a language. Often, however, students simply do not know how to use computers. It is common to find that many language learners do not possess basic computer skills, particularly among newly arrived migrants (Corbel and Taylor 1998). Without essential 'computer literacy' skills, researchers have found that students

... the bond between technology and language use in the modern world should prompt all language professionals to reflect on the ways in which technology is changing the profession of English language teaching in particular, and applied linguistics as a whole. But how does one reflect on something that is invisible?

(Chapelle 2003: 1)

within a well-resourced tertiary environment, for example, come to resent technology and fare poorly in the larger goal of language learning (Lewis and Atzert 2000).

Some second language teachers may simply assume that learners already have such skills.

Certainly, educators in the area of computer-assisted language learning (CALL) generally ignore the need to develop computer literacy (Gruba 2004). The ever-crowded syllabus, a lack of training, and poor classroom support provide a set of convenient excuses. Ideally, however, computer literacy can be presented as a dual-purpose activity that raises proficiency in both language and computer skills (Debski 2000).

Why do we teach computer literacy?

Students need to acquire computer skills for many of the wide range of reasons they need to acquire second language skills:

- to communicate effectively in society;
- to interact with family and friends;

- to function effectively in the workplace;
- to learn new ideas, and for fun and pleasure.

Imagine, for a moment, the frustration of an immigrant father who cannot access the online documents needed to lodge a health insurance claim after being told they are ‘on the Web’, or the friends who drift apart because they do not know how to exchange email, or, indeed, the skilled worker who is denied employment because of poor typing skills. Students are expected to hand in documents that are typed, properly formatted and printed. Content teachers are less tolerant of spelling errors, which, they perceive, are due only to the lack of using a spellchecking tool. Students need computer skills as much as they need language skills to prosper in the fast-paced Information Age.

Students also need to understand the concept that they can ‘kill two birds with one stone’ by learning computer and language skills at the same time. Teachers can argue powerfully that the combined skill sets can lead students to better job prospects, increased interaction in society, and a wider range of entertainment options. Teachers need to reinforce the point that fluency and accuracy in both areas can develop concurrently, without the loss of one skill set over the other. Further, instructors need only to remind students of the frequent uses of both computer literacy and second language skills across the curriculum: increasingly, content teachers integrate Web-based resources, utilise multimedia presentations and expect students to participate in online discussions.

In essence, we teach computer literacy skills because they:

- lay the foundations for developing a critical understanding of the Information Age;
- help students make effective use of computers, both in classroom and workplace settings, which in turn improves attitudes and reduces frustration;
- shape a proactive view regarding the role of computers in everyday life;
- assist those who are ‘technophobic’ to overcome fears of increasing computerisation of government and social support agencies;
- create a solid skills base among students so that we can collectively

pursue more creative uses of computers in the syllabus, such as project-based learning;

- extend the personal enjoyment gained through keeping in touch by regular email use, for example, or in finding satisfying search engine results;
- provide ‘realia’ for terms that relate to hardware, software, the Internet, and the many different uses and phenomena that have arisen from online culture.

If motivated properly, the teaching of computer literacy skills can be a productive exercise for both instructors and students. Teachers gain valuable professional development experience that expands their own repertoire, while students make essential links between language learning, computer skills and the world beyond. A considered focus on computer literacy in the classroom provides both teachers and students with a skill set to make better use of both CALL and productivity applications.

Why should language teachers teach computer literacy?

Second language instructors already have a full curriculum to get through each term. Why should they teach basic computer skills as well? Simply put, second language teachers should teach computer literacy because they are in the best position to be the most effective instructors.

In many ways, the learning of computer skills is uncomfortably challenging to adults; often, older students report that they feel both helpless and powerless in the computer classroom. Such feelings resonate with teachers of adult immigrants who share a deep empathy with their learners. This depth of understanding, and patience, is not common among computer trainers, who tend to focus on technical proficiency. And it is precisely a supportive attitude – not technical proficiency – that helps students confront their fears and learn computer literacy. Clearly, the ‘work’ of language teachers is now seen to increasingly revolve around introducing new media and text types (Lankshear and Knobel 2003). Because of their familiarity with differences in genre, an intimate understanding of the complexities of language acquisition, and an empathetic attitude towards their students, instructors are among the best suited to make sense of the role of language in the digital world that increasingly surrounds us all.

What skills do the teachers themselves need?

Teachers are often hesitant to teach computer literacy because they are concerned about their own perceived lack of skill in using computers. For instructors who have not recently tried to acquire a complex set of skills, finding themselves in the position of learner can be a salutary reminder of the challenges facing their students. The rhetoric of personal empowerment so often pushed by the computer industry – that it is simple to become networked, fluent and effective – can lull us into passive inaction. But the truth is that the acquisition of computer literacy skills comes through the result of sustained personal effort within a supportive social context. Maintaining the individual drive is a challenge, but it is likely that most staff have access to both formal and informal support networks that allow teachers a chance to share challenges and deal with difficulties. Experienced teachers develop ways to cope with the unanticipated and the unexpected; as explorers in the Information Age, they learn to seek elusive answers to difficult challenges. Indeed, a Plan P (for paper) is often crafted alongside Plan C (for computer) just in case they need it.

Teaching suggestions

Establish the rationale

- Help students, and some teachers, see ways in which computers can be used effectively and appropriately in their classroom learning and everyday lives.
- Be candid as you explain why computers are being used in language learning, especially if the student is older or has a fear of or aversion to computers or machines.
- Connect computer literacy to the lifelong development of coping skills.
- Give examples of how language and computer skills are often intermingled in the workplace.
- Name ways that computer literacy skills can help students gain better marks in other educational settings – for example, through improved clarity of presentations, better organisation of thoughts, an integration of visual and textual information, and the spelling and grammar checking of elements in a single document.
- Address the view that computer skill acquisition interrupts, or perhaps even competes with, proper language learning.
- Make the linguistic aims of the lesson clear at the beginning, pointing to ways in which the particular lesson embeds the use of computers to give added benefit to the student in achieving proficiency.
- Attend particularly to fee-paying students, who may complain if they perceive that they do not get the language instruction they have paid for.
- Remind students that both newly developed ‘digital’ and ‘traditional’ occupations in a variety of workplaces, including restaurants, auto mechanics’ workshops and the clothes-manufacturing industry, now fully integrate computers to complete tasks.

Adopt a positive, playful attitude

- Try to maintain an upbeat atmosphere in the classroom, and consider playing music in the background as students do their lessons.
- Point out that computers are ‘dumb’, waiting for every command.

- Bring in cartoons such as *Dilbert* that poke fun at computers and people who work around them everyday.
- Name your workstation something silly, and give it a personality.
- Team-teach, if possible, to share the workload and break up the presentation.
- Be sure to limit presentations of detailed computer tasks to less than 20 minutes at a time before letting the students practise on their own.
- Use props and other realia to act out computer processes.

Lesson plans

Lesson to familiarise students with computers

Objective: Students will be made more aware of basic computer terms.

Materials: Paper and/or a whiteboard and pens for brainstorming, computers, newspaper sections and/or magazines that advertise computer equipment and software.

Procedure:

Part 1 – away from the computer

- With the whole class, brainstorm some of the ways they have encountered the use of computers throughout the day.
- Brainstorm a list of the positive and negative effects that computers may have on everyday life.

Part 2 – in front of the computer

- Give students a tour of the hardware in front of them.
- Provide a list of specialist vocabulary such as 'keyboard', 'screen', 'desktop' and 'hard disk' on a handout, using images if necessary.
- Make sure that students understand what software is, and how software is divided into different applications.

Part 3 – in front of the computer

- Ensure that students know how to turn on the computer, particularly if the monitor and central processing unit (CPU) are separate.
- Reassure students that the computer 'crashes' occasionally, and remind them that they should save and backup their work frequently.
- Ensure that students know how to turn off a computer safely by following standard procedures.

Extension:

- Have students come up with a list of different computer manufacturers or a list of differences between laptops and workstations.
- Look at advertisements for computer equipment in magazines or newspapers and talk about prices, vocabulary and different features of various systems.

Lesson to link computer and language skills

Objective: Students will be able to make the connection between effective computer use and language proficiency.

Materials: Paper or whiteboard with appropriate pens, computer workstations.

Procedure:

Part 1 – away from the computer

- With the whole class, brainstorm some of the ways they have encountered the use of computers throughout the day.
- Brainstorm a list of the positive and negative effects that computers may have on everyday life, focusing on how they transmit information.
- List the ways that computers can help people communicate more effectively with each other – for example through organisation, clarity of presentation, ease of transmission.

Part 2 – away from the computer

- With a list of general topics in mind, students work in pairs to develop five interview questions about computer literacy.
- Students interview each other about computer literacy, paying particular attention to how attitudes are presented.
- Reports of the interviews are presented in front of the class, and the teacher writes down some main themes that emerge as continued points of discussion.

Extension:

- Students use the results of the brainstorming session, the interview questions and the interviews to write up a brief report about the need to be computer literate in the Information Age.

Lesson to link computers with previous life experiences

Objective: Students will become more aware of their attitudes towards computers.

Materials: Paper or whiteboard with appropriate pens.

Procedure:

- Start with a reflection on how fears or apprehensions can be overcome in any setting. Use small groups to reduce anxiety and build up trust.
- Discuss with the students their previous experiences in learning computers, and bring out some of the frustrations they have encountered.
- Arrange the list of frustrations thematically, that is, by *Attitude*, *Physical barriers*, *Lack of resources* or other categories that emerge.
- With a list of frustrations on hand, break down the source of problems into categories that include: *Physical problems* (poor typing skills), *Lack of resources* (outdated computers, difficult or expensive machines), *Lack of experience* (brief exposure to computers) or *Fear* (insufficient understanding of computers).
- Think of ways to overcome such frustrations. For example, are there low-cost providers of recycled computers in the area? What are some of the ways of attacking a fear of computers? In what ways can physical barriers be overcome?
- Talk to students about the types of jobs they would like to get after they graduate from language classes: does the work involve computers? If so, how much? If not, do advanced positions within the same profession require computer skills?
- Bring in guest speakers, if possible, who represent careers that make extensive use of computers: software engineers, journalists, graphic designers, IT specialists, accountants, and academics, for example.

Issues to explore

Issue Teacher skills

Traditionally, many ESL teachers have said they don't feel it is 'their job' to teach computer literacy skills. But if they don't do it, then who will?

Exploration – action research

- Think about your own feelings about teaching computer literacy and develop a brief set of questions to see if others share your attitudes.
- Conduct an informal 'qualitative survey' of your colleagues by asking them about their attitudes towards teaching computer literacy. Write down the key points they make.
- Categorise your notes so that three to five themes emerge about the topic.
- Define each of the themes in a single sentence, and use quotes to support your framework.
- Sketch a model training curriculum that would provide ESL instructors with the skill set needed to teach computers effectively based on your thematic framework.

Issue Computer literacy as a means to an end

Note that computer use has occasionally been very high in certain refugee settings because users had a very real need for the communications opportunities offered by the Internet.

Exploration – questions to think about

- What would most motivate your learners to practise their computer skills?
- Why do overseas students frequently know how to use email?
- What are the key generational differences in attitude towards the Internet?
- Where can you find safe and authentic 'keypals' for learners wanting to use email?

CHAPTER TWO

Addressing learner needs

The second challenge facing the teacher is to address the range of needs that learning groups have. Many of the same personal characteristics and experiences that affect language learning (Ellis 2004) can also affect computer literacy learning. In addition, the complexity of computer hardware and software creates the potential for learners to diverge away from each other in different ways once they are in the computer room. While divergence and self-directed learning in a single classroom can be seen as a benefit of computer-based learning (Beatty 2003), such independent behaviour presents a number of practical issues for the teacher.

Me no like this box. No have this box at home. No need to learn computers. I hate this box.
(Derwent 2002: 4)

In this chapter, we address learner needs in terms of orientation and attitude.

Orientation

We know that many adult learners:

- are intimidated by computers and fear them;
- think computers are clever, and they themselves are stupid;
- have rarely used computers, typewriters or calculators;
- cannot see the link between computers and their future jobs;
- are happy to let their children work with computers, but see themselves as too old and see no need to use computers themselves;
- want to learn to use computers to help their children at home;
- see computer skills as an advantage in the workplace.

Teachers have also noted that even those students with the greatest phobias, once they are encouraged to engage with the technology, begin wordprocessing, sending emails and feeling greater confidence in their ability to negotiate the literacies in an English-speaking environment (for example, King Koi 2002).

Attitude

The development of a positive attitude towards computers is crucial to success in a language learning context (Lewis and Atzert 2000).

Particularly in the case of adult migrant learners and low literacy beginners, a negative attitude may be the result of:

- coming from a cultural background that does not encourage active, critical learning;
- a lack of previous exposure to the use of computers for learning;
- individual learning goals and basic literacy levels;
- not seeing or feeling a personal need to use computers;
- not being aware of the possibilities and opportunities that are available through using networked computers – for example, for email, letter and photo exchanges;
- a need for very gradual input and possible bilingual support.

Attitudes towards technology greatly influence the overall success of a computer-based syllabus (Lynch 2000). Attitudes deserve special consideration because students who are less comfortable are more resistant to learning. On the other hand, positive attitudes shown by willingness and enthusiasm can help students pick up computer skills.

Be aware that background factors can play a role in shaping attitudes due to differences among students in socioeconomic factors that may include:

- urban/rural upbringing
- level of education
- occupation/status/age
- embedded cultural norms related to gender or class.

In particular, many older students may block lessons dealing with technology because they:

- have embedded negative attitudes – ‘technophobia’;
- feel they are too old to learn and may ‘lose face’ in front of younger, more proficient students;
- think there is a need to know maths before using a computer;
- see no direct link between computer skills and the workplace;
- were previously exposed to poor teaching techniques, especially in early CALL lessons, which reduced their motivation.

To minimise resistance to computers, and thus help meet the needs of older learners, try these strategies:

- Include classroom preparation of vocabulary and a small number of specific tasks that will not overtax the students.
- Encourage learners to work initially in small groups or pairs. These pairings may comprise either weaker students together (so as not to lose face and not be anxious about expressing doubts and asking questions) or between more skilled students with less able ones to provide peer teaching.
- Start with the educational styles that learners are most familiar with, depending on their age, gender, cultural background and other demographic factors, in order to avoid too many stressors on the situation.
- Gradually acclimatise the learners to the computer room environment by making sure that the screen doesn’t become the sole focus of activity, for example. Stand and stretch on occasion.

Learning basic computer literacy is analogous to learning how to learn. Many immigrant students come from very disadvantaged backgrounds and have had scant formal education (Corbel and Taylor 2003). Such students are at a tremendous disadvantage in relation to their fellow students in a typical classroom situation. They have to learn the roles of teacher (language instructor) and student, as well as the expectations and skills that accompany this relationship, one that is taken for granted in OECD countries.

Teaching suggestions

Overcoming fears

- Make students feel less threatened by the computer.
- Tell them how stupid computers are. By pointing out how computers need to be told things very carefully like children, the students begin to pay attention to detail and take care with their typing in a maternal/paternal way in order to take care of the 'poor' computers, shifting the focus off their own developing skills.
- One indicator of expertise is to accept criticism gracefully when things go wrong; teach students not to blame others or computers when things go wrong.

Dealing with the distraction of the computer

- To a novice, the computer screen and equipment can be daunting – things flash, move and beep seemingly without reason. For some, computers can be extremely distracting, and there is a tendency for students to focus on the monitor instead of the directions or advice that you give them. Find the 'off' switch for the monitor.
- Carefully observe learners' initial reactions around computers to better gauge their level of comfort and familiarity.
- Be on hand yourself to help students focus on the tasks. Be ready to move around. Working with big groups, however, can be very demanding. Pace yourself, and limit the time spent with each group.
- Note that computer applications are designed to keep the user's attention. The screen is more interesting than the teacher.

Giving individual attention

- Learn to manage the fact that each learner is at a different point in the program, and may have different needs.
- Be sure to group students in ways that enable you to work closely with individuals – even small groups may be an advantage. Sometimes, dividing the class and modelling skills to smaller groups can be successful, although more time and organisation is needed. Beginners need as much individual attention as possible, quite often requiring physical guidance and direction in their movements.

- Note that it is tempting to show how to do something quickly and effortlessly, just because you're the expert. Resist this temptation! When modelling, say aloud what you're doing. Do it twice, three times. Pause between steps.

Working with skilled individuals

- When teaching students of mixed computer ability and knowledge, students who already know the computer skills being taught may become bored with the lesson and may feel that their time is being wasted.
- Encourage these students to look on the lesson as one that will teach them English, and not simply as a computer skill lesson. Have a particular section or feature ready to show them. Teaming them with a less skilled learner can sometimes work.
- Note that it can be tempting to teach to the few advanced students in the class who appreciate how much you know about computers. You may want to show them some great sites you've found, or display the crazy effects you can do with presentation software. Resist the temptation! Others will be bored rigid.

Judging literacy quickly

- Learn how to quickly assess the computer literacy level of an individual.
- Ask students if they have an email account. In most cases a student with such an account has basic computer literacy or more. Recently, it seems as if 99% of new students have email accounts, whereas a few years ago this figure might have been 80–90%.
- Note that this basic computer literacy does not mean that these students have the complete computer literacy needed to make the best out of their language learning. There are quite often holes in their knowledge or they need to learn more advanced literacy in certain areas.

Lesson plans

Lesson to self-assess computer literacy

Objective: Students will understand their level of computer skills.

Materials: Computers, teacher notepad for informal observations, handout, whiteboard.

Procedure:

Part 1 – at the computer

- Without instruction, allow students to work at the computer.
- Allow them to do as they wish as you make observations.
- Stop the lesson within 20 minutes.

Part 2 – away from the computer

- Introduce a handout that asks students to rank their abilities.
- Allow the students 10 minutes to respond.
- Collect the surveys and put them aside for later analysis.

Part 3 – away from the computer

- Lead a discussion that identifies different computer literacy skills.
- Write up these skills on the whiteboard.
- Mark skills that are ‘needs’ and those that are ‘wants’.
- Rank the needs at basic, intermediate and advanced levels.

Extension:

- Invite students to share their results with others while talking in small groups.
- Students earning similar rankings can work together in future lessons.
- Have advanced students enter the survey data into MS Excel for analysis.
- Teach report writing using the survey data as a basis.
- Handout: A computer literacy survey of student needs.

Lesson to foster peer learning of computer literacy

Objective: Students will gain a stronger understanding of their own level.

Materials: A list taken from the syllabus of key computer literacy skills, for example, using the Help function, navigating with hyperlinks, or how to launch an application.

Procedure:

Part 1 – at the computer

- Ask students to work with one or two others at a single workstation.
- Have one student give the other a brief ‘mini lesson’ on a skill.

Part 2 – at the computer

- Reverse roles, once again having one student teaching another.
- As the students stop working in pairs, go around the room to identify key skill areas.

Part 3 – away from the computer

- With new partners, have students interview each other about what they learned.
- Have each student write up three brief points about their new-found skill: what it is, why it is necessary to learn, and how to do it effectively.
- Reflect on how the skill can help foster language learning.

Extension:

- Collate all of the mini-lessons, and have the students create a class handbook.
- Provide students with the opportunity for peer tutoring at regular intervals.
- Pair advanced students with weaker students on occasion.

Lesson to establish positive learning attitudes

Objective: Students will become aware of their own attitude towards computers.

Materials: Whiteboard, computers, a brief Microsoft Word electronic document.

Procedure:

Part 1 – away from the computer

- Introduce the need for a positive, perhaps even a playful, attitude to computer literacy.
- Have students generate a list of factors that can shape attitude.
- Openly question negative attitudes towards gaining computer literacy skills.

Part 2 – away from the computer

- Brainstorm ways in which computer language skills can be mutually beneficial.
- Consider having students from other classes provide testimonials about computer literacy.
- Invite an employer in to discuss the role of computers in the workplace (if an employer is not available, provide a list of the number of ways that teachers themselves use computers).

Part 3 – at the computer

- Provide a brief electronic document that has several words underlined.
- Teach the students to use the in-built thesaurus and dictionary under the Tools menu to find related words that replace the underlined words.
- If appropriate, show students the spelling and grammar functions as an aid to writing.

Extension:

- Consider class awards for 'Most Improved', 'Most Willing' or 'Best Player'.
- If individuals' poor attitudes do not improve, let them work at their own pace.
- Make extensions by pushing 'learning how to learn' in the Information Age.

Issues to explore

Issue Encouraging self-assessment of needs

Students are generally good at assessing their own needs but are often hesitant to point out their own shortcomings. Examine ways in which they feel comfortable talking about their computer literacy needs with others who may be at different levels of experience.

Exploration – action research

- Divide students into small groups and explain that you would like them to develop a survey of computer literacy needs.
- Show students how surveys are usually conducted, using, for example, a five-point scale on which 1 = Strongly disagree and 5 = Strongly agree.
- Have students write a series of statements that indicate opinions on computer literacy.
- Type up a range of statements from the class, avoiding repeats or poor wordings.
- Distribute the survey in class, compile the results and discuss in class.

Issue Previous experience

What types of experiences in the past have shaped the way students view computers in your classroom? Are negative experiences being confirmed and becoming more embedded, or are positive experiences becoming more prevalent?

Exploration – action research

- Note which students have had previous negative experiences using the computer and ask them to list five things they do not like about computers; at the same time, ask students who have had positive experiences to list five reasons why they enjoy learning computer skills.
- Compile a set of the two lists into a classroom observation checklist.
- Use the observation checklist to note the areas where students seem to be most frequently frustrated and those in which they are positive.
- Report back to the students on your observations and ways to improve the situation.

Developing computer skills

The third challenge faced by the teacher comes with assisting low-level students in their development of the skills that are required to operate a computer. Effective typing, for example, demands fine-motor skills, concentration and lots of practice. Ironically, experienced computing instructors often struggle in teaching physical computer skills, as they themselves have become so proficient that they have forgotten what it is like not to know how to do something. For fluent typists and expert mouse manipulators, it is often difficult to be patient enough to help others.

Basic skills

At the basic level of computer literacy, students need to know how to:

- use a mouse and keyboard;
- open and close programs;
- utilise basic commands and menus in productivity applications (for example, Microsoft Office);
- save, copy, print, and open files;
- navigate the Internet effectively;
- operate a Web-based email account.

Intermediate skills

Students themselves can learn to gauge their own capabilities. At the intermediate level, essential computer literacy skills that students will need include:

- recognising file types, and the programs needed to open them;
- developing advanced wordprocessing skills;
- handling audio and multimedia files;
- conducting effective Web searches;
- recognising Web page validity;
- basic troubleshooting for computer ‘freezes’ and printer problems;

- an ability to transfer knowledge of common programs from one to another;
- automaticity in computer-related tasks.

Advanced students can self-assess through a 16-point checklist (Hatasa 1999).

Accessibility

In addition to a lack of experience with computers, students may encounter problems with accessibility due to limited financial, physical or mental abilities. For example:

- Only a small minority of instructors teaching with computers have adequate accessibility training.
- Many disabled students have not been regularly exposed to computers and computer literacy courses.
- There are often inadequate resources provided by educational institutions and workplaces to accommodate special needs, and the use of outdated software or hardware may limit technological solutions to physical challenges that include audio text readers, font size enlargers and foreign font packages.

Just as we should be concerned with monolingualism on the Web and the social-economic ‘digital divide’, so too should we be concerned about problematic access to learning materials on the part of even a small numbers of students.

(Goodwin-Jones 2001: 11)

Many students have specific problems with their hands. For example:

- Conditions such as arthritis, repetition strain injury (RSI), and carpal tunnel syndrome can make using both the mouse and keyboard extremely difficult.
- There is a high incidence of physical disability in many immigrant groups, especially in older Asian women.
- A number of students who have been in war zones are often missing fingers and hands altogether.

A simple truth that is often overlooked is that the keyboard is a significant barrier to progress in computer-assisted language learning (CALL). Effective use of the mouse, or mouse-based software tasks or interfaces, help lower this barrier, but note that mouse skills must first be mastered.

Learning how to type and use the functions of the keyboard is as important as using a pen to draw letters of the alphabet. Fortunately, there are now a number of resources available to help language teachers come to terms with accessibility issues (Moore 1999).

Accessibility issues also arise out of the relatively high cost of computing equipment. The lack of equipment can place computer literacy development out of the reach of many students because it affects:

- the ability to practise skills learned at school in the home environment;
- expectations we can have of our students to practise skills at home;
- the need to pay for upgrades in both hardware and software;
- the lack of a wider community with which to share computing skills.

On a positive note, there are now a number of websites that provide advice to assist learners with disabilities. Perhaps the best-known accessibility guidelines come from the World Wide Web (W3C) consortium initiative on Web accessibility [<http://www.w3.org/WAI/>], although typing 'accessibility' into a search engine will yield several options. From experience, overcoming accessibility barriers requires both personal effort and institutional initiative to be successful.

Navigation

Another challenge in computer literacy concerns the teaching of effective navigation practices. Having a sound understanding of virtual geography, or knowing how directories, folders and subfolders are structured on computers, can be daunting for learners. Most people seem to require a spatial metaphor to locate files, applications and operating system functions on the computer. Directory structures that incorporate several layers of hierarchies can be particularly difficult to understand. Beyond a single desktop, email and Internet addresses can be confusing to inexperienced learners.

Navigation issues arise partly out of poor application design, partly out of lack of solid training, and partly out of poor individual habits. Of course, designers and producers of software may not necessarily work out of the same set of assumptions that non-expert users do. Further, trainers may not anticipate problems that arise in diverse student teaching situations.

Indeed, experienced computer professionals may use inefficient computer literacy strategies themselves. As instructors, the best way to assist students from the start is to minimise the development of bad habits, to encourage a proactive attitude, and to display consistent and transparent patterns of computer use.

Applications and platforms

A key challenge in the development of computer literacy skills comes in mastering typical productivity applications that are found, for example, in the Microsoft Office suite. A single set of integrated applications share a common interface that can perform a range of diverse functions, including wordprocessing, database processing, desktop publishing, presentation, drawing, communications and spreadsheets.

Productivity applications serve as the basis for computer literacy training because:

- they are widely used in the workplace and in higher education, and thus provide authentic tasks in the classroom;
- proficiency with such applications transfers readily to facility with hypertext, file management, editing and spellchecking, and the use of Help functions;
- they inspire both attention to fluency and accuracy in skills development.

Other problems may arise when a student switches from one computer platform to another: namely, at times when they move between Macintosh, Windows or perhaps even Unix operating systems. Here, the 'desktop' itself appears quite different, but by and large the mainstay productivity applications have a similar look and feel.

Teaching suggestions

Mouse skills

- Understand that effective mouse control may need to be taught to some students in order for them to progress.
- Consider the use of the computer game *Solitaire*. For low-level learners, it means they can 'click and point' and 'drag and drop' without the worry of having to think about language content at the same time. Students find it fast, effective and amusing.
- On the Web, try *Orisinal* [<http://www.ferryhalim.com/orisinal/>]. This site requires the teacher to get the student onto the Net and into the page, but there are any number of mouse skill builders. One perennial favourite is the Bumblebee game.
- It is easy to forget that terrible feeling of inability. Keep an empathetic attitude as they struggle to acquire skills that you have long mastered.

Windows skills

- Use the students' emerging mouse skills on the various windows components. These should include the items on the corners of the window such as Close, Minimise and Restore.
- Ensure that students can use the Task bar to activate windows as well as the contents of the window menu.
- Make sure that students understand the difference between having windows active, inactive and closed, as well as the possibility of multiple versions of applications open in various windows.
- Note that the book *Computer literacies* (Corbel 1997) provides guidelines for skills development.

Navigation skills

- Using a whiteboard, introduce the concept of making and using outlines.
- Bring in a box of large hanging files, each of which contains folders, which in turn contain separate documents, as a way to introduce how the directory structures in computers work.
- Demonstrate the use of integrated Help functions in productivity

applications, and especially the 'Find' command that searches entire hard disks, CDs or external drives.

- Using a data projector and a computer, show the students how to create folders, and make subfolder and file documents, before allowing them to do it themselves on a computer.
- From the start, model and use good navigation and storage strategies. Maintain an uncluttered desktop, for example, and set up a logical directory structure. Choose logical filenames that end with appropriate extensions (for example, **.doc** for Microsoft Word documents, **.xls** for Microsoft Excel files, and **.ppt** for Microsoft PowerPoint presentations).

Essential wordprocessing skills

- Type upper- and lower-case letters, numbers and common symbols.
- Delete and insert letters, words, lines and paragraphs.
- Modify styles using a formatting menu to display different fonts, bold, italics or size of text.
- Incorporate headers and footers, including page numbers.
- Understand the use of 'View' menu, especially for outlines.
- Save a document onto the hard disk and to an external drive on a networked system.
- Open a document on another computer from a disk or external drive, and modify it.
- Print a document, both in hard copy and in 'portable document format' (**pdf**).

Choosing among productivity, educational and entertainment applications

- One way to instil computer skills is to teach them with a clear purpose in mind. To do this effectively, introduce applications according to whether they were built to enhance productivity, to serve an educational goal or to entertain.
- Learners at the lower end of the spectrum will likely be attracted to educational (CALL) applications that are designed to provide both visual and aural motivation, and are easy to use.

- The more proficient learners will want to go beyond building up language abilities through educational software and will likely want to learn productivity applications.
- Common menus exist in a suite of productivity applications, such as Microsoft Office, that allows work in one application to be shared by another. Demonstrate this by creating a graph in Microsoft Excel, for example, and then exporting it to Microsoft Word or Microsoft PowerPoint.
- Note that it is best to introduce a productivity application by working with a document that has already been created, rather than starting by creating a document.

Lesson plans

Lesson to improve mouse and typing skills

Objective: Students will make extensive use of the mouse to correct small mistakes.

Materials: A Microsoft Word document that contains a wide range of inappropriate style variations (for example, font sizes, use of different fonts, use of bold, capitalisation) and spelling mistakes loaded onto each student computer.

Procedure:

Part 1

- Tell the students that you found a crazy document that needs to be standardised before you give it to your boss.
- Inform them that it requires correct spelling, a consistent font type and appropriate styles before you are able to hand it in.

Part 2

- Demonstrate the use of spellchecking, the formatting menu and style commands.
- Try to ensure that each student uses the same style (such that when you print the students' documents they would look like photocopies of each other).

Part 3

- At the end of the exercise, have the students reflect on the point that documents with large variations in styles and fonts are difficult to read; thus, they should resist the temptation made by many beginners to produce 'crazy documents' just because the application is capable of doing so.

Also, consider using a poem or lyrics, and have the students vary fonts, colors and sizes to best portray the mood of different parts of the literary work.

Extension:

- Do the reverse: Start students with a standard Microsoft Word document and have them compete in a short time to make it look as crazy as possible through variations in style such as font type, colour and size.

Lesson to develop computer vocabulary

Objective: Students will learn the name of all parts of the computer.

Materials: Programs such as The Alphabet that respond simply and consistently to mouse rollovers and clicks.

Procedure:

- First, say the parts of the computer aloud, and ask students to repeat them many times.
- Second, hold their hands and make students look at what happens when they drag the mouse on top of the mouse pad (the cursor arrow moves around on the screen). This phase should extend until the student can successfully click on the right spot/icon on the screen, and therefore is able to open a particular CALL program.
- Once students are able to click on a specific spot, they will start hearing the sounds of letters in English, which will give a purpose to their clicking. Gradually, they will have to be shown and guided as to how to drag things on the screen and move them from one point to another; the students will then get audiovisual prompts and will start dragging with a purpose.
- Progressively, the students will be able to point, click, double-click and drag elements on the screen, and will start making a connection that 'if I do something with this little thing called a mouse, something will happen on the screen or a sound will come out every time I click on a certain spot'.

Issues to explore

Issue Dealing with teacher and learner stress

As anyone who has conducted a computer-based training lesson knows, truly addressing the needs of a diverse group of students can be exhausting. While one student is struggling to find a single letter on the keyboard, another has inadvertently wandered into an inappropriate Internet site. At the same time, a computer in one corner has frozen, and it appears as if the printer has jammed yet one more time. Somehow, the student who has all the bad luck with computers has sat at the workstation without a monitor. Teaching computer literacy, as one instructor said, can be like juggling five balls while riding a unicycle on a crowded city street and trying to eat an ice-cream cone on a hot day.

Exploration – action research

- Dealing with a stressful classroom begins with adopting a flexible attitude. Simply put, a computer literacy teacher has to remain fairly calm, learn to joke at little mistakes and be patient at seemingly trivial questions. A good teacher has to display a proactive attitude and encourage a sense of exploration. The ones who burn out in our experience are the ones who come in humourless, too confident and rigid. Ironically, it takes a lot of flexibility to deal with the steely binary logic of computers.
- One strategy for keeping sane is to promote learner autonomy throughout a course. State clearly that autonomy, not dependence, is the top priority from the start. Be sure that your first lesson is concerned with using the in-built 'Help' functions of applications. Encourage students to share computer skills in a cooperative peer-learning environment.

Issue Accessibility

Another area in need of further research is accessibility. All too often, it seems, we are willing to think of 'special needs' as one-off cases that simply require a bit of extra attention. Issues of equity and accessibility are rarely mentioned in the literature. Such an attitude, however, belies the fact that disabled students may hold perspectives that confront the

mainstream view, and force us to once again reconsider what and why we are teaching in particular ways. Hopefully, the outcome of research into accessible computer usage for second language learners would inform an overarching agenda to make our teaching of literacy practices as transparent and transferable to everyone concerned with 'designs of social futures' (Cope and Kalantzis 2000).

Exploration – action research

Check these sites for more information:

- Policies related to disabilities in Australia [<http://www.w3.org/WAI/Policy/#Australia>]
- W3C Web Accessibility Initiative: Curriculum for Web Content Accessibility Guidelines 1.0 [<http://www.w3.org/WAI/wcag-curric>]
- OZeWAI: the Australian Web Accessibility Initiative group [<http://www.ozewai.org/>]

Issue Looking for more ideas

Finding new resources for teaching can be a challenge at times.

Begin your search for resources by using the same skills that you teach to students. The Internet has a large amount of materials for teaching computer literacy, including the basics of wordprocessing and Web navigating. A number of these are designed with the ESL learner in mind. There are particularly good sites, even with complete lesson plans, in relation to teaching more advanced Internet computer literacy regarding using Internet search engines and website evaluation.

Still on the Internet, be sure to search for enjoyable games that can also help develop basic skills. Educational and children's games sites (found by searching on terms such as 'kids' games' or 'educational games', for example) often have online games that involve mouse skills, alphabet matching and basic numeracy.

Remember, too, that others may have done the work for you. Check the website section of professional journals. The online journal *Language Learning and Technology* [<http://llt.msu.edu>] provides a range of reports and articles from leading practitioners. The book *Language learning online:*

Towards best practice (Felix 2003) has numerous ideas for making a strong start in this area.

In Australia and surrounding countries, the Australasian Society for Computers in Learning in Tertiary Education (ASCILITE) is often recommended as a starting point. Membership is affordable, and new members can sign up to work with an experienced mentor. Much of the work in the group is devoted to teaching with one stream reserved specifically for language learning. More information can be found at the organisation's website [<http://www.ascilite.org.au/>].

Exploration – action research

Much of the research dealing with the way people work with computers comes out of the field of Human-Computer Interaction (HCI). The field draws on disciplines that include software engineering, ergonomics, information systems, marketing and psychology.

As you work with students in the classroom, try to develop a typology of their interactions. Are they, for example, hesitant? Risk takers? Do most problems stem from the design of the hardware, the software or the overall learning environment? As you increase your awareness of the problems they face, try to 'solve' them by making adjustments. Does presenting a document in a larger font size, for example, help some students? Or do the overhead lights throw too much glare on the screens? Write up your findings and solutions in the context of computer literacy for presentation at a teachers' conference.

Compile lists of useful sites related to second language teaching to share with colleagues.

Integrating computers and the syllabus

The final challenge that teachers face in the teaching of computer literacy skills is to integrate them seamlessly with language skills into a crowded syllabus. Three areas must be tied together:

- integrating the computer room and the classroom – with perhaps only an hour or two a week in the computer room, teachers must find ways to blend aspects of classroom-based instruction with computer-based delivery;
- integrating the language syllabus and the computer literacy syllabus – instructors must make it clear to students that both computer and language skills are part and parcel of the same competencies; and
- integrating educational (CALL) applications and productivity software – teachers are increasingly questioned on the point that ‘learning for the sake of learning’ is related directly to ‘learning for the workplace’.

Experienced teachers know that these three relationships are interlinked.

The enormous educational potential of the computer is confronting teachers with their pedagogic responsibilities as never before. Never before have teachers so urgently needed to know what knowledge they want to transmit and for what purpose, to decide what are the more and the less important aspects of that knowledge, and to commit themselves to an educational vision they believe in.

(Kramsch 1993: 201)

need to have such connections, and provide a learning environment that encourages active reflection about what is being learned for what purpose.

However, the relationships among these three areas can also be vexed. By packing all three into a single session, managing the competing demands that come out of each area dilutes the aim of a lesson. Students know this. Teachers, therefore, are the ones who have to work at making these relationships work together effectively; they are the ones who need to draw the connections, reinforce the

The first key to a successful integration, then, is to make it clear to students that they must learn ‘more than a language’ in order to be considered literate in the wider world. Certainly, that is what the specialists are telling us (Cope and Kalantzis 2000; Lankshear and Knobel 2003). It is teachers who have to explain, signpost and justify their approach to students. As in all good teaching, the links between an approach, an activity and a goal of the overall syllabus must be made transparent. To stay motivated and see relevance in their work, students sometimes need to be reminded that they must learn to walk before they can run.

Secondly, structured lesson planning in an integrated curriculum becomes all the more important. Against the backdrop of that wider goal of ‘becoming literate’ (as opposed to ‘only’ learning a language or achieving a particular score on an exam), be sure that one activity complements another. Highlight the language skills at the start of a lesson, and then explain that work on the computer will help to achieve those skills. Vocabulary words, for example, can be introduced through typing lessons. Review objectives at regular intervals, set benchmarks and adjust for varying levels of proficiency. Proper lesson planning is noticed by students and will help gain their trust that each activity is relevant. Over time, students will come to see effective computer usage as integral to the multifaceted concept of literacy.

Often overlooked, a third way to integrate computer literacy with language learning is through continuous assessment activities. To students, work that is assessed signals that it is taken seriously and is important. Such tasks need not be burdensome: indeed, it is preferable that they are short, appear regularly at the end of a lesson and are marked informally (Short 1993; Oosterhof 1996). To reduce the workload, assess only a small portion of the class at a time. As the term progresses, assess more and more components of computer proficiency as a part of language proficiency. Through the assessment process, students better appreciate the link between *all* the skills needed to be literate.

Finally, teachers need to know that their efforts to foster computer literacy are appreciated and acknowledged by colleagues, course coordinators and senior management (Ertmer 1999). All too often, teachers report that they feel isolated from colleagues when they conduct

computer-based sessions, and thus come to resent their work (Debski and Gruba 1999). Because of this, the entire staff within an institution needs to share the vision that literacy is the primary goal of the instructional program. For teachers, this means being proactive and positive in believing that what they do matters; for administration, this means making sure that any extra effort is acknowledged, rewarded and perhaps even celebrated.

At the national level in Australia, teachers themselves note that there is an insufficient formal recognition of computer literacy skills in Certificates in Spoken and Written English (CSWE). Without this recognition, both teachers and their institutions are operating in a policy vacuum: that is, although they are responding to the marketplace and to their clients, the teaching of computer literacy is indefensible at the macro-level of needs analysis. Quite simply, the CSWE must not only include, but highlight, computer literacy teaching. With a clear link to the syllabus, we argue that professional development, improved facilities and expanded network access needs to be much more strongly promoted. Computer literacy forms the basis for tertiary literacy, workplace skills, and a syllabus that keeps pace with a fast-changing language classroom.

Teaching suggestions

Planning a full cycle of instruction

A successful lesson has a clear beginning, middle and end.

Before students start working in front of the computer, prepare them by pre-teaching key vocabulary items and concepts. Preparation helps take away some of the mystery and fear of computers. You can do this by:

- teaching both hardware and software computer-related vocabulary;
- showing diagrams that illustrate basic computer functions, common icons and links amongst local and global networks;
- providing explanations of advanced concepts, such as the use of remote virtual disks, to high-level students.

As you teach, stay in control of the computer laboratory through a variety of teaching strategies and managed activities by:

- using a data projector to show specific functions as you talk;
- providing prepared written instructions that illustrate step-by-step procedures texts for key skills such as saving documents;
- giving some individual attention to low-level students;
- encouraging peer tutoring and allowing sufficient time for practice;
- summarising and reviewing key points at the end of a lesson.

Act as a 'sage on the stage' – that is, an expert lecturer who demands attention – to demonstrate specific skills and computer functions. Having said that, however, work also as the 'guide on the side' by only providing gentle advice as students realise their own mistakes, recover from errors and otherwise come to learn from personal and peer experience.

Issue Pulling together resources

To be an effective computer literacy instructor, you may need to act as an 'academic entrepreneur' who brings together a variety of physical, computer and human resources. Teachers often struggle to make the transition from working alone to managing the team required to run lessons in a computer laboratory. Focused leadership, planning and creativity are needed to tackle the challenge.

Be sure to access the computer laboratory frequently so that you gain confidence using it well. Schedule time in the room alone. Familiarise yourself with the environment before you teach in it. Check to see if the room has a dedicated instructor's computer, a data projector and whiteboard. If not, plan to adjust your lessons to make more use of printed handouts. If the room does have a data project, work out how to use it. Remember to check how strong the projected images are and darken the room if necessary. As you work with administrators, try to schedule lessons so that optimal Internet access is available. As Web usage grows throughout the world, network speeds can vary dramatically during the day.

When you evaluate the workstations, strive to make sure that each one is set up in almost exactly the same way. That is, if an icon for one application appears on the left hand side of a toolbar for one computer, make sure that it appears in exactly the same space for all computers. Students can become easily confused when computer desktops vary widely. In your pre-teaching, point out common icons and explain where they are commonly located. Anticipate variations and encourage peer tutoring. Finally, check out where the on/off switch is for the computer monitor. During a lesson, have students turn monitors off when you are demonstrating to avoid distractions. Have the students face you as they listen. Once you have shown the task, allow students to turn on their monitors and begin to practise what they have been taught.

Most importantly, learn to work together with specialist teachers and technical staff. At some schools, specialists work side by side with ESL teachers in an effort to promote computer literacy. If you do co-teach, be sure to plan ahead so that lessons are fully coordinated. The specialist is likely to move quickly through material and may need to be reminded that vocabulary and concepts are new to many learners. Knowing technical staff, and how to contact them, helps when you run into problems. Again, if possible, give staff an indication of the applications you will be teaching and ask them to be available for emergency situations.

Linking computer skills to syllabus elements

| LEVEL | Core competency | Related skills | Related vocabulary and resources |
|-------|--|---|--|
| I | <i>Can use CALL software for beginning language learning.</i> | Can log on as student network user. Can open and exit applications. Can identify main computer components. Can use mouse to move pointer and manipulate navigation tools. Can use basic screen icon navigation tools to find relevant activities and information. | Screen, mouse, pointer, keyboard. Point, click, double-click, drag. Buttons, menus, scroll-bars, up arrow, down arrow. <i>Picture Dictionary, Alphabet, Mavis Games.</i> |
| II | <i>Can use standard CALL software.</i> | Can use standard navigation tools. Can complete standard activity types. | Level, Play, Pause, Forward, Backwards, View Text, Cloze, Dictation, Drag, Match. <i>Issues in English.</i> |
| | <i>Can access standard CALL software in a networked environment.</i> | Can use basic browser functions. Can log in. Can use hyperlinks. Can navigate lesson menu. | Login, password, user ID. Back, Forward, Refresh buttons. <i>acl English.</i> <i>Virtual Independent Learning Centre (VILC).</i> |
| | <i>Can use basic word processor functions.</i> | Can name, save, print, close, retrieve. | Save As dialogue box/ Open dialogue box. Save in field/ Look in field. Drive and folder map. Filename. Print dialogue box. <i>Microsoft Word.</i> |

(Continued on page 42)

(Continued)

| LEVEL | Core competency | Related skills | Related vocabulary and resources |
|------------|---|--|---|
| II (Cont.) | <i>Can create a basic document with some formatting.</i> | Can key in a short text (title + one paragraph). | Shift key, caps lock, space bar, enter key, alphabet keys, punctuation keys, wordwrap. <i>Microsoft Word.</i> |
| | <i>Can modify a document.</i> | Can correct typographic mistakes. | Cursor, arrow keys, backspace, delete. <i>Microsoft Word.</i> |
| III | <i>Can manage an email account.</i> | Can create a new email account. Can check for incoming messages. Can compose and send. Can delete unwanted messages. Can add attachments. Can download and view attachments. | Compose, Send, Subject, Send, Draft, Folders, Attach, Browse, Download, Scan. <i>Yahoo mail, Hotmail.</i> |
| | <i>Can find and retrieve information relevant to topics of study on the Internet.</i> | Can operate an Internet search engine. Can choose a relevant source from search results. Can bookmark. Can select, copy and paste text from the browser window. Can save images from the browser window. Can manage multiple windows. | Internet terminology. Menu bar, tool bar. Active window. Task bar. Switch, minimise, maximise, restore, close, task bar, task bar icon. <i>Internet Explorer, Google, ESL websites, General info websites.</i> |

Lesson plans

Lesson to integrate language learning and literacy goals for pre-intermediate learners

Objectives: Students will be able to write a short text recounting a series of events

Students will be able to use a wordprocessor to produce a formatted short text

Materials: *Write Away!*
[<http://www.nceltr.mq.edu.au/writeaway/Home.htm>]

Text types in English series
(Anderson and Anderson 1997–1998)

Procedures:

| Procedures | Language learning focus | Computer literacy focus |
|---|--|---|
| Pre-teaching | Understanding the purposes of different text types; personal accounts. Raising audience awareness. | Vocabulary: Hard return, word wrap, layout, font size. Format features of this text type: Indent, title, headings. |
| In the computer laboratory | Writing complete sentences. Sentence length variations. Starting new paragraphs. Mastering punctuation. | Computer functions: Hard returns, word wrap, capitalisation, title, headings, font sizing. |
| Post-teaching reflection and extensions | Discuss ways in which a sharp awareness of audience can help focus selection of text type. Show examples of texts that reach a particular audience. Compare characteristics of differing text types. | Use Style commands to systematically create a particular format feature. Use templates. Create a table of text type characteristics and share it using email. |

Grammar lesson, '*matching opposites*', shows simple development of both language and computer skills for low intermediate students

Objectives: Students will be able to recognise opposites, prepare for writing descriptions, create a table in a Microsoft Word document, insert auto shapes into a Microsoft Word document, and use the highlighter in a Microsoft Word document.

Materials: Worksheet with two columns of opposites, Microsoft Word application.

Procedure:

Building the field (one hour in classroom beforehand)

- In pairs, ask the students to describe their partner.
- Come together as a group and collect all the adjectives that students have used, and write them on the board.
- Try to get the students to think of an opposite for each adjective.

Model text (one hour in the computer laboratory)

- Give out the worksheet with two columns of opposites.
- In pairs and using a dictionary, try to find the meanings of the words and match up the opposites.
- Open Microsoft Word and model using the data projector on how to create a simple table with two columns. Ask students to create a table with two columns. The students can then copy another list of adjectives in one column and a list of opposites in another.

Joint construction

- Using a data projector, show the students how they can pair the opposite words either by highlighting in the same colour or by inserting arrows using Autosshapes.

Individual construction

- Students can complete the pairing exercise.

Extension:

- Students can use the vocabulary learned to write a description of a famous or familiar person.

Issues to explore

Issue The role of teachers in the computer literacy classroom

Ironically, the presence of networked computers in the language classroom can bring into question the role of the instructor. Some argue that the instructor should be much less prominent and act as a facilitator to student-directed learning; others make the point that teachers need to be ever more in control to motivate and direct student learning. Neither position needs to be held at the extreme, but they suggest two end points along a wide continuum. Examine what factors in the classroom would affect your role as a computer literacy teacher the most – student proficiency level, your pedagogical philosophy, the sophistication of equipment or institutional guidelines?

Issue Project-based teaching

Many educators see project-oriented CALL (Debski 2000; Kern and Warschauer 2000) as a useful approach for developing both language and computer skills. As part of a larger shift in education from cognitivist to socio-cultural theories of learning (Koschman 1996), students work together in small groups on projects and activities that include, for example:

- identifying specific goals and tasks when given broad explanation;
- locating reference sources, including computer resources such as search engines, that can be used to complete tasks;
- writing a presentation using a suite of productivity applications;
- presenting the completed project both online and face-to-face;
- reflecting on what was learned to gain insights into personal language levels, group processes and computer literacy skills.

Taking the Web to task (Corbel, Gruba and Enright 2002) provides further information about project-based CALL. Related work by Gruba (2004) provides guidelines for collaborative task development.

Exploration – action research

Investigate what is needed to develop a project-based unit of work for a typical topic in your curriculum. Try to create a principled syllabus, being

sure that you specify both language and computer literacy goals. As you think about the project, think of the variety of resources that will be required and include both team formation and scheduling issues. Consider how the project will be assessed in terms of formative and summative goals, as well as acknowledging the differences between individual and group efforts. Write up collaborative tasks. Are project-based approaches to teaching realistic to undertake at your institution?

Glossary of computer terms

| | |
|-----------------|---|
| application | a computer program written specifically to perform a specialised task |
| ASCILITE | Australasian Society for Computers in Learning in Tertiary Education |
| attachment | a document sent along with an email |
| backup | to copy data onto a disk, tape, etc, as a safety measure |
| CALL | computer-assisted language learning |
| CPU | central processing unit |
| crash | a computer shutdown caused by a software or hardware malfunction |
| cursor | an indicator on a video screen that shows where the next character will form and that can be moved across the screen to the place required |
| data projector | an electronic projector for displaying images from computers onto a screen |
| desktop | a graphical user interface displayed on a computer screen on which various icons represent files, folders or programs, which can be moved, accessed, added to, put away, or thrown away in ways analogous to the handling of files, documents, notes, etc, on a real desk |
| electronic text | a text distributed on electronic media such as floppy discs, CD-ROMs or via online services |
| email | written messages sent asynchronously across a computer network; email can be sent to one or many people if you know their email addresses |

| | | | |
|-----------------|---|------------|---|
| email account | a personal account for sending email; email accounts can be with an email client, either through a standalone client or an Internet service provider | keyboard | the set of keys on a computer that allows instructions or data to be entered into the computer |
| email address | an address for people to send your email to; includes userid and the server you are using to connect you to the network | keypal | a penpal, except that the communication is via the Internet, rather than traditional mail |
| file | a computer document with a name (given by the writer); a set of data stored on a computer | login | a protocol used for opening an email account or a computer that is connected to a network |
| filename | an identifying name given to an electronically stored computer file, conforming to limitations imposed by the operating system, such as length or restricted choice of characters | Macintosh | a trademarked name for a multi-user, multitasking operating system or environment that features a graphical user interface |
| folder | space on a computer for storing files on a similar topic | menu | a range of optional procedures presented to an operator by a computer |
| hard disk | a rigid magnetic storage disk, usually built into the computer, providing fast access to stored data | monitor | a video display unit for text and graphics on a computer |
| hardware | the physical components of a computer system | mouse | a small hand-held device attached to a computer for controlling the cursor, the movement of the mouse across the desk paralleling the movement of the cursor to items on a menu, commands being located by the cursor and activated by pressing a button on the mouse |
| HCI | Human-Computer Interaction | multimedia | a computer system or program that incorporates multiple elements such as text, graphics, sound, animation, and video |
| hyperlink | a way to link text or other information in a Web-like, rather than a linear, manner | navigate | to find a route through hyperlinks and commands or other online pointers in software or on the Web |
| hypertext | the facility for creating a text drawn from a number of different computer packages, each of which can be accessed from within any other | network | a system of connecting computer systems or peripheral devices, each one remote from the others |
| icon | an image that represents a concept (for example, a closed envelope to represent an unread email message) | online | working on a computer that is actively connected to a network |
| Information Age | a period in the history of the world in which possession or provision of information is seen as a key element in society | password | private identification for a computer system to identify a person; a userid is also needed; the password is to protect people's information and should not be shared with anyone else |
| Internet | a network of computer networks that links computers around the world; often abbreviated to 'Net' | pdf | portable document format |
| ISP | internet service provider; a company that provides (for a fee) access to the Internet | | |
| IT | Information technology | | |

| | |
|---------------------------|---|
| productivity applications | a suite of integrated application programs that share a common interface and can perform a range of diverse functions, including word processing, database processing, desktop publishing, presentation, drawing, communications and spreadsheets |
| server | a computer that links one computer to another |
| software | a collection of programs loaded externally which cause a computer to perform a desired operation or series of operations |
| spellcheck | to check the spelling of a text file or document using a spellchecking tool or program |
| UNIX | a trademarked name for a multi-user, multitasking operating system found on many computers |
| url | uniform resource locator; the address for a website or other Internet facility |
| userid | a personal identification code entered into a computer when signing on |
| website | a collection of files/documents on a specific subject, housed on a server connected to the World Wide Web |
| Windows | a trademarked name for a multi-user, multitasking operating system or environment that features a graphical user interface |
| wordprocessor | a computer program that helps people write, using a computer |
| World Wide Web | a hyperlinked database residing on the Internet, providing network-accessible information; often abbreviated to 'Web' |

Bibliography

Below is a list of readings referred to in the text or references for further reading on the topic. In addition, teachers can find an extensive listing of ESL/TESOL websites where they can locate additional activities or keypal suggestions at the NCELTR Resource Centre:

<http://www.nceltr.mq.edu.au/eslsites.html>

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Note: Unpublished AMEP Research Centre reports are available from the NCELTR Resource Centre, Macquarie University: <http://www.nceltr.mq.edu.au/resources/>

Teaching computer literacy. Contents ACKNOWLEDGMENTS SERIES INTRODUCTION Published by the National Centre for English Language Teaching and Research Macquarie University, Sydney NSW 2109 for the AMEP Research Centre on behalf of the Department of Immigration and Multicultural and Indigenous Affairs Corbel, Chris, 1951- . Teaching computer literacy. Bibliography. ISBN 1 86408 755 2. Computer literacy Study and teaching. 2. Language and languages Computer-assisted instruction. In fact, digital literacy is separate from computer literacy. It requires critical thinking skills, an awareness of the necessary standards of behaviour expected in online environments, and an understanding of the shared social issues created by digital technologies. Teaching digital literacy requires an ethical dimension. Students need to understand what it means to behave well online and how to act in environments where the public and private worlds are blurred. Teaching computer literacy to students in secondary school may improve their thinking skills and employability, but most teachers lack the understanding and classroom time to teach computer programming.[20]Teachers should recognize the importance of computer education. If students can improve the introduction and use of computer literacy, their reading and writing skills can also be improved. Computers will also be further developed. [21]. Literate Schools. Sign in. Literate Schools. Teaching Literacy. Hannah W. Follow. This idea of different literacy skills and the importance of teaching towards literacy or intelligences has been increasingly important in the last few decades. Ideas like Howard Gardner's multiple intelligences, discussed in his text *Frames of Mind*, have driven and shaped teaching philosophy. Scott Seider chronicles this change, and his own personal experience in the article, "An Educator's Journey Toward Multiple Intelligences."