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Abstract

This thesis investigates the advantages and challenges facing teachers in the process of applying ICT (Information and Computer Technologies) and especially CALL (Computer-Assisted Language Learning) in EFL (English as a foreign language) teaching in Norwegian primary schools at the intermediate level (grades 5 to 7). The aim of the study was to explore the extent and the manner ICT and CALL were promoted on the basis of the guidelines in the national curriculum *L97* for English. The research was primarily quantitative, based on data gathered from an electronic questionnaire survey among teachers throughout Norway. In addition, two interviews with teachers using ICT frequently in their lessons supplied the study with a qualitative dimension.

The study describes the situation of CALL in Norwegian primary schools and additionally discusses the possibilities of improving the state of CALL and ICT in general in the process of EFL education in relation to the *L97* curriculum. The study analyses the results of the survey and interviews in the context of theoretical background about the nature and history of CALL. It includes a review of some research studies relevant to the topic of the thesis.

The original assumption in the study was that ICT was an excellent learning tool that could be used to assist teachers and pupils to acquire new knowledge and skills in EFL. The background was the emphasis on computer literacy in EFL in the *L97* national curriculum. It was considered important to find out about teachers' proficiency in using ICT and CALL, what ICT technology was used, and what the benefits of it were for the pupils. However, the results of the study suggest that the ICT situation in EFL does not reflect the intentions of the curriculum. The findings induce great concern, especially regarding primary teachers' formal training, both in English and ICT.

A discrepancy was found between theory and practice in the implementation of CALL in EFL at the intermediate level. On the one hand, the curriculum explicitly suggested a transformation in the EFL learning environment by introducing computer-mediated language learning as part of the national curriculum in English. On the other hand, neither schools nor teachers appeared to be fully prepared for the transition to a digitalised EFL learning environment.

At the same time, some positive effects of the application of ICT technologies in English lessons were registered, especially pupils' motivation and interest.

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1 INTRODUCTION

1.1 Background

The overall aim of this thesis is to investigate to what extent and how Information and Communication Technology (ICT), and especially Computer-Assisted Language Learning (CALL), are used as an aid to learning English as a foreign language (EFL) in Norwegian schools at the intermediate level (grades 5 to 7), and what benefits English teachers and learners encounter when using ICT as an education tool. According to the definition of ICT in the Wikipedia online dictionary, the abbreviation ICT, *Information and Communication Technology or Technologies* (ICT or ICTs for the plural form), stands for any technology developed to store, manipulate, retrieve, transmit or receive data[1]. Beatty (2003:7) defines CALL as 'any process in which a learner uses a computer and, as a result, improves his or her language.' According to Lotherington (2007)[2]:

> The twenty-first century finds us at a critical juncture for reevaluating English language and literacy teaching agendas. The technological revolution has facilitated and augmented human communication such that everyday interactions now essentially include digital interfaces. Language, text, and discourse norms and practices are being rapidly expanded and reinvented in response to new media and global networks. The language driving the majority of intercultural web traffic is English, which reinforces its position as a global language and adds an insidious dimension of cybercolonialism. Teachers are in crisis: domains for English language socialization now extend from known geographical and social contexts to the global panorama of the virtual world in which we, too, are learners. Information and communication technologies (ICT) have created new literacies that are required by learners of all ages if they are to fairly contend for academic and economic success.

The present study is a combination of quantitative and qualitative research conducted in primary schools in Norway. The research is primarily based on a questionnaire survey of ICT use in English. The questionnaire was addressed to teachers of English at the intermediate level. The choice of the age range was determined partly by the fact that young language learners as a group have been receiving increased attention (Nikolov, 2000; Rixon,

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[1] Wikipedia. Information and Communication Technology.
<http://en.wikipedia.org/wiki/Information_and_comunications_technology> 12 Nov 2008.

[2] Lotherington, H. 2007. *From Literacy to Multiliteracies in ELT*.
<http://www.springerlink.com/content/t222156732575v20/ > 30 Oct. 2008.

2000). In addition the recent curricula for English have more expectations for oral and written language development among children of the 5th, 6th and 7th grades than the previous curricula. These three grades are also the last stage of primary school and, therefore, are essential as a foundation for future language and literacy progress in higher grades. There are four main sections of the questionnaire: gathering information on teachers' background, ICT resources at the schools, ICT usage as such and evaluation of the effects of computer-assisted learning on the pupils' progress in English. Although the computer is only one of the numerous elements of ICT, in this study the term *ICT* refers first and foremost to computers.

In addition, a summary of two interviews with teachers who regularly use ICT in English at the intermediate level in Norwegian schools has been included. The focal point of the interviews was the application of various CALL technologies to EFL learning. The two participants present their evaluation of the role of ICT for English language acquisition. The two teachers are intended to represent exponents of CALL, agents promoting computerised literacy in English in Norwegian schools at the chosen level. The aim of the interviews was to distinguish the educational grounds where CALL literacy practices are most likely to improve the learning processes. Supported by experience and enthusiasm, these two teachers have introduced CALL theories into practice. However, they only represent a sample of two.

Research into establishing the exact influence of ICT on children's literacy seems to be rather inconclusive. However, this field has been and still remains the subject of great interest for scientists and pedagogues. Nobody can deny the importance of ICT in everyday life. Thus, the subject draws a great amount of attention and interest.

Most of the recent researchers, including Haywood and Hutchings (2004), agree that modern learning environments should include ICT as a learning tool with great potential for both children and teachers. According to Barr (2004:29), the introduction of ICT in a classroom in order 'to facilitate behaviourist and constructivist forms of learning' started already in the early seventies: "Generic and specialized Computer-Assisted Learning (CALL) software have been used to enhance the learning capabilities of students in many areas of study, including language learning [Computer-Assisted Language Learning (CALL)]."

In terms of globalisation, CALL plays a particularly important role. Nowadays, one starts to find a correspondence between West-European and North American standards for curriculum and grading systems. The same tendency may be observed on the level of education itself. New discoveries find their ways into education, regardless of their places of origin.

Nevertheless, some teachers may find ICT to be a threat to the learning process. Until recently, the focus of ICT studies was mostly aimed to prove or disapprove new methods versus traditional approaches in terms of effectiveness. Opinions on the functionality of technologies in the learning process are often represented by extremes: technophobs or technophils, which does not explore all the aspects of the advantages and/or disadvantages of ICT as a learning tool. The negative attitude towards ICT in a classroom may be partly caused by lack of experience. However, the picture does not seem to be complete with such an explanation. Snyder (2002: 154-157), in his critical theory of technology, anticipates failures in some attempts to use technologies for learning as well as 'unforeseen consequences [of] good intentions and seemingly good projects'. Some of the seemingly pro-ICT studies have revealed, for instance, that ICT does not seem to be of any assistance for oral language acquisition (Barr, 2004). Meanwhile, ICT and computer software in particular receive generous feedback from most of the researchers in the field. Barr (2004:30) finds that word-processing software encourages young learners to express themselves in writing and takes away the fear of misspells and their own illegible handwriting. Jones and Fortescue (1987: 98), in their study, give a wide list of roles that a computer may assist with for language learning activities: 'quizmaster, games manager, workhorse, information source, 'intelligent' cassette controller and medium for exploration'.

The present study is inspired by the Norwegian national curriculum *(L97)* regarding approaches to the study of English, where among others, Information and Communication Technology (ICT) is presented as a part of the syllabus for the acquisition of the English language in Norwegian schools (*L97*:238). *L97* was the curriculum in force in autumn 2005, at the time the teacher survey presented in this thesis was conducted; since then the *L97* curriculum has been replaced by the new curriculum, *Kunnskapsløftet (K2006).* The creators of *L97* recognised that a modern child, a potential pupil, is exposed to a digital world on a daily basis and, thus, the whole concept of *literacy* as such, and English literacy in particular, alters with the progress of technological and communicational technologies. "Literacies change as technology opens new doors for information and communication" (Kozdras et al., 2006:519).

In the introduction to the *L97* curriculum for English, foreign language skills are defined as 'essential for contact and introduction with other people'. Indeed, for a small language community like Norway, in the epoch of increasing cross-cultural cooperation,

English remains the key tool for communication and information exchange in the global network.

Modern technologies and computers in particular play a significant role in the everyday life of the Norwegian society. Consequently, Norwegian children should be introduced to positive and educative functions of the computer technologies in the early stages of their development, including computer-based foreign language learning practices, in addition to more traditional foreign language learning approaches. The *L 97* curriculum states that 5th to 7th graders should use word processing and work with computer programs. Computer-assisted activities in the classroom are especially important after the recent introduction of national tests in English, which are carried out with the help of a computer program.

1.2   The aims of the present study

The thesis aims to investigate the general situation of the ICT applications and accessibility in English language teaching at the intermediate level in schools all over Norway and to determine the extent and benefits of the appliance of ICT and CALL in English lessons. Even though several Scandinavian studies have been conducted on the subject, e.g. Lund (2003), not enough is known about how well-trained teachers are to use ICT, what ICT items are used in classrooms at this level, how they are used, for which purposes, and what benefits they have.

The main research questions are:

1. To what extent are teachers trained to use ICT in English lessons at the intermediate level?
2. To what extent are computers used during English lessons?
3. What ICT technologies are used to promote EFL learning at the intermediate level and how are they used?
4. What are the effects of using ICT in EFL classes?

On the basis of the *L97* curriculum, one would expect that ICT is a very important device for acquiring skills in English. In addition, one would assume that computer-assisted activities motivate and assist in the process of mastering the English language.

1.3   Outline of the thesis

Chapter 2, *ICT and CALL: Elaboration of the Notions*, elaborates on the concept, nature and history of ICT and CALL in the context of education and language learning. The chapter also presents the expectations for CALL in the Norwegian national curricula *L97* and *K2006*.

Chapter 3, *The Models and Applications of CALL in Second-language Acquisition*, discusses the possibilities and approaches for the employment of computer-mediated language learning in the process of language acquisition.

Chapter 4, *Call: Attitudes and Beliefs*, examines concerns, issues and anxieties linked to the use of ICT in language learning projected by teachers and scholars in the course of the short history of CALL. The chapter also suggests possible solutions for the matters at stake. It also discusses the future of CALL. Finally, the chapter reviews some studies related to the topic of the thesis.

Chapter 5, *Methods*, describes the subjects and methods applied in the study. The chapter includes a presentation of the empirical base developed for the present study.

Chapter 6, *Results*, provides a statistical analysis of the questionnaire results submitted by teachers of English at the intermediate level in Norwegian primary schools. The chapter presents the survey data in tables and figures.

Chapter 7, *Teacher Interviews*, provides insight into the CALL applications in practice in two primary schools where English teachers are motivated to use ICT in EFL lessons.

Chapter 8 discusses the findings and Chapter 9 concludes the thesis.

2   ICT AND CALL: ELABORATION OF THE NOTIONS

2.1   Introduction

The present chapter discusses the concept and nature of ICT and CALL. The chapter is divided into the following sections: explanations of ICT and CALL, ICT in the Norwegian curricula, and the history of CALL.

2.2   What is ICT?

In order to discuss the role of ICT in the process of acquiring a second language, it is first necessary to elaborate on the subject of ICT. In recent years one can come across the acronym *ICT* in almost every aspect of human activities. The term, which implies electronic information-processing technologies, has left its computer-related domains and started a new life in various, sometimes most unexpected areas. In the course of the last ten years the English vocabulary has been enriched by such word combinations as *ICT in education, health care, or libraries*. The new technologies are often associated with promoting innovation, increasing productivity and enriching and facilitating our daily routines. The transition into the digital realm is in progress, yet the question arises rather often, especially by the older generation: What is ICT? People have accepted the new term, developed some vision of what the subject is about and launched the word into their own language, taking for granted that their collocutors would immediately recognize the term and its implications the way they would expect them to. However, practice has shown that a considerable number of teachers refer to the term remaining unaware what it denotes, and some do not even know what the acronym stands for.

A broad definition of ICT (*Information and Communication Technology or Technologies*) includes both traditional equipment, such as radio, television, cellular phones, satellite system, print and video materials, and newer technologies, such as computers and networks, hardware and software, virtual reality, distance education applications, mind-computer and interface technologies[3].

[3] Wikipedia. Computer-Assisted Language Learning. 17 November 2008
<http://en.wikipedia.org/wiki/Computer_assisted_language_learning>.

However, in addition to covering such a variety of facilities, ICT may have a narrower definition when applied to some particular sphere of activities, as, for instance, ICTs in education. Since the subject of this research is ICTs in the process of foreign language learning, a precise definition should be made of what ICT implies with reference to ICT in education.

When referring to ICT (ICTs) in this study, it refers primarily to computers and computer-related products – stationary and portative computers with implied accessories and various computer software. In addition it refers to:

- Internet and Intranet
- Television
- DVD and VCR players
- Smart-board, also known as Interactive blackboard

The reason for narrowing the subject to the chosen facilities and devices lies in the nature of the topic of the study. All the above mentioned communicative facilities are rather common, with one exception: Smart-boards, which at the present time still remain unexplored by the mainstream English teachers. This situation is probably caused by the relatively recent introduction of the product to schools in addition to a lack of Smart-board promotional programs on the educational market.
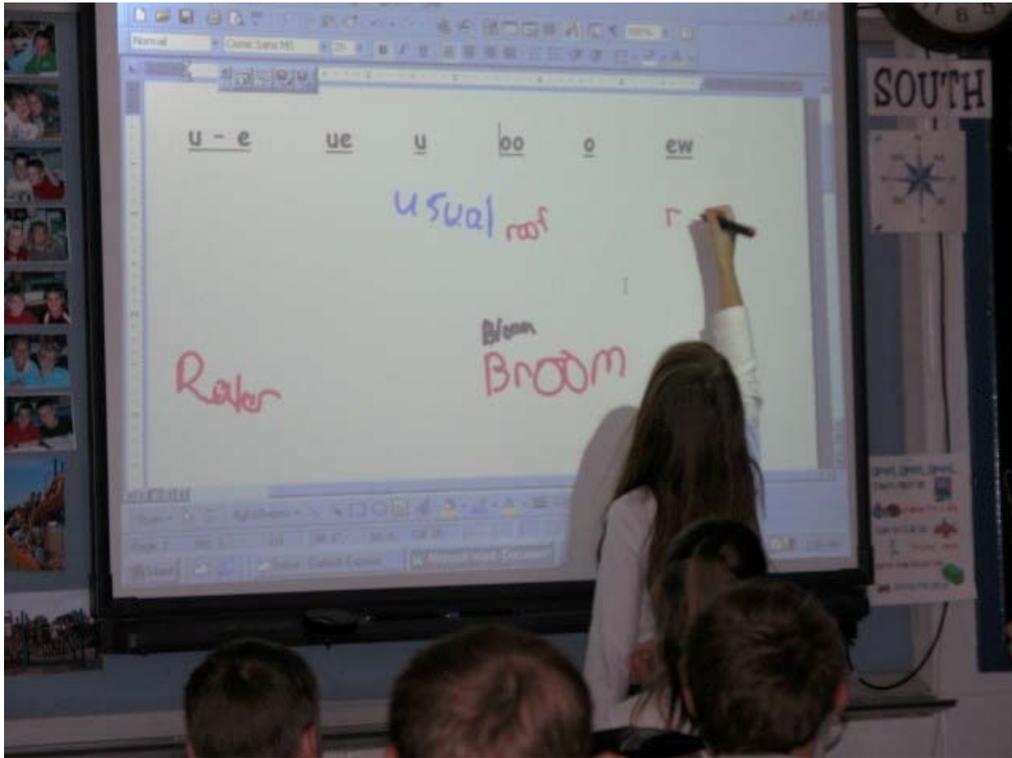
Figure 1: The application of Smart-board in English language learning[4]

In his article, Criswell (2008)[5] reveals the origin of the term *Smart-board*; it was coined after a trademarked brand of product. The broad name for Smart-board, according to Criswell (2008) is *Interactive White Board* (IWB). Smart-board or IWB can be defined as a device that in connection with 'a computer and some type of large video display, makes the surface of the display become touch sensitive in some manner and allows it to be used to control the computer.' (Criswell, 2008). He argues that IWB gains increasing popularity in schools due to its interactivity that encourages audience collaboration and, thus, increases overall retention of the lesson content.

2.3   ICT in the national curricula

A central objective of learning a language is to gain the ability to communicate. The process of acquiring a language consists of four fundamental skills:

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[4] Copied from *SmartBoard Web Resources* < lg.wsdweb.org/sbweb/smartboard.jpg> 11 Nov 2008.

[5] Criswell, C. 2008. *What is a SmartBoard? Smartboards in Education and Business Increase* <http://computer-monitors.suite101.com/article.cfm/what_is_a_smartboard> 03 Nov. 2008.

- Listening

- Speaking

- Reading

- Writing

Training these skills implies improving the learner's overall language proficiency, which is why teachers are encouraged to exploit new channels of communication and interaction. Thus it is important to focus on the ICT activities that promote the development of these four skills.

According to various studies (e.g. Lund, 2003:1; Kymes, 2005:492), the situation of ICT availability in schools has changed drastically. Teachers in Norway are supposed to be ICT literate to the extent necessary for introducing various ICT based activities in class, not only English language teachers, but all teachers in general.

In the 1997 curriculum *(L97),* a whole paragraph is dedicated to information technology in the English learning process:

> Information technology has provided scope for new ways of working with language. It enables pupils to participate in real language communities by communicating in English with people in many parts of the world. Software, including multimedia programmes, is undergoing constant development. The very form of technology invites independent learning through curiosity and exploration.

<div align="center">

(*L97*:238)

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The *L97* curriculum recommends introducing pupils to ICT-assisted English learning activities already in the second grade: Pupils should have the opportunity to ' […] play with computer programmes in English.'

The following are quotations from the *L97* curriculum for English for the fifth and sixth grades in relation to the ICT.[6]

- Grade 5: 'Pupils should have the opportunity to […] use word processing and work with computer programs.'

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[6] There is no direct reference in *L97* to acquiring English with the aid of ICT for the 7th grade pupils.

- Grade 6: 'Pupils should have the opportunity to […] try various approaches to writing, e.g. process-writing, and use information technology and media.'

The current national curriculum, known as *Kunnskapsløftet (K-2006)*, suggests an even more significant role to the development of ICT-proficiency in Norwegian secondary schools. The following is an extract from *Kunnskapsløftet*, discussing the role of ICT skills in the English learning process:

> Being able to use digital tools in English allows for authentic use of the language and opens for additional learning arenas for the subject of English. English-language competence is in many cases a requirement for using digital tools, and using such tools may also help the development of English linguistic competence. Important features of the English subject in digital contexts include being critical of sources and aware of copyright issues and protection of personal privacy.

(*K2006*:3)

Thus, there remains no doubt about the importance of the role of ICT in the English learning process; it is clearly articulated by the Norwegian Department of Education (Utdanningdirektoratet) in the recent curricula: *L97* and *K2006*.

However, the manners and techniques of exploiting ICT in English lessons are to be explored by teachers since there are no clear recommendations to them on how exactly to apply digital technologies in their work. Different kinds of tasks connected to ICT in English lessons have not been specified in the curricula; an overview of ICT-based activities that improve or at least assist teaching has not been introduced. Nor have any specific benefits of introducing ICT in the English classroom been declared. This lack of encouragement in the form of guidance and clear instructions may cause a great deal of fair scepticism among teachers.

2.4   CALL

2.4.1   The nature of CALL

In order to help teachers to find their ways around ICT in language teaching practice, CALL (Computer-Assisted- Language-Learning) emerged in the 1950s. CALL is designed to educate and encourage teachers to use ICT and computers in particular when teaching a foreign language. Even though the sphere of expertise of this research is English, CALL can be applied to any foreign language learning procedure. For regardless of which language is

the objective of acquisition, a teacher has the same roles (Higgins and Jones, 1984:7-9; Beatty, 2003:7-9):

a. A foreign language teacher creates and maintains language learning routines.

b. A foreign language teacher has a responsibility to abandon self-established routines and improvise when necessary.

c. A foreign language teacher facilitates and adjusts the process of foreign language learning in accordance with pupils' needs and expectations.

d. A foreign language teacher simulates communicational situations in class.

e. A foreign language teacher is an informant and motivator.

Thus, it is rather obvious that no existing equipment or software can substitute a human teacher completely in any of these roles. A language cannot be learnt in a purely mechanical manner, according Higgins and Jones (1984:8-9); it seems to be rather impossible to dismantle a language into manageable grammatical and lexical units and then reassemble the whole linguistic system using just a set of pre-written instructions. A good teacher is not just a good language engineer, and a native language speaker does not necessarily make a good language teacher – a good teacher is a combination of a skilful linguist, psychologist and enthusiast. Even when a learner is introduced to a language's most basic system, a good teacher has to make human judgments and individual adjustments. Every lesson appears to be a partly improvised performance, optimized or altered in accordance with learners' individual language skills and needs. Even when introducing a most simple linguistic phenomenon, a teacher faces a remarkable number of choices, where sometimes only one option appears to be correct. Higgins and Johns (1984:14) point out:

> Good teachers probably always have used and always will use a mixture of explication, drilling, drilling and exposure, deciding whether a particular feature of language is one that should be explained rationally, hammered in by repetition, or inferred and absorbed from authentic samples of language in use.

It is only natural that the competence of CALL still remains rather questionable for many language teachers. However, researchers who promote CALL, among others Hirvela (2006), Timuçin (2006) and Stapleton (2005), believe that it is possible to develop various approaches and techniques to enrich and improve the learning process. The objective of CALL is to generate such techniques.

The task of defining CALL is a rather difficult one for CALL comprises a great diversity of computer-based activities that can hardly be narrowed to one or several basic agendas. Even if the human factor appears to be rather stable, the nature of modern technology is in constant progress and advance; this makes CALL a somewhat vague discipline that is built on two foundations: technological progress and didactical research. CALL is involved in all sorts of in-class and at-home language learning activities. Most Norwegian classrooms are almost certainly equipped with at least one or even several computers, and in some schools there are built-in Power Point projectors. There are hardly any schools in Norway that do not have a computer room. Language laboratories and libraries are also usually computerised nowadays. However, CALL does not stand only for hardware or availability of physical equipment. When one refers to CALL, it is first and foremost software that is of particular interest. Software gives an endless choice of computer-based activities: from simple English alphabet games, such as Alphabet Antics, to semi-professional movie making programs, such as Sony Creative Software Vegas Movie. Some CALL activities are common in the learning environment: most schools use one or several computer-based management system(s) such as *Classfronter*, *SkoleArena* or *It's learning*. Such networks make CALL an essential part of pupils' every-day learning routine. For foreign language learning practice, CALL has become an indispensable aid in all linguistic disciplines: 'CALL has become increasingly integrated into research and practice in general skills of reading writing, speaking and listening and more discrete fields, such as autonomy in learning.' (Beatty, 2003:10).

CALL today is tightly interwoven with many other disciplines. Beatty (2003:9) provides a whole list of terms peripheral with CALL, e.g. CALT (*Computer-assisted Language Teaching*); CAT (*Computer-assisted Testing*) and WELL (*Web Enhanced Language Learning*).

2.5   The theories and methods of second-language acquisition

In order to discuss the history of CALL, some of the major cycles of general foreign language learning history should first be mentioned. In the course of time, various language learning theories have been developed promoting certain methods and approaches. As Beatty (2003:85) points out, the concepts of second-language acquisition are the results of earlier practices and observations, some of which date back to the ancient Greeks, e.g. behaviourist

theories. The four theories which are most relevant for the subject of CALL are *behaviourism, constructivism, integrativism* and *humanism*.

Beatty (2003: 85-87) explains the scheme of the behaviourist theory with reference to B.F. Skinner (1904-90), one of the founders of the behaviourist concept for second-language acquisition, as follows: learning is a function of change, whereas changes are an individual's response to the events taking place in the learning environment. One of the clue characteristics for the behaviourist language learning approach is programmed instruction; a language is composed of a set of elements and each element should be introduced to a learner gradually piece by piece with a set of instructive frames for each new linguistic phenomenon. The nature of many CALL materials requires behaviourist methods of instruction (Beatty 2003:85). Rivers (1981), quoted in Beatty (2003:88), does not find such CALL materials effective for the second-language acquisition: '[CALL programmed instructions] tend to teach details about language but not communication'. Beatty (2003:85-90) agrees that the behaviourist model of programmed instruction is applicable for certain CALL activities with implied strict guidelines, e.g. 'stating the purpose of the program or task, offering reinforcement through text, images, audio, animation and/or video and providing a mark system for each task summarized at the end with grades or some other statement of progress', whereas the combination with other 'less behaviourist features' would be optimal.

While the principal behaviourist belief in language learning is that a learner has either no or scarce knowledge at the starting point of the language learning process, Nunan (1993:124), cited in Beatty (2003:91), suggests that language learning is the result of processing and interpretation of new language concepts, models and patterns with reference to the previously acquired knowledge of the learner.

As for the constructivist model of learning, Beatty (2003:91) describes it as one of gathering information, analysing it using the 'pre-existed highly complex web of interconnected knowledge and ideas' (Anderson, 1988:197, quoted in Beatty, 2003:92), and finally producing new theories and making own judgments. In CALL, the constructivism language learning model is among others reflected in the organisation of hypertext, hypermedia and multimedia, which for the major part does not provide satisfactory support for independent second-language learning acquisition, but in combination with other learning methods is a stimulating language learning tool (Beatty, 2003:92). Carrier (2006) goes further, stating that most of computer-assisted learning is developed for the constructivist learning approach, emphasising the role of collaboration in the constructivist learning approach:

Most elearning is now very explicitly based on the constructivist model, and learners are assessed not only on what they produce but how they interact with co-learners and build up knowledge and skill by interacting with other learners through a series of online tasks and activities.

Carrier (2006:7)

Intergrativism incorporates the four core language skills: reading, writing, listening and speaking instead of focusing on one of them. Drew and Sørheim (2004:23) point out that this method embraces both conscious and subconscious processes of foreign language learning and, thus, maintains the necessary balance of various skills and approaches, which many contemporary teachers and scholars find efficient. The CALL arena for the integrative learning method is almost unlimited, restricted only to the pace of the ICT advance.

Furthermore, motivation, according to recent scientific research, is an important factor in the process of learning. Tomei (2003:7) elaborates on the humanistic approach based on the assumption that a learner's emotions about the learning process are as important as their thoughts and behaviour in the context of learning process. The humanistic approach expects a pedagogue to build a learning environment where students would be encouraged to self-develop, cooperate, communicate and personalise given information. In the framework of the humanistic learning approach, technology has its own distinguished role: '[it] supports open education by diagnosing individual learning, while teachers primarily observe and ask questions' (Tomei, 2003:7).

The history of foreign language learning offers many different methods (Drew and Sørheim, 2004:18-23). The following are four core approaches that represent major eras of foreign language learning:

- Grammar-translation method

- The audio-lingual method

- Communicative method

- Integrative method

The grammar-translation method used to be the most predominant language learning approach for over a hundred years from the middle of the 19th to the middle of 20th century, according to Richards and Rogers (1994), cited in Beatty (2003). According to Drew and Sørheim (2004:19), the grammar-translation language learning method was dominant in Europe for over a hundred years until the middle of the twentieth century.

> This method had its origins in the study of Latin and Greek, the classical languages, which interested scholars for many centuries, especially in Europe. The aim was to read the original Latin and Greek texts, and then translate into the native languages.
>
> (Drew and Sørheim 2004:19)

The objective of this learning method was to develop grammar and lexical skills to be able to translate the original texts. The communicative aspect of the language was of no significance. Drew and Sørheim (2004:19) argue that: 'Academic status was more important than the ability to communicate.'

Lightbown and Spada (2006:34) point out that in the period between 1940s and 1970s, the new concepts and methods arrive with the gain of popularity of behaviourist theories in foreign language learning. In 1960s, a new rather revolutionary language learning approach was introduced: the 'audio-lingual method'. The principal idea behind the audio-lingual learning method was based on the behaviourist principles and promoted the importance of only two language learning skills: listening and speaking. A learner was expected to learn a language 'by listening to it and trying to speak it through imitation and practice' (Drew and Sørheim 2004: 20). Simensen (1998), cited in Drew and Sørheim (2004:20), lists a number of slogans supporting the audio-lingual approach:

- Language as speech, not writing

- A language is what its native speakers say, not what someone thinks they ought to say

- Teach the language, not about the language

According to Drew and Sørheim (2004:21), the focus of foreign language teaching in the period between the 1970s and 1980s was on communication. The objective of the communicative language learning method was on successful communication rather than being correct. Using this method, foreign language learners were expected to experience close-to-real language situations where they would perform in accordance with their acquired communicative skills and develop new ones with the emphasis on the learners' functional needs.

Foreign language learning gained new perspectives with the appearance of new psychological theories.

Since the 1990s, psychological theories have become increasingly central to research in second language development. Some of these theories use the computer as a metaphor for the mind, comparing language acquisition to the capacities of computers for storing, integrating, and retrieving information. Some drew on neurobiology, seeking to relate observed behaviour as directly as possible to brain activity.

(Lightbown and Spada 2006:38)

One of the consequences of these different theories is the emergence of the integrative language learning method, the approach which, according to Drew and Sørheim (2004:23), is currently the one favoured by many language teachers.

2.6   The History of CALL

The history of CALL is relatively short. Beatty (2003:16-36) distinguishes three periods of CALL:

1. CALL in the 1950s and 1960s.

2. CALL in the 1970s and 1980s.

3. CALL in the 1990s and till the present day.

Davies (2003) ranges these phases in terms of cognitive approaches using the tags introduced by Warschauer (1996):

1. The behaviouristic approach dominates CALL in the 1950s and 1960s.

2. The communicative approach dominates CALL in the 1970s and 1980s.

3. The integrative approach dominates CALL in the 1990s and 2000s.

CALL in the 1950s and 1960s

CALL appeared with the first computers in the 1950s. The efficiency and accuracy of the early language learning software would hardly impress a modern CALL user. Still the early stage of CALL models and design have inspired and brought to life the modern version of CALL. Already at the dawn of computer emergence CALL became a subject of inspiration and, consequently, much scientific research.

One of the most eminent products of early CALL research is known as the Programmed Logic/Learning for Automated Teaching Operations (PLATO) computer-assisted instruction system (Beatty 2003: 18-19). PLATO was launched in 1959 in the University of Illinois; it was inspired by the idea of replacing human translation by machine translation. One of the first major assignments for PLATO was to teach Russian by means of the grammar translation approach. In addition to the mechanised translation of Russian documents, the PLATO system provided a Russian language learner with, at that time, rather revolutionary features; in addition to spelling and grammar-checkers, the system provided tests followed by feedback in the form of instructions and suggestions for corrective work, depending on the errors a learner had made (Ahmad et al., 1985, cited in Beatty, 2003:19). The focal advantage of the PLATO-based learning approach, regardless of the subject of acquisition, was the ability to operate the information and regulate progress according to a learner's individual pace; modern CALL refers to this computer-assisted learners' independence as 'autonomy' (Higgings and Johns, 1984:17).
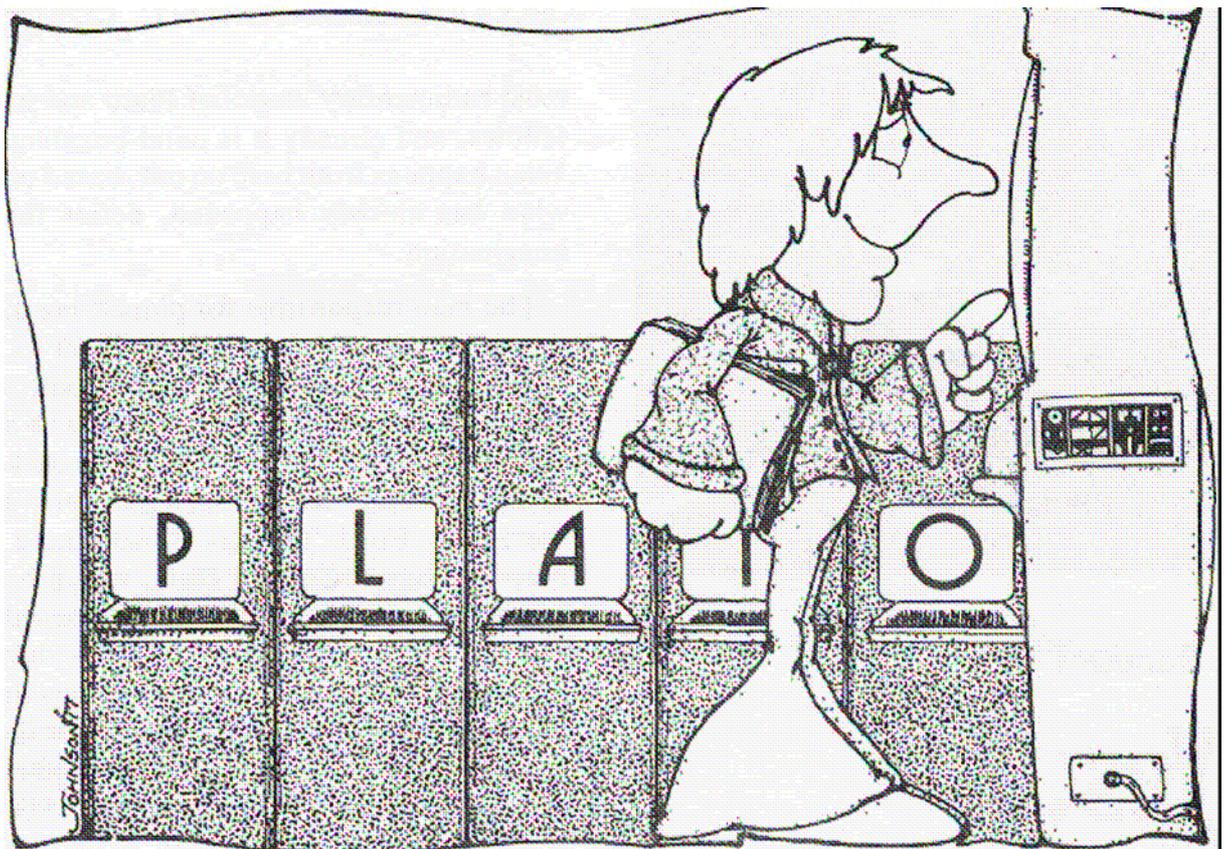

Figure 2: The original illustration in the article *PLATO Changing the World* [7]

[7] From *PLATO: The Emergence of Online Community* by David R. Woolley
<http://thinkofit.com/plato/dwplato.htm> 21 Sep 2008.

Most of the early computer-based programs for foreign language learning, including the earliest PLATO language applications, were narrowed to gap-filling tasks and mechanised drill and practice. Using Warschaur's (1996) scale of CALL phases, provided in Davies (2003), the earliest period of the study supports the behaviouristic or one-way manner of language learning with computers playing the role of tutor.

> The earliest language-learning programs were strictly linear, requiring each learner to follow the same steps in the same fashion with rewards in the form of points and advancement for correct answers. The tasks were essentially adaptations of traditional textbook exercises and did not take advantage of special features of the computer. (Beatty, 2003:19)

Until the 1990s CALL could hardly compete with conventional learning materials and approaches. Among the main obstacles, besides the above-mentioned crudity of the original language-learning software, were the size, accessibility and price of ICT equipment of the earliest computer decades. Even in the late 1970s, the size of about the smallest computer was equal to the size of "two Coca-Cola wending machines", according to Davies (2003).[8]

CALL in the 1970s and 1980s

With the mass-production of microcomputers in the 1980s, CALL started to reach the public (Beatty, 2003:23). The increase of the use of computer technology in language learning in the course of the 1970s and 1980s resulted in the establishment of the two professional CALL associations: CALICO (USA) in 1983 and EUROCALL (Europe) in 1986. Both are today's leading organizations in the global CALL network. Finally, the International Association for [Language] Learning Laboratories (IALL) was also established in the 1980s, although nowadays its focus is no longer language laboratories, but language learning technologies as such (Beatty, 2003:23-34).

The expansion of CALL, according to Kern (1995), cited in Hirvela (2006: 233), is due to the appearance of personal computers (PC) and the World Wide Web (WWW), which resulted in computer-mediated communication. Educational software researchers have recognized the value of this new manner of communication and have developed chains of

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[8] Davies, G. "Computer Assisted Language Learning: Where are we now and where are we going?" *Futurelab: Innovation in Education*. August 2003. Futurelab. 11 Nov 2008 < http://www.futurelab.org.uk/resources/publications-reports-articles/web-articles/Web-Article590>.

various language learning systems and system packages that initiate and support a communicative language learning approach. The objective is to enable a foreign language learner to start and maintain communication in life-like situations rather than refining syntax, as it was imposed by the grammar translation language learning approach. Davis (2003)[9] asserts: ' [In the communicative CALL phase] the computer is used for skill practice, but in a non-drill format and with a greater degree of student choice, control and interaction'.

The communicative approach is one of the key elements of the constructivist educational model that gained popularity in the 1970s and 80s. Here is how Carrier (2006: 7) comments on the transition of CALL to a new communicational dimension:

> Communicative approaches to language learning moved away from [traditional education based on the concept of the teacher providing knowledge which the learner consumes passively and copies] to a more interactive approach where learners learn the language by using it in real communication – essentially constructing their own knowledge of the language from their interactive experiences.

Recent developments of CALL

The most significant factors of the contemporary phase of CALL, according to Davies (2003)[10], are the introduction of multimedia technologies and the "domestication" of the Internet. Multimedia products offer multi-dimensional language learning combinations of various interactive tasks opted to improve learners' reading and writing, as well as improving vocabulary and grammar skills simultaneously. The nature of multimedia allows fusing text, image, colour, motion and sound into an entity. *Ma France*, the French course created by the BBC, is a representative example of such a multimedia computer-assisted language learning unit. The symbiosis of multimedia software with earlier-developed language learning programs provides a learner with an endless variety of working methods when acquiring a foreign language.

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[9] Ibid.
[10] Ibid.

3   THE MODELS AND APPLICATIONS OF CALL IN SECOND-LANGUAGE ACQUISITION

3.1   Introduction

This chapter initially presents an overview of possible methods of applying CALL in the process of language acquisition. Then, a detailed description of possible implications for each method is provided.

3.2   The applications of CALL

Beatty (2003:52) suggests seven chief CALL applications:

- Word Processing

- Games

- Literature

- Corpus linguistics

- Computer-mediated communication

- WWW resources

- Personal Digital Assistants

Word processing

The development of ICT has had an enormous impact on the writing process.

> […] writing, in the sense of making language visible, always involves the application of technology of some kind, whether quill, pencil, typewriter or printing press, and each innovation involves new skills applied in new ways.
>
> (Lankshear and Snyder, 2000, cited in Hyland, 2003: 144)

Modern word processing is the result of the elaboration of computer intelligence and typewriting. History has not spared the image of the first patented typewriter obtained by Henry Mill in 1714. However, after the typewriter standardisation launched in the beginning of the twentieth century, one can find a certain resemblance between the key-board layout of a contemporary laptop and a customary mechanical typewriter: white sheets of paper versus the

white screen of a word processor and a heavy mechanic-driven typewriter corpus versus an easy-touch pad stuffed with microcircuit chips, still operated by the typewriter developed finger-pressing technique. However, text production experience using typewriter and laptop would differ immensely, not so much for the shape, but the software, namely word processing programs.

The new screen-based writing technologies, according to Jewitt (2005:315), have altered the process of making meaning. Even though word processing, as Beatty (2003:53) points out, was originally designed for baseness environment, the facility to create and alter text easily introduced by these programs was directly accepted and adopted by many language teachers, according to Hyland (2003:146). Snyder (1998), referred to by Hyland (2003:144), argues that the development of ICT has created a new form of literacy – *computational literacy*. Jewitt (2005:316) defines texts of the computer literacy era as 'complex multimodal ensembles of image, sound, animated movements and other modes of representation and communication'. Hyland (2003: 144-146) outlines some of the most significant advantages of word processing writing, including facilitation of the editing, formatting and publication processes, and the possibility of the merging of written texts with visual and audio media:

> Perhaps the most immediately obvious feature of computer-based writing is the way that electronic text facilitates composing, dramatically changing our writing habits and laying bare the process that we use to create texts. Commonplace word processing features allow us to cut and paste, delete and copy, check spelling and grammar, import images, change formatting, and print to publishable quality, all of which mean that our texts are now generally longer, prettier, and more heavily revised.

Hyland (2003: 146)

Other advantages of word processing writing that Hyland (2003:147) specifies include greater motivation, greater development of content and improvement in quality. However, Hyland (2003:147) also suggests a considerable list of disadvantages connected to word processing writing, such as increased focus on surface features, premature completion of work, decreased writer collaboration, quantity at the expense of quality, and increased plagiarism and cheating. In his conclusion on the effect of word processing writing, Hyland (2003:147) points out that 'writing cannot be developed by new tools but only by proper instructions'.

Another, rather atypical disadvantage of the impact of word processing on writing is pointed out by Ferris and Hedfgecock (1998), cited in Hyland (2003:146): '[…] The impact of

word processing on writing has been so great, in fact, that other uses of computers in L2 writing instruction are sometimes neglected entirely.'

Games

The aim of most educational games, according to Beatty (2003:54), is to suggest a concealed form of teaching masqueraded by entertainment. The revolutionary idea of games in class is that the learners are not aware of the purpose of the game activities introduced by the teacher. With the development of ICT, a new generation of games has emerged: *computer games*. The first computer games were computerised grammar drills. Warschauer (1996:3-5) points out that drill and practice courseware was used as 'a vehicle to deliver instructional materials to the student' and Taylor (1980), cited in Warschauer (1996:4), refers to the model such courseware was based on as 'to computer as tutor'.

Beatty (2003:55) claims that nowadays arcade-style computer games are probably the most frequently used ones and such games possess the ability of motivating and absorbing potential customers. Young learners apply a great amount of enthusiasm in solving computer-based tasks and move throughout increasing levels of difficulty and receive rewards for each completed level; this same approach is often used when creating educational computer games. Such games are great motivators, although they also have some draw-backs. One of the questions that arises in the connection of games in CALL is to what extent the skills acquired in a game are useful in the real world. Beatty (2003:54) argues that the learning benefits of a game are likely to be small; however, these skills can be improved if the area of learning is narrow and is distinct for the teacher and hidden from the learner. Beatty (2003:55) points out that even though games have a rather positive impact on the young learners' motivation, it is often hard to combine games with the actual curriculum and pupils, thus enhanced by the world of the game, will not automatically acquire the necessary knowledge and skills to pass the tests or examinations.

Literature

Beatty (2003:57) emphasises the role of literature in the language acquisition process; literature is an authentic and reliable learning material that provides CALL with the basis for a variety of learning methods and programmes. Collie and Slater (1987), cited in Beatty

(2003:57), name four fundamental values of using literature as foundation for language learning:

- Valuable authentic material

- Cultural enrichment

- Language enrichment

- Personal involvement

Collie and Slater (1987:4-5), cited in Beatty (2003:57-58), suggest that reading authentic literary texts develops receptive vocabulary and familiarises the learner with the appropriate contexts and structures. However, one should keep in mind that in order to be able to benefit from authentic literature reading, certain initial language skills are required; such reading interlaces with a foreign language rule-based system and socio-semantic system, according to Collie and Slater (1987:4-5), quoted in Beatty (2003:58).

On the one hand, Beatty (2003:58-59) argues that computer-based learning materials do not differ much from the traditional paper-based learning materials. However, computer-based materials are likely to be more visual and decorative than substantial. On the other hand, Deegan and Sutherland (1990), referred to in Beatty (2003:59), point out the role of hypertexts in the computer-based literature materials: 'text and non textual material are essentially fluid and easily manipulated, making it an ideal tool for showing the interconnection of ideas'. The impact of hypertext for language learning remains to be researched, according to Beatty (2003:59).

Corpus linguistics

Corpus linguistics is a language study surveying words and structures in what Wikipedia refers to as "real world" texts[11]. According to Wu (1992), cited in Beatty (2003:60), words can be learnt effectively only in 'their habitual environment'. Beatty (2003:60) defines corpus linguistics as follows:

> The corpus in corpus linguistics refers to a body of text. The text can be made up of different examples of spoken or written language or a combination of both. […] To

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[11] Wikipedia "Corpus Linguistics" *Wikipedia.org*. Last modified 11 November 2008. Wikimedia Foundation, Inc. 12 Nov 2008 <http://en.wikipedia.org/wiki/Corpus_linguistics>.

access or make use of, a corpus, one uses a concordance to look at language patterns. A concordance is a tool that looks at individual words (nodes) or group of words and lists them with their immediate contexts. […] Using corpora in the classroom involves making use of a concordancing program's ability to spot patterns and differences in language use.

Corpus linguistics is applied to language learning in terms of material developed by using concordancing programs, which means analysing and systematising error patterns. Beatty (2003:61) introduces a new term, *Data Driven Language (DDL)*, which is based on the idea that concordancing programs can be created by teachers or even learners themselves: the objective is to gather various examples on one lexical item and to draw the rules on how to use it practice. CALL facilitates the task of analysing and organising the patterns as well as serves as the platform for creating training materials.

Computer-mediated communication

Beatty (2003:62) refers to computer-mediated communication as one of the most popular CALL activities; they involve among others e-mail correspondence of various sorts, chat-rooms, instant messaging clients, Web logs (blogs) and bulletin boards.

E-mail is very frequently used in language learning and, according to Beatty (2003:62), it enhance learning significantly. E-mail provides communication between learners and other learners, teachers and target language native speakers. E-mail-based activities provide diverse and exciting language learning and are therefore often introduced in class. Such activities are perfect for developing the ability of personal written text production. However, e-mail-based activities often demand a certain linguistic proficiency and to some learners might appear rather intimidating even though the majority of the latest e-mail programs are featured with spelling checkers. The disadvantage of using e-mail in class is the lack of instant response in the communicative process, the so-called *asynchronous communication,* which Beatty (2003:62) claims takes place at different times.

Chat-rooms and instant message clients, on the other hand, provide their users with *synchronous communication*, respectively, communication that takes place at the same time (Beatty, 2003:62). This kind of software, even though causing some scepticism e.g. ethical concerns (Beatty, 2003:65), is commonly used in CALL. Such programs provide learners with the opportunity of establishing authentic live conversations with target language native speakers on any subject and at any time. The benefits of this language learning approach are plentiful, including improving grammar and enriching vocabulary in practice, plus increasing

cultural awareness, e.g. traditions, slang and politics, in the context of language learning. Chat-rooms and e-mail are regularly used not only externally, but also internally, where information is shared in a narrow group of participants, such as a school, class or just any group of people (Beatty, 2003:64-65).

WWW resources

In the era of consumption, the World Wide Web (WWW) frequently supplies its customers with desired products, including science. Web language learning resources are rather common (Beatty, 2003:68-70). Many schoolbooks, not only language textbooks, are supported by corresponding online activities and testing services. Besides marketed web recourses for CALL, there exist an infinite number of free alternatives, often created by teachers and learners. Despite the fact that the quality of these products varies greatly, Beatty (2003:70) argues that they 'have the virtues of being free and easy to find with a search engine'.

Personal Digital Assistants (PDA)

Figure 3: An example of a Personal Digital Assistant *HP iPAQ 114 Classic Handheld* [12]

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[12] Hewlett-Packard Products "HP iPAQ 114 Classic Handheld - Oversikt og Funksjoner". *Hewlett-Packard Development Company*, L.P. 12 Nov 2008 <http://h10010.www1.hp.com/wwpc/no/no/sm/WF05a/215348-215348-64929-215384-215384-3544251.html>.

A Personal Digital Assistant (PDA) is a miniature hand-held computer, also known as palmtop computer. PDAs have the highest level of portability achieved by 'eliminating the keyboard and minimizing the screen size' (Beatty, 2003:72). Beatty (2003:72) argues that they are rather rarely used in education. A PDA is designed to meet the requirements of a standard computer; however, it lacks effectiveness and storage volume of a desktop or even a laptop computer. Beatty (2003:72-73) sees the future for incorporation of PAD in CALL. A PAD's advantage features are size and price. Being comparatively cheap and portable it would make a perfect aiding tool for language learning. Nonetheless, according to Beatty (2003:72), 'PDAs are not yet widely used in education.

Word processing and games are probably the most relevant applications of CALL for the present research. Literature, WWW resources and computer-mediated communications, are involved in the research to a lesser degree, e.g. Scoop's and BBC webpages in Ida's interview (see Chapter 7). The applications of corpus linguistics and PDA, however, remain to be explored.

4   CALL: ATTITUDES AND BELIEFS

4.1   Introduction

In addition to the potentially positive sides of CALL, there also exists a less optimistic outlook on computerised language learning. As Beatty (2003:148) emphasises in the beginning of the chapter devoted to theoretical and pedagogical concerns initiated by the introduction of ICT to the literacy acquisition process, CALL is not regarded as a 'solely positive agent of change in the classroom'. The topics of this chapter are the drawbacks, hindrances and concerns related to or caused by CALL in language learning environments.

4.2   A Glance into the Past

In 1984, Higgins and Jones (1984:10) detected that many language teachers showed very little or no enthusiasm when it was suggested they introduce computer technologies in class. Higgins and Jones (1984:10-13) explained the rather deprived state of CALL in the early 1980s by the lack of professional guidance and primitivism of the earliest computer-assisted learning programs. Most of the language teachers of the time were completely unaware of the benefits associated with CALL; computer programs did not appear to have much potential for foreign language acquisition and were normally defeated by chalk and blackboards, or pencils and papers. Language teachers' scepticism was also based on the belief that computer programs cannot offer contextual language learning.

One of the common teachers' concerns with regard to CALL was the computer threat to the human factor in the educational process, agitated by science-fiction and popular journalism (Higgins and Jones, 1984:11). Papert (1980), cited in Higgins and Jones (1998:11), portrays the situation of CALL of that time: 'In many schools today, the phrase 'computer-aided instruction' means making the computer teach the child. One might say the computer is being used to program the child.' Papert (1980) already then disagreed with this view of the role of CALL and comes up with his of own interpretation of the function of computers in the learning environment: 'In my vision the child programs the computer and, in doing so, both acquires a sense of mastery over a piece of the most modern and powerful technology'.

Another major problem was the lack of computer software designers with linguistic insight. Higgins and Jones (1984:10) criticize the computer specialists. Being competent exclusively in mathematics and mathematics-related subjects, they were unable to create programs meeting language teachers' needs.

Due to the excessive promotion and later abundance of language laboratories in the 1950s to 1960s, language class computerising was also thought of as an eventual failure and waste of funds (Higgins and Jones, 1984: 11-12). Higgins and Jones (1984:12) argue that it was not the language laboratories that proved to be a disappointment, but the user's lack of imagination and inability to incorporate language laboratory activities in language learning. However, the scenario with language laboratories brought to life yet another objection towards the implementation of language learning computerising.

4.3   CALL: Recent Times

General problems

This section discusses the extent to which the above-mentioned concerns are accurate/relevant for the contemporary CALL state. Technology has drastically improved in the course of the last two decades. However, the question of a better CALL quality remains to be a matter yet to be examined.

Beatty (2003:156-171) summarises the general issues in relation to the present state of CALL, where the key problems are caused by the following factors:

- Lack of acquiring and later maintenance of the modern CALL equipment

- Lack of proper educational value of some of the latest CALL software

- The content and design of CALL is predominantly determined by computer-engineers and businessmen, not pedagogues

- The amplifying problem of copyright and plagiarism taking roots from the available web resources

- Ever increasing traffic of computer viruses and lack of promotion of information about computer protection and anti-virus programs among common computer users

- Overindulged government-promoted censorship in some internet loci and at the same time complete lack of supervision in others

- Lack of teachers' computer skills and motivation resulting in school computers remaining unexploited

- Old and/or poor computer technologies in schools

Academic concerns

Whilst Beatty (2003) is first and foremost concerned with the technological aspect of CALL, scholars promoting language literacy are critical of certain theoretical and pedagogical aspects of CALL. Stapleton (2005:135) appoints a lack of critical awareness as one of the most serious and worrying issues about the contemporary CALL application. He argues that:

> […] there is a need among learners for a heightened critical awareness of web-source nuances. Specifically, although the Web contains a much greater amount of information than conventional research sources, a great proportion of its sites harbour ideological agendas. It is suggested that L2 learners, in particular, may require both consciousness raising and practice in recognizing the biases that exist in websites.
> (Stapleton, 2005:135)

Beatty (2003:148) believes that a great number of web-resources inflict an additional problem when applied to open tasks: when a group of learners are introduced to one particular task with the implication of web-resources, if working individually, the results are most likely to vary tremendously depending on the source chosen by learners for the project. Hence, the learners would not acquire the same level of knowledge or skills. Some of the learners might experience what Conklin (1987), cited in Beatty (2003:149), calls the *disorientation problem*, 'the problem of having to know where you are in the network and how to get to some other place that you know (or think) exists in the network', and, as a result, become intimidated and disheartened by the choice and volume of the information provided by web searching engines (Conklin, 1987 cited in Beatty, 2003:149). The disorientation problem is especially characteristic for some constructivist CALL materials. One of the solutions suggested by Beatty (2003:149) is developing an exact guidance, appearing not only on demand, but also in the stall mode, or whenever a deviation occurs.

Beatty (2003:149-150) remarks that CALL software should be more user-friendly; language learners are often unaware of some computer program attributes and potentials. Even the features of the most frequently applied CALL programs, e.g. word-processing programs, remain partly undiscovered for years. One of the solutions to this problem is the production of better, more responsive, software.

Fox (1991), quoted in Beatty (2003:152), comments on the constantly perplexing role of the teacher in the computerised learning environment:

> While most computers at present in use for CALL are used for comparatively simple operations, teachers, on the other hand, continually perform operations of amazing, yet somehow invisible, complexity. […] The decisions involved in the ongoing process of classroom instruction are extremely complex, though generally unnoticed.

Bailin (1995), referred to in Beatty (2003:152), not only challenges the ratio of the invested efforts to the registered achievements in the context of computerised language learning, supporting the idea of a teacher's monopoly in the classroom, he also remarks on, if not increasing, then at least not reduced working hours for teachers employing CALL.

Establishing an efficient learning environment is a key factor for achieving prominent results in language acquisition. Beatty (2003:154) argues that the traditional computerised library model 'with individual carrels isolating each computer and each user with signs urging learners to be quiet' is optimal for individual work, but at the same time it excludes completely the collaboration factor that is also necessary for a good learning environment. One has to design a classroom where a group of learners can work in isolation, while allowing the rest of the class to work together. The existing resolutions for class organisations that allow both individual and group work simultaneously are intricate and costly.

Beatty (2003:154) further argues that teachers and learners could contribute a great deal to the improvement of the already existing CALL technology by establishing contact with the ICT producers. The manufacturers of the contemporary CALL materials, in order to be able to upgrade the already existing product, require users' feed-back about its efficiency. This feedback shall not only accommodate the designing of better computer programs, it might also have a positive educative outcome: language learners may find the process of evaluating CALL software's functionality to be a valuable learning experience.

In pursuit of an effective learning environment, Atkins (1993), cited in Beatty (2003:153), suggests that the effectiveness of a fusion of various CALL materials in language learning should not be underestimated. When used simultaneously, this fusion provides a variety of learning styles for developing different skills.

Thus, since the 1980s the problems associated with CALL have become more elaborated and complex. The demand for new technologies and software is not as large any longer as the market for proper computer education, whereas the threat of teachers being

superseded by computers gave place to, among other things, a popular concern linked to computer intolerance toward learners' errors at early stages (Beatty, 2003:84-171). Beatty (2003:152) concludes his investigation of the technical and pedagogical concerns relating to CALL by acknowledging the uncertainty of the further development of CALL: 'It is difficult to know whether or not some of the above issues will be addressed in future computer and software developments'.

4.4   The future of CALL

This section presents the summary of an international academic online discussion launched by Learning Technology Special Interest Group (IATEFL) reported by Ioannou-Georgiou (2006). The agenda of the forum was the state of CALL in the present time and its future elaboration. *Normalisation*, a term initiated by Bax (2003), quoted in Ioannou-Georgiou (2006:382), was generally acknowledged as the key perspective for the future developmental stage for CALL.

Bax (2003) expected that in the future computers will become 'an integral part of every lesson [instead of being centre of a lesson, computers will become unnoticed] they will be completely integrated into all aspects of classroom life, alongside coursebooks, teachers and notepads.'

According to the background information about the state of CALL in the sector of the institutions that were represented in the forum, the availability and quality of computer technology varied enormously, which suggested a generally uneven developmental phase for CALL. Some countries and/or institutions were ready to enter or even lead the normalisation process, e.g. Japan, whereas others had CALL at the level of incubation.

One of the significant findings discovered by the forum, according to Ioannou-Georgiou (2006:383), is that CALL was at the stage of normalisation neither in the best equipped schools nor in schools with most modern technology, but in the schools where devoted CALL promoters worked: 'enthusiasm and motivation of teachers seemed to have the capabilities for a large impact on promoting CALL normalisation than money and equipment alone'. Guided by this discovery, the decision was made as to the first steps towards the normalisation process. In addition to some broad solutions, such as developing better technologies in general and including teachers in the process of ICT evolution, a number of practical steps were introduced (Ioannou-Georgiou, 2006:383):

- Acquiring appropriate hardware and software

- Developing a CALL environment with easily accessible equipment

- Mandatory use of ICT enforced by school administration

- Imposing the use of ICT to the curriculum module

- Launching training programs in employment of ICT and CALL for teachers

- Creating technical and pedagogical ICT support programs for teachers

- Establishing a better connection between teachers and ICT developers

As for the overall development of CALL, it was decided to emphasise the importance of the role of teachers as ICT professionals.

4.5   Review of related studies

This section provides an overview of some studies concerning the applications and implications of CALL in the process of second language learning. The first study, by Timuçin (2006), revises the possibilities of the incorporation of CALL in a Turkish State University's EFL Preparotary school. The second study, by Stapleton (2005), investigates second language learners' critical awareness of the subjectiveness of many web resources, and suggests a pilot study with some practical advice for language teachers. The third study, by Hirvela (2006), presents the benefits of CALL communication in the process of acquiring English as a second language. Finally, an overview of some of the results from a survey conducted by a Norwegian scholar, Andreas Lund (2003), is provided.

Timuçin (2006:262-271) presents a case study based on a corpus of data gathered through questionnaires and interviews. The project took place in the English preparatory school of a state university in Turkey, where a survey conducted in 2000 revealed that 31 per cent of the students did not pass their exams as a result of their low rate of attendance. In the course of the year 2001, further research showed that the language teachers were generally discontented with the level of students' attendance and concentration, whereas the students signalled teachers' poor variety of educational approaches and lack of motivating strategies. As a result, the administration suggested launching CALL, starting from the year 2002. Timuçin (2006:263) remarks that neither the teachers nor the students were consulted about the introduction of CALL to EFL; the administrative board provided the equipment and

instructional materials on computerised language learning, expecting the teachers to master the subject after only a five day seminar.

The objective of Timuçin's (2006) research was to develop strategies which would assist teachers to experience the implementation of CALL positively. The challenge, according to Timuçin (2006), was that many of the preparatory school teachers did not feel able and/or particularly eager to accept and promote the change to mandatory CALL implemention. Timuçin (2006:263-264) argues that the basic issue overlooked by the school administration was that the administrative board did not ensure the success of the change because they imposed CALL rather than establishing a good relation between the parties involved in the change process.

The preliminary questionnaire showed a definite reluctance toward CALL among the teachers: 86 per cent of the teachers did not believe in a positive outcome of the project, and the rest of the teachers (14 %) argued that the result might be successful with much work involved. Some of the teachers were anxious of being replaced by computers, and all the respondents required extra support to develop self-confidence using CALL. This information determined the strategies for the transformational period: various methods were used to enable open communication between the teachers and students about the value and the role of CALL in EFL and the role of teachers in the CALL implementation process, resulting in analyses and discussions. The follow-up questionnaire presented a rather drastic change of views among the teachers concerning CALL.

Timuçin (2006:265) points out that when estimating the alteration tempo in the teachers' attitudes to CALL, one should not completely disregard the possibility of a fear factor of losing a job. However, he gives the credit for the shift in the teachers' views registered in the second questionnaire to the students' feedback on the importance of the teachers' role in the process of change. Timuçin (2006:265) outlines the key reasons for the teachers' change of opinions:

- Teachers felt involved in the process
- Teachers were introduced to and explained their new tasks around ICT by students
- Building self-confidence in CALL through discussion and collaboration with other colleagues who also experienced anxiousness about the issue.

In the conclusive part of the article, Timuçin (2006:267) emphasises that, according to the results of the study, the role of the administration in the transformation period is of great importance. When the respondents were asked to assess the factors contributing to the

smoothness of the transformative stage, the teachers referred to a number of central tasks for the administration. These included attempts to involve teachers, efficiency in organising team work, the level of institutional interest and the administration having realistic expectations.

Timuçin (2006:269) concludes his study by suggesting that a vital ingredient for a successful implementation of CALL is teachers' support and, therefore, it is important to convince teachers that their old skills are by no means in jeopardy in a computerised learning environment. Teachers need to have explained that the intention of CALL is not to make them forget what they know, but to develop new fields of expertise using old tools.

Stapleton (2005) introduces a pilot study with practical advice for generating critical awareness of ideological biases concealed in Internet resources. This research was encouraged by the volume of information provided on the first demand by the search engines and frequent utilisation of web resources for producing, among others, academic writing. A standardisation of web-sources references has been developed, which suggests, according to Stapleton (2005:135), that a rather significant number of scientific works are to a large extent based on the figures and facts published on the Internet. The expansion of the new informative and communicative technologies enhances a new phase of literacy, namely Internet literacy. Stapleton (2005:136) argues that the Internet is a valid research source once a user is firstly taught to recognise the distinction between web- and conventional sources, and later provided with Internet sourcing skills.

In his study, Stapleton (2005:136) discusses the key contrast between conventional sources, such as journals and books in a library that have undergone a rigorous screening process before being published and appearing on the shelves, and web-pages which can be constructed by any Internet user. Thus, the great majority of Internet publications have not been exposed to a scrupulous censorship of quality and authenticity. Further, Stapleton (2005:136) outlines the key questions that should assist in determining the appropriateness of the web-source, such as defining the author, authority, currentness, intended audience and possible agenda and bias implications of the source. Stapleton (2005:137) considers the questions of intended audience and bias of the source to be the most important ones in the process of determining the level of source legitimacy assuming that 'an awareness of [the] agendas of persuasion among students learning to write for academic purposes are essential' (Stapleton, 2003:242 quoted in Stapleton, 2005:137).

Stapleton (2005:137) suggests that the process of developing this awareness starts with a search engine which, even though it resembles a library catalogue, operates by means of a number of guarded algorithms, arranging the sites according to the number and importance of

pages linked to each result. The volume of the results suggests no possibility of exploring the whole multitude of the finds, whereas the first results on the list, as Stapleton (2005:137) claims, 'have a bias towards a given ideological position' and, thus, might play a vital role in pre-deciding the reader's position; that is particularly the case for second language learners whose language skills are not fully developed. Stapleton (2005:138) illustrates his argument by providing the first thirty results of his *Google* search for 'whale hunting', where thirteen links were anti-whale hunting, eight were impartial, five did not discuss the issue at stake, three were written in other languages than English and, finally, two were advocating whale hunting. Stapleton (2005:138-9) emphasises the importance of critical evaluation of web sources via examining 'the information and arguments set forth'. He underlines that ideological bias can also be present in the statistics; figures and numbers can be equally distorted in accordance with the publisher's own view.

In order to resolve the issue, Stapleton (2005) introduced a four-step course of 'Critical Thinking and Writing' in a media and communications graduate school. The seven participants of the course represented three countries: Japan, Russia and Bulgaria. They had an average age of 28 and English writing level ranged from high-intermediate to fluent. All the participants were familiar with computers and electronic media.

The aim of the first step of the course was to develop and practise searching skills using various search engines and to work on articulating requirements for the search. The objective of the second step was to evaluate a web source by answering the above-mentioned key questions outlined by Stapleton (2005:136). The third step of the course was the practical training: the participants were exposed to various examples of sources where unethical methods of persuasion were implied. Stapleton (2005:141) notes that in this stage many L2 learners are particularly deprived, often being unable to recognise implied attitudes, textuality and shades of meaning. At the concluding stage of the course, the fourth step, the participants were asked to evaluate web sources in practice. The students were asked to provide critical assessment on any controversial subject at their own discretion. Supplementary to identifying the weak points of reasoning, they were asked to present alternative, more objective, web sites. Stapleton (2005:142) summarises his study by commenting on the results of the fourth step of the course: the participants were able to distinguish and label 'a total of 75 distinct instances of weak reasoning'. He highlights that the most significant result of the participants' training was their ability to find alternative 'balanced' sites 'appropriate for citation in an academic paper'. He concludes his paper by expressing the importance of emerging

'awareness of bias in research […] as information sourcing in electronic form becomes even more widespread'.

Hirvela (2006), in the introduction to his survey, argues that computer-mediated student collaboration plays an important role in the process of teachers' professional growth. The subject of Hirvela's (2006:233) study is a construction of 'classroom ecology that encourages dialogue' in heterogeneous language learning environments. Hirvela (2006) believes that Computer-Mediated Communication (CMC) is a better language learning solution for forming such ecology in the classroom than other methods.

Hirvela (2006:233) defines the role of computer-mediated communication as one of a linking factor that connects students via a computer-based network. Computer-mediated communication may occur inside and/or outside the classroom in synchronous (real-time) or asynchronous (delayed) formats. The appeal of computerised communication is recognised by younger learners and, thus, it provides a better motivation and better self-confidence: 'the positive distancing effect afforded by electronic communication […] lends itself to increased student empowerment and increased desire to express oneself in the target language because the computer seems to minimize the risks involved in communication in a foreign language' (Hirvela 2006:234).

Hirvela (2006:234), in reference to Payne and Whitney (2002), outlines a variety of positive effects of computer-mediated communication as a language learning tool:

- Smaller risk for an insecure language learner being monitored and criticised
- Improvement of the written production
- Increase of learners' participation and engagement
- Improvement of learner' attitude toward the target language

The popularisation of distance education due to its wide access by learners is the foundation for introducing CMC into teachers' training courses, where future teachers via CMC discuss what they have learnt in theory and practice in the teacher educational course. Hirvela (2006:234), quoting Kamhi-Stein (2000), strongly believes in the potential of CMC 'to promote collaboration among teachers-in-preparation and to reduce the isolation felt by novice teachers'. This CMC potential proved to improve various factors in teacher educational course, such as developing knowledge collectively, minimising social distances, encouraging continuous dialogues and decreasing performance anxiety among the students (Kamhi-Stein, 2000 cited in Hirvela, 2006:235). Hirvela also refers to a number of studies that

express certain scepticism regarding CMC, e.g. Gruber's (1995), where CMC, among others, increased tension among learners.

The study presented by Hirvela (2006) was conducted at a Midwestern university in the USA. 25 students representing a total of nine countries participated in the project course. Out of these 25, only nine students had English as their mother tongue. In this project, the CMC element was introduced in the form of 'an asynchronous class listserv' functioning as a mail messenger (Hirvela, 2006:235).

In the analysis of the results of the project, Hirvela (2006:236) outlines the fields where CMC proves to be a valuable tool in a teacher educational course:

- CMC allowed the instructor of the course monitor the demands and requests of the students and, thus, adapted the educational programme in accordance with the students' needs

- CMC allowed insecure and apprehensive students, without being exposed, to evaluate their own level of knowledge construction through observing the questions and answers on the posting board.

Finally, Hirvela (2006:240) argues that the role of CMC in training language teachers demands further investigation and discussion. However, it remained rather obvious that CMC has a great potential enhancing 'the negotiation of understanding'. The most insistent issues with CMC in the project conducted by Hirvela (2006) were the technical problems that occurred to the listserv throughout the course. Hirvela (2006:240) concludes his study by remarking that helping students to 'expend their professional boundaries […] is partly what our job as trainers of English teachers is about'.

When discussing issues connected to CALL, one should not disregard language teachers' views, granted that they are the ones to transform computer language learning theories into practice. Lund (2003:145-192), in his descriptive statistical analysis, investigates teachers' beliefs about and responses to CALL. Lund's (2003) study includes an investigation of senior high school teachers' beliefs about CALL. Lund's (2003:161) findings concerning teachers' beliefs regarding the effects of using ICT in language learning showed that the respondents strongly agree with the statement that 'ICT is motivating for the pupils'. The other two salient categories where teachers demonstrated agreement on the issue are 'ICT demands new tasks and activities' and 'ICT results in plagiarism'. According to the results, teachers support to a lesser degree the idea of ICT increasing learners' language skills with one exception, that of ICT increasing pupils' vocabulary.

When discussing the results of the research of teachers' beliefs regarding the role of ICT in the English classroom, Lund (2003:163) points out the fact that teachers did not reach unanimity in the issue: 'none of the category gets a very high score, suggesting that several alternatives are first choice'. However, the most frequently chosen options were

- facilitating learning about the English-speaking world
- facilitating communication with others
- facilitating authenticity in the learning situation
- facilitating problem based learning

The combination of the four chosen options indicates, according to Lund (2003:163), that the respondents experience an easier access to the outside world in the learning environment with the introduction of ICT.

Lund (2003:164) outlines in the analysis of the results that English as a subject is currently undergoing a transformation in the context of didactics. According to the findings, teachers' concern of the role of ICT is its 'social and didactic implications' and, thus, it is essential for a researcher 'to refer to such issues when interpreting activities and choices made in the classroom (Lund, 2003:164).

5   METHODS

5.1   Introduction

In order to achieve the best possible results in the foreign language acquisition process, regardless of the methods being used, a learning environment should be maximally adjusted to the needs of learners (Barr 2004:18). Environment is the surroundings embracing all human activities and cannot thus be disregarded or separated from human activities. The present research is conducted in the context of the applied learning environments. Hannafin and Land (1996), quoted in Barr (2004:24), argue that a learning environment consists of four main elements: tools, resources, people and designs. Thus, when examining the impact of CALL on acquiring English as a foreign language, all four aforementioned components should be taken into consideration.

For several decades researchers, pedagogues and psychologists have tried to assess the influence of information and communication technology (ICT) on the process of learning. Various studies have focused on different aspects of the educational process, both negative and positive ones, including Atkins (1993), Chapelle and Jamieson (1991), Conacher and Royall (2000) and Dunkel (1991).

The objective of the present study is to explore the role of ICT in the process of acquiring English at the intermediate level in Norwegian primary schools. The present chapter is devoted to the material and the methods that have been used to collect and process the data for the thesis. The present study is based on quantitative data provided by a specially developed questionnaire in addition to a qualitative dimension provided by two interviews with teachers who use ICT regularly in their teaching.

5.2   Data collection

5.2.1   The questionnaire

Although Borg and Gall (1989:423) refer to the questionnaire as an effort-consuming process, they consider a questionnaire study to be 'a very valuable research tool in education'. Borg and Gall (1989:423-451) introduce a number of steps to the process of conducting a

questionnaire survey that have been used in the present studies: defining objectives, selecting a sample, writing items, constructing the questionnaire, preparing a letter of transmittal and sending out the questionnaire.

The questionnaire consisted of 25 questions. These included open-ended, yes/no and multiple choices questions. It was addressed to teachers of English language at the intermediate level (5th, 6th and 7th grades) at primary schools in the whole of Norway. The choice of the level was partly due the increased focus given to young language learners as a group (e.g. Nikolov, 2000; Rixon, 2000) and to the *L 97* curriculum, which states that 5th to 7th graders should use word processing software and work with computer programs. Additionally, the introduction of Norwegian pupils to digital National tests started in grade 7 at the time of the survey.

The questionnaire consisted of four sets of questions (see Appendix 1). The first was the background section, which included questions on:

- The location of the schools (county)
- The teachers' gender
- The teachers' age
- The number of years of teaching experience
- The teachers' qualifications in English
- The teachers' training in ICT

The second section was the availability of ICT equipment section, which included questions on:
- The number of available computers for English lessons in the classrooms and elsewhere in the school
- The time needed to order computers outside of the classroom

The third section was on the use of ICT technology in English lessons, which included questions on:
- How often the teachers and pupils used computers in English lessons
- The availability of additional ICT equipment for English lessons
- The teacher's proficiency in handling various ICT technology
- The organisation of pupils' computer-related activities

- The use of computer software in English lessons

The finally section was on the effects of computers on the pupils' progress in English, which included questions on:

- The effect of computers on various language skills
- The effect of computer-assisted activities on pupils' motivation

In addition the teachers were asked a final question on the school's policy on computers.

The categories of answers depended on the type of question. For example, frequency questions (e.g. relating to use of computers or software) used either 'every lesson, most lessons, sometimes, hardly ever/never' or 'frequently, sometimes, seldom, never.' Questions about the effects of computers on pupils' progress used a 5 point Likert scale.

5.2.2 The participants

In order to get representative data on the use of ICT in English lessons at the intermediate level in Norway, the questionnaire was sent to schools all over Norway, which consists of 19 counties. Approximately 500 questionnaires with covering letters were sent electronically to schools in the 19 counties. 30 questionnaires were sent to each county and 30 questionnaires were sent to each of the biggest cities of Norway: Oslo, Bergen, Trondheim and Stavanger. Ideally, every commune should have been represented in the survey. However, some communes are so small that they simply do not have schools covering intermediate grades. Thus, thirty schools for each county were chosen randomly. To systematize the process of the questionnaire distribution, a school address book, *Adreessebok for skoleverket 2001* by *PEDLEX Norsk Skoleinformation*, was used. The information in the address book was collated with the online version of PEDLEX school list.[13]

The types of schools involved in the survey were as followed:

1. Schools with grades 1 to 7
2. Schools with grades 5 to 7
3. Schools with grades 5 to 10

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[13] at http://www.ped.lex.no/.

4. Schools with grades 1 to 10
5. Schools with grades 7 to 10

However, not all schools in this range could be considered representative. A considerable number of Norwegian schools turned out to be too small and could not contribute to the study. Those schools had the facilities to provide education to children of various grades, but in reality they did not have enough students to compose classes. For example, one specific school in a commune in Telemark county covered grades 1 to 7, but it had only two classes with 23 students in total. Thus, only those schools were included in the study where the number of classes was at least not less than the number of grades the school was supposed to cover. Undermanned schools were excluded from the list of respondent schools.
In order to collect data from homogeneous verities, schools for foreign children, schools specialized in some particular subjects, as well as schools for mentally challenged children were not included in the study. Those schools were not integrated in the research for one other reason: the schools had to emphasise educational programs specially developed for their students' needs.

Additionally to the questionnaire, a covering letter was sent to the headmaster of each school explaining the purpose of the study and giving brief guidelines for the teachers. In order to get a reliable and representative result, each letter to the headmaster was given instructions on who was to submit the questionnaire. This was done in order to avoid unrepresentative results, for example the most advanced ICT specialists in the schools filling in the questionnaire. Thus, the specific grade for each school was defined in advance and stated clearly in the covering letter. Out of the thirty schools in each county, ten English teachers teaching in the 5th grade, ten teaching in the 6th grade and ten teaching in the 7th grade were selected.

The questionnaire was published on *It's Learning* management system's domain and was accessible by any Internet user having the URL-address. The questionnaire was supplied with interactive features, which allowed the respondents to submit it in online-mode. The digital format of the questionnaire was meant to facilitate the process of filling in the form, and thus encourage the respondents to participate in the study.

5.2.3   Processing the data

The data processing stage involved collection, organising and analysing raw data provided by the volunteering teachers. At the date collecting stage, a questionnaire in digital format was evolved, which provided automatic data coding, data input, data editing and to some extent even data assessment, e.g. this is relevant for yes/no questions. The computer program which provided the platform for the questionnaire, one of the multiple products of *It's learning* management system, had unfortunately no option providing automatic evaluation of correlation between the variables. Thus, it was not possible to find out how the variables corresponded to each other, for example if there is any correlation between the age or gender of the respondents and their skills of using ICT for English classes.

The results of the information collected from the questionnaire were arranged in six different lay-outs:

1. Ordinary overview
2. Html overview
3. SPSS Html overview
4. Excel overview
5. SPSS Excel overview
6. Excel summary overview

Excel summary data presentation was the most frequently used lay-out for the research as it comprises and demonstrates the results of the questionnaire in a comparatively reader-friendly manner.

Some of the submitted questionnaires were returned empty for no obvious reason. During the period of the data collection, no message of the program failure was received. Empty responses were excluded from the processing as they did not carry any information and could not contribute to estimating any coefficient or index for the study.

5.3   The interviews

In addition to the data processing based on the questionnaire, two interviews were carried out with teachers (see Appendix 3). The conducted type of interview is called by Borg and Gall (1989:452) the *semi-structured interview.* This category of interview allows the interviewer to conduct a relatively unbiased research with the introduction of 'a more thorough understanding of the respondent's opinions' (Borg and Gall, 1989: 452). Semi-structured

interviews, according to Borg and Gall (1989:452), could not be substituted by any other researching approach. The reason for choosing the semi-structured interviewing method was to be able to ask both core questions and more open ones. Borg and Gall (1989:452) refer to this type of interview as 'most appropriate for interview studies in education'.

The interviewees were teachers of English at the intermediate level in Norwegian primary schools. Both were approached because they used ICT regularly in English teaching. It was important that the teachers had recent experience of teaching English in at least one of the three intermediate grades in a Norwegian primary school.

The core questions for the interviews were taken from the questionnaire. However, certain amendments had to be introduced, mostly when discussing in detail various educational approaches in promoting literacy with the support of ICT. Both interviews, in the form of dialogues, were transmitted on-line via Windows Live Messenger, an instant messaging program created by Microsoft Corporation. Each interview took approximately two hours; the duration of the conversations varied depending for the most part on the speed of typing of the interviewees. Each participant was presented with 20 general questions and a varied number of additional questions evoked in the course of the discussions.

The written dialogues were later transformed into Microsoft Word files and saved for the processing. A summary of each interview will be provided in Chapter 7.

6 RESULTS

6.1   Introduction

This chapter presents the results of the teacher questionnaire survey, which was answered by 101 respondents. The chapter is divided into the following sections:

- background information
- availability of ICT equipment
- the use of ICT equipment in English lessons
- the effect of ICT on the pupils' progress in English

6.2 Background data

Figure 6.1 shows the location and spread of the respondents participating in the survey.
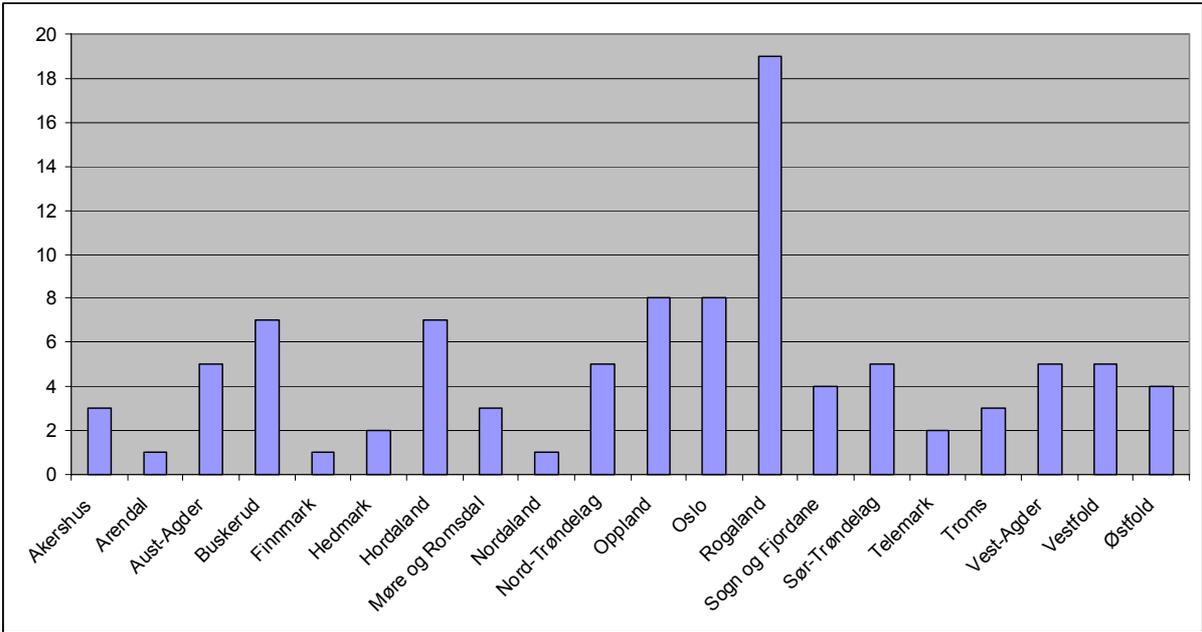
Figure 6.1: The location and spread of the respondents

The survey covers the whole country of Norway; each region or county is represented by at least one respondent. In Figure 6.1, the counties are arranged in alphabetical order. In this survey, the best represented county is Rogaland with 19 participants. The other counties fairly well represented in the survey are the Oslo region (8 participants), Oppland (8 participants),

Hordalnd (7 participants) and Buskerud (7 participants). Aust-Agder, Nord-Trøndelag, Sør-Trøndelag, Vest-Agder and Vestfold are represented by 5 participants each. Sogn og Fjordane and Østfold are represented by 4 participants each. The other counties are represented by three or fewer participants.

Figure 6.2 shows the ratio of male to female teachers in the survey.
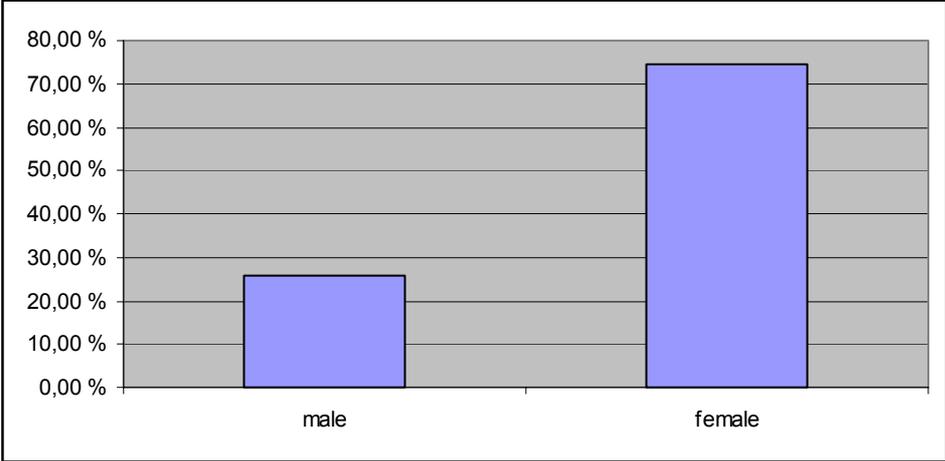
Figure 6.2: Gender ratio

Approximately three out of four of the teachers were females and one out of four were males. This ratio is similar to the one in Drew (2004), where 28 per cent were males and 72 per cent females. Both surveys show that there is a clear dominance of the females over males among teachers of English in Norwegian primary schools.

Figure 6.3 shows how many years the teachers had been teaching English.
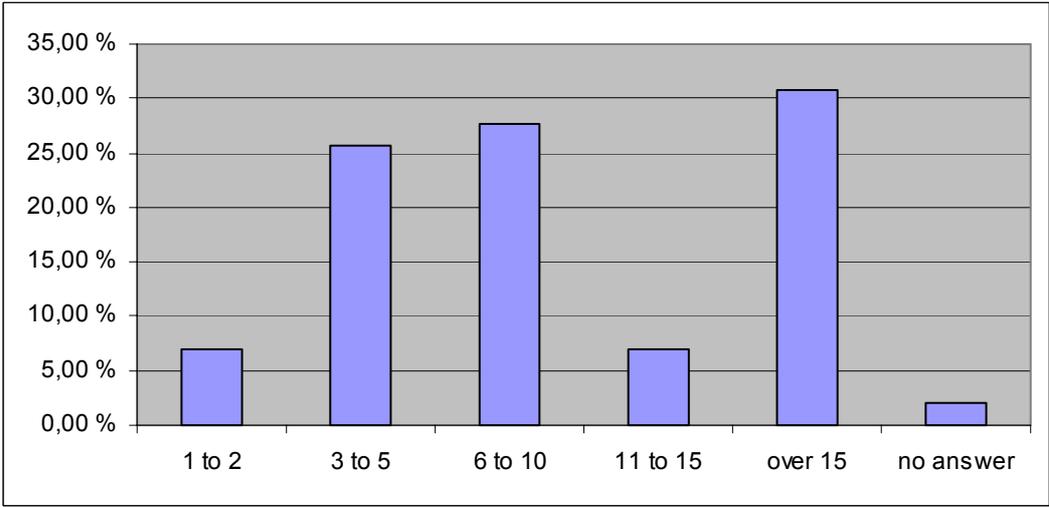
Figure 6.3: Years of teaching experience in English

The largest group of teachers, approximately three out of ten, had over 15 years of experience in teaching English. This is also reflected in the average age of the teachers, which was 42.4 years. At the other extreme, roughly one third of the teachers had five or less years of experience. Within this group, the majority of 26 per cent were teachers with three to five years of experience; only 7 per cent had one to two years of experience. The remainder were teachers with six to 15 years of experience. If one considers the total number of the teachers with six years or more of experience, this group constitutes roughly two thirds of the total group. These figures compare with roughly six out of ten teachers with six or more years of experience in Drew's (2004) survey, which generally indicates a relatively high degree of experience among the English teachers in Norwegian primary schools.

Figure 6.4 shows the grade levels that the teachers were teaching at the time of the survey. Some of the teachers taught at more than one grade level.
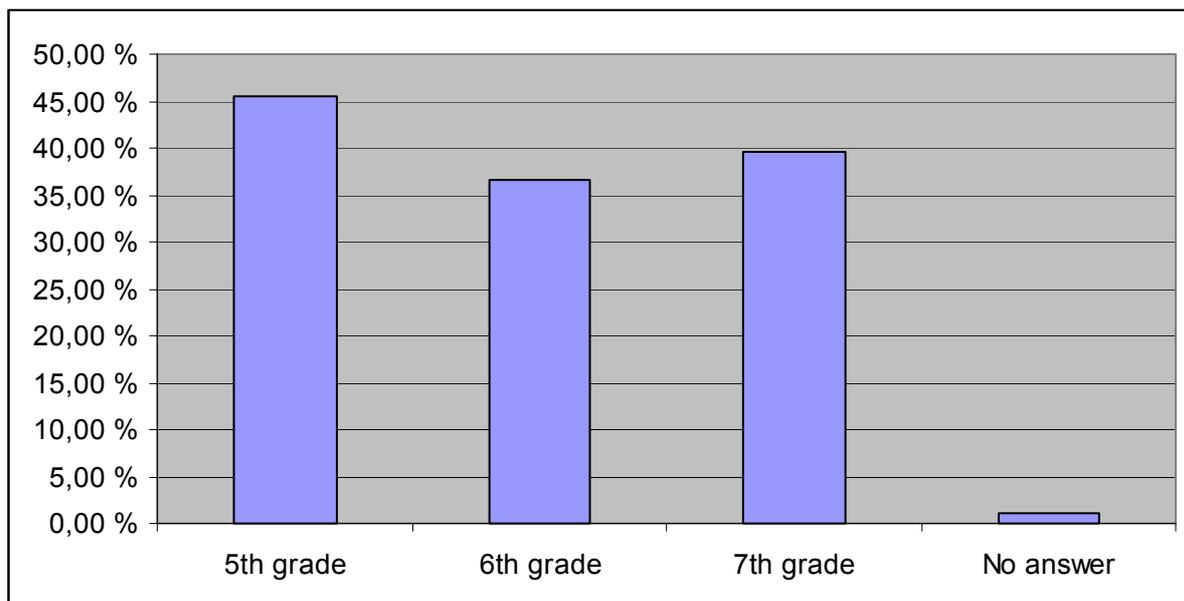

Figure 6.4: Grade levels taught

This figure shows a rather even distribution of the three grade levels among the teachers. The majority of 46 per cent taught at the lowest grade (5th grade), the minority of 37 per cent

taught at the 6th grade, and the remainder of 39 per cent taught at the highest grade (7th grade).[14]

Figure 6.5 shows the teachers' qualifications in English.
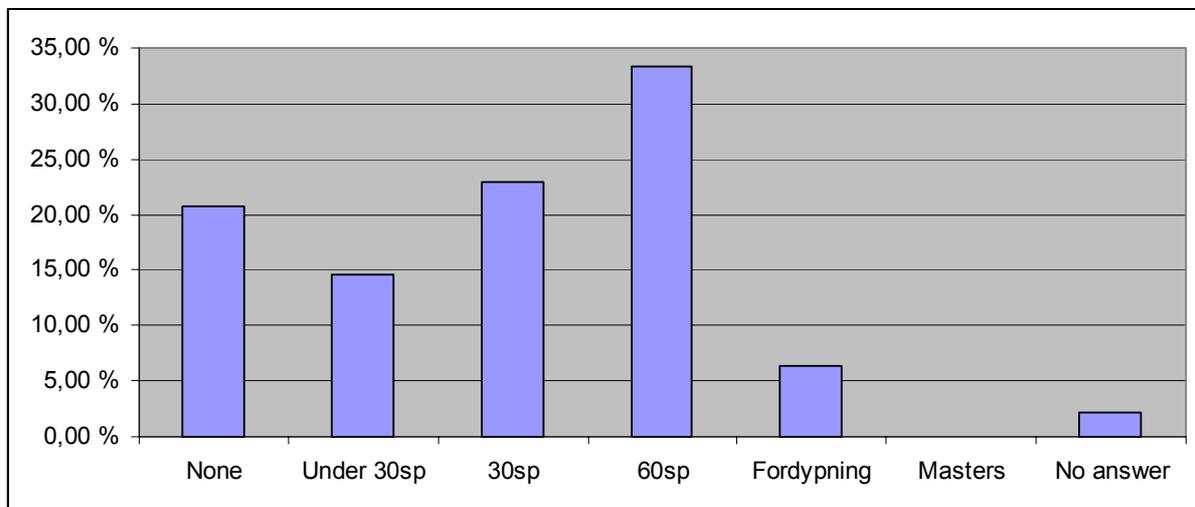
Figure 6.5: Higher education qualifications in English

23 per cent of the teachers had no formal education in English and 14 per cent had less than 30 study points or the equivalent. Since 30 study points is considered as the minimum teaching qualification in a subject, this means that slightly more than one third of the teachers were unqualified to teach English. Of those who had formal qualifications in English, 22 per cent had 30 study points and one third had completed 60 study points. Only 7 per cent had higher level courses in English as a specialised subject. These figures compare to almost one in two teachers with no qualifications or less than 30 study points in Drew's (2004) survey. In the same survey roughly one in five teachers had 60 study points and only 2 per cent had taken higher level courses. However, the focus of Drew's survey was teachers in grades 1 to 7, whereas the present survey was aimed at teachers in grades 5 to 7. According to Lagerstrøm (2000), the number of teachers without formal qualifications in grades 1 to 4 is comparatively high, 67 per cent.

Figure 6.6 shows to what extent the teachers had received specific training in ICT.

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[14] These figures add up to over 100% overall since some of the teachers taught at more than one grade that year.
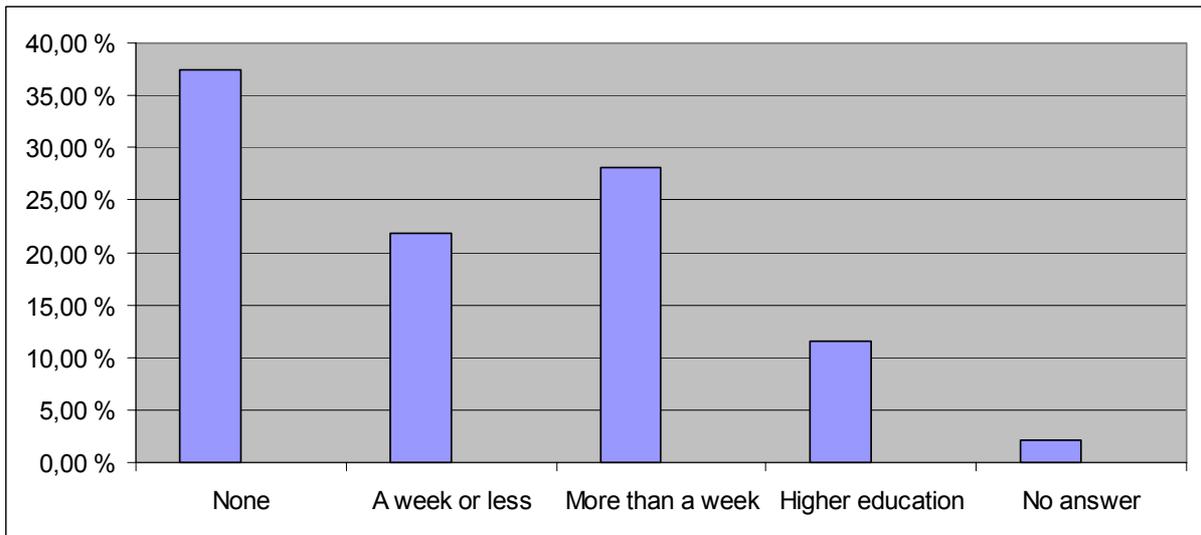
Figure 6.6: Specific training in ICT

This figure shows that more than one third of the teachers (37 %) had received no training in ICT. Of those who had received training, 22 per cent had a week or less and 28 per cent more than a week's training. A minority group of 13 per cent had studied ICT in Higher Education. These figures show that almost six out of ten of the teachers had either never been instructed in ICT or had a week or less of instruction. These figures, 37% of no ICT training in particular, show a rather significant lack of ICT competence among English teachers in primary schools all over Norway. This lack of training might lead to major problems with helping pupils to acquire ICT competence according to the L97 curriculum.

6.3 Availability of ICT equipment

Figure 6.7 shows the number of computers available for English classes.
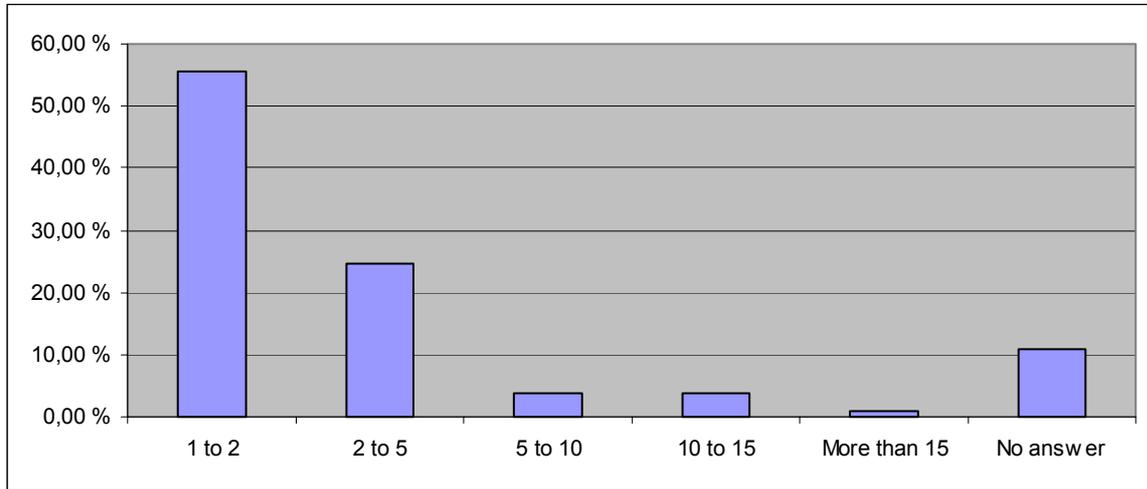
Figure 6.7: Number of available computers for English classes

Figure 6.7 shows that 80 per cent of all schools had one to five computers at disposal for English lessons. However, in more than half of all the schools (55 %), English classrooms, or classrooms where English was taught, had been equipped with only one to two computers. In every fourth school, there were two to five computers available. In contrast, only about one in ten of the teachers had from five to over fifteen computers available for the classes. Of these, 4 per cent had from five to ten computers at their disposal, and another 4 per cent had from ten to 15 computers. Only 1 per cent of the teachers registered over fifteen computers available. These figures suggest little possibility for pupils to work on individual or supervised computer-based assignments during English lessons. Such low availability of computers in Norwegian schools does not seem to contribute to the expectations and requirements suggested by curriculum.

Figure 6.8 shows the number of computers available elsewhere in the schools.
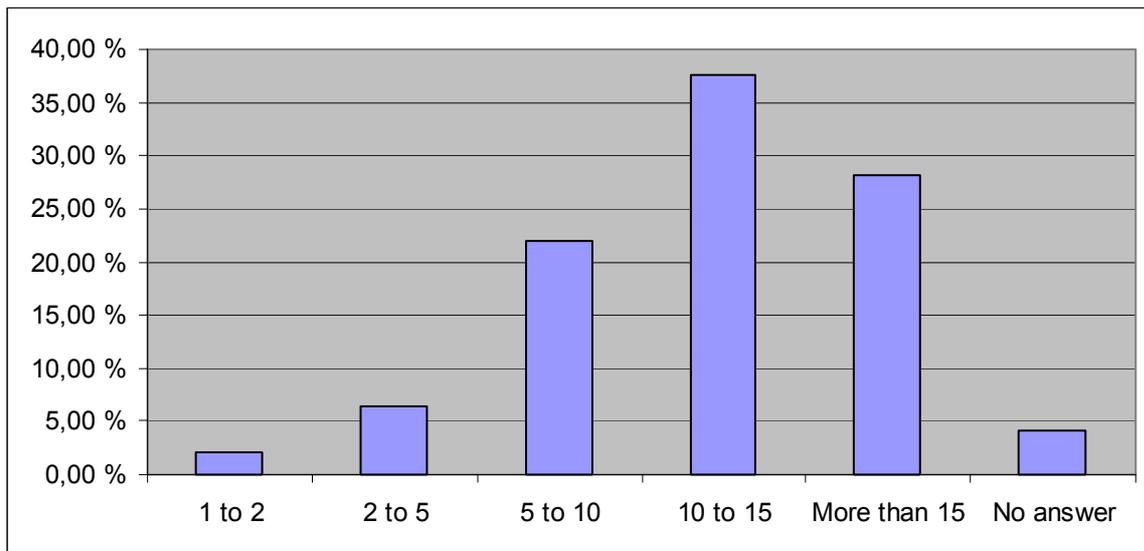
Figure 6.8: Number of computers available elsewhere in the school

The figures showing computer accessibility elsewhere in the schools indicate that in the majority of the schools a higher numbers of computers were indeed present, but in order to have access to them a teacher would have to make special arrangements (see Figure 6.9). In roughly nine out of ten of the schools the number of computers available for English classes somewhere outside of the classroom where English was taught was five or more. In 38 per cent of the schools there were ten to 15 computers at the teachers' disposal, 28 per cent had more than fifteen computers available, and 22 per cent of all the schools had from five to ten computers each. In approximately one out of ten of the schools there were from one to five computers available somewhere in the school.

Figure 6.9 shows the time needed for teachers to order computers that were available outside of the classroom.
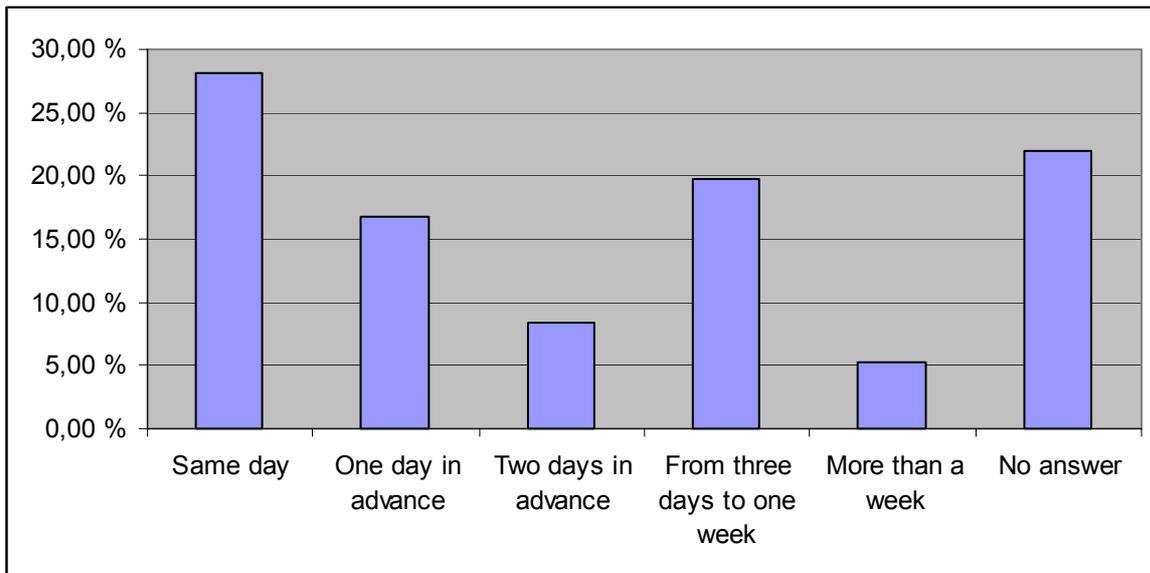
Figure 6.9: Time needed to order computers outside of the classroom

The answers referring to the time needed to order computers outside the classroom can be divided into two major groups: the largest group of 52 per cent could order computers from the very same day to two days in advance. Of these more than one out four teachers could order computers that were at their disposal somewhere else in the school on the same day, 16 per cent had to make the arrangements one day in advance, and roughly one in ten had to order computers two days in advance. The other main group, roughly one out of four, were teachers who had to order computers from three days to more than one week in advance. Almost one out of five of the teachers had to order computers from three days to a week in advance and 5 per cent were obliged to order computers over a week in advance. There was also a high rate of no-answers (22 %) to this question, which might be due to inapplicability, inadequate question formulation, various ordering routines or no particular routines. Teachers could also have been uninformed about or uninterested in the subject.

6.4 The use of the computer technology in English

Figure 6.10 shows the frequency of teacher computer use in English lessons.
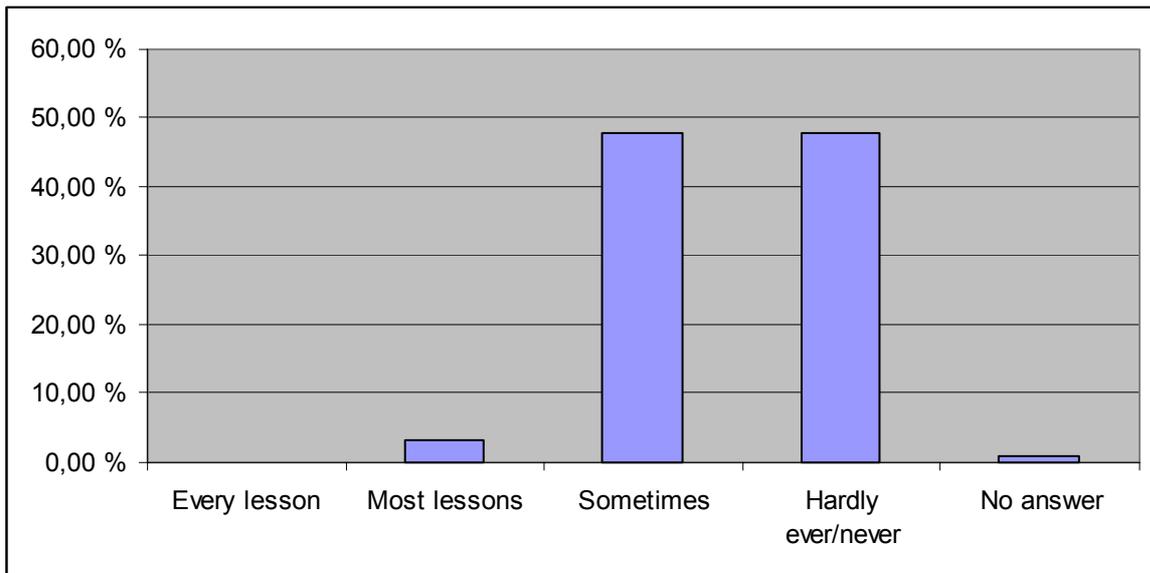
Figure 6.10: Frequency of teacher computer use in English lessons

Only 3 per cent of the teachers used computers in most English lessons, and none of the teachers used computers in every single lesson. In contrast, 48 per cent stated that they sometimes used computers in their English teaching. However, perhaps more significant was that almost one in two of the teachers stated that they hardly ever or never used computers in their English teaching.

Figure 6.11 shows the frequency of pupils' computer use in English lessons.
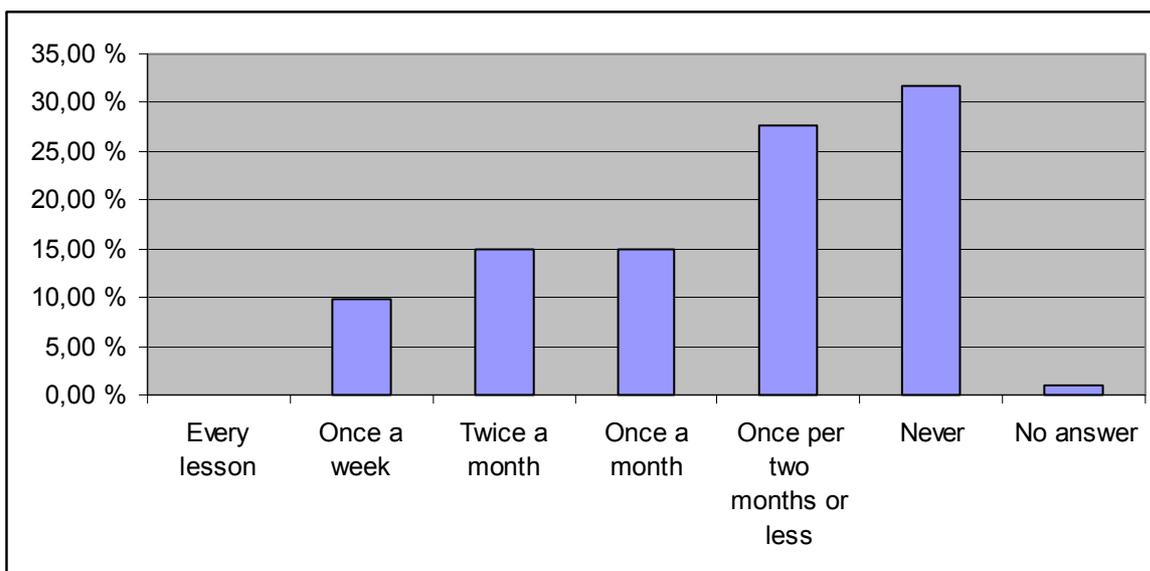
Figure 6.11: Frequency of pupils' computer use in English lessons

These figures show that the largest group of pupils of 60 per cent either did not use computers in English lessons at all (32 %) or used them at best once every second month (28 %). The smallest group of 10 per cent is represented by the most frequent computer users; in none of the schools participating in the questionnaire did pupils use computers in every English lesson and only 10 per cent of all pupils used computers once a week. The third group of 30 per cent are those pupils who used computers at least twice a month (15 %) or once a month (15 %). These results showing low frequency of pupil computer use in English lessons do not correspond with the figures of availability of computer equipment available at the schools, which show that the majority of 88 per cent have from five to over fifteen computers at their disposal if ordered in advance (see figures 6.8 and 6.9). However, these results seem to correlate somewhat with the ones on the number of computers available in the classrooms for English lessons, which indicates that four out of five of the schools had no more than one to five computer(s) available in the English classrooms (see Figure 6.7).

Figure 6.12 shows additional ICT equipment available for English lessons.
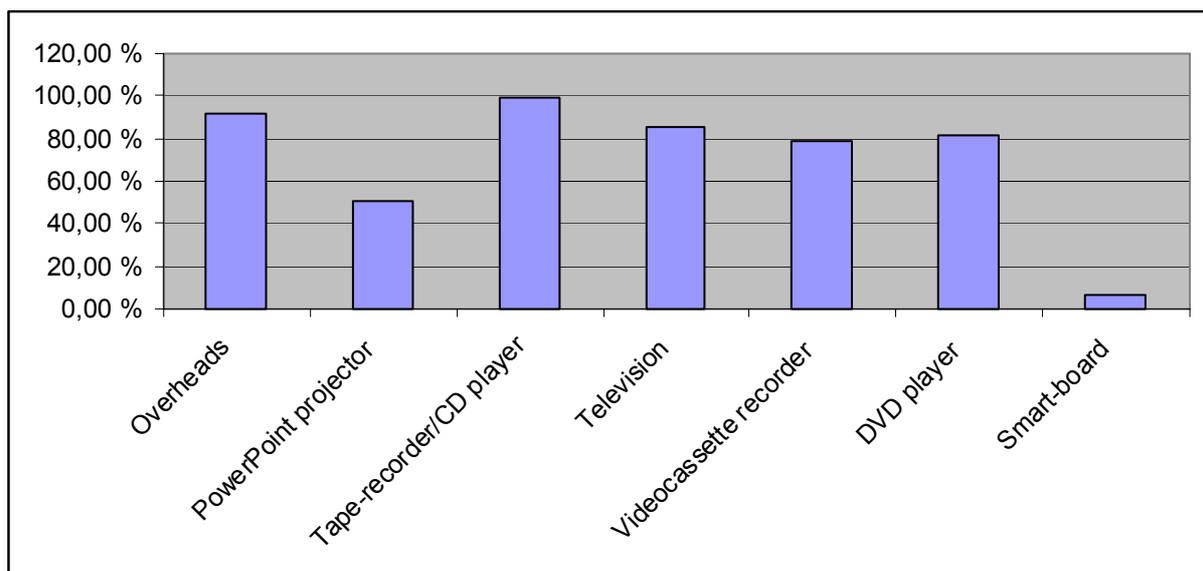
Figure 6.12: Additional ICT equipment available for English lessons

The overall results in Figure 6.12 show that the majority of the schools participating in the questionnaire were relatively well equipped with a variety of supportive ICT tools. Tape-recorders and CD players were the most available accessories in schools represented. They were found in 99 per cent of all schools. Overhead projectors were also extremely common; 92 per cent of the schools had this equipment at disposal. The other three frequently used accessories were television (85 %), DVD players (81 %) and videocassette recorders (79 %).

PowerPoint projectors were only in half of the schools (51 %). Finally, according to the survey, the rarest technological aid in the schools was the Smart board (7 %).

Figure 6.13 shows the teachers' proficiency in handling various ICT technologies other than computers in English classrooms.
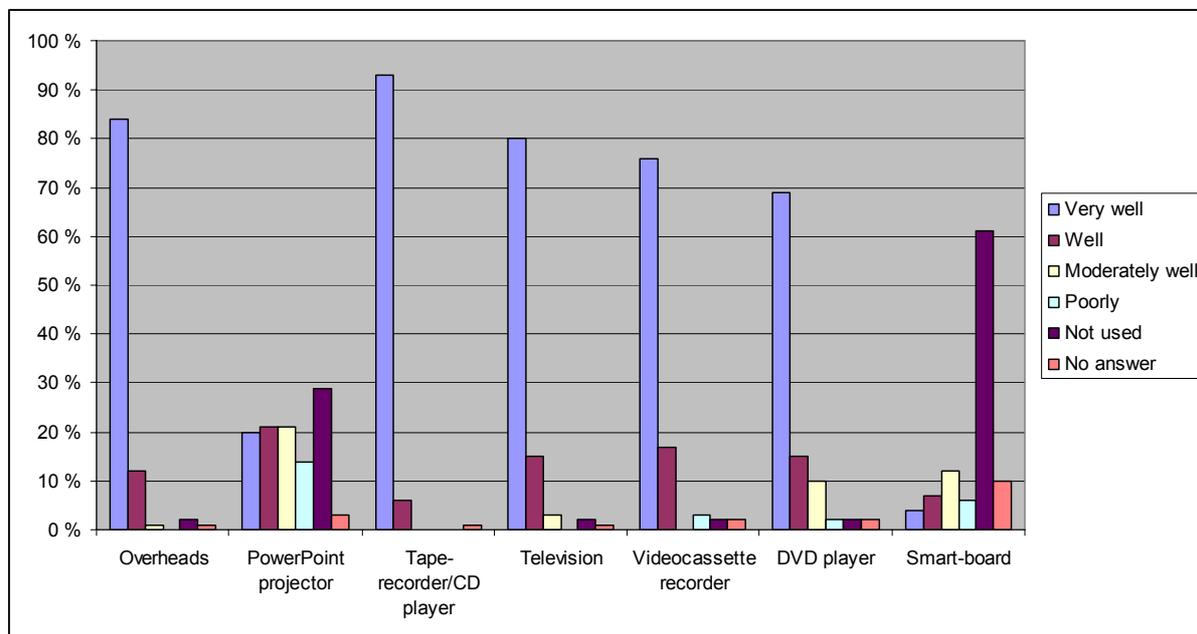
Figure 6.13: Teachers' proficiency in a variety of ICT technology

According to Figure 6.13, the respondents felt at ease handling most of the ICT instruments. The majority of the teachers did not seem to experience many difficulties using "conventional" technological support; 93 per cent of the teachers coped very well with tape-recorders and CD-players 93 and 84 per cent of the teachers managed overheads competently. Television sets, videocassette recorders and DVD players did not seem to be of significant concern for the teachers either: 80 per cent of the respondents coped very well with television, 76 per cent managed very well with videocassette recorders and 69 per cent of all the teachers handled DVD players competently.

However, two ICT devices were used little by the majority of the teachers: these were PowerPoint projectors and Smart-boards. The results for the PowerPoint projectors were rather evenly distributed between teachers who coped with them very well (20%), well (21%), moderately well (21%), poorly(14%) and those who did not use them at all (22%). As for the Smart-board, the majority of the teachers of (61 %) never used them, 6 per cent had some idea of how to handle them, 12 per cent coped with smart-boards moderately well, 7 per cent felt confident using them and only 4 per cent of all the teachers appeared to be experts in managing smart-boards in an English classroom. This figure is of particular interest in

connection with Figure 6.12, which shows that the number of the schools that have Smart boards at their disposal was almost twice as high as the number of teachers who felt comfortable about using it (7 % compared to 4 %).

Figure 6.14 shows the organisation of pupils' activities in English classrooms when using computers.
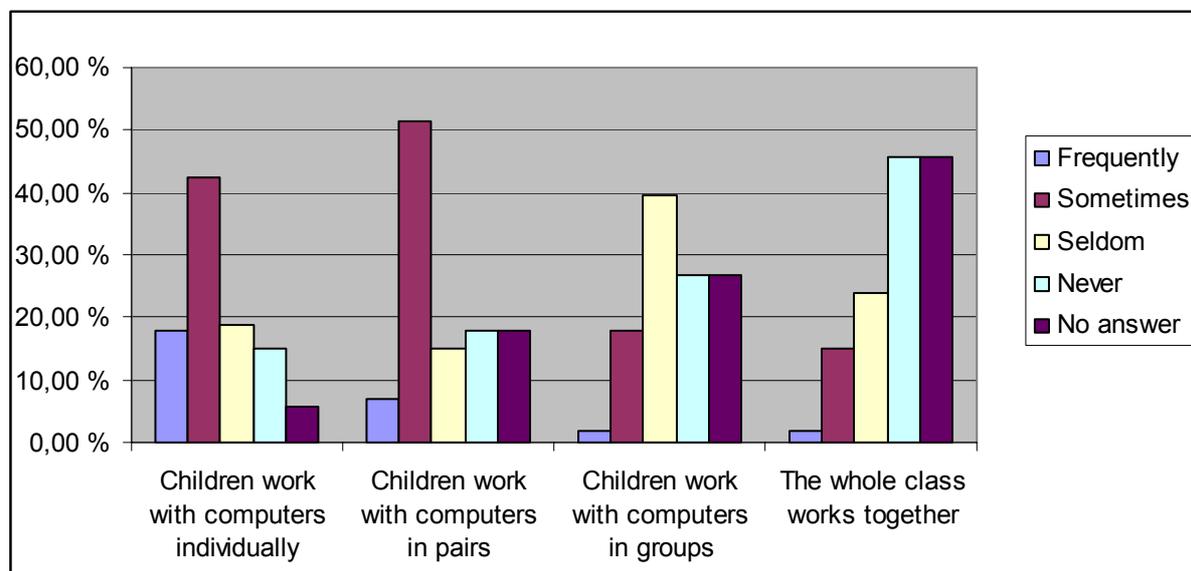
Figure 6.14: The organisation of pupils' computer-related activities

According to the results in Figure 6.14, the most common practices of using computers in English classes were either working individually or working in pairs. 18 per cent of the pupils worked individually with computers frequently and 43 per cent did so sometimes. 7 per cent of the pupils worked frequently with computers in pairs, whereas 52 per cent did so sometimes. Rather rare were activities aimed at group work with computers. Only 2 per cent of the pupils worked with computers in groups frequently and 18 per cent sometimes. Even more seldom were computer activities involving the whole class. 2 per cent of the pupils worked together with the rest of the class frequently and 15 per cent sometimes.

In contrast, the most salient categories for 'never' or 'seldom' were the learning designs where the whole class worked with computers simultaneously or in groups. The whole class seldom practised synchronised work with computers in 24 per cent of all the schools, whereas in almost every second school (46 %), pupils never participated in a computer-assisted joint project. Children seldom worked with computers in groups in two out of five schools, while such class organisation did not take place at all in roughly one out of four schools. 15 per cent of pupils seldom and 18 per cent never worked with computers in

pairs. Finally, in 19 per cent of schools, pupils were seldom assigned individual work with computers, and in 15 per cent of schools this was never practised.

Table 1 shows the frequency of the use of various computer software in English lessons.

Table 1: The use of computer software in English lessons

Category	Frequently	Sometimes	Seldom	Never	No answer
Word-processor	10%	36%	16%	22%	16%
Electronic dictionaries	0%	21%	29%	34%	16%
Electronic encyclopaedias	1%	22%	26%	32%	19%
Educational games	14%	48%	9%	14%	15%
Story writing programs	3%	14%	26%	39%	18%
Talking books	2%	8%	21%	50%	19%
Grammar exercise programs	10%	37%	18%	21%	14%
Pronunciation programs	1%	8%	24%	50%	17%
Vocabulary programs	7%	25%	24%	28%	16%
Spelling programs	6%	24%	28%	29%	13%
Programs for special needs	5%	8%	29%	41%	17%
Cross-curricular programs	2%	10%	30%	41%	17%
Language testing programs	1%	17%	24%	39%	19%

According to the survey, computer-based activities for pupils most regularly introduced in English classes were activities involving educational games, frequently in 14 per cent and sometimes in 48 per cent of all schools. Other computer software relatively regularly used in English lessons were word-processor and grammar exercise programs: word processor was used frequently in 10 per cent and sometimes in 36 per cent of the schools, whereas grammar exercise games scored slightly higher with frequently in 10 per cent and sometimes in 37 per cent of the schools. Somewhat less popular appeared to be vocabulary programs, which were used frequently by 7 per cent and sometimes by 25 per cent of the teachers. Spelling programs were used frequently by 6 per cent and sometimes by 24 per cent of the teachers. Less frequently used software were story writing programs, electronic dictionaries and encyclopaedias, language testing programs, cross-curricular programs, and programs for

special needs: The least used software were talking books (used frequently in 2 per cent and sometimes in 8 per cent of schools) and pronunciation programs (used frequently in 1 per cent and sometimes in 8 per cent of the schools).

In addition to the list of the software mentioned above, one teacher reported that MSN messenger was frequently used in class for educational purposes.

6.5 The effect of computers on the pupils' progress in English

Table 2 shows how teachers perceived the effect of computers on pupils' development of various language skills in English lessons. The teachers were asked to assess the effect of computers on pupils' skills using a scale from 5 to 1, where 5 corresponds to "very much" and 1 to "hardly at all". Thus, the sum of the results from column 5 and column 4 represents the most positive feed-back, the results from column 3 represent an average impact, and the sum of the results from column 2 and column 1 represents the most moderate effect of computers on the pupils' progress in English.

Table 2: The effect of computers on pupils' development of various language skills in English lessons

Category	5	4	3	2	1	No answer
Reading	9%	34%	29%	10%	8%	10%
Writing	13%	39%	21%	9%	9%	9%
Speaking	2%	12%	24%	25%	28%	9%
Listening	7%	21%	23%	17%	23%	9%
Grammar	15%	33%	22%	12%	8%	10%
Vocabulary	16%	39%	21%	6%	8%	10%
Cross-cultural awareness	6%	26%	31%	12%	15%	10%

According to the table, computers have the greatest effect on advancing the pupils' writing (52%), grammar (48%), vocabulary (45%) and reading (43%)[15]. The respondents assessed the computer effect on pupils' cross-cultural awareness at the lower rate of 32%, while listening

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[15] The figures are the addition of categories 5 and 4

abilities were assessed with 28%. The most moderate impact of computer-assisted language learning, according to the survey results, appeared to have been on speaking abilities, with only 14% giving a 4 or 5 rating.

Figure 6.15 shows the effect of computer-assisted activities on pupils' motivation.
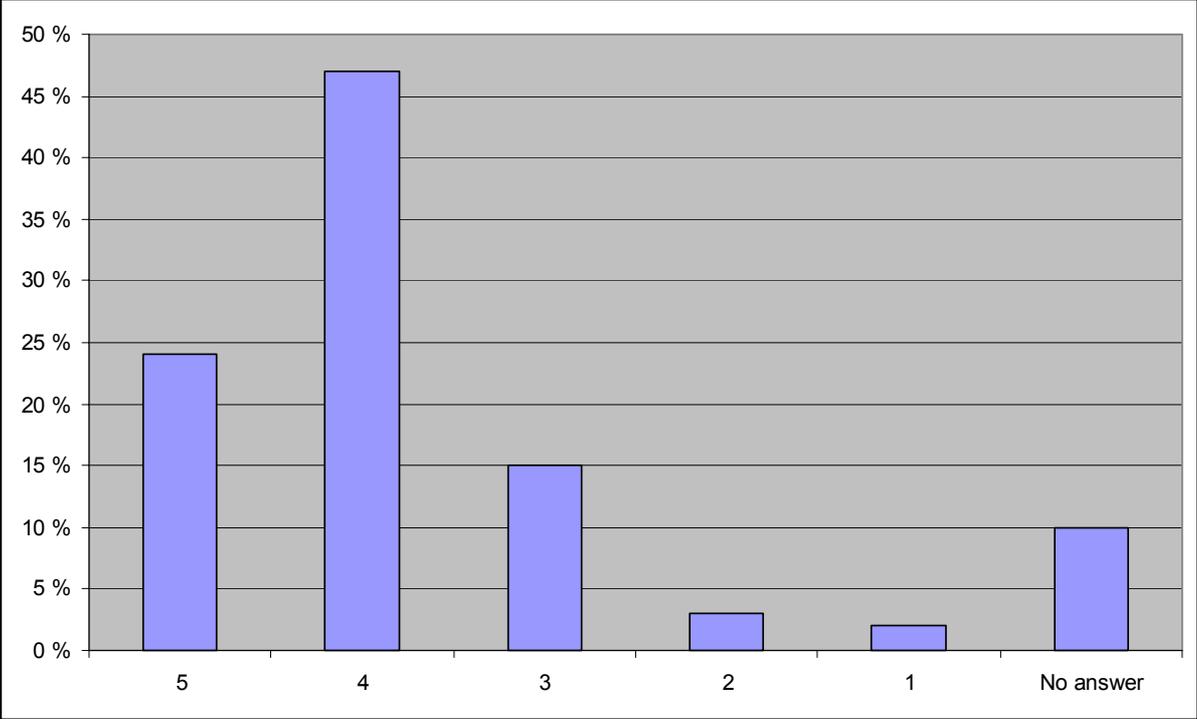
Figure 6.15: The effect of computer-assisted activities on pupils' motivation

Towards the end of the questionnaire the teachers were invited to provide their assessment of the impact of computer-assisted activities on pupils' motivation. The respondents were again provided with a scale from 5 to 1, where 5 corresponds to "very much" and 1 to "hardly at all". According to the results, the majority of teachers believed that computers are a rather powerful motivational tool. Almost one fourth of the teachers (24%) believed that computers effect pupils' motivation very much. The largest group of teachers, almost half of all participants (47%), answered in the 4 category (second most positive). 20 per cent of all the answers were in the lowest categories (3, 2, 1). Only 3 per cent of all the teachers assessed the effect of computers on pupils' motivation as very moderate and only 2 per cent of all the teachers believed that computer-assisted activities hardly have any positive impact on pupils' motivation.

Table 3 shows the policy of the school administrations on using computers in English language lessons.

Table 3: School administration computer policy for English language lessons

Manner	Yes	No	No answer
Verbal encouragement	38%	60%	2%
Practical support	22%	69%	9%

In addition to all of the above-mentioned questions, there was one final question: the teachers were asked if they were encouraged by the school administration to use computers in English lessons. According to the results, only about two fifths (38%) of all the teachers were verbally motivated by the administration to explore computer technology in English lessons. Furthermore, out of the 38 per cent of the teachers experiencing verbal encouragement from the school administration, only approximately one fifth (22%) of the teachers received practical support, which means that only about 8 per cent of all the teachers participating in the survey acquired some practical support from their school administration.

7. TEACHER INTERVIEWS

This chapter presents the interviews with the two teachers, Truls and Ida, who use ICT regularly in English lessons.

Truls

Truls has one year experience of teaching English in a Norwegian secondary school and three years of teaching overall. He currently teaches English in the 5th and 7th grades, primarily the 5th grade class consisting of twenty four pupils with two hours of English per a week. In addition to English, he teaches Norwegian, science, social studies, music, gymnastics and mathematics. Truls has a Master's degree in English. Although he does not have any specific higher education in ICT, he attained a two-year ICT course with emphasis on Microsoft Access and Microsoft Office in general in upper secondary school. He has spent a great deal of his spare time on using ICT in the course of the last twelve to thirteen years.

The school where Truls currently works has at its disposal a whole variety of ICT tools: overheads, PowerPoint projectors, tape-recorders and CD players, television, videocassette recorders, DVD players, Smart-boards and computers. Moreover, in addition to stationary computers, the school provides its employees with laptops. Truls's school puts special emphasis on the importance of the use of ICT in the learning process. The whole school has recently completed a training course on the use of a management system called It's Learning. Another example of the school administration's pro-ICT policy is a paid evening course for those teachers who are willing to use Smart-boards in the learning process. Teachers at Truls's school also obtain practical support from ICT consultants and trainers. Truls appears rather content with the degree his school provides the necessary equipment and knowledge, even though he still requires information and instructions on how to incorporate Smart-boards in his teaching. Truls' impression is that the school administration does a very good job keeping their employees up-to-date.

Truls uses ICT in most subjects. He feels very confident using all kinds of the above mentioned ICT tools, except for the Smart-board. In Truls's opinion, too many teachers use Smart-boards as ordinary black-boards, which is far from their primal function. Even though Truls himself exploits this particular ICT tool quite frequently, he does not feel he possesses enough knowledge and experience to qualify himself as a Smart-board expert. The problem

with Smart-boards is lack of experience on a day-to-day basis. As he says: It's difficult to know how to use it [a Smart-board] if you haven't been given a course.

Truls teaches his subjects in an ordinary classroom equipped with four stationary computers for the pupils and a Smart-board. In addition, there is a computer-room in the school, equipped with approximately 25 stationary computers. The room can be booked by a teacher one or two days in advance and sometimes on the very same day. Yet, Truls has never found himself in a situation when his entire class would need to use computers simultaneously. Truls does all his English teaching in the classroom.

Truls's school promotes a rather exclusive teaching method, which he refers to as 'station teaching'. In the Early Years Literacy Programme (EYLP), which the school uses, the 'stations' are called 'learning centers'. In station teaching, the classroom is divided into small groups. Each group of pupils is presented with a range of learning centres. In Truls' case there are six: the teacher-station, the grammar-station, the reading station, the writing station, the ICT-station and a station for written exercises, e.g. cloze tests[16]. A normal class at Truls's school consists of 24 pupils, which means that each group normally consists of four pupils. One lesson at Truls's school is 45 minutes; English lessons are always doubled, which results in 90 minute units. One group spends approximately 10-12 minutes at each station. The pupils are given individual and group tasks. The teacher remains at one station; the other stations are run independently by the pupils. Truls normally uses between 30 to 60 minutes to prepare for an English lesson.

Truls describes a typical English lesson at his school as follows:

I plan six different stations, one for each group. At each station, there is a different task. After 10-12 minutes, each group moves from one station over to the next task. After another 10-12 minutes, they move again. That way, every group gets 10-12 minutes for each station. […] a group starts at the teacher station, they will spend 10-12 minutes with the teacher with guided reading, or instruction on grammar. After 10-12 minutes, they'll move onto the grammar station, and will work individually with grammar exercises that the teacher has prepared. After another 10-12 minutes, they move onto the reading station, where they have their own English books that they have brought from the school library. After 10 minutes of reading, they move onto the writing station where they normally write a story of some sort. After 10 minutes of writing, the group of four pupils moves onto the computers and work with various programs, etc.

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[16] A cloze test is a text where every *nth* word has been removed and pupils are expected to fill in the missing words.

When asked about advantages and disadvantages of station teaching, Truls referred to the James Modison University homepage[17], where an overview of the benefits and shortcomings of the approach are listed:

Some advantages of this approach are:

- Each teacher has a clear teaching responsibility.
- Students have the benefit of working in small groups.
- Teachers can cover more material in a shorter period of time.
- Fewer discipline problems occur because students are engaged in active, hands-on learning.
- It is possible to separate students who need to work away from each other.
- This approach maximizes the use of volunteers or extra adults in the room.

Some disadvantages of the approach are:

- To work effectively, this approach requires a lot of preplanning.
- All materials must be prepared and organized in advance.
- The noise level will be at a maximum.
- All stations must be timed so teaching ends at the same time.
- One or more groups must work independently of the teacher.

In addition to the above mentioned disadvantages, Truls notes that he does not have enough time to check thoroughly the pupils' production. The pupils show Truls what they have written in their textbooks and he tries to check pupils' grammar exercises whenever an opportunity occurs.

Truls's pupils use computers in every single English lesson, yet he seldom has a need for using his own during a lesson. The pupils work with computers individually with hardly any direct supervision from Truls. In the beginning of each lesson, the pupils receive their tasks for the day. Each group spends approximately ten minutes at the computers, while the rest of the class is engaged in other, more conventional English learning activities.

During the computer-session, Truls's pupils work mostly with vocabulary programs and educational games as well as spelling programs. In Truls's opinion, the computer is an essential tool for improving pupils' reading and writing, acquiring new vocabulary and

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[17] http://www.jmu.edu

learning grammar, whereas it has hardly any impact on pupils' oral English or cross-cultural awareness.

There are also negative outcomes of regular usage of ICT in English lessons. According to Truls, there are a number of challenges and disadvantages directly connected to ICT usage in a learning process, such as acquiring immediate assistance when the computer technology breaks down. The most challenging task for Truls as a teacher when using ICT in class, is finding the best computer programmes that focus on specific language skills. It is impossible for the teacher to monitor all the pupils constantly. Thus, they can easily switch from their original tasks to something more exciting and less educational, especially with an Internet connection available, for instance Youtube.

However, Truls has no doubt about the role of ICT in motivating pupils: They look forward to working with computers and enjoy it very much. I think ICT helps to motivate pupils.

Ida

Ida, the second interviewee, has completed an intermediate course in English, the equivalent of 80 points in total. The subject of Ida's research paper in her intermediate course was ICT in general and Smart-board in particular as a tool in language learning. Ida has no formal education in ICT; her whole ICT training, in addition to mandatory ICT classes at upper secondary school, is reduced to approximately one month's general course she attained several years ago at Hå commune, the main objective of which was getting acquainted with Microsoft Word, Microsoft Excel and Microsoft PowerPoint programmes. Ida refers to the course as hardly motivating, but to a certain degree useful.

Ida has six years' experience of teaching English in primary school. From the first year, she started introducing ICT in class. During the first year of teaching, Ida started with using VCR, DVD, PowerPoint projectors and Word processing programs in her English classes. Over the years, Ida has increased the use of ICT to a much larger extent.

At present, Ida teaches English at 5th, 6th and 7th grade. English is Ida's prime subject of expertise, with physical education as a supportive subject. The duration of a lesson at Ida's school varies from 30 to 45 minutes depending on its occurrence during the day. The majority of Ida's English lessons last 40 minutes. Supplementary to three PowerPoint projectors, three DVD-players, one Videocassette recorder and a television which Ida has to share with her colleagues, each class at Ida's school is equipped with one overhead, one CD-player, one

portable computer, from two to four stationary computers, and one Smart-board. There is also a small computer room, the school library adjunct, where six additional computers are available, some of which are relatively old, although a few are new. The most common users of the computer room at Ida's school are pupils from the 5th, 6th and 7th grades, but 1st, 2nd, 3rd and 4th graders also use the room in computer lessons every week. Although the computer room might be reserved a day or two in advance, Ida suggests that to be on the safe side, it is better to order the room a week beforehand. Ida also confirms that occasionally she had accessed the computer room on the same day, skipping the reservation routine.

Ida asserts that she copes equally well with all the above mentioned ICT aiding tools. However, she remarks that Smart-board, being the latest addition, is the tool she has used the least even though she considers it the most exciting language learning tool, and one which supports multiple language learning applications to choose among.

An average class at Ida's school consists of 25 to 30 pupils with two teachers. Due to the administration of the classes, Ida's pupils seldom use computers individually in an ordinary English lesson. Simultaneous individual computer-based activities in English lessons at Ida's school appear to be rather impossible. Ida does not perceive the situation as a problem; she claims that this is a matter of organisation and planning. Normally, when introduced to computer-or Smart-board-assisted activities, the pupils work in pairs and/or groups. Still, at some periods of the English syllabus, planned study, Ida's pupils are obliged to work individually. Individual work is a specific working method practised frequently at Ida's school. Ida provides her pupils with a plan for e.g. a two week period, in which they find the assignments to work with both at school and at home. It is the pupils' responsibility to finish and submit the assignments by the due date. Ida and her pupils have to schedule the activities in order to provide each pupil with the time and equipment required for accomplishing the given tasks.

Ida herself uses computers frequently in English classes, whereas she characterises the frequency of her pupils' use of computers in ordinary English lessons as rather occasional: In the actual English lesson [I do not use computers] so much; we read, talk, listen, write, sing, use the Smart-board and play games most of the time. This, however, is not the case in the planned study periods: I Have computer-based activities on plan frequently.

Ida frequently uses word-processors and grammar exercise programs, and sometimes uses electronic games, electronic dictionaries and encyclopaedias. She seldom uses Pronunciation programs, talking books, vocabulary and spelling programs and never uses programs for special needs, story-writing and cross-cultural programs. Further in the

interview, Ida revealed that the most recurring computer-based activities are linked to Word-processors, the Internet, namely Scoop's webpage and the BBC webpage for children, and the It's learning management system for the tests. Ida also specifies that even though computer programs for special needs are never used in class, certain groups of pupils use such programs for individual training. Moreover, Ida emphasises that last year, while language testing programs were rarely used throughout a term, Ida intensively used a number of such programs when preparing her 7th graders for the Norwegian national online examinations on the transition to the lower secondary school. In addition to the above-mentioned ICT equipment, Ida named one particular product: "Wallace and Gromit" DVD set with exercise booklets. This English course package is completely elaborated and, as Ida affirms, it does not require any extra preparation from a teacher.

Consistent with Ida's evaluation of the impact of ICT on pupils' literacy development, computer-based activities first and foremost improve pupils' reading skill. Such activities have a very positive outcome on the development of pupils' writing, the improvement of their grammar skills and enriching vocabulary. ICT also has a certain effect on pupils' speaking fluency and cross-cultural awareness. However, Ida emphasises that the positive results of the ICT application in the language learning processes is highly determined by the teacher.

In accordance with Ida's experience, computer-assisted activities provide a large amount of motivation for children of the given age group during English lessons. Some of the boys especially, who otherwise appear slightly withdrawn and reserved, experience ICT presence in the educational process as an amusing and safe environment for learning a completely new language. Computer-based activities give an opportunity for ICT-skilled pupils express themselves.

Ida also has some concerns about the usage of ICT in class, the major one being the challenge of keeping all pupils active. If ICT is overused or lacks variation, pupils often recede into the background. Furthermore, there is always a danger that a teacher would spend more time occupying ICT equipment than the pupils themselves, which might cause pupils' loss of interest. Besides, not all the pupils are ICT experts; most of them are, but not all. Finally, Ida remarks on the setback linked to the pupils' maturity level. Quite often, especially in the beginning of the English course, Ida's pupils, when asked to make a written product, use "cut and paste" technology. Sometimes the whole written production is nothing more than a chunk of text stolen from on-line unlimited resources.

At Ida's school, there are two teachers who are in charge of the functioning of ICT. These two teachers attend ICT courses on a regular basis. They are responsible for the smooth

running of the school ICT equipment. However, if a major error occurs, e.g. computer failure, a specialist with higher ICT qualifications would be provided within a day or two.

When asked about the role of the school administration in ICT promotion, Ida confirms that she receives verbal and practical encouragement: Throughout the year, time is set aside to work with Smartboard, both in plenary and individually. We have courses where we learn about new useful web-pages, we share useful links and successful projects. However, Ida is eager to gain even more knowledge on the subject. Yet, she admits, that the support she has obtained so far from the school administration was very important and encouraging.

Ida does not consider herself a skilful Smart-board user; nonetheless, Smart-board as a learning tool was the subject of her research for her intermediate course in English. Ida describes a Smart-board is an interactive whiteboard that is connected to a computer and a data projector. With the appearance of the computer image on the board, the Smart-board can be used as a computer where a human finger replaces a cursor bar.

According to Ida, there are numerous options of Smart-board application to the English acquisition processes. Ida has used Smart-board as a blackboard, using the computer keyboard or special colour pens for entering text. Once the text is inserted, the words and phrases can be moved around as units using just the index finger. Ida often uses this approach when introducing or explaining various grammar patterns. Ida has also explored Smart-board in the capacity of overheads for fill-in and mistake correcting exercises; the alterations made using Smart-board can be saved and used later. Online grammar exercises are frequently used in the same manner. In addition, Ida normally resorts to Smart-board when using material from Youtube database and making PowerPoint presentations.

Ida justifies her stimulus for using Smart-board in class as follows:

The pupils are easily "bought"… They know that if they behave and we have extra time, we can turn on the Smart-board and they can see e.g. Mr Bean or listen to a song. They also know that if they work hard and do what they are supposed to do, they get to see a film. English is a fun subject to teach; there are so many exciting activities one can do.

When discussing the extent to which Smart-board is a necessary teaching tool, Ida agrees that occasionally Smart-boards and computers are interchangeable and, thus, some of the Smart-board-related activities could be carried out with equal success by a regular computer and PowerPoint projector. Yet, Ida's preference remains with Smart-board: I have seen the pupils laugh and collaborate in front of the Smartboard, pressing the canvas and talking about grammar. This is the "detail" which makes the Smartboard stand out.

Moreover, the Smartboard is installed permanently and is ready to use when needed. There is no need to install and carry equipment around school.

Ida finds that there many advantages about using Smart-board for the English language acquisition process. The number of pages on the Internet that are free and are excellent for language learning is endless. There are numerous activities that strengthen and assist the pupils' learning procedure. Using Smart-board simulates several learning styles, which is of great importance when capturing and enhancing pupils' attention and imagination. Many pupils enjoy using Smart-board, especially when they are allowed to use it independently. Smart-board encourages pupils to be active in English lessons.

Ida mentions the disadvantages associated with Smart-board:

It is time consuming getting to know the technology and for some teachers ICT is hard to learn. [...] Additionally, there is always a possibility that the Internet is down or the Smart-board is not working. This can be frustrating and even destroy a lesson. It can be a good idea to have an ICT-skilled person available at school who can be contacted in emergency situations. Otherwise, it is wise to check that the Smartboard is working and running before the pupils enter the classroom. One should have a backup in case the Smart-board falls out.

Ida believes that Smart-board is an effective tool requiring, however, a certain degree of motivation and effort from teachers. She suggests that in order to make teachers motivated and encouraged to use the Smart-board, proper training should be offered by the school administration.

8 DISCUSSION

8.1 Introduction

The present chapter discusses the findings of the questionnaire results and the interviews. Firstly, the chapter discusses English teachers' competence in using ICT in Norwegian schools at the intermediate level, especially computer technology, and their access to the technology. Secondly, it examines ICT technologies that are used in English lessons at the intermediate level, and how they are used. Thirdly, it discusses the extent to which pupils use computers during English lessons. The fourth section of the chapter investigates the effects of using ICT in EFL. In the fifth section possible educational implications are presented. The sixth section elaborates the extent to which ICT at school is keeping up with the development of ICT in the world outside of school. The final section of the chapter discusses the limitations of the present study and mentions further research that could be conducted.

8.2 Teachers' competence in and access to ICT

Teachers themselves have been given a major role in putting into effect the *L97* curriculum recommendations on the use of ICT technology in English lessons. One of the main conditions for the successful implementation of the *L97* guidelines regarding ICT is a high level of ICT competence among teachers, a factor which does not seem to have been much contemplated by the Norwegian Ministry of education in view of the fact that the results of the study show a significant lack of ICT competence among teachers (see section 6.2), at least as far as formal ICT training is concerned. It ought to be noted that the *L97* curriculum had been in effect for approximately nine years by the time the present study was conducted Consequently, there had been more than enough time to take the necessary measures to provide appropriate training for teachers.

Another, probably even more noteworthy concern, are the figures regarding teachers' qualifications in English, which indicate a rather high percentage of English teachers at the intermediate level in Norwegian primary schools who do not have any formal education in English (see section 6.2). Lack of qualifications is likely to lead to a traditional textbook-based approach because of teachers' insecurity in the subject. That is why the most natural place to teach about the use of ICT in EFL is in EFL teachers' basic training, which would link the technology specifically to the subject. It is probably even more important to encourage school administrations to expect certain professional qualifications when hiring

new employees, where formal teaching education would be an imperative. Thus, lack of formal training is probably an important factor in explaining why almost one out of four teachers either seldom make use of computers or do not exploit computers as such in English lessons. However, it is also possible that some teachers may have acquired ICT competence without having been on ICT courses, for example through practice or self-instruction.

Yet another factor, but not necessarily the most significant reason for the state of teachers' ICT competence, is related to the availability of computers in Norwegian primary schools. It would be difficult to expect a radical development for CALL in EFL at the intermediate level when more than half of the teachers are restricted to only one or two computers per a class. The promotion of CALL, encouraged by the *L97* curriculum, is directly linked to the availability of equipment in schools. Some schools could still find the possibility to improve pupils' literacy using the available minimum of equipment. However, a significant amount of creativity and enthusiasm would be an essential part of the practice, as is shown in the case of Truls's school, where, in a class equipped with four computers, pupils are exposed to computer-mediated language learning tasks during every single English lesson, even if only for a short period of time.

One could argue that there is hardly any primary school in Norway nowadays that does not have a computer classroom (see section 6.3) and, thus, the computer availability issue could not be regarded as the most important one, which to some extent could be true. Yet, it appears that in only about one school out of four is the access to the computer room relatively free of preplanning and effort. Such results may suggest that many teachers do not find the bother linked to the organisation of a lesson including computer language learning activities worthy the time spent on its planning and benefits acquired from such activities.

An additional factor that could have some influence on the present situation of ICT in EFL classes in Norwegian primary schools is the average age of the teachers in charge (42.4), which suggests that the majority of teachers are rather experienced; they may have developed their own techniques and approaches and may not feel the immediate need of changing their routines and adopting new EFL methods. Younger teachers, especially those who have grown up in the period after ICT has become so integrated in daily life, are likely to be more familiar with the technology. It seems unreasonable to expect experienced teachers to be eager to explore and consume an entirely new language teaching ICT universe without firstly been properly introduced to the subject of ICT, secondly without being encouraged and motivated by both local and state administrations, and finally without having explained the necessity and the benefits of CALL. As Timuçin (2006:269) points out in his research, the elder generation

of teachers still experience anxiety of being replaced by computers and, thus, they have to be explained not only the function of ICT in a language learning environment, but perhaps even more importantly, they have to be reassured about the importance of their old teaching skills and only then introduced to their guiding role in a computerised EFL classroom. Some of the solutions could be found in Timuçin's (2006) study, e.g. creating a teachers' network, establishing a teacher/student dialogue about the role of ICT in language learning and allowing a teacher to be part of the process of decision rendering.

A certain discrepancy between theory and practice has been observed in this study. On the one hand, the Ministry of education announces in the *L97* curriculum explicit expectations of a rapid transformation in the EFL learning environment, introducing computer-mediated language learning as part of the national curriculum in English. Schools, on the other hand, do not appear to have the necessary means to meet and satisfy these guidelines. However, according to the results of the study, teachers and pupils have an adequate amount of access to an older generation of technology, e.g. overheads, tape-recorders, CD-players, etc. The challenges of promoting CALL activities depend on schools being able to support modernised ICT and computer activities for language learning. Ida, for instance, points out that out of the six computers available in the small computer room in her school, some are relatively old. One might argue, with reference to Ioannou-Georgiou (2006:383), that neither the great amount of equipment nor the most modern ICT technology seems to play the crucial role in the state of CALL, but teachers themselves. However, although teachers' ICT proficiency is indeed a key factor in creating new computer-mediated language learning models of learning, this literacy upgrade cannot take place without the other factor being present, that is the equipment itself. The situation for computers, PowerPoint projectors, and especially Smart-boards, could certainly be improved. One would expect a certain degree of support from the school administration on both the local and national levels.

8.3 The ICT technologies used for EFL and their appliances

In the light of the results of the study, the general state of ICT appears as follows: the whole group of teachers can be divided into two major groups: one where about half of the teachers use ICT in English lessons sometimes, while the other group of teachers never or hardly ever use ICT (see section 6.4). Technologies that play the leading role in EFL acquisition in the primary schools studied were overheads, tape-recorders, CD-players, videocassette recorders, DVD-players and television, the technologies of the previous century. According to the teachers' proficiency in using various ICT equipment, PowerPoint projectors and Smart-

boards are infrequently used ICT tools, especially Smart-boards. It would not be unexpected if there was a linear correlation between teachers' proficiency in using ICT technology and its availability (see section 6.3 and 6.4). One may hardly expect computer-mediated activities to be a frequent and common practice in EFL with only a few computers available for a class of, for example, 25 pupils and only one equipped computer room in the whole of school. In such circumstances, the organisation of computerised language learning might turn out to be an extremely challenging task for teachers, especially unmotivated ones, for example those teachers who are less skilful and/or experienced in using computers in language teaching and do not feel comfortable working with ICT.

It appears that about 65 per cent of the teachers applied computers to some extent in their language teaching, permitting their pupils access to CALL from once every two months to once a week. It was interesting to find out which software teachers used most frequently. In the survey, a relatively low rate of CALL technology was registered in the primary schools at the intermediate level; in fact, no software seems to be referred to as generally commonly used. Among those teachers who used computers in their teaching, the software that appears to be most frequently used was first and foremost educational games, followed by grammar exercise programs and Word-processors (see section 6.5).

Educational games might be an appropriate choice of a CALL application when considering the age of the pupils in the study. This finding corresponds with Beatty's (2003:55) assertion that computer games, especially those of arcade-style, which are possibly most frequently used, are great motivators. The structure of educational games is often based on the popular model among children of challenge and reward, providing young learners with gradually increasing levels of difficulty and an elaborated system of rewards. Though encouraging pupils' enthusiasm, Beatty (2003: 54-55) points out that the question remains open as to the learning value of games and the degree to which one might use the knowledge and skills acquired by means of educational games. One might argue that, for the balanced structure of an EFL lesson, games in the process of education should play the role they are most suited for, namely the motivating factor that should be used as a prize for a learnt lesson or an accomplished assignment. However, this CALL application should perhaps not be at the top of the list of language learning options. One might be especially cautious of practising educational games in EFL as the task of combining games with the actual syllabus is rather hard and, according to (Beatty, 2003:55), the language proficiency acquired throughout mastering educational games is often unsatisfactory for passing language evaluating tests.

Turning to grammar exercises, they are often regarded as a deviation of computer games; the first computer games that appeared with the emergence of CALL were computerised grammar drills, where the computer played the role of a tutor. One might consider computerised grammar exercises as a good option for individual or group work of pupils with the computer sharing or taking over the responsibility for maintaining pupils' progress and correcting pupils' mistakes, permitting a teacher to observe and monitor the pupils' development in the chosen area(s) of expertise (Taylor, 1980 in Warschauer, 1996:4). Young learners would probably relate to grammar exercise activities in the same manner they relate to educational games, granted that EFL grammar software is normally developed to meet the needs of the age group it is aimed for. Truls, in his interview, mentions grammar exercises as one of the learning centre activities that is used in every English lesson in his school. However, Truls reveals that grammar exercise activities are generally carried out in English classes in his school in a conventional style, without involving the computer in the grammar improving process.

Furthermore, the teachers' responses suggest that Word-processing tasks are among the three most common applications of CALL in the English lessons. This finding somewhat corresponds with the *L97* recommendations for promoting English literacy through using Word-processors in the 5th and 6th grades in Norwegian primary schools. The use of the latest technologies for creating meanings change pupils' habits of writing by offering new possibilities, sometimes especially in multimodal forms, when various computer facilities are permitted, thus suggesting a whole new perception of the text production process. The key features of c*omputational literacy*, a term used by Snyder (1998) in Hyland (2003:144), are facilitation and encouragement of writing practices.

It might be difficult to deny the motivation factor of Word-writers (Hyland, 2003:147), yet an L2 teacher should stay alerted to problematic nuisances linked to the use of Word-writers, one of which deserves special attention – plagiarism. In Lund's (2003:161) research, plagiarism is one of the teachers' chief concerns regarding the effects of using ICT in language learning, while the motivation aspect was agreed on to be the key advantage of computer-mediated L2. However, one should be aware that the use of Word-processing programs alone may hardly provoke plagiarism to the extent that the combination of Word-processor and Internet does. The design of Word-processing programs allows its users to easily transform and combine self-produced texts with any other texts available in the web-resources, hence, sometimes leaving teachers a rather difficult role of identifying pupils' text production authenticity. Ida, in her interview, refers to Word-writing as one of the first CALL

activities she made use of in her teaching, and it is still one of the most frequently used practices in Ida's English lessons. As Ida points out, pupils' maturity determines their Word-processed written production quality. In Ida's experience, the copy/paste solution is frequently exploited by pupils, especially in the beginning of a school year. Cheating and plagiarism are issues that arouse considerable concern among teachers; it might be interesting to investigate the subject further in order to hinder the trend.

One CALL application discussed in the study deserves separate attention: Smart-boards. The Smart-board is still a rather unconventional and rare ICT tool in English lessons in Norwegian primary schools at the intermediate level. The number of schools possessing the equipment is very low, but the number of teachers who registered themselves as proficient in using Smart-boards is even lower. However, the overall sum of users coping with Smart-boards from very well to moderately well is higher than the number of schools equipped with Smart-boards, which suggests that the distribution of human resources is superior to the supply of the equipment. The number of teachers who have never used Smart-boards is, nonetheless, very high; almost two thirds of all teachers had never practiced Smart-board activities in English lessons.

Developed for the business branch, Smart-boards are relatively new in the educational department, which might be one of the reasons for such low results in this area. Another reason is probably their high cost. Even Ida and Truls, relatively experienced Smart-board users, do not consider their Smart-board skills as perfect or close to perfect. Both teachers admitted that they would appreciate some assistance in improving their Smart-board equipment exploits, especially in the aspect of finding proper Smart-board software for English classes. Yet, both teachers agree that the Smart-board is a fascinating learning tool, stirring pupils' attention, involvement and motivation. Ida suggests a number of activities that involve Smart-board: grammar explanation that allows access and interaction with grammar programs available online, reading and writing activities permitting interface with the text on Smart-board display, and educational entertainment involving, for instance, singing songs and watching video clips provided by *Youtube* database. Nevertheless, this CALL sector needs further investigation since Smart-boards, according to Truls, are often used by teachers as regular black-boards. Ida emphasises that teachers often take over the leading position around Smart-boards and, by doing this, reduce pupils' interest.

8.4 The rate of pupils' computer use in English lessons

According to the results, very few pupils at the intermediate level get the benefit of access to computer-mediated learning on a regular basis. The rate of familiarisation with different computer activities in English lessons for the great majority of pupils seems to vary from once a month to never, with the tendency more in the direction of 'never'. An observation worth mentioning in this context is the lack of correspondence between the figures on the availability of computers in Norwegian primary schools and the results for pupils' frequency of computer use in English lessons. The results on the availability of computers exceeds considerably the results for the frequency of pupils' computer use. However, it should be mentioned that the figures for the equipment availability include the computers that are located somewhere outside of the classroom and those computers compose the main body of the computer resources in the primary schools studied. Only one fourth of all pupils appear to have relatively frequent computer encounters on a scale of once a week to once every two weeks. There might be various factors excluding CALL from the language learning processes, including teachers' complete or partial computer illiteracy, teachers' prejudices regarding the place of computers in education and language learning, a lack of financial and moral support, a lack of clear guidance of CALL applications from the Ministry of education, to mention some. However, the most likely reason for the present state of CALL in Norwegian primary schools is a combination of various factors, namely teachers' lacking of formal training in the subject of teaching and in ICT, teachers' fear of or lack of interest in modern technology, and scarcity of equipment, resulting in the relatively low rate of CALL as a language learning approach in the chosen educational sector.

8.5 The effects of ICT use in EFL

The process of developing the four language skills: reading, writing, listening and speaking, would probably imply various learning approaches, some of which would be computer-assisted and some more conventional learning methods. According to the results of the present study, teachers claim that computer activities are mostly suitable for first and foremost improving pupils' vocabulary and grammar skills, then developing reading and writing proficiency and finally stimulating cross-cultural awareness and listening comprehension. The development of these particular skills might be due to the nature of the present CALL, which still largely supports learning through reading and writing by means of an enormous variety of textual files.

Teachers' evaluation of the ICT influence on pupils' development does not suggest a high level of improvement of pupils' oral language skills, which is not surprising taking into consideration a much more modest assortment of audio tasks available for L2, although some of these , such as talking books, seem appropriate for younger learners. New approaches and solutions should be considered for improving CALL in these areas, such as, for instance, international school collaboration encouraging verbal dialogues between L2 learners and the target language speakers via computer-supported communicative programs, such as Skype and MSN Instant Messenger.

However, the great majority of teachers, both the two interviewed and the questionnaire participants, agree to a large extent on the positive role of ICT in motivating pupils. Ida and Truls refer to ICT activities as motivating ones; yet both imply a certain degree of concern on the choice and manners of handling ICT in class. The figure of teachers believing ICT's power of motivating pupils is considerably higher than the figure of teachers exploring ICT activities regularly in class.

 Lund's (2003) study confirms the present research findings. The utmost unanimity that was reached in Lund's (2003) study in connection with the ICT effect on pupils' learning was also the factor of motivation provided by computer-assisted activities. However, Lund's (2003) overall findings show that the intensity of ICT impact on learners in terms of pedagogy is rather strong, and needs to be taken into consideration by the researchers in this field, a verdict that does not emerge as a natural conclusion from, and is hardly represented in, the present research. In addition to facilitating a number of L2 learning processes, such as assisting learning about the English speaking world and providing authenticity in the learning situations, a great number of teachers in the study conducted by Lund (2003) are of the same opinion that one should be concerned with the social and educational implications of the ICT effects on pupils' language learning in the light of the present transformation of English as a school subject, which correlates with numerous academic concerns of ICT effects on language learning processes: Stapleton's (2005) concern about the ethical issues of bias web-resources, Colklin's (1987) *disorientation problem*, Fox's (1991) argument on the increasingly intricate role of the teacher in the classroom, and finally Bailin's (1995) scepticism towards the proportion between the efforts involved and the results achieved from computer-assisted learning practices. However, Atkins (1993) might have found one of the possible solutions in the form of the fusion of various CALL materials and approaches that perhaps should be combined with more traditional language learning methods for developing pupils' linguistic skills.

8.6 Recommendations of ICT implications in EFL

Many teachers prefer the individual or pair work model of working with computers for their pupils. Having only a few computers in the English classroom might cause difficulty organising these types of computer activities. With a class of 25 pupils, individual computer-mediated language learning might be rather difficult when the overall number of computers is limited to e.g. two to five units. A teacher would have to provide pupils with various tasks, in a similar manner to the way Truls's station teaching is organised. It is also possible to use Ida's model of teaching, providing pupils with a set of tasks for a certain period of time and to expect pupils to accomplish the given assignments whenever they have time and access to computers in class and outside school. Yet, it seems to be logical that a simpler solution would be an English classroom equipped with a sufficient number of computers relative to the average number of pupils per class, and an adequate school policy regarding the promotion of computer-assisted learning.

This suggests that the government ought to consider subsidising extra funds for practically supporting the guidelines in the *L97* and *K2006* curricula, as ICT training for pupils is part of the national curriculum. The Ministry of Education could also consider developing mandatory ICT training as part of a teacher education course. Developing a program for teacher ICT training would also require extra investments; one-week courses, or even shorter computer-training programs, might be insufficient for a proper teacher upgrade in this area. A longer more elaborate course might be needed, especially for the elder generation of teachers. At least, clearer mandates from the Ministry of Education as to how to improve teachers' ICT qualifications would be a good start for improving the state of CALL in EFL, and other subjects, in Norwegian primary schools.

Young learners would probably be better motivated for school and prepared for the modern life challenges, if they had access at school to a better variety of modern technologies, such as Personal Digital Assistants, PowerPoint technology and Smart-boards, especially since the Smart-touch computers are taking slowly over regular stationary computers with mouth and cursor at the computer market.

To avoid plagiarism in English lessons, one might consider launching a complex Internet network with an installed tripping device allowing teachers to switch off the Internet whenever pupils are working with e.g. Word-processing tasks to avoid the temptation of using short-cuts in writing. One may also suggest an early introduction to the gravity of the

outcomes of a plagiarism-based approach to learning, which could be e.g. sanctions including lower grades for conduct, and taking contact with parents.

The Ministry of Education might consider concentrating on the role of administration in the process of promoting computer literacy among young learners. As the practice shows in Timuçin's (2006) study and at Truls's school, one should not underestimate the importance of a clear policy and support from the administration. A school is a complex mechanism, where various parts are expected to interlace in harmony and it is to a great degree the responsibility of the administration to create a harmonious and functional environment.

8.7 ICT at school contra ICT in the world outside of school

One issue that is directly linked to the subject of pupils' use of ICT in learning practices at school is what role ICT plays in a child's life outside of school. In the introduction to *Digital Kompetanse* 4-2007, children and youths are considered to be the most frequent and most advanced users of ICT. A number of scholars have dedicated their studies to the role of youths in developing the technological culture, e.g. Turkle (1997) and Veen (2003).

It is important to understand pupils' needs and prospects on the learning model in addition to providing pupils with the necessary skills for succeeding in the future life.

Pedró (2007:244) in his study about the views, attitudes, expectations, and competences of modern pupils in relation to learning and teaching refers to the generation born after the 1980s as 'new millennium learners'. Learners belonging to this category are children and youths whose daily routines include digitalised immediate communication through instant messengers and chat rooms, mobile phone communications and corresponding use of SMS. They are active Internet creators and exploiters. One of the explanations of the popularity of the communicative technologies among youths might be the social factors supported by computer-mediated activities. This might be the reason for children spending increasingly more time at home in front of computers. The consequence of such intensive interaction with the digital world, according to Pedró (2007:245), is that 'their [children's] recurrent activity with these technologies can be said to have fundamentally shaped their notions of communication, knowledge management, learning, and even their personal and social values, the same way as it is likely to happen also with adult individuals who are heavy users of ICT, be that because of professional need or personal taste'. One might suggest taking into consideration children's self-acquired digital skills and general ICT proficiency when elaborating educational curricula for schools. It is important to investigate pupils' own

views, attitudes and expectations in relation to their computer-assisted learning processes in class and outside school.

Pedró (2007:260) argues that with the appearance of new millennium learners, the present ICT practices carried out in class should be reconsidered, putting ICT competence in the centre of the learning process. Indeed, the development of school should go in pace with the development of the world outside of classroom. Pedró (2007: 260-261) recognises that such development in school is possible with certain changes and/or improvement in four major areas:

- Infrastructural: requiring an increasing number of ICT devices, resources and services available in the educational environment

- Contextual: intending to make functional ICT resources more flexible to provide room for alternative arrangements in addition to traditional teaching and learning activities

- Curricular: aiming to change curricular requirements to welcome new cultural tools or contents typically related to the new millennium learners

- Process-focused: suggesting to better accommodate teaching and learning processes and activities to changes in cognitive and communication practices of a new millennium learner, including both interpersonal communication and knowledge management.

Punie and Ala-Mutka (2007: 210) support Pedró (2007), arguing that future learning would be based mostly on digital competence: 'There is growing awareness in Europe that learning in a fully digitalised, networked and knowledge-based society will be drastically different from today's learning' and, thus, in the future, new ways of learning and new digital skills should be required from both teachers and pupils.'

8.8 The limitations of the study

When reflecting on the general contributions of the study, one should also be aware of certain deficiencies that occur in several aspects of the present research. First and foremost, the general weakness of the questionnaire as a researching tool for providing reliable answers should be mentioned. Some respondents may answer the way they think the researcher hopes they will answer, some questions may appear ambiguous or unclear to the respondent, some of the categories, e.g. frequency categories such as 'frequently', 'sometimes' are very general. Furthermore, even though measures were taken to ensure that the samples would be as

representative as possible, and the number of respondents of 101 is a statistically valid one (Borg and Gall, 1989: 238-9), the higher the number of respondents is, the more representative the sample becomes.

In addition, the questionnaire was sent out in the period from autumn 2005 to spring 2006, which means that the data provided in the study is somewhat old and, thus the data may not reflect the present state of CALL in Norwegian primary schools. One has to acknowledge that the time delay from acquiring the date to presenting the results is a weak aspect of the study considering the speed of ICT evolution in the world. Yet, a counter argument would be that school as an institution does not seem to be changing as fast as the world outside school, especially since it did not adapt as much as intended to the *L97* curriculum. Why should one therefore expect it to change so quickly within a few years after the *K2006* curriculum has been implemented? Nevertheless, it is a fact that *L97* is no longer the active curriculum in Norwegian schools and this fact may be considered as a weakness of the present study.

No regular ICT applications were discussed in the study. According to the results, the accessibility of some ICT equipment, e.g. computers, PowerPoint projectors and Smart-boards, is still an issue in Norwegian primary schools at the intermediate level, whereas other ICT tools, such as overheads, Television, tape- and videocassette-recorder, CD-player and DVD players, seem to be available to a certain extent. It would be interesting to find out what the frequencies and effects of these tools in EFL are, and if there are any factors that predetermine the choices of tools.

The study was predominantly aimed to reveal the situation of computer use in EFL at the intermediate level in Norwegian primary schools; the choice was made due to *L97* guidelines including ICT into the national curriculum. A complete overview of possible ICT applications may initiate a profound discussion and could be the object of a less narrow investigation.

What is more, although teachers were asked about their training in ICT, they were not asked about how competent they felt about using computers – as they were about other ICT technology. When a questionnaire is sent out, the process is irreversible. One may realise too late that it would have been wise to ask certain questions. Some other questions in retrospect could have been asked, as for instance the application of traditional ICT technology in L2 learning such as tape-recorders, CD-players, DVD-players and overheads, and the application of the Internet. In the present study, no question was posed about developing young learners' critical thinking and writing. The problem taken up in Stapleton's (2005) study promoting critical awareness of ideological biases concealed in Internet resources was not presented in

the questionnaire in the study. This was mainly due to the young age of learners, where the level of English does not permit a discussion on semantics and connotations of the sources. However, the topic is currently central and might be worth investigating even at the intermediate level. No question was raised about the role of computer-mediated communication in L2 learning even though most of the schools have access to one or another computer management system. However, one might argue that the learners of this age-group do not have adequate language skills for launching and supporting computer-mediated communications, especially with external language speakers. Apparently, the acquired language skills of the chosen age group for the research do not support discussions on all possible issues and concerns linked to CALL.

Not all possibilities have been explored in the study; for example, the study does not provide any correlations of the variables, which could have been an interesting subject to investigate and probably even a topic for research in itself. However, this was not possible to accomplish as the program that supported the electronic questionnaire did not provide the correlation of variables function, and manual processing of the correlation of results would have been a very time- and effort-consuming task. The possibilities of the program on which the present questionnaire is based, were not presented until the results were gathered. Thus, it was rather impossible to know how the results would be presented. Once a questionnaire has been sent out, it is impossible to go back and make the necessary amendments. It was considered important to present the questionnaire in electronic format to permit the respondents easy access and convenience. If the questionnaire had been launched today, a more elaborate investigation would have been carried out to find a program that would additionally create various correlations of the gathered variables. However, it is worth mentioning that an electronic questionnaire in general is a great tool, which facilitates accessing processing the respondents' results.

The following are some examples of the correlations of the findings in the study that might have been of interest:

- the correspondence of teachers' qualifications in English correlated with teachers' proficiency in various ICT technology: the result of this correlation could suggest the extent to which teachers are prepared to handle ICT after formal teacher training
- the number of years the teachers had been teaching English correlated with frequency of teacher computer use and pupils' computer use: the result of these correlations could explicate if there is any connection between teachers' experience and teachers' will to initiate learning computer activities in class

- the availability of computers for English classes and the frequency of pupils' computer use in English lessons: this correlation could imply the extent of the rapport between the accessibility of computers and their rate of exploitation in English lessons

- the availability of various ICT technologies at school and teachers' proficiency in using these technologies: this correlation could show if there is any connection between the accessibility of ICT equipment and teachers' ability of exploiting it

- the use of computer software in English lessons and the effect of computers on pupils' development of various language skills: this correlation might prove or disprove the assumption that teachers do not believe in the positive effect of ICT on the development of certain linguistic skills only because they have never practised any computer-mediated activities aimed to develop these particular skills

- the frequency of pupils' computer use and teachers' evaluation of the effect of computers on pupils' motivation: the result of this correlation might affirm the hypothesis that those teachers who practice CALL can see the positive effect of the implication of the technology in the learning activities, whereas the teachers who hardly ever or never launch computer activities in class, do not recognise the factor of excitement in computer-mediated activities

- the school administration computer policy for English lessons correlated with the availability of various ICT and the use of computer software in English lesson: the results of this correlation might show if there is any direct relation between the state of ICT in the school and the strategy that the administration stands for regarding the initiation of ICT in the learning environment.

The study presents the situation of CALL in the Norwegian educational system for a limited group, CALL in EFL at the intermediate level. The scope of the research could be further expanded. It might be interesting to study the situation of CALL not only in primary school at intermediate level. A more generative and/or comparative study of ICT in EFL on various levels of Norwegian school would be an interesting subject to explore, keeping in mind that *K2006* highlights the role of ICT in the language acquisition process even more than *L97*. Digital competence in *K2006* is characterised as one of the basic skills, alongside reading and writing.

Whereas Lund's (2003) study goes further into inquiring into and defining the common tendencies for the respondents' concerns regarding the ICT effects on pupils'

language development in the Norwegian secondary high school, the objective of the present study was limited to describing its availability, use and benefits, which is a considerably more limited and modest contribution to the CALL situation in Norwegian schools.

It is extremely important to investigate pupils' own opinions, attitudes, experiences and expectations linked to ICT use in school. A classroom observation study, together with pupil interviews, would be a powerful research instrument on the learners' position about the advantages and concerns of ICT implications in English lessons at the intermediate level.

9 CONCLUSION

The role of Information and Communication Technologies and computers in particular in the modern Western world has become increasingly more important. The development and expansion of ICT not only facilitates our lives, but also causes challenges and concerns in various axes of human activity, including education.

The present study has been an attempt to analyse the situation of ICT and CALL in Norwegian schools at the intermediate level. It involved a questionnaire survey among 101 subjects, who were teachers of English at the 5th, 6th and 7th grades. Additionally, two interviews were conducted with two English teachers who use ICT frequently in their lessons. The choice of the level was inspired by two factors: the increased international interest in this age-group, and the *L97* curriculum which was in force at the time of the research. As the author of the study is a Norwegian citizen and hopes to promote English literacy first and foremost in Norway, the Norwegian curriculum and Norwegian schools were the first choice of focus.

The aim of the study was to investigate the level of ICT proficiency of English teachers, the variety of and the extent to which ICT is used in English lessons, how computer-mediated activities are organised and the effect of using ICT in EFL learning in Norwegian schools at the intermediate level. The methods applied to collect data were firstly an electronic questionnaire. In addition two semi-structured interviews were carried out and summarised.

The results of the study indicate that teachers' competence in using ICT in EFL does not fully correspond to the recommendations articulated in the National curriculum *L97*. Moreover, a significant lack of formal training among English teachers at the chosen level has been registered, even though the average age of the English teachers who participated in the questionnaire survey was 42,4. The overall results for English teachers' qualifications instigate certain concerns about the future of computer literacy, as the current *K2006* curriculum anticipates an even higher level of ICT application in EFL.

Teachers' proficiency is not the only concern on the subject of ICT in language learning; the findings of the study suggest a considerable shortage of ICT equipment in Norwegian primary schools. In the majority of schools, the number of computers available in the English classrooms is considerably lower than the average number of pupils per a class. Most of the schools have computer rooms, which might be used by school for various

purposes and, thus, require special reservation arrangements. The lack of teachers' formal education and ICT training, in addition to the insufficiency of ICT equipment available for EFL learners, reflects very much on the rate of pupils' computer use in English lessons: approximately only one fourth of all pupils have relatively frequent access to computers in English lessons. It becomes apparent that the present situation of ICT in schools creates difficulties for the teachers and pupils to implement computer-assisted-language learning on the scale intended by the curriculum.

It was found that almost all of the schools were well furnished with the previous generation of ICT, e.g overheads, TV, CD- and DVD-players, whereas there is a lack of computers, PowerPoint projectors and Smart-boards. According to the results, the most frequently used computer software in EFL at the intermediate level were educational games, grammar exercise programs and Word-processors. With the exception of some educational games, these software programs are opted to develop first and foremost learners' reading and writing skills. This finding correlates with the results of teachers' evaluation of the effects of ICT on pupils' learning progress; teachers have registered that computer-assisted learning activities improve pupils' reading, writing and grammar proficiency, as well as their vocabulary. The findings in the study suggest that ICT has least effect on the development of oral skills.

A general inconsistency between the intentions in the *L97* curriculum and the actual practice in schools was discovered in the study in relation to the promotion of ICT among young learners. Consequently, a number of potential measures have been suggested, such as adapting learning environments to the curriculum guidelines, starting mandatory ICT training in the formal education of all EFL teachers, conducting further research into the present state of CALL in Norwegian primary schools at the intermediate level, and allowing pupils to be part of the research. Supplementary options of using ICT in class have also been discussed in the present study; Ida and Truls, the two teachers frequently using technology in their lessons, provided possible learning designs for organising computer-assisted activities in EFL.

The role of the school administration in the course of promoting ICT literacy among teachers and learners has been broached; it seems natural to expect the management to take the responsibility for putting curricula in effect, even though teachers have to enforce the curricula in the classrooms. The assignment of executing curriculum recommendations might be excessively difficult for teachers without administrational support, even for the enthusiastic ones, not to mention those who are reluctant to the idea of computerised language learning.

However, it is very important to take the recommendations with reference to computer language enhancement seriously. Modern children are brought up in an environment marked and partly formed by computer technologies, which implies that the role of computers in children's lives is one of the central ones and the role of school in this respect is to provide a child with skills and knowledge that are necessary for coping with future tasks. That is why it is essential for the Ministry of Education, not just to launch various projects, but also to supervise and support the initiation and maintenance of the suggested plans.

A foreign language teacher is expected to be capable of creating and modifying self-established learning traditions in order to meet pupils' needs and expectations. A foreign language teacher is an informant and motivator, a rather elaborated role. A teacher might feel a need for an assistant, and ICT may be considered as a perfect one. It has the potential to provide teachers and learners with an endless variety of language learning activities, but not as something replacing the teacher and taking over the control of young minds.

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Appendix 1

Questionnaire for teachers of English about the use of ICT at the intermediate level (grades 5 to 7)

My name is Aelita Torjusen. I am a student on the Masters Program in Literacy Studies at the English Department, The University of Stavanger. I would like to ask you if you would be so kind as to complete this questionnaire. The data collected will be used in connection with my Masters thesis. My research is focused on how Information and Computer Technologies (ICT) are used in English language teaching. Teachers who have previously answered the questionnaire say that it took about 5-10 minutes to do so. Your help would be very much appreciated.

Please answer the questions as accurately as possible:

<div align="center">

I. Background

</div>

1. Which county (fylke) is your school located in?

2. Are you male or female?

       Male   Female

3. How old are you?

 years old

4. How many years have you taught English?

  1 to 2
  3 to 5
  6 to 10
  11 to 15 years
  over 15 years

5. Does you school use *it's learning* or any other learning management system?

      Yes   No

6. In which grade(s) are you teaching English this year?

  5
  6

7

7. What higher education qualifications do you have in English?

None
Less than 10 credits/30 sp
10 credits/30 sp
Grunnfag/60 sp
Mellomfag/fordjupning
Hovedfag/Masters
Other? What?

8. Do you have any specific training in ICT? Put a cross in more than one box if necessary.

None
Course(s) of a week or less
Higher education
Other? What?

9. How well do you cope with using the following technologies?

	Very well	Well	Moderately well	Poorly	Not used
Overheads					
PowerPoint					
Tape-recorder/CD player					
Television					
Videocassette recorder					
DVD player					
Smart-board					

II. ICT Resources

10. How many computers are available for you to use in the classroom you normally use for your English lessons?

1 to 2
2 to 5
5 to 10
10 to 15
More than 15

11. How many computers are available for you to use for English in another room(s)?

  1 to 2
  2 to 5
  5 to 10
  10 to 15
  More than 15

12. How much time in advance do you need to order them?

  Same day
  One day in advance
  From three days to one week in advance
  More than a week in advance

13. How often do you use computers in English lessons?

  Every lesson
  Most lessons
  Sometimes
  Hardly ever/never

14. How often do your pupils use computers in English lessons?

  Every lesson
  Once a week
  Twice a month
  Once a month
  Once per two months or less
  Never

15. What other equipment is available for English lessons?

  Overheads
  PowerPoint projector
  Tape-recorder/CD player
  Television
  Videocassette recorder
  DVD player
  Smart-board

  Other? What?

III. ICT Use

16. Are you actively encouraged by your school administration to use computer technology in English lessons?

Verbally	Yes	No
With practical support	Yes	No

17. How are computer activities organized in the classroom?

	Frequently	Sometimes	Seldom	Never
Children work with computers individually				
Children work with computers in pairs				
Children work with computers in groups				
The whole class works together				

IV. ICT Benefits and drawbacks

18. To what extent do you feel computers help your pupils to develop the following skills? (Use a scale of 1 to 5 with 5=very much and 1=hardly at all)

	5	4	3	2	1
Reading					
Writing					
Speaking					
Listening					
Grammar					
Vocabulary					
Cross-cultural awareness					
Others? Which?					

19. How do you feel computer-assisted activities influence children's motivation? (Use a scale of 1 to 5 with 5=very much and 1=hardly at all)

5	4	3	2	1

20. What kinds of computer programs do your pupils use most often in English lessons?

	Frequently	Sometimes	Seldom	Never
Word-processors				
Story writing programs				
Electronic dictionaries				
Electronic encyclopedias				
Educational games				
Talking books				
Programs for special needs				
Grammar exercise programs				
Pronunciation programs				
Vocabulary programs				
Spelling programs				
Cross-curricular programs				
Language testing programs				

Others? Which?

Thank you very much for spending your time on filling in the questionnaire.

Appendix 2

The questionnaire results

Undersøkelse	Questionnaire
Dato	23.11.2008
Tidsfrist	
Antall svar	101
Antall brukere med tilgang til undersøkelsen	0
Which county (fylke) is your school located in?	Se **Vis resultat...** hvis du vil ha mer informasjon.
Are you male or female?	Gjennomsnitt: 1.74 Standardavvik: 0.44
Male	25,70 %
Female	74,30 %
How old are you?	Se **Vis resultat...** hvis du vil ha mer informasjon.
How many years have you taught English?	Gjennomsnitt: 3.29 Standardavvik: 1.34
1 to 2	6,90 %
3 to 5	25,70 %
6 to 10	27,70 %
11 to 15 years	6,90 %
over 15 years	30,70 %
Ikke besvart	2 %
Does you school use it's learning or any other learning management system?	Ja : 16,8% Nei : 81,2% Ikke besvart : 2%
In which grade(s) are you teaching English this year?	Gjennomsnitt: 2.40 Standardavvik: 1.05
5	45,50 %
6	36,60 %
7	39,60 %
Ikke besvart	1 %
What higher education qualifications do you have in English?	Gjennomsnitt: 2.87 Standardavvik: 1.29
None	22,80 %
Less than 10 credits/30 sp	13,90 %
10 credits/30 sp	21,80 %
Grunnfag/60 sp	32,70 %
Mellomfag/fordjupning	6,90 %
Hovedfag/Masters	0 %
Ikke besvart	2 %
Other? What?	Se **Vis resultat...** hvis du vil ha mer informasjon.
Do you have any specific training in ICT? Put a cross in more than one box if necessary.	Gjennomsnitt: 2.19 Standardavvik: 1.07
None	36,60 %
Course(s) of a week or less	21,80 %
Course(s) over a week or more	27,70 %
Higher education	12,90 %
Ikke besvart	2 %
Other? What?	Se **Vis resultat...** hvis du vil ha mer

	informasjon.
How well do you cope with using the following technologies?	
Overheads	Gjennomsnitt: 1.22 Standardavvik: 0.66
PowerPoint	Gjennomsnitt: 2.97 Standardavvik: 1.44
Tape-recorder/CD player	Gjennomsnitt: 1.06 Standardavvik: 0.24
Television	Gjennomsnitt: 1.29 Standardavvik: 0.71
Videocassette recorder	Gjennomsnitt: 1.34 Standardavvik: 0.81
DVD player	Gjennomsnitt: 1.49 Standardavvik: 0.90
Smart-board	Gjennomsnitt: 4.26 Standardavvik: 1.20
How many computers are available for you to use in the classroom you normally use for your English lessons?	Gjennomsnitt: 1.54 Standardavvik: 0.86
1 to 2	55,40 %
2 to 5	24,80 %
5 to 10	4 %
10 to 15	4 %
More than 15	1 %
Ikke besvart	10,90 %
How many computers are available for you to use for English elsewhere?	Gjennomsnitt: 3.86 Standardavvik: 0.98
1 to 2	2 %
2 to 5	6,90 %
5 to 10	21,80 %
10 to 15	37,60 %
More than 15	27,70 %
Ikke besvart	4 %
Answer this question only if you use computers elsewhere than in your classroom, how much time in advance do you need to order them?	Gjennomsnitt: 2.48 Standardavvik: 1.39
Same day	27,70 %
One day in advance	16,80 %
Two days in advance	7,90 %
From three days to one week in advance	19,80 %
More than a week in advance	5,90 %
Ikke besvart	21,80 %
How often do you use computers in English lessons?	Gjennomsnitt: 3.46 Standardavvik: 0.56
Every lesson	0 %
Most lessons	3 %
Sometimes	47,50 %
Hardly ever/never	48,50 %
Ikke besvart	1 %
How often do your pupils use computers in English lessons?	Gjennomsnitt: 4.57 Standardavvik: 1.34

Every lesson	0 %
Once a week	9,90 %
Twice a month	14,90 %
Once a month	14,90 %
Once per two months or less	27,70 %
Never	31,70 %
Ikke besvart	1 %
What other equipment is available for English lessons?	Gjennomsnitt: 17.80 Standardavvik: 32.03
Overheads	92,10 %
PowerPoint projector	50,50 %
Tape-recorder/CD player	99 %
Television	85,10 %
Videocassette recorder	79,20 %
DVD player	81,20 %
Smart-board	6,90 %
Ikke besvart	1 %
Other? What?	Se **Vis resultat...** hvis du vil ha mer informasjon.
Are you actively encouraged by your school administration to use computer technology in English lessons?	
Verbally	Gjennomsnitt: 1.62 Standardavvik: 0.49
With practical support	Gjennomsnitt: 1.76 Standardavvik: 0.43
How are computer activities organized in the classroom?	
Children work with computers individually	Gjennomsnitt: 2.33 Standardavvik: 0.96
Children work with computers in pairs	Gjennomsnitt: 2.48 Standardavvik: 0.89
Children work with computers in groups	Gjennomsnitt: 3.06 Standardavvik: 0.78
The whole class works together	Gjennomsnitt: 3.31 Standardavvik: 0.83
To what extent do you feel computers help your pupils to develop the following skills? (Use a scale of 1 to 5 with 5=very much and 1=hardly at all)	
Reading	Gjennomsnitt: 2.71 Standardavvik: 1.08
Writing	Gjennomsnitt: 2.58 Standardavvik: 1.15
Speaking	Gjennomsnitt: 3.71 Standardavvik: 1.10
Listening	Gjennomsnitt: 3.31 Standardavvik: 1.28
Grammar	Gjennomsnitt: 2.61 Standardavvik: 1.17
Vocabulary	Gjennomsnitt: 2.46 Standardavvik: 1.13
Cross-cultural awareness	Gjennomsnitt: 3.04 Standardavvik: 1.16

Other skills? Which?	Se **Vis resultat...** hvis du vil ha mer informasjon.
How do you feel computer-assisted activities influence children's motivation? (Use a scale of 1 to 5 with 5=very much and 1=hardly at all)	
	Gjennomsnitt: 2.03 Standardavvik: 0.87
What kinds of computer programs do your pupils use most often in English lessons?	
Word-processors	Gjennomsnitt: 2.60 Standardavvik: 1.00
Electronic dictionaries	Gjennomsnitt: 3.15 Standardavvik: 0.79
Electronic encyclopedias	Gjennomsnitt: 3.10 Standardavvik: 0.84
Educational games	Gjennomsnitt: 2.27 Standardavvik: 0.93
Story writing programs	Gjennomsnitt: 3.23 Standardavvik: 0.86
Talking books	Gjennomsnitt: 3.47 Standardavvik: 0.77
Grammar exercise programs	Gjennomsnitt: 2.58 Standardavvik: 0.98
Pronunciation programs	Gjennomsnitt: 3.48 Standardavvik: 0.72
Vocabulary programs	Gjennomsnitt: 2.87 Standardavvik: 0.97
Spelling programs	Gjennomsnitt: 2.92 Standardavvik: 0.94
Programs for special needs	Gjennomsnitt: 3.28 Standardavvik: 0.87
Cross-curricular programs	Gjennomsnitt: 3.33 Standardavvik: 0.78
Language testing programs	Gjennomsnitt: 3.25 Standardavvik: 0.82
Other computer programs? Which?	Se **Vis resultat...** hvis du vil ha mer informasjon.

Appendix 3

Interview guide

Background information:

1. Name
2. Age
3. Gender
4. Location
5. Education in English?
6. Education in ICT?
7. Experience at teaching English?
8. Experience at using ICT in general and in English lessons in particular?
9. Grades of teaching this year?
10. Other subjects you teach?
11. How many classes of English do your pupils have per a week?
12. Which learning management systems is used by the school?

ICT availability

1. Which of the following technologies are available at your school?

        Overheads

        PowerPoint projector

        Tape-recorder/CD player

        TV

        VCR recorder

        DVD player

        Smart board

        Others?

2. Which of the above-mentioned technological tools are available for English lessons?

3. How well do you cope with using the following technologies? Answer the question using the scale of

VERY WELL WELL   MODERATELY WELL   POORLY   NOT USED

Overheads

PowerPoint projector

Tape-recorder/CD player

TV

VCR recorder

DVD player

Smart board

Others?

4. Number of computers available for English lessons?

5. Average number of pupils per a class?

6. Do you have an English classroom? If not, where do you have your classes?

7. If the number of computers is not sufficient are there computers elsewhere in the school? How many?

8. What are the routines for ordering computers elsewhere than the English classroom?

The organisation of ICT activities

1. How often do <u>you</u> use computers in English lessons? Answer the question using the scale of FREQUENTLY   SOMETIMES   SELDOM   NEVER.

2. How often do <u>your pupils</u> use computers in English lessons? Answer the question using the scale of FREQUENTLY   SOMETIMES   SELDOM   NEVER.

3. How are computer activities organised in the classroom? Answer the question using the scale of FREQUENTLY   SOMETIMES   SELDOM   NEVER.

Children work with computer individually

Children work with computers in pairs

Children work with computers in groups

The whole class works together

Do you have any other approaches?

4. What kind of computer programs do your pupils use most often in English lessons? Use the scale of FREQUENTLY   SOMETIMES   SELDOM   NEVER

Word-processors

Electronic dictionaries

Electronic encyclopaedias

Educational games

Story writing programs

Talking books

Grammar exercise programs

Pronunciation programs

Vocabulary programs

Spelling programs

Programs for special needs

Cross-curricular programs

Language testing programs

Do you use any other computer programs? Which?

5. Have you tried any computer coordinated tasks, where both you and your pupils used computers simultaneously? If yes, could you give any examples of such tasks?

The effect of ICT on the pupils' progress in English

1. To what extend do you feel computers help your pupils to develop the following skills? Use the scale of 1 to 5 with 5=very much and 1=hardly at all

Reading

Writing

Speaking

Listening

Grammar

Vocabulary

Cross-cultural awareness

Other skills? Which?

2. What area(s) of English do you feel your pupils struggle most with?

3. Can you give some illustration to the ICT activities you have designed to provide best possible results in English learning process?

4. How do you feel computer-assisted activities influence children's motivation?

5. Are there any negative outcomes of using computers in English lessons?

6. What do you feel is the most negative effect of using computers in English lessons?

7. Have you experienced any negative effect when using other ICT technologies?
If so, give some examples.

8. What do you think is the most challenging aspect(s) for you as a teacher to use computers in English lessons?

9. What do you think is the most challenging aspect(s) for your pupils to use computers in English lessons?

Additional questions

1. Who is responsible for the ICT in your school, how is this department organised?

2. If there appears a problem with ICT in your school, how long does it normally take before it gets solved?

SAME DAY   NEXT DAY   SEVERAL DAYS   ONE WEEK   TWO WEEKS
       OVER TWO WEEKS

3. Are you actively encouraged by your school administration to use computer technology in English lessons? If yes, is it a verbal encouragement or do you obtain practical support? If practically, what does it include?