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CALL and the development of reading skills: Bridging the gap between theory and practice

A B S T R A C T In the midst of the increased availability of computers in South African schools and the publication of a White Paper on e-Education, (language) teachers are facing the new and exciting challenge of successfully integrating ICT in their teaching. In the light of these developments, it becomes imperative to develop guidelines for the effective integration of computers in language and other areas of teaching. Unlike most overseas countries, Computer-assisted Language Learning in South Africa is still in its infancy. Therefore, it becomes necessary to draw on international best practices and findings of the most recent research on CALL. The focal point of this article is the value of computers for developing reading skills, with reference to the use of text reconstruction activities, multimedia CD-ROMs and the World Wide Web. Emanating from this extensive literature survey are critical success factors for the integration of computer-based and conventional reading activities. These factors include the goal of the lesson, the time available, learners' level of language proficiency and learners' level of computer literacy.

Keywords: Computer-assisted Language Learning (CALL), ICT, e-Education; text reconstruction, multimedia CD-ROMs, World Wide Web, reading skills

1. Introduction

The use of computers in the learning and teaching of a second or foreign language is a relatively new and unexplored, but at the same time fast developing, area of research. One of the reasons for its rapid development is the pace of technological advances made in computer technology. Since the 1960s, Computer-assisted Language Learning (CALL) has developed from learners using behaviourist drill and practice exercises on mainframe computers to teachers in the 1980s designing communicative language exercises on microcomputers.

At present, CALL no longer refers to just the use of custom-made language programs or software, but also the use of software not originally designed for learning and teaching, such

as word processors, email, the Internet and the World Wide Web (WWW). Likewise, the use of computers for the development of reading skills has evolved from using authoring programs for designing text reconstruction activities to using specifically designed multimedia CD-ROMs and using the WWW for searching and downloading information.

2. Computers in South African schools: then and now

Although the implementation of CALL internationally already took place in the 1960s, it was only in the 1980s that South African companies, universities and a few privileged schools (cf. Benn, 1989:613; Chance, 1993:147; Mehl & Sinclair, 1993:3-14; Oberem. 1993:29-49; Lippert, 1993:69-89, 12-141) used the mainframe computer.

At the time, Benn (1989:613) comments as follows on this situation:

> At present there are a large number of teachers who are disillusioned and question the usefulness and relevance of computers in schools. Furthermore, many school committees are in throes of purchasing computer equipment but are not sure what should be done with it. (...) CAL (Computer-assisted Learning) lacks direction in our schools.

Two decades later, this bleak picture has changed significantly, or has it? Statistics indicate that the availability of computers in South African schools has slowly but surely increased. On a national scale, the availability has grown from 13% in 1998 to 39, 2% in 2003. Availability in Gauteng schools alone over these five years has grown from 23,6% to 88,5% (Lundall & Howell, 2000; Department of Education 2003:12-13).

This growth is the result of Government, the private sector, parastatals and non-governmental organisations responding positively to the challenge of bridging the digital divide. This commitment culminated in projects such as Gauteng-online, the Khanya project in the Western Cape, the Telkom project in North-West and Limpopo, the MTN project in KwaZulu-Natal, Mpumalanga and Limpopo, the SCOPE project in Mpumalanga and the Northern Cape and the Bhekanani project in Soweto (cf. Rademeyer, 2001:6; Departments of Education and Communications, 2001:15; Du Preez, 2002; MTN Education Portfolio, 2003; Immonen, 2003; Boost for Soweto Isipho Primary School, 2002:10).

In 2003, the National Department of Education further committed itself to the integration of ICT in schools by publishing a Draft White Paper on e-Education. The overall goal of this document is the transformation of learning and teaching by means of ICT. The National Education Department wants to achieve particular strategic goals by 2013.

Of particular interest for this article is the obvious symbioses between the first objective ("...the knowledge, skills and support they (the teachers) need to integrate ICT in teaching and learning.") and the last objective ("The research and development community must continuously assess current practices, and explore and experiment with new technologies, methodologies and techniques...") of the White Paper.

Although the increased availability of computers in schools and the commitment of the National Education Department's White Paper on e-Education are admirable initiatives, they are not a guarantee for the effective integration of ICT in the different curricula. Up until now, the only indication of guidelines for the integration of ICT in education is a document (WCED,

2006) developed by the Western Cape Education Department. According to its foreword, it provides guidelines on aspects such as the general use of ICTs across all subjects, the use of ICTs in each specific FET subject, the use and evaluation of educational software, the use of the World Wide Web in each subject and the digital resources provided by the WCED.

However, after scrutiny one finds that apart from a broad description of the aspects listed in the foreword, the document only provides the teacher with a list of suggested software and the URLs of useful websites. Moreover, in spite of the learning outcomes and assessment standards listed, there is no indication as to HOW teachers can integrate ICT in such a way that learners can achieve the given outcomes.

Hence, in the absence of any guidelines for the integration of ICT in language teaching at school, this article focuses on one aspect of CALL, i.e. the use of computers for the development of reading skills. The following research questions are addressed:

- How have computers up to now been used in the development of reading skills?
- How do these computer-assisted reading activities differ from conventional, paper-based reading activities?
- What does the existing empirical evidence suggest about the effectiveness of using computer technology for the development of reading skills?

Based on the findings of this literature survey, a discussion on some of the critical success factors of CALL for the development of reading skills is presented.

3. Computer-based text reconstruction activities

Text reconstruction activities are some of the earliest computer-assisted reading activities. Teachers can design these computer-based activities with popular authoring programs such as Storyboard, Copywrite, Clozewrite, Clozemaster and Gapkit, developed by CALL pioneers such as John Higgins, Graham Davies and Marco Buzzone (cf. Higgins, 1983:5; Underwood, 1984:58; De Quincey, 1986:61; Nicholls, 1995).

Although these authoring programs have evolved considerably over the years, most of them are still available in some form or other, either as a stand-alone program such as Gapkit (http://www.camsoftpartners.co.uk/gapkit.htm) or as part of authoring packages such as Wida's *The Authoring Suite* (http://www.wida.co.uk) or Camsoft's *Fun with Texts* (http://www.camsoftpartners.co.uk/fwt.htm).

Old or new, these authoring programs allow language teachers to create reading exercises by merely adding the content (text) and leaving the functionality to the program. On the learner's instruction, the program will delete certain parts (or even the whole text), leaving open spaces or lines to indicate the missing letters and punctuation marks. Learners work in pairs or groups to reconstruct the given text by guessing the missing letters and filling them in. Typically, learners start with the short words and move on to the longer ones, sometimes using the help facility offered.

One of the major advantages for teachers using authoring programs is convenience. While it is possible to design the same activity on paper, the use of an authoring program makes it so much quicker and easier to do (De Quincey, 1986:81; Davies, 2003). The advantage for

learners lies in the level of control they have over their learning experience whilst busy with a text reconstruction activity. They can determine the level of difficulty by choosing the interval of word-deletion and decide if they want to use the help facility.

With a paper-based version, the teacher decides on the interval of deletion and thus determines the level of difficulty. Furthermore, in conventional teaching learners might feel hesitant to ask for help in fear of the reaction they might get from their teacher or fellow learners. Given the fact that learners have control over their learning experience, one could safely assume at this point that this will be a motivating factor for them to do the activity and that they will interact with the text (computer) as well as fellow learners. If this is indeed the case, these factors should be conducive to the development of reading skills.

It is these assumptions that are empirically tested in the research of Windeatt (1986:79-97), Piper (1986:187-198) and Nicholls (1995).

Windeatt (1986) observed that learners doing text reconstruction activities on the computer were seemingly stimulated to participate and to such an extent that they actually enjoyed the experience. However, he also noticed that while learners were busy with the activity they did not interact much with one another. This gave rise to the question: are the learners perhaps more intrigued by using the computer than by the language activity itself?

As far as the motivation of the learners is concerned, they were equally motivated doing either the computer-based or the paper-based activity. In other words, the medium did not influence their motivation to participate. When doing the computer-based activity learners spent two to three times more time than with the paper-based activity. This could be due to the learners needing more time when typing the answers or perhaps they just enjoyed the computer-assisted activity more.

The analysis of the video-recordings indicate that although the members of a group gave different amounts of input, everyone took part in the discussion – during the computer-assisted as well as the conventional text reconstruction. Again, the medium seems not to have influenced the interaction amongst learners.

Regarding the contents of the learners' interaction, the findings indicate no significant difference between the two activities. In both cases the interaction of learners consisted of making and turning down suggestions but with little explanations for it.

As far as the improvement of reading skills – which is one of the primary objectives of a text reconstruction (cloze) activity – is concerned, the findings of Windeatt (1986) indicate that learners are more likely to guess when doing the computer-based activity and they are hesitant to use the help facility. They sometimes discuss (although to a very limited extent) grammatical issues.

Although it is very difficult to determine whether learners use the contextual cues in the text when doing the cloze activity, Windeatt observed that learners – in both cases – tend to refer to the rest of the text when discussing an answer. Some learners even read the text aloud.

These observations are unfortunately not enough evidence of the learners' cognitive activity while doing the cloze exercise, mainly because cognitive activity is not externally visible. This cannot be generalised, as there were only a few learners who read the text aloud.

The research findings that followed (Piper, 1986; Nicholls, 1995), also indicated that the interaction is limited and that there is not conclusive evidence of learners' cognitive activity. That makes it almost impossible to tell if the use of text reconstruction activities – with any medium – can develop their reading skills.

The results of Piper (1986) indicate that the activity designed by Clozemaster generated the most interactivity, while those designed with Copywrite, generated the least. The quality of learners' conversations was not as high because they mainly consisted of interjections and repetitions or intrapersonal conversations. This intrapersonal activity, Piper (1986) carefully suggests, might be an indication of cognitive activity.

Nicholls (1995) used Storyboard to design text reconstruction activities for eight intermediate adult English learners working in pairs. When the audio recordings were analysed, they had covered a wide variety of language functions, but were not of a very high quality. Learners were also having intrapersonal conversations.

Nicholls also agrees that it is difficult to determine cognitive activity, making it difficult to determine if the use of text reconstruction activities are useful for the development of reading skills.

Based on the research of Windeatt (1986), Piper (1986) and Nicholls (1995) it should be clear that, in spite of aspects such as learners' control of their learning experience, text reconstruction activities generate minimal language use, that there is not sufficient proof of cognitive activity and therefore one cannot proof that these activities enhance the development of reading skills.

The value of text reconstruction activity seems to be limited. As Piper (1986:190) puts it: the only value of text reconstruction activities is that it gives learners with a minimal language proficiency the opportunity to hear, see, speak and possibly think about the new language. For learners with a more advanced proficiency of the language, it remains in essence a futile exercise.

4. Multimedia CD-ROMs

When the Personal Computer (PC) replaced the microcomputer in the mid-1990s, it brought us multimedia CD-ROMs integrating text, graphics, sound, animation and video in one seamless output.

Since then, it has become possible to design language-learning CD-ROMs with text that can be annotated with different types of media (in different combinations) such as electronic dictionaries, word definitions, translations, grammatical explanations, pictures, sound (a voice pronouncing a word or reading out the full text), animations or video. If learners have difficulty understanding the text, they can click on an annotated word or phrase linking them to any of these multimedia annotations.

Research done on the effectiveness of multimedia CD-ROMs is mostly experimental, comparative studies, such as those comparing the use of video annotations with picture annotations (Hanley *et al.*, 1995:57-66; Chun & Plass, 1996:183-198; Al-Seghayer, 2001:202-232) and sound annotations (Duquette & Painchaud, 1996:143-172). Others, such as Lomicka (1998:41-50) compare the effects of different types and quantities of multimedia annotations on the development of reading skills. More recent research (Ercetin, 2003:261-283; Ariew &

Ercetin, 2004:23-259) focuses on the effect of different multimedia annotations on learners that are on different levels of language learning.

Hanley *et al.* (1995) compares the use of video and pictures to understand which medium is more effective in helping learners understand and recall a written text. They used 62 grade five French learners, divided them into two groups and gave everyone twelve identical French texts to read. A short video clip introduced the first group to the text, while the teacher introduced the second group to the text by means of a narration as well as pictures contextualising it.

The findings of this experiment showed that in the comprehension and memory test the first group's results were significantly better than the second group. From this, Hanley *et al.* (1995:63) concludes that the use of video is more effective than pictures (graphics) for developing reading skills, as it helps learners to conceptualise the target language when they have to recall the text they read.

In three consecutive experiments, Chun and Plass (1996) used 160 second-year German students at three different universities in California, all using the multimedia CD-ROM, *Cyberbuch*. The three groups of students all followed the same procedure: first, the researchers introduced them to the multimedia CD-ROM and then they watched a two-minute preview of a German short story, after which they individually read this story on their computers and wrote a vocabulary test. While reading, students could use any of the available annotations any amount of times. Certain vocabulary items had annotations with English definitions, colour graphics or video clips, whilst all annotations included a voice, pronouncing the word.

The results of their experiment show that students obtained better test marks when using text and picture annotations. When using only text or a combination of text and video annotations, their marks were considerably lower. Chun and Plass (1996) conclude that in spite of the fact that both graphics and video convey visual information, it seems that the use of graphics allows students to recall annotated words better, which is in contrast to the findings of Hanley *et al.* (1995).

Al-Seghayer (2001) also experimented with the use of vocabulary annotations using graphics and video. His findings support that of Hanley *et al.* (1995), and refute those of Chun and Plass (1996). For his research, he used 30 English learners and divided them randomly into three groups. They all used a multimedia CD-ROM containing an English story with certain words annotated with text, graphics, video and sound.

The first group had access to annotations in the form of printed text, the second had access to printed text and graphics and the third had access to printed text and a video clip. After reading the story, the three groups wrote a vocabulary test and the third group achieved the best results. Al-Seghayer (2001) concludes that because video makes the integration of media possible, it helps learners to improve their concentration and to conceptualise an image of the word. In so doing, it helps them to understand and recall the meaning of the word.

Duquette and Painchaud (1996) used French learners to compare the effectiveness of video with sound annotations. They found that when these learners use video annotations it puts them in a better position to guess the meaning of new words. These findings give some support to those

of Chun and Plass (1996) and Al-Seghayer (2001) giving more credibility to the effectiveness of using video annotations to enhance the development of reading skills.

In research that followed, Lomicka (1998:41-50) used a multimedia CD-ROM to investigate not only the effect of the type, but also the amount of media to establish if it enhances the learner's ability to understand a text. She divided twelve French learners into three groups and requested them to read a French poem. Each group read it under different circumstances, after which their comprehension of the poem was tested.

The first group read the poem without any access to any help facilities of any kind. The second group had access to conventional help facilities such as word definitions in French and English translations of French words. The third group had unlimited access to all the available facilities, which included definitions, translations, graphics, references, questions as well as word pronunciations.

To get an idea of the learners' cognitive activity they were requested to "think aloud" while reading the poem and trying to understand it. In this way, Lomicka hoped to overcome the problem of not being able to "see" cognitive activity, as identified by Windeatt (1986).

Whilst learners in the first group experienced problems with the meaning of certain words, the learners in the second group overcame this by consulting the definitions and translations. Although learners in the third group had access to more facilities, they still experienced problems understanding the meaning of certain words. In addition, not all learners with access to the facilities knew how to use them.

The second and third group mostly used the definitions in English and French. The second group used more definitions in French and the third group more English definitions. Although the third group had access to six different facilities, they preferred to use the conventional word definitions. Only two learners used the pronunciation facility, although that did not help to improve their comprehension of the text. The same applies to learners who used the grammatical explanations.

Lomicka (1998:49) concludes that a limited vocabulary is one of the biggest problems learners encounter when reading a text in the target language. Trying to overcome this, they consult the word definitions resulting in a direct translation into their mother tongue, which is not a guarantee that they will have a better understanding of the target text.

Regarding the type and amount of media, she concludes, that in spite of the limited use of multimedia, the use of help facilities (compared with conventional or no help facilities) still has a positive effect on learners' comprehension of a text.

In later years, Ariew and Ecrecetin (2004) comment on Lomicka's research and remind us that although this study on the effectiveness of multimedia annotations is important, its value should not be overestimated and in the light of the small sample size, one should not generalise the results.

Ercetin (2003) investigated the use of annotations by intermediate and advanced level students. The research was particularly interested in the frequency with which they accessed annotations and the amount of time spent on it. The results showed that although the intermediate students accessed all types of annotations more frequently, both groups preferred similar types

of annotations. They preferred those that provided extra information about the topic and not about the word, such as definitions and pronunciations. They accessed it more frequently and spent more time on it.

Ariew and Ercetin (2004) took the findings of Ercetin (2003) one step further. Now that they were certain that learners prefer the contextual annotations, they needed to establish if this actually facilitated reading comprehension for intermediate as well as advanced language learning students.

For their research, they requested 103 adult ESL learners to read a text for general comprehension and use multimedia contextual annotations. Although the advanced group tested better than the intermediate group in the reading comprehension test, the use of annotations did not facilitate reading comprehension for either group. In addition, there was a negative relationship between time spent on video and graphics annotations and reading comprehension. This suggests that video annotations might distract the users and interfere with reading comprehension.

5. The World Wide Web

The WWW with its huge digital corpus gives the user access to such a large amount of authentic information (unlike the prefabricated language found in some language textbooks) in different languages, formats and text types (online newspapers, magazines, radio broadcasts, specially prepared grammar, pronunciation and vocabulary exercises). This in itself makes its value for the learning and teaching of languages almost obvious.

In spite of these obvious advantages, the Web also brings with it certain obstacles that may complicate its use in language teaching. These include technical problems (long waiting times to access information), financial problems (cost related to the acquisition of computers, programs, training, telephone lines), lack of training and familiarity with computers and the Internet (learners as well a teachers), unsuitable or too much information on the Web making it difficult for learners to focus (Mosquera, 2001).

Bearing in mind the advantages of using the Web and trying to overcome the disadvantages, language professionals over the years designed reading activities to be used online (Mak & Mak, 1995; Mosquera, 2001; Taylor & Gitsaki, 2003) or offline (Warschauer, 1995; Gitsaki & Taylor, 2000; Dudeney, 2000; Windeatt *et al.*, 2000; Kung, 2001a, b, c; Mosquera, 2001; Taylor & Gitsaki, 2003; Linder, 2004).

5.1 Online reading activities

When teachers started using the WWW in reading activities, most of their first efforts were very loosely structured. The teacher would typically encourage learners just to explore the Web, visit any website they like and then give oral feedback to the rest of the class. Davies (2001) warns about the pitfalls of these unstructured activities as learners may end up visiting websites with undesired content. It is also possible for learners to get "lost" on the Web, being overwhelmed by the vast amount of information.

In order to eliminate the possibility of learners being overwhelmed by the amount of information on the Web, it is a wise idea to introduce them to the use of search engines. These are ideal

tools for skimming and scanning exercises. For example, learners can be asked to use a search engine to find any online newspaper, go to the weather section and find the forecast for a city or town; or they can locate the official site of a given university and find out what programmes they offer in a particular faculty (see Mosquera, 2001).

Should learners not be comfortable or skilled enough to use search engines, the teacher can put together a database of websites that s/he thinks would be useful for a particular group of learners and then ask them to access the websites. When Taylor and Gitsaki (2003) experimented with this, using a group of first-year students in Japan learning ESL/EFL, these students experienced it as "satisfying and thrilling".

A variation of this approach is to design information gap activities using websites containing information on, for example on-line newspapers (Gitsaki & Taylor, 2000:50-51), TV schedules (Dudeney, 2000:59-60), inventions and inventors (Dudeney, 2000:125), recipes (Dudeney, 2000:79-80), movies and popular music (Windeatt *et al.*, 2000:26-29; Kung, 2001c), careers and jobs (Windeatt *et al.*, 2000: 56), popular literature (Kung, 2001a) and museums (Kung, 2001b).

However, this approach does offer certain disadvantages. Firstly, there is the issue of conformity: although learners access websites themselves, they all access the same websites. Secondly, the teacher controls learners' exposure to web resources. Thirdly, it is very time-consuming for teachers, having to visit the websites beforehand. Lastly, not all the websites may always appeal to every learner – some might feel they are wasting their time and may become bored.

In an effort to overcome the aforementioned shortcomings of the previous online reading activity, Taylor and Gitsaki (2003) developed the following activity: They start by introducing a topic (e.g. Vacation Abroad) to their students; then they involve them in vocabulary activities (e.g. complete a questionnaire on travelling preferences, talk about different vacation destinations and activities). The web search then takes place outside of class – students search for specific information, fill in a chart with information they found, bring the information back to class as well as list of the websites they used, after which they share their information with the rest.

They found that this approach, as with the others, had advantages as well as disadvantages. The first is that learners are in charge of their learning experience. It took two 90-minute sessions to carry out their activities, and because students searched the web outside the classroom, it allowed them more time to complete tasks. Secondly, the activity promoted diversity in classroom as students brought different information to the classroom and were eager to share it. Lastly, the activity motivated the students and promoted active participation by the students, mainly because it allowed them to personalise their activities. The only disadvantage the teacher might experience during this activity is having no control over the information that the learners access.

5.2 Off-line reading activities

In instances where schools do not have access to enough internet-connected computers, language teachers can still use the Web as source of information. On websites such as http://www.free-ebooks.com and http://www.ebookdirectory.com they can download complete electronic books and pieces of literature like fables, short stories and novels for their literature courses or reading lessons.

5.3 The value of the Web

When comparing the manner in which the WWW presents information with the way information is presented on paper, the most obvious difference is the use of hypertext, hypermedia (pictures, graphics, sound, animation and video) and hyperlinks. With hyperlinks, the reader need not read the text in a linear fashion (from left to right and top to bottom). By clicking on a hyperlink, the reader gets access to different, but related information. This enables the reader to follow different paths when exploring the text.

As far as the value of this type of reading is concerned, there is opposing viewpoints. For Grey (2001:34) the use of hyperlinks is beneficial for reading as it connects related pieces of information, making it easier for the reader to understand the relation between different parts of a text and by so doing acquire a better understanding of the text when they read it. Davies (2001) disagrees and argues that the use of hyperlinks can be distracting for the readers as they may get lost on the Web and end up on web pages not related to the original text.

Nevertheless, the use of hyperlinks remains a distinguishing characteristic of the WWW and web-based reading. Research on the use of the Web for reading activities the past decade focussed on its effect on:

- learner attitude (Osuna & Meskill, 1998:71-92; Gitsaki & Taylor, 2000:43-57)
- the learner's knowledge of the culture of the target language (Osuna & Meskill, 1998; Andrews, 2000:357-376)
- the development of reading skills (Ganderton, 1999; Gitsaki & Taylor, 2000)

Osuna and Meskill (1998:71-92) found that learners have an overwhelming positive attitude when doing web-based language activities. As much as 85% of their respondents indicated that in spite of some technical problems they experienced, they still enjoyed the activities. They ascribed their positive attitude to the accessibility of the Web, the convenience of its use and the usefulness of the information.

The findings of Gitsaki and Taylor (2000) coincide with this as they indicate a positive attitude of learners using the Web. The respondents ascribe their increased motivation to experiencing the vastness of the WWW and because they were given the opportunity to acquire ICT skills to use when they leave school.

Taylor and Gitsaki (2003) wanted to establish learners' attitudes and beliefs about using the web as part of their English language-learning program (EFL). For their experiment they used 112 Japanese first-year university students at pre-intermediate level of English proficiency. They received a 90-minute lesson every week and after 14 weeks they completed a questionnaire. By then they had completed five Web search projects. Most students (96%) viewed the Web to be a valuable learning tool. They felt that using the Web has taught them more computer skills and helped them to learn more about the English language and culture. However, they did not experience the Web to be a useful place for learning vocabulary and grammar.

In the research of Osuna and Meskill (1998), they also investigated the use of the Web to see if it can improve learners' knowledge of the culture of the target language. Spanish learners were given five culture-related activities and in the questionnaires they completed, 88% indicated that their knowledge of the Spanish language and culture improved.

Andrews (2000:357-376) took it one step further by comparing the use of the Web with the use of conventional teaching aids (books, encyclopaedias, newspapers, etc.) trying to establish under which circumstances learners will experience a more authentic contact with the culture of the target language. The results showed that those learners using the Web experienced contact that is more authentic, primarily because there was more information on the WWW and it is was more recent.

In his research Ganderton (1999:49-66) investigated the effect of using the Web on the development of reading skills and although he could not proof that learners' reading skills improved, he concluded that learners approach the information on a web page differently due to the availability of hyperlinks. According to the findings, learners focus not only on the hyperlinks, but also on the highlighted parts of the text. In order to understand the text they use specific strategies, such as first looking for familiar words to help them understand the rest of the text.

The findings of Gitsaki and Taylor (2000:47-57) support those of Ganderton (1999). They also found that learners use specific reading strategies when reading information on a website. They found that by doing this learners not only learn new words, but also how to use it, as these new words are normally used in a phrase of sentence.

6. Discussion

The current practices and research findings on the use of text reconstruction activities, multimedia CD-ROMs and the World Wide Web for the development of reading skills give an indication of the critical factors language teachers need to take into account when implementing CALL for the development of reading skills. These factors include the goal of the lesson, the time available, learners' level of language proficiency and learners' level of computer literacy.

There is no conclusive evidence that text reconstruction activities can enhance the development of reading skills per se. Therefore, if the goal of the lesson is the development of reading skills, the teacher should rather not opt for text reconstruction activities. If the learners are at beginner level and you want to put them at ease with and stimulate their interest in both the language and the use of a computer, the use of computer-based text reconstruction activities is an option worth investigating.

Although designing computer-based text reconstruction activities is timesaving for the teacher, it seems as if learners, in spite of limited interaction with their peers during a computer-based text reconstruction, spend more time completing them on computer than on paper. However, the time spent on the activity is not a complete waste, as learners may use it to get acquainted and more comfortable with the language as well as with working on the computer. The teacher should keep this in mind, allowing learners enough time to do a computer-based text reconstruction. It should also prove useful with learners with a low level of computer literacy.

The teacher should also take into account that most software allows learners to determine the interval of deletion, and they may use the help facility as often as they like, allowing them to determine their own pace of learning and the time spent on the activity.

The unique characteristic of using multimedia CD-ROMs in CALL is that learners have access to

multimedia annotations that can assist them in comprehending the meaning of difficult words in the text. Although there is inconsistency in the research findings, it seems safe to assume that the use of video and picture annotations has a positive effect on learners' comprehension of the text. So, if the goal of the lesson is text comprehension, integrating a multimedia CD-ROM should prove useful.

The available research also shows that if learners use a multimedia CD-ROM with annotations there is no guarantee that they will use any of the annotations or that using them will necessarily enhance the development of reading skills. It is clear that considerable research on the effect of multimedia annotations on the development of reading skills is necessary. Not nearly enough research is available that will allow teachers to make informed choices on selecting a language learning CD-ROM judging by, for example the types of annotations used.

Until there is evidence that is more conclusive, language teachers should approach these CD-ROMs with an open mind, allowing learners to explore the novelty of multimedia. It will only be to their advantage to experiment with the different types of annotations using as many and as often as they prefer, and by so doing find their personal preferences.

When using the WWW for the development of reading skills one of the critical factors is learners' level of computer literacy and how skilled they are at using a browser, search engine, subject directories and hyperlinks. In cases where learners' ICT skills are very low or non-existent, the teacher will obviously first have to introduce learners to the new technology and equip them with the necessary skills. In cases where a group of learners have mixed abilities and skills, it is advisable to allow learners to work in pairs or groups.

In order to overcome the problem of learners getting lost on the Web or being overwhelmed by the amount of information or ending up on websites with unsuitable content, the teacher should plan a web-based reading activity carefully. Learners can be given a list of URLs of the particular websites. This will obviously require more of the teacher's time in having to visit all the websites beforehand. When planning a web-based reading lesson, teachers can integrate it with conventional paper-based activity. Apart from searching for information on the Web, one should allow learners the opportunity to speak and write about it in class.

7. Conclusion

This article gives account of an extensive literature survey of the use of CALL for the development of reading skills. From these findings, certain critical factors for the effective integration of CALL for the development of reading skills were distilled. Having done that, it is clear that the true challenge for language teachers when implementing CALL is not only to take into account all these factors but also at the same time experiment with new, innovative and creative ways of integrating computer-assisted activities with conventional classroom activities. If we allow conventional and computer-assisted language teaching to complement each other, learners should be able to enjoy the best of both worlds. Researchers on the other hand, should continuously assess these integrated CALL practices and in doing all of these not only will they bridge the digital divide, but also the existing gap between theory and practice.

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