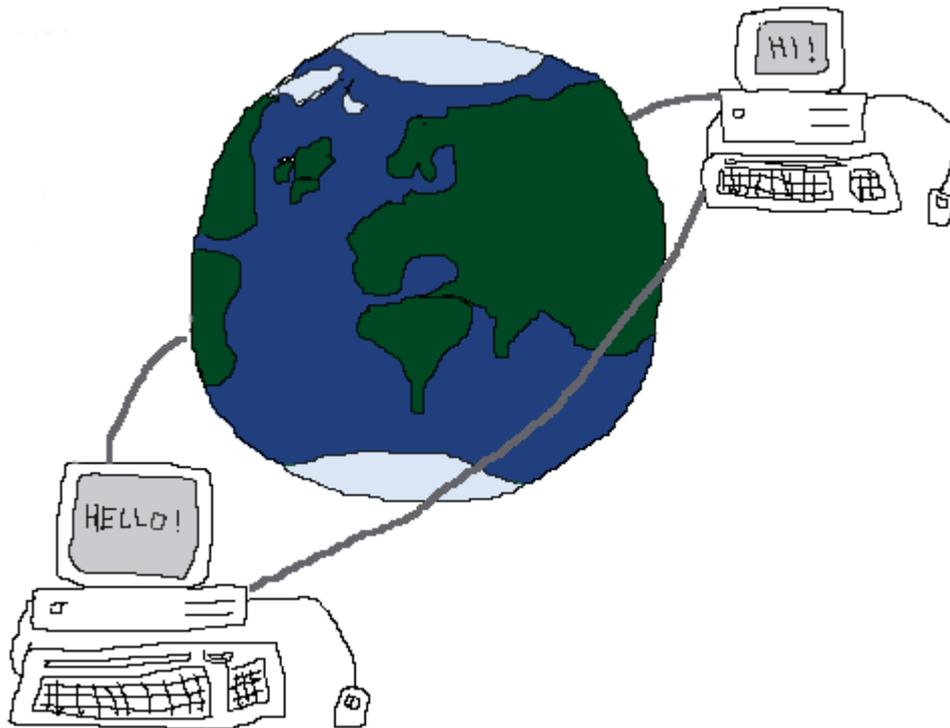


NETWORK-BASED EFL

Motivational aspects of using networked computers
in the EFL classroom



by
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Preface

This thesis is submitted in fulfilment of the requirements for English 'hovedfag' at the University of Bergen. The theme of the thesis, network-based language teaching, was chosen because of my interest in the subject in connection with my job as a teacher of English at the elementary school level. I have no personal experience with NBLT, but wanted to learn more about the possibilities that lie in the school's computer network with regard to language teaching and learning.

Because I teach at the elementary level myself, and because there seem to be few studies that concentrate on NBLT at this level, I chose to conduct an investigation of NBLT at the elementary school level. I wanted to find out whether there was anything to gain on utilising the network technology for language teaching with children this young, or whether the technical and linguistic demands would be too big and hence have a demotivating effect on the pupils. As it turned out, this decision made the implementation of the survey more difficult than anticipated, because of the small number of elementary schools that had started using computer networks for language teaching to any extent at the time the investigation was conducted (the school year of 1998/99).

I would like to thank my wife, Mai-Lin Hofsøy, for being the world's best mum to our children and for her support throughout the entire 'hovedfag' period (you have been most patient!). I would also like to thank my parents and in-laws for taking care of the family while I was writing. My warmest thanks also to Lise Opdahl, my supervisor, for being enormously supportive and eager to help me, both in my search for material and in the writing process. She has my warmest recommendations as a supervisor for anyone interested in CALL research. I am also grateful to my employers for being so flexible during the years of my 'hovedfag' study. Finally, I want to thank all the respondents for taking the time to answer the questionnaire.

Oslo, May 2001

Morten B. Hofsøy

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1 INTRODUCTION

One of the greatest challenges EFL (English-as-a-foreign-language) teachers face in the Norwegian school today is how to make their pupils motivated to learn the English language, and how to make the learning process itself motivating for the children. Many teachers frequently hear comments like "*English is so boring*" and "*I don't want to speak English*" from their pupils during the English lessons, and the newspapers run articles on how boring the Norwegian school is today and how little it has changed throughout the last decades. On May 6, 1999 for instance, *Aftenposten* had a full-page spread about the situation in the Norwegian *ungdomsskole* (lower secondary school), claiming that hardly anything has changed over the last 30-40 years. The teachers talk and write on the blackboard, while the pupils listen and take notes. Pupils in the Norwegian *ungdomsskole* find the lessons boring and claim they consist of indefinite amounts of "talk from the blackboard" and meaningless writing exercises. The pupils themselves want "out of the classroom and into the real world", and they want to take on a more active role in the learning process instead of just being passive recipients of the knowledge (Aftenposten 1999:6).

1.1 The theme of the thesis

There are many remedies to this situation. The pupils can work on projects that involve several subjects instead of working with the subjects in isolation. They can also be given more responsibility in relation to their own learning and they can learn through practical and active involvement in the subject matter rather than through listening to the teacher, to mention but a few. The presentation of such alternative ways of teaching is given an important place in *The curriculum for the 10-year compulsory school in Norway (Læreplan for grunnskolen 1997*, usually referred to as L97). Under the heading 'methods' it says: "The subject syllabuses stress that pupils should be active, enterprising and independent. Pupils should learn by doing, exploring and experimenting, and in so doing should acquire new knowledge and understanding" (KUF 1999¹). This implies that the children are supposed to learn by doing, exploring and finding out things on their own. They are supposed to be active learners.

According to the humanistic views that L97 is based upon, this will fuel the pupils' drive towards learning and mastering the language. To be an active learner of a foreign language involves using the language in different contexts and in as genuine situations as possible.

One important way of using the language is of course for communicative purposes. Language is a communicational device, and therefore the learner should be involved in genuine communicative situations using the foreign language. Ideally, to maximise motivation, pupils should engage in real life communication with a true need to use the foreign language. In the traditional foreign language classroom, this has more or less been a Utopian idea, since creating such situations has been an almost impossible task for the teacher. Most often, attempts at real communication in the classroom involve a kind of make-believe conversation on an arbitrarily selected subject. Even if the communicative situation itself were genuine, the need to communicate in the foreign language seldom would be, so the situation would still be a make-believe one, and hence not very motivating.

Another important way of using language in genuine situations is for the retrieval of information. The problem here is not creating the need for information. The problem is that it is much easier for the pupils to obtain that information in Norwegian than in English. The schools library is normally packed with Norwegian books and encyclopaedias, and there is no real need to know English to get hold of the information. In fact, in most situations it would probably be impossible to obtain the needed information in English through the traditional channels available at the school.

The basic problem in both these situations is to create the feeling of a need to know the English language and a need to be able to express oneself in English. If this need is not present, the motivation for learning will suffer. So how, then, can the teacher bring about situations where the pupils really need to know the English language and have an opportunity to use it in authentic situations? Is this even possible within the confines of the EFL classroom? My thesis focuses on the use of network-based language teaching (NBLT) in relation to these questions. It would be interesting to see if the new technology available to teachers of English today can be used as a tool not only to learn grammar, spelling and the like, but to enhance pupils' motivation to learn English, increase their interest in the subject and make them more autonomous learners.

1.2 The objective of the thesis

The objective of this paper is to describe possible learning outcomes of using networked computers in the EFL classroom. I want to show how computer networks can provide teachers of English with a unique opportunity to engage their pupils in authentic communication and information retrieval in English. I will also argue that NBLT will give the subject of English a more central and important position among the subjects in the Norwegian school. Finally, I will look at how NBLT may affect the pupils' motivation for learning and for using the English language. Through this descriptive approach, I also hope to be able to indicate how at least parts of the learning process should be arranged in the English language classroom of the future. In this way, the thesis could be said to have a certain normative character as well. The theoretical account may be used as a guideline for planning the teaching of English through use of the communicational devices that are available in many schools today.

1.3 Abbreviations and definitions

What follows is a glossary of terms, including a discussion of the most central ones in relation to the theme of this thesis. The terms are presented in chronological order as they appear in the text.

EFL - English as a foreign language. English for non-native English-speakers who do not live in English-speaking communities.

Motivation - The perhaps best known work on motivation and L2 learning is that of Gardner (1985). Gardner defines motivation as 'the combination of effort plus desire to achieve the goal of learning the language plus favourable attitudes toward learning the language' (1985:10). This is the definition that is used in this thesis. Gardner also distinguishes between integrative and instrumental motivation. Integrative motivation is, according to Gardner (1985:133) related to an interest in learning an L2 because of 'a sincere and personal interest in the people and culture represented

by the other group' (Lambert 1974:98; in Gardner 1985:133). Instrumental motivation, on the other hand, builds on 'the practical value and advantages of learning a new language' (Lambert 1974:98; in Gardner 1985:133). Ellis (1994:509-517) adds on these notions by bringing in the concepts of resultative motivation and motivation as intrinsic interest. The former indicates motivation that arises as a result of positive learning experiences, while the latter denotes motivation as a kind of inherent fascination towards the subject matter. All these different kinds of motivation are believed to have an effect on L2 acquisition. The greatest practical difference between them from a language teaching point of view is how easily influenced they are by external factors. For the purpose of this thesis, no distinction is made between the different kinds of motivation.

- NBLT* - Network-based language teaching. NBLT is defined by Kern & Warschauer (2000:1) as 'language teaching that involves the use of computers connected to one another in either local or global networks'. NBLT is, as such, a branch of CALL, where human-to-human communication is the main focus. NBLT incorporates language teaching through all kinds of CMC, as well as through Web-based activities. In this thesis, the term is used about teaching methods that make use of networked computers to promote the learning of language *in the classroom*. Long distance learning programmes are thereby not included in my use of the term.
- CALL* - Computer assisted language learning. CALL is defined by Levy (1997:1) as 'the search for and study of applications of the computer in language teaching and learning'. This definition is clearly written from a researcher's point of view, and might be said to be a definition not of CALL, but of 'CALL research'. However, an important point revealed in this definition is the fact that both language teaching and language learning are seen to belong under the umbrella of CALL. Richmond (1999:296) claims that CALL has split into two different streams during the past ten years. Traditional CALL, or what Richmond calls 'dedicated CALL', comprises dedicated, stand-alone programs designed usually to teach points of grammar, vocabulary, or syntax, or to give students drill and practice on these items. The other stream is referred to as 'integrated CALL', which, according to Richmond, involves the use of software originally intended for a purpose other than language teaching/learning in such a way that the language learning becomes integrated into a

primary task such as communicating by e-mail, using a word processor, or solving a problem. In this thesis the term CALL is used in its widest sense, as an umbrella term incorporating all forms of language teaching and language learning via computers.

L2 - Second language. In this thesis also used to denote 'foreign language'.

ESL - English as a second language. English for non-native English-speakers who live in English-speaking communities.

CMCD - Computer-mediated classroom discussion. (See CACD).

CMC - Computer-mediated communication. As stated by Paramskas (1999:14), CMC has become more and more difficult to define, partly because of the increasingly interactive nature of the World Wide Web, and the learning activities associated with it. In this thesis, the term is defined simply as 'human-to-human communication via the computer'.

IRC - Internet Relay Chat. IRC is a service that allows people from all over the world to chat together at the same time. It is made up of numerous channels, usually with their own particular themes. Most channels are open to anyone who wants to connect to it at any time.

CACD - Computer-assisted classroom discussion (also called computer-mediated classroom discussion). CACD is computer-mediated communication within a classroom. Students communicate through writing rather than through talking. The by far most common method of communication in CACD is synchronous, written communication, ie chatting (see section 2.4.1.2). However, CACD can also be semi-synchronous, using conferencing software (see section 2.4.1.4).

Synchronous communication - Synchronous communication is produced when communication occurs simultaneously between two or more users, as in any normal telephonic or face-to-face conversation. Examples of synchronous computer-mediated

communication are chatting (see sections 2.1.2 and 2.4.1.2) and audio/video conferences (see sections 2.1.2 and 2.4.1.5).

Asynchronous communication - Asynchronous communication is produced when communication is not simultaneous. Examples of asynchronous CMC are e-mail (see sections 2.1.2 and 2.4.2.1) and discussion groups (see sections 2.1.2 and 2.4.1.4).

3DVR - Three-dimensional virtual reality. 3DVR is a computerised simulation of a real or imagined environment that can be experienced visually in the three dimensions of width, height, and depth.

L1 - First language, or mother tongue.

1.4 Methodological approach

My methodological approach to the issue is, in addition to studying literature in the field, a statistical examination (or survey) of six Norwegian school classes, three of them using computers for communication purposes related to English language learning, and three of them practising a more traditional approach with the textbook as the main teaching aid. The pupils in the six classes were given a questionnaire concerning their motivation to learn the English language, and the teacher was given a questionnaire regarding the extent of ICT use in the English lessons, and other aspects of the learning situation. According to Robert K. Yin, (Ph.D. in experimental psychology) surveys are advantageous when the research goal is to describe a phenomenon (Yin 1989:18), which is in concordance with my objective. The methodological approach to the examination will be thoroughly described in chapter 3.

1.5 Theoretical approach

Second language acquisition theory, motivational theory related to second language learning, and theory of CALL/NBLT make up the theoretical framework of this thesis. The main theorists referred to within these three areas are Ellis (1994; 1997), Gardner (1985), and Warschauer (1995; 1996a; 1996b; 1996c; 2000), respectively. The theoretical basis of the thesis is that motivation has a profound effect on pupils' language acquisition. This assertion will be discussed further in section 2.2. The thesis builds on a sociocognitive approach to language learning, which will be presented further in section 2.1.3.3.

NBLT in general, and its relation to motivation in particular, constitutes a relatively new area of research. In 1996, Warschauer (1996b:3) wrote: 'While many have claimed the motivational benefits of second language student use of computers for writing and communication, few empirical studies of this issue have yet been conducted (and, to this author's knowledge, none have been published.)'. As late as in 2000, he and Kern (Kern & Warschauer:2000:2) wrote: 'To date, there has been relatively little published research that explores the relationship between the use of computer networks and language learning'. Theories of NBLT are thus marked by this being a young field of research, and theorists are still struggling to define the research agenda of NBLT.

1.6 Research questions

- DELIMITATION
- blah
- blah
- PRESENTATION OF THE "PROBLEMSTILLING"
- blah
- blah

Teachers of English are now, from the seventh grade and up, required to engage their pupils in a cross-cultural dialogue with pupils from another country (KUF 1996:230). This implies that teachers will have to find effective ways of contacting and communicating with schools in other countries. The most suitable communication device for this purpose available in schools today is probably a computer hooked up to the Internet. This should indicate that NBLT will gain an increasingly more central role in the EFL classroom in the years to come. Through the Internet, the pupils may experience authentic communication with people all around the world,

on any topic of interest to them. Through this thesis, I would like to see what effect NBLT will have on the pupils' interest in the subject of English, and on their motivation for learning the language. The reason for this is that, as I will try to show, motivation is an essential element in foreign language learning, which greatly influences pupils' achievements. My hypothesis is that NBLT will make the subject of English more interesting and motivating for the pupils, and thereby contribute to the language learning process. The main research question of this thesis is thus the following:

Will the use of network-based language teaching in the EFL classroom result in increased motivation for learning the English language, and thereby have a positive effect on language learning?

Under this research question lies several questions that I seek to answer through reviewing available literature on the issue, or through the questionnaire. These questions include:

- how may networked computers be used to effectively enhance motivation and language acquisition?
- what effects does the implementation of NBLT have on the learning situation?
- what effects does the implementation of NBLT have on the pupils' cultural awareness?
- what effects does the implementation of NBLT have on language acquisition?
- are there differences between boys and girls in these matters?

1.7 Thesis outline

#

¹ Many of the references in this thesis point to online, non-paginated versions of books and articles. This is why these references do not point to any particular pages in the books or articles.

2 BACKGROUND AND THEORY

The first part of this chapter (section 2.1) gives an outline of the background for the theme of this thesis, ie network-based language teaching. In the succeeding parts (sections 2.2–2.5), a review is given of important literature related to the four themes: motivation and language learning (section 2.2), motivational aspects of NBLT (section 2.3), possible uses of networked computers in the EFL classroom (section 2.4), and effects of NBLT (section 2.5). Literature related to network-based teaching/learning in general, but not specifically to language teaching or learning, will be kept out of this review.

2.1 Background

The theme of the thesis has its background in L97's emphasis on international contact in the language learning process, and the changed role of the computer in this new curriculum. In the recent history of language teaching there has been a significant change in the way languages are taught, with a steadily growing emphasis on the role of communication in the language learning process. Side by side with this development, information and communication technology (ICT) has progressed from being a data processing tool to becoming a global communication device. Together, these factors have determined the shifting role of information and communication technology in the EFL classroom. Perhaps the most significant change has to do with the use of ICT as a means of communicating with people in different parts of the world, and this cross-cultural communication is strongly emphasised in L97.

2.1.1 The development of information and communication technology (ICT)

Information and communication technology has undergone great changes since it was first introduced into the EFL classroom in the 1960's. I will here briefly trace the most important

elements in the development of ICT, from the mainframe to the personal, and finally, to the networked computer. I will not go into technicalities, but rather look at how the uses of the technology have changed throughout the years. In this presentation, my main sources are LaMorte & Lilly (1994) and Kern & Warschauer (2000).

The first modern computers were developed during and after the Second World War. They were enormous *mainframe computers*, which could be used only to perform relatively simple calculations. The first all-electronic calculator was produced in the USA in 1944. This was about half as long as a football field and contained about 500 miles of wiring. In the years to follow, the machines became smaller and more sophisticated, but were still in reality just huge calculators. However, the uses of the computers kept expanding. Electronic spreadsheets were developed, making the computer an important part of the financial and business community. New methods for data registration and storage made it possible to build large databases of information, which, in the next round, could be processed by the computer in different ways. The computers kept getting smaller, and cheaper to produce, and with the introduction of the microchip in 1971 the way was paved for developing computers for the general consumer.

With the birth of the *personal computer* (PC) came the user-friendly software packages, which offered even non-technical users an array of applications, most popularly word processing and spreadsheet programs. In the early 1980's, arcade video games helped ignite consumer interest for even more sophisticated programmable home computers. In 1984, Apple's Macintosh took the term user-friendliness one step further with the introduction of the graphic interface, where, instead of typing commands, the user moves icons around on the screen using a mouse. Soon after this, multimedia software started to show up. These were programs that integrated text, graphics, and sound. The PCs now became multimedia machines, with speakers, microphones, high-resolution colour monitors, and the ability to show video directly on the screen.

The next big step in the development of the technology was not related to making the machines themselves better, but to linking them together in networks. Using either direct wiring, called a Local Area Network (LAN), or telephone lines, these networks could reach enormous proportions. During the 1990s, most LANs, and a steadily increasing number of home computers, were linked up to what has been referred to as 'the mother of all networks', the Internet. The Internet is a global web of computer circuitry that links computers worldwide into a single network of information. The *networked computer* opened a completely new world of possibilities and uses for the information and communication technology. The computer

now became an instrument for communication, giving people the opportunity to exchange files and share information over the net. We have probably just begun to see the impact the networked computer will have on education and on our daily lives in the future.

2.1.2 Types of networked communication

Networked computers offer a multitude of ways of getting in contact with other people. What follows is a list of the most common communicative features of the Internet, and a brief explanation on how they are used for communication across the Net or within local networks. The different formats and their application to NBLT will be further discussed in section 2.4.

- *Home pages*

A home page is the beginning file in a *Web site*; a related collection of World Wide Web files. A company/institution or an individual tells people how to get to their Web site by giving them the address of their home page. From the home page, people can get to all the other pages on the site. In popular use the term *home pages* is often used as an equivalent to the term *Web site* (eg the school's home pages = the school's Web site).

A school's home pages (preferably, but not necessarily, in combination with the use of e-mail) may be used as a means of communicating with parents, other schools, or communities outside the school system. The use of home pages in EFL classes first and foremost gives the pupils an opportunity to present their work to an audience. Hence, it could be argued that home pages facilitate presentation and not communication. However, presentation is a form of communication, in that the pupils must address an authentic audience, eg other pupils, parents, and teachers, who are likely to give them feedback on what they have presented and the way they have presented it. In addition, as will be described further in section 2.4.1.1, home pages may be used as a platform for the collaboration and communication between schools in different parts of the world.

- *Chatting*

On the Internet, chatting is talking to other people who are using the Internet at the same time you are. Usually, this "talking" is the exchange of typed-in messages requiring one site

as the repository for the messages (or "chat site") and a group of users who take part from anywhere on the Internet. Most chats are focused on a particular topic of interest. In some cases, a private chat can be arranged between two parties who meet initially in a group chat. Chatting can also be conducted within a local network. In this case, one machine functions as the "chat site", to which the other machines are connected. Any message sent from one user will immediately show up on the screens of all the other, connected users, in chronological order. Transcripts of a chat can be archived for later reference.

- *MOOs*

A MOO is an object-oriented MUD. A MUD or Multi-User Dungeon is an inventively structured social experience on the Internet, managed by a computer program and often involving a loosely organised context or theme, such as a rambling old castle with many rooms. Some MOOs are ongoing adventure games; others are educational in purpose; and others are simply social. MOO participants adopt a character when they join or log in to a MOO. Although many MOOs continue to be entirely text-based, some new MOOs use virtual reality settings where the characters are visible. However, the focus is on the exchange of text between participants who are logged in at a particular time.

- *Newsgroups/discussion groups*

A newsgroup is a discussion about a particular subject consisting of notes written to a central Internet site and redistributed through Usenet, a worldwide network of news discussion groups. Users can post to existing newsgroups, respond to previous posts, and create new newsgroups. The messages are organised by "thread", so that you can see one message and all the messages that have been posted so far in response to it. Anyone can read and post messages to a newsgroup. A discussion group is similar to a newsgroup, but is set up at a Web site or on a local network.

- *Online audio-/video conferences*

With the use of a communication program like for instance Microsoft NetMeeting, and the appropriate multimedia equipment (video camera, microphone, etc), it is possible to conduct meetings or conferences with sound and picture over the Internet. However, this is not relevant in most schools as of today because of lack of equipment and limitations in bandwidth, but will probably be so in the future.

- *E-mail*

E-mail (electronic mail) is the exchange of computer-stored messages by telecommunication. E-mail messages are usually text messages. However, it is possible to send non-text files, such as graphic images and sound files, as attachments. E-mail was one of the first uses of the Internet and is still the most popular use. A large percentage of the total traffic over the Internet is e-mail.

- *Mailing lists*

E-mail can be distributed to lists of people as well as to individuals. These mailing lists, much like newsgroups, are devoted to a wide range of different subjects, from the exchange of jokes to professional, topic-related discussions. Mailing lists are administered either manually or automatically. The most common mailing list administration program is called 'Listserv', and automatically administered mailing lists are therefore often called listservs. People are allowed to subscribe by sending a request to the Listserv program or, in the case of manually administered mailing lists, the list administrator. Some lists function as discussion forums, where participants can post messages to all the other subscribers of the list. Others are of the type where you receive news articles, jokes, etc in your e-mail every day, but you cannot post anything to the list yourself.

- *FTP*

FTP (File Transfer Protocol) is the simplest way to exchange files between computers on the Internet. FTP is commonly used to transfer Web page files from their creator to the computer that acts as their server. It is also commonly used for downloading programs and other files to a personal computer from a public server. FTP cannot be used for direct communication between people, and is therefore not further discussed in this thesis.

More information about network technology and the different features of the Internet can be found at www.whatis.com.

2.1.3 Shifting perspectives on language teaching and learning

The last 30-40 years have seen dramatic changes in the way that languages are taught in school. The fostering of communicative ability is now valued over the teaching of discrete grammatical structures. Negotiation of meaning is taking precedence over structural drill practice. Recitation of memorised dialogues has gradually been replaced by activities encouraging creative self-expression. Culture has become more important. Language textbooks regularly incorporate authentic texts alongside literary texts, and have begun to differentiate between written and oral language forms (Kern & Warschauer 2000:1). In this period, the computer has also taken on an increasingly more prominent role in the language learning process.

These changes are the result of a complex overlapping of three theoretical movements in the recent history of language teaching; structural, cognitive and sociocognitive (Kern & Warschauer 2000:3), also referred to as behaviourist, mentalist, and interactionist (eg Ellis 1994:243). Because each of the three theoretical perspectives has influenced how computers have been used in the language classroom, a short outline of the development of these three perspectives will be given, before attention is turned to the use of computers for language learning.

2.1.3.1 Structural perspective

Language teaching from a structural perspective emphasised the formal analysis of the system of structures that make up a given language. A well-known method of language learning within this tradition was the grammar-translation method, where emphasis was on learning grammar rules and vocabulary by rote, translations, and practice in writing sample sentences. The sentences that were translated or written by the students were examples of grammatical points and usually had little relationship to the real world. Hardly any attention was paid to speaking and listening skills. Though some people tried to challenge this type of language education, the grammar-translation method was the dominant foreign language teaching method in Europe

from the 1840s to the 1940s, and a version of it continues to be widely used in some parts of the world, even today (Kitao & Kitao 1996a).

From the 1920s through the 1950s various other structural methods of language instruction were developed, culminating in the audio-lingual method of the 1940s and 1950s (Kern & Warschauer 2000:3). The audio-lingual method focuses on spoken rather than written language skills, on the theory that speaking and listening competence precedes competence in reading and writing. The method is built on behaviourist principles of conditioned responses. Language learning is seen as habit formation, and hence the method is based on using drills for the formation of good language habits. Students should practice particular patterns of language through structured dialogues and drills until the language is sufficiently rehearsed for responses to be automatic (Kitao & Kitao 1996a).

The strong emphasis on structure was reflected also in the teaching of reading and writing. Reading was regarded mainly as an aid to the learning of correct structures and pronunciation, while writing instruction focused on the production of formally correct sentences and paragraphs. In sum, language teaching from a structural perspective puts the emphasis on the achieved linguistic product, not on cognitive or social processes (Kern & Warschauer 2000:3). Language acquisition is seen as controlled by external factors. The learner is viewed as a passive medium, and the teacher functions as instructor and mentor (Ellis 1994:243).

2.1.3.2 Cognitive/constructivist perspective

In the late 1950s, the structural approaches to language teaching began to be criticised as being too mechanical and theoretically unjustified. Noam Chomsky (1957; 1959) was one of the harshest critics of the behaviourist notion of language learning as habit formation. He pointed out that there was a very poor match between the kind of language found in the input learners received and the kind of language they themselves produced, notwithstanding the fact that a speaker of a language can produce an infinite number of well-formulated utterances. Chomsky argued that this could best be explained by hypothesising a set of mental processes that converted language input into a form that the learner could store and handle in production. Chomsky (1957; 1965) therefore proposed a transformational-generative grammar, which saw

an individual's grammatical system as guided by innate cognitive structures - not behavioural reinforcement.

In contrast to behaviourism, the cognitive tradition of thought was concerned with innate, higher mental processes. Cognitively oriented theorists like Chomsky, Krashen and Selinker claimed that humans do not react automatically to outside stimuli, but rather that the human being is an active and thinking creature that interprets and evaluates the outside stimuli on an independent basis before it acts. Constructivist theory is closely related to the cognitive tradition. Piaget, Bruner, Vygotsky, Dewey, and other constructivist theorists maintain that humans construct our own subjective knowledge. Learning is a result of what we do to the stimuli, not what the stimuli do to us. According to Imsen (1992:203), this view sets the focus on the learner, because it implies that all learning must involve some sort of activity on behalf of the learner. Kern & Warschauer (2000:4) state that language learning was now understood not as conditioned response but as an active process of generating and transforming knowledge. Errors came to be seen as natural by-products of a creative learning process that involved simplification, generalisation, transfer, and other general cognitive strategies.

This view, according to Kern & Warschauer (2000:4), at first led to a renewed focus on the teaching of grammatical rules. However, following Krashen's theories on language acquisition (Krashen 1982; Krashen 1985), it later led to an emphasis on providing comprehensible input. Krashen argued that in order for a person to speak a language fluently and naturally, the language would have to be acquired, not learned. Krashen's Input Hypothesis stated that learners acquire morphological features in a natural order as a result of comprehending input addressed to them (Krashen 1985:2). The purpose of providing comprehensible input was therefore not to foster authentic social interaction, but rather to give individuals an opportunity to construct the grammar of the language mentally from extensive natural data.

According to the cognitive/constructivist view, teachers should be facilitators who provide students with suitably challenging tasks and help them construct their own knowledge and skills in carrying out these tasks. This view puts the emphasis on the activity of the student rather than on that of the teacher.

2.1.3.3 Sociocognitive perspective

At about the same time as the cognitive view of language acquisition was gaining popularity, the American sociolinguist Dell Hymes (1968; 1972) and the British linguist Michael Halliday (1973) pointed out that language is a socially constructed phenomenon, it does not exist exclusively in the head of the learner/speaker. Hymes focused on the importance of social appropriateness of language use. In response to Chomsky's mentalist characterisation of linguistic competence, he coined the phrase communicative competence. Communicative competence includes knowledge the speaker/hearer has of what constitutes appropriate as well as correct language behaviour, and also of what constitutes effective language behaviour in relation to particular communicative goals. That is, it includes both linguistic and pragmatic knowledge (Ellis 1994:13).

Halliday was preoccupied with the function that language serves. He distinguished three principal functions of language use: ideational (ie use of referential language to express content; telling people facts or experiences), interpersonal (ie use of language to maintain social relations), and textual (ie to create situationally relevant discourse; signalling connections and boundaries, clarifying, summarising, etc). Halliday brought attention to the fact that language teaching had really only dealt with the first of these - ideational, while the other functions had largely been neglected (Kern & Warschauer 2000).

The thoughts of these and other theorists within the sociocognitive school had great impact on language teaching strategies from the 1980s and onwards, when communicative competence became the buzzword of the language teaching profession. As Kern & Warschauer (2000:5) point out, from this point on literacy was increasingly seen as a key to developing not only language knowledge but also sociocultural and intercultural competence. In addition to linguistic competence, students now needed to be taught sociolinguistic competence, discourse competence, and strategic competence. Communicative processes became as important as linguistic products, and instruction became more learner-centred and less structurally driven. Language teaching now involved more than just providing comprehensible input. It also involved engaging the pupils in the negotiation of meaning through collaborative interaction with others, helping them enter into authentic discourse situations, and create discourse communities with authentic communicative tasks. Language instructors attempted to achieve this either through content-based learning, or through engaging pupils in authentic tasks and projects.

2.1.4 Changes in the use of computers in language teaching

The changes in the ways computers have been used in the EFL classroom over the last few decades, can best be understood when seen in connection with the shifting theories of language teaching and learning I have just described. Interestingly, these shifts in perspectives have more or less paralleled the technological developments, from the mainframe to the personal to the networked computer (Kern & Warschauer 2000:7). The introduction of a new phase in CALL does not necessarily entail a rejection of the programs and methods of the previous phase. More often, the old is subsumed within the new. In addition, new phases do not gain prominence over night. Like most innovations, they win acceptance slowly and unevenly (Warschauer 1996a).

2.1.4.1 Structural approaches to CALL

The earliest CALL programs were grammar and vocabulary tutorials, language testing instruments, and drill and practice programs that strictly followed a computer-as-tutor model. They were based on the behaviourist learning model, and as such, the computer was viewed as little more than a mechanical tutor that never grew tired. The programs were designed to give immediate positive or negative feedback to the learners on the formal accuracy of their responses. This was consistent with the structuralist/behaviourist assumption that repeated drilling on the same material was essential to language learning. These programs were originally developed for mainframe computers in the 1960s and 1970s, but are still used in different variations today (Kern & Warschauer 2000:8). The rationale behind the drill and practice programs was as follows:

- * Repeated exposure to the same material is beneficial or even essential to learning
- * A computer is ideal for carrying out repeated drills, since the machine does not get bored with presenting the same material and since it can provide immediate non-judgmental feedback
- * A computer can present such material on an individualised basis, allowing students to proceed at their own pace and freeing up class time for other activities (Warschauer 1996a).

Drill programs of this kind, however, generated little excitement among most teachers and learners, because they in reality just represented a continuation of the existing instructional practices, although in a new form. The programs also tended to be technically unsophisticated, generally allowing only one correct response to each problem. These factors, combined with the rejection of purely behaviourist approaches to language learning, and the development of more sophisticated personal computers, set the stage for a new phase of CALL (Kern & Warschauer 2000:9).

2.1.4.2 Cognitive approaches to CALL

The next generation of CALL programs was more in line with the cognitive/constructivist views on learning. As pointed out by Kern & Warschauer (2000:9), cognitive theorists like John Dewey and Alfred Whitehead, and constructivist theorists like Jean Piaget, had been stressing the importance of creative action in the learning process, and so the new CALL software included programs where learners were meant to construct new knowledge through the active exploration of so-called microworlds. These simulated environments provided opportunities for problem solving and hypothesis testing, and allowed the learners to make use of existing knowledge to develop new understandings. The 'microworld programs' could range from simple, text-based adventure games to advanced three-dimensional virtual worlds that incorporated full motion video, sound, graphics, and text.

Although the cognitive/constructivist generation of CALL was a significant advance over the old drill and practice programs, many educators still felt that CALL did not live up to its full potential. The computer use was not integrated in the rest of the classroom activities. The computer was being used in an ad hoc and disconnected fashion. Moreover, as some educators have pointed out, using computers in this manner could compromise the collaborative nature of classroom learning, and distance the teacher from the students' individual, autonomous work. Finally, simulated environments of this kind only creates an illusion of communicative interaction, they do not let the learner engage in genuine negotiation of meaning (Kern & Warschauer 2000:10). These perceived downsides to CALL, together with a broader reassessment of the cognitive approach to language teaching, and the introduction of the networked computer, sent CALL into its third generation.

2.1.4.3 Sociocognitive approaches to CALL

Computer programs that by themselves meet the criteria of sociocognitive language learning are not expected to be available to language learners for quite some time. Such a program would have to be able to increase the learner's communicative competence, which includes both linguistic and pragmatic knowledge. It would have to be capable of judging the social appropriateness of the learner's language use, and to understand and respond intelligibly to a range of different communicative utterances. Programs like these (also referred to as Intelligent CALL) may be the next and ultimate usage of computers for language learning, but that phase remains a distant dream (Kern & Warschauer 2000:10-11). Besides, a computer program cannot involve the learner in interpersonal language use, one of the three principle uses of language according to Halliday. Neither will it provide learners the opportunity to enter into authentic discourse situations, something that, according to the sociocognitive perspective, is essential for the development of the learner's communicative competence.

This might seem to leave CALL somewhat in a vacuum, since the technological development cannot keep up with the theoretical. Fortunately, this is not the case. The technical development has merely gone in a different direction from what was perhaps expected ten years ago. The advent of the Internet and the networked computer has given language teachers ample opportunities to realise a sociocognitive approach to CALL. The networked computer provides the opportunity to meet the criteria of a sociocognitive approach to language learning by moving from learners' interaction *with* computers to interaction with other human beings *via* the computer. The computer no longer functions as a tutor, but as a tool giving learners access to all sorts of authentic language material and to other learners, or native speakers, of the language.

2.1.5 The development of ICT in the Norwegian national curriculum

The development of the Norwegian national curriculum reflects the technological development of the previous decades, as well as the changing view on the role of the computer in educational settings. The national curriculum has undergone three major revisions during the

last 30 years, the first one in 1974, the second in 1987, and the most recent one in 1997. I will here give a brief summary of the changes in the curriculum when it comes to the use of ICT and the role of communication in the EFL classroom.

2.1.5.1 1974: Mønsterplan for grunnskolen (M 74)

Computers or ICT is not mentioned in this curriculum (KUD 1974). Few or no schools had access to this kind of technology at this point. Nothing is included about establishing contact with pupils in other countries, nor is there anything on engaging the pupils in authentic communication. The interaction between the pupils is limited to the practice of dialogue patterns and simple dialogues on previously rehearsed material.

2.1.5.2 1987: Mønsterplan for grunnskolen (M 87)

In the chapter called *Læringsmiljø og arbeidsmåter* in the general part of the *Mønsterplan* there is one section about ICT, which deals with pedagogical programs and word processing (KUD 1987:57-58). In the chapter on English, ICT is mentioned once (KUD 1987:211). This is in the section dealing with different texts for 7th to 9th graders. ICT is not mentioned in the section about teaching aids. Nothing is said in this curriculum about contact with people in other nations. However, it is mentioned that the pupils should be given assignments that involve real communication with others. Who these "others" should be or how this could be accomplished is not further specified.

2.1.5.3 1997: Læreplanverket for den 10-årige grunnskolen (L97)

As opposed to earlier national curriculum guidelines, which have had a tendency to follow in the wake of didactic research, the most recent curriculum requirement that ICT should be used in schools, according to Murphy & Oliver (1999:unit 2), is not based on any such research. It is rather a reaction to the explosive development of the technology itself in the society outside school. Information and communication technology is mentioned in several places in L97, and it is stressed that teachers should integrate ICT into their teaching. Yet, the L97 curriculum is short on offering guidance on the practical applications of ICT.

In the chapter *Prinsipp og retningslinjer for opplæringa i grunnskulen*, under the heading *Læremiddel*, there is a passage treating information and communication technology (KUF 1996:78-79). Here the focus is set on developing knowledge, skills, attitudes, and critical thinking concerning ICT in general. ICT is also mentioned under the heading *Temaorganisering av innhald* in the same chapter (KUF 1996:72). In the chapter on English, ICT is mentioned four times (KUF 1996:223-232). The range of uses of the technology has expanded in this curriculum. ICT is now seen as a tool for both working with the language itself, helping the pupils in the writing process, and communicating with people from different parts of the world.

In connection with the view of ICT as a communicative device, this curriculum stresses the importance of establishing contact with people from other parts of the world, to communicate with them in English, and to learn about their culture and their way of life. This is mentioned as many as eight times in the chapter on English. It is suggested that the contact should be established as early as in the fifth grade. However, establishing this kind of cross-cultural contact is still optional in the fifth and sixth grade. In the seventh grade, on the other hand, international contact becomes obligatory.

Two of the underlying principles of this curriculum should be mentioned. First, the curriculum has a communicative approach to language learning (KUF 1996:225). This approach rests on the belief that we learn language by using it. The communicative approach is also essentially learner centred. Murphy & Oliver (1999:unit 2) state that adopting a communicative approach to language learning in practice means giving learners the opportunity to bring their world into the classroom as well as opportunities to communicate with people outside it. Clearly, ICT has a role to play here, as will be discussed in the following sections. Secondly, the curriculum stresses the importance of using authentic

materials in the learning process (KUF 1996:224). ICT makes authentic materials of many different kinds readily accessible for the teachers and the pupils. Not just text material, but sound, pictures, and videos may be accessed on the Internet or on CD-ROMs. Multimedia publications are, according to Murphy & Oliver (1999:unit 2), particularly useful for language learners, because they often provide visual and sound elements that can aid the foreign language learner in comprehending the meaning of the verbal text.

2.2 Motivation and language learning

The theme of this thesis is motivation in relation to NBLT. The investigation, presented in chapters 3 and 4, seeks to reveal the effect NBLT may have on pupils' motivation to learn English, and thereby, indirectly, on their learning, the argument being that motivation is a key factor in language learning. Extensive research has been carried out to establish the relationship between motivation and learning. This section presents some of the outcome of this research.

There is, and has been for quite some time, a consensus among most researchers that motivation has a profound effect on learning. According to Imsen (1992:188), learning and motivation are inextricably woven together. L2 learning is no exception. There is widespread recognition that motivation is of great importance for successful L2 acquisition (eg Gardner 1985; Ellis 1994; Pulvermüller & Schumann 1994). Pulvermüller & Schumann (1994; in Warschauer 1996b), who have investigated adult second language learners, go so far as to say that motivation should be viewed as the single overriding variable determining language learning success in adults.

In summarising the literature on the role of attitudes and motivation in second language acquisition, Gardner (1985) argued that much of the research showed that differences in motivation were related to differences in attitudes towards other language groups and/or towards the learning situation. He also argued that differences in motivation were responsible for differences in achievement. Gardner and his colleagues (Tremblay, Goldberg, & Gardner 1995) later pointed out the interrelationship of achievements and attitudes, arguing that relative success in learning a language (in this case Hebrew) results in more positive attitudes towards learning the language. Likewise, lack of success may, according to Gardner et al., lead to less

positive attitudes, which leads to lack of motivation, which again influences the language achievement.

This observation is in accordance with the findings of Ellis (1994:515), who states that it is likely that the relationship between motivation and achievement is an interactive one. According to Ellis, a high level of motivation does stimulate learning, but perceived success in achieving L2 goals can help to maintain existing motivation and even create new types. Conversely, a vicious circle of low motivation = low achievement = lower motivation can develop. In his summary of the research on motivation in relation to L2 acquisition, Ellis writes:

Strength of motivation serves as a powerful predictor of L2 achievement, but may itself be the result of previous learning experiences. Learners with either integrative or instrumental motivation, or a mixture of both, will manifest greater effort and perseverance in learning. [...] Motivation can also take the form of intrinsic interest in specific learning activities and, as such, may be more easily influenced by teachers than goal-directed motivation (1994:523).

This clearly indicates the importance of getting pupils motivated to learn the foreign language. In addition, Ellis (1994:36) states that motivation is a clearly variable factor. The strength of an individual learner's motivation can change over time and is influenced by external factors. It is, as such, up to the teacher to find ways to motivate the learners, and to keep this motivation up throughout the language learning process.

2.3 Motivational aspects of NBLT

As described in the preceding section, several theorists have established the interrelationship between motivation and language learning. The question, then, is how the implementation of NBLT may affect the pupils' motivation to learn the target language. This section reviews some of the available literature related to this issue.

The basis of NBLT is a recognition of the importance of communication for L2 acquisition. On the relationship between communication and motivation for L2 learning, Ellis (1994:516) states that intrinsic interest in L2 learning might be achieved by providing opportunities for communication. McNamara (1973; in Ellis 1994:516) has argued that 'the really important part of motivation lies in the act of communication'. Rossier (1975; in Ellis

1994:516) also emphasises the importance of a desire to communicate, arguing that without this an integrative motivation may not be effective. According to Rossier, it is the need to get meanings across and the pleasure experienced when this is achieved that provides the motivation to learn an L2.

Little research has been published on the direct relationship between NBLT and motivation. One of the few studies that examines this issue was performed by Mark Warschauer in 1996 (Warschauer 1996b). This study researched the effects that using computers for writing and communication in the language classroom had on student motivation. 167 ESL and EFL students in 12 university academic writing courses in Hong Kong, Taiwan, and the U.S were given a survey which investigated the attitude towards using computers for this purpose. It was found that the students overall had a positive attitude towards using computers. This attitude was consistent across a number of variables, including gender, typing skill, and access to a computer at home. The two variables that correlated most positively with student motivation were self-reported knowledge of computers and amount of experience using electronic mail. Factors which influenced students' positive attitude towards computers, according to Warschauer, included the perceived benefits of communicating via computer, the feeling of personal empowerment which came from using computers, and the perceived enhancement of learning opportunities which arose from using computers. The differences that were found in student motivation among the 12 courses were seen to be due at least in part to the degree to which computer-based projects were integrated into the overall goals and structure of the course. The author concluded that teachers can enhance motivation by helping students gain knowledge and skill about using computers, giving them ample opportunity to communicate via computer, and carefully integrating computer activities into the regular structure and goals of the course.

These findings correspond to a large extent to the conclusions drawn by Meunier (1997) in her study of three third-year French and two third-year German composition classes, who were using computer-mediated classroom discussions (CMCD) over the course of one semester. Meunier used a survey approach to investigate the role played by students' personality, motivation and attitude in computer-mediated foreign language communication. Her results show that CMCD may indeed lead to increased motivation among language learners. Meunier concluded that CMCD fostered highly positive attitudes regardless of the learners' initial motivation and computer background. She also noted how the teaching styles of the five instructors involved in the study affected learners' attitude and motivation towards CMCD. Lower motivation rates were obtained in classes where the instructor exercised tight

control over the computer-mediated exchanges, or where the electronic discussions were occasional and poorly integrated into the overall course.

From these studies we may conclude that for NBLT to be effective in enhancing pupils' motivation, the communication activities should be carefully integrated into the overall course, the pupils should be given extensive instruction and practice in the use of computers and computer communication software, and they should be given ample opportunities to practise their communicative skills, without undue interference from the instructor. The two studies can also serve as examples of two fairly different approaches to NBLT. In the first study, the students were communicating with students from other countries via e-mail. In the second, the students were communicating with each other through computerised discussions. Yet, both studies yielded approximately the same results with regard to the motivating effect of NBLT. The next section presents further examples of the different ways in which NBLT may be implemented in the language classroom.

2.4 Possible uses of networked computers in the EFL classroom

In this section, different ways teachers of English have taken advantage of computer networks in the EFL classroom will be presented. The presentation will roughly follow Paramskas' (1999:16) division of the different formats involved in computer-mediated communication into three main categories, according to their media uniqueness:

- (1) formats unique to computer networks
- (2) formats that build and improve on other media, at least in terms of accessibility and speed
- (3) formats that duplicate other media.

2.4.1 Formats unique to computer networks

This section presents formats that are unique to computer networks, ie formats that have originated from the network technology, and do not have their counterparts offline. These include home pages (section 2.4.1.1), chatting (section 2.4.1.2), MOOs (section 2.4.1.3),

discussion groups/newsgroups (section 2.4.1.4), and online audio/video conferences (section 2.4.1.5).

2.4.1.1 Home pages

EFL classes may set up their own home page, either on the school's web server or through one of the many free services that offer server space for private home pages. A home page, or Web site, may serve several different purposes. Kitao & Kitao (1996b) give some examples of how they have made use of Web pages for English language instruction. They have used their Web pages as a means of keeping parents and students up-to-date on what is happening in school, by making a home page that serves as a bulletin board to present class syllabi, announcements, homework, reading materials, exercises, etc. They have also had students make Web pages with useful links and descriptions. However, according to Kitao & Kitao, the most important use of their Web site has been as a display window for the students' work, through the making of an online 'book' where the students can present their compositions to a real audience.

The production of Web pages as a way for pupils to present their work is also what is described by Bakke & Millar (2000:103-105), who emphasise the importance of quality of content, 'netiquette', and a medium-appropriate design and writing style. Bakke & Millar suggest that the pupils, in cooperation with the teacher, work out criteria for evaluating the quality of Web pages, and follow these criteria in designing and evaluating their own home page. Bakke & Millar also recommend pupils to include a 'guestbook' where visitors can leave messages, ask questions, and give the creator of the page response on the finished product. In this way, the pupils may have further opportunities for practising the language by answering questions from, or engage in discussions with, the visitors of the home page.

Another way of using Web page production for language learning is presented by Warschauer (2000:43-45). Warschauer describes a task-based approach to Web page production, where the students are engaged in the production of Web pages requested by community or campus organisations, or multimedia Web sites presenting the results of collaborative student research projects. These Web pages presented the text in a communicative, brief style, suitable for the Web medium. The text was surrounded by appropriate images, backgrounds, and in some cases sounds or video clips, to effectively get across a multimedia message. Warschauer (2000:56) sees this medium-appropriateness as important for the motivating effect of Web page production. He claims that his study shows

that students view the Web not merely as a publishing vehicle but also as a rhetorical medium in its own right. The students put greater effort into their presentations, and did more elaborate work on the language, when they were given the opportunity to develop their writings in ways appropriate for the Web medium, using medium-appropriate rhetorical styles incorporating texts and graphics. In addition, Warshauer states, it is vital for the success of such task-based Web-page production that the students understand the purpose of the task, and perceive it as being tied to larger, more important goals, eg developing academic skills or providing service to real organisations.

Another manner in which a school's Web site can contribute to the language learning process is by serving as a platform for collaboration and communication between schools or classes from different parts of the world. Warshauer (1995:53) states that the new technology has opened up possibilities for cross-cultural, collaborative projects, where pupils from different countries work together on a common task, or share information about each other's lives and cultures. An example of such a project is the MediaNet project, involving five European schools, including Rissa videregående skole in Rissa, Norway. The MediaNet project's home page (www.school.alingsas.se/medianet) describes how a school's web site can serve as a platform for communication between the participating schools, either through so-called guest books, where the pupils can write greetings, opinions, etc to be read by the other participants, or by setting up a private chat room or discussion group at the web site (see section 2.4.1.4). A search of the SKOLEPRO database (www.siu.no/skolepro) confirms that projects like these have started to become more common in Norway over the last few years, as most schools in the country are now connected to the Internet. In this context, a web site will be an ideal tool for presenting the products and findings from the project. Recently, commercial companies have also started to provide such Web sites, which can be tailor made to serve as a platform for cooperation, communication, and distribution between the different parties in a cross-cultural project (see eg Bakke & Millar 2000:78).

2.4.1.2 Chatting

The CMC format that most resembles oral interaction is, according to Pellettieri (2000:59), chatting. This, Pellettieri claims, makes chatting particularly promising among the various

forms of CMC. However, the language in chatting has been criticised for being slangy and replete with errors (eg Paramskas 1999:17). This applies especially to the form of chatting that is most widespread outside the educational environment, namely Internet Relay Chat (IRC). The IRC has been described as an open party line (Warschauer 1995:57). IRC channels are usually public, with people signing on and off at will. This, according to Warschauer (1995:56), creates an atmosphere which is probably a little bit too hectic for people just learning English. However, as Warschauer points out, private channels can be established on the IRC, where for instance partner classes from different parts of the world could schedule online discussions.

Another way of using chatting for language learning, which avoids the pitfalls of joining an IRC channel, is by setting up a computer-assisted classroom discussion (CACD). Warschauer & Meskill (2000) describe CACD as computer-mediated communication in a classroom, where the students communicate synchronously through writing rather than through talking. The session can be saved and passed on to the students (eg to work with grammar or syntax). CACD may be viewed as an artificial substitute for face-to-face communication. However, as Warschauer & Meskill point out, computer-assisted classroom discussion has been found to have a number of features that make it useful in a language learning context. First, it tends to bring about more equal participation in the discussion than does face-to-face communication. The teacher or a few outspoken pupils are less likely to dominate the discussion. This leads to class discussions that are more fully collaborative. Second, according to Warschauer & Meskill, computer-assisted discussion allows students to better notice the input from other students' messages and incorporate that input into their own messages. In this way, electronic classroom discussion may expand opportunities for the learning of new linguistic chunks, e.g. collocations and common phrases. Third, Warschauer & Meskill state that since computer-assisted discussion takes place in writing, it allows students more time to plan their messages than does face-to-face talk. Warschauer's earlier research (Warschauer 1996c) has shown that this kind of written discussion features language that is lexically and syntactically more complex than oral talk.

Ortega (1997:83) views CACD as a way of using the target language which is meaningful to the students and which forces teachers and students away from treating language as an object rather than as a medium of communication. CACD appears to Ortega to provide a context in which opportunities for language development are enhanced, since students are motivated to stretch their linguistic resources in order to meet the demands of real communication in a social context. Ortega believes that the CACD environment is optimal for

devising CALL activities that facilitate and promote comprehensible output. There are, according to Ortega, several reasons for this. The students feel that they are in control of the situation. They are able to contribute as much as they want at their own pace and leisure. They therefore perceive CACD as less threatening and inhibiting than oral interactions. This makes the students produce a greater amount of writing, and all students participate to a high degree. The students also make use of the available opportunity to plan and edit their messages. In this way they engage in productive L2 strategies and processes. CACD also have additional advantages, according to Ortega (1997:84). In CACD, learners are exposed to a substantial amount of comprehensible input produced by peers of a similar level and shared background. Learners also get a considerable amount of reading practice in addition to writing practice, and the reading is holistic (reading for the gist) and meaning-driven. Finally, Ortega states, CACD can have a great impact on subverting the traditional roles enacted by teachers and students in classrooms (see section 2.5.1).

2.4.1.3 MOOs

A MOO is described by Shield et al (1999a) as a database which offers both synchronous and asynchronous communications tools. The users of a MOO communicate with each other solely via text. The MOO is extensible from within, ie users shape and extend the MOO dynamically. Shield et al state that language learners can use the MOO to interact with other learners and native speakers of the target language as well as with the MOO environment. Learners can develop writing skills by "building" their own areas of the MOO, collaborate with other users to extend and develop the MOO, or participate in different MOO-based projects with other learners. The only limit on what can be done in a MOO, according to Shield et al, resides in the imaginations of learners. For the learners, the MOO becomes a virtual learning environment, which allows them 'to develop both reflective/metacognitive and cognitive learning strategies whilst empowering them to manage their own learning and socialisation processes' (Shield et al 1999a).

In a related article, Shield et al (1999b) describe how MOO-based learning events provide an important shift of focus. The focus moves from target language as main object to working together with other students or native speakers in a setting close to realistic. L2

becomes a mere means of communication while the achievement of common goals in social interaction emerges as the main priority. Shield et al claim that learners become involved in the activity to the point that they forget they are trying to learn a new language. According to Shield et al, it is at these moments when they probably actually learn most.

An example of a MOO that is developed especially for EFL/ESL learners is *SchMOOze Univerity*. Peterson (2000) describes SchMOOze University as a virtual learning environment, which provides learners with many of the positive features of MOO-based learning. These include, according to Peterson, the motivational effects of network-based learning, the opportunity to produce the kinds of interactional modifications that are held to promote L2 acquisition, the development of metacognitive skills such as noticing and a focus on form, the provision of a forum for collaborative task-based learning projects, and the fostering of learners' cross-cultural knowledge and understanding. Peterson concludes that SchMOOze University constitutes a stimulating learning environment that offers new opportunities for language learning.

In Norway, the University of Bergen has developed MOOs for L2 learning of English, French and German, and are currently also working on Italian and Spanish MOOs. According to the project's home page (Lech & Walker 2001), the *lingo.uib* project was started in the autumn of 1997. It was then known as the *CALLMOO* project. Since the start, the project group has developed, implemented and evaluated virtual learning environments for use in foreign language studies. The main purpose of the project, as presented by Lech & Walker, is to realise new pedagogical developments within the language subjects by creating authentic environments, which through their structure focus on the dynamics of the learning process. The first MOO to be implemented in a language course was the German L2 MOO *Dreistadt*. As a preliminary result, Lech & Walker claim that the structure of the Dreistadt virtual learning environment, metaphorically, technically, and socially, creates forms of contact that make the students more productive, particularly with regard to their use of the target language. According to Lech & Walker, the course has been very popular, the students' motivation has been higher than in earlier, comparable courses, and the exam results have been good.

Walker (1999) elaborates further on how MOOs are used for language teaching and learning at the University of Bergen. She divides the different activities of the MOO into the three formats; publishing, synchronous communication, and asynchronous communication. As examples of publishing within the MOO, she mentions that lecturers make exercises and articles available to the students, and that the students may send their writings directly to the lecturer or make them available to the whole group. Examples of synchronous communication

are online seminars and lectures lead by an instructor, and informal, online study-groups. Asynchronous communication within the MOO can involve records of the synchronous communication, which are stored and can be read at a later occasion. The students can also write notes and messages to each other on bulletin boards, or they can discuss topics of interest to them in discussion groups (see section 2.4.1.4). In addition, other functions (eg personal diaries, dictionaries, etc) may be added to the MOO by the students. The MOO, according to Walker, becomes the students' learning environment, and the social aspect gives geographically scattered students a unique opportunity to develop a common milieu and identity. This, in turn, is seen as one of the reasons why the language is used very actively when the students participate in continuous written conversations.

When evaluating the first phase of the CALLMOO (lingo.uib) project, Aarseth & Jopp (1998) asked the students involved in the German L2 course "where they were" when they were communicating in the Dreistadt MOO. The students all replied that they were neither in the actual physical place that they resided in (eg at home, or in the computer lab at the University of Bergen), nor were they in Germany, but in another place, a 'third place'. These statements were in accordance with the intentions of the project group, who had wanted to create a 'third-place reality', ie a room for experimentation and self-expression. This notion of a 'third place', Aarseth & Jopp states, was intended to make it easier for the students to overcome their inhibitions about expressing themselves in the foreign language, to lower the threshold of L2 expression, so to speak. This area was pointed out by close to all the students in the course as one of their most central experiences related to working with the MOO. The threshold of L2 expression was, according to the students, substantially lower in the 'third place' than in real life situations. The students perceived to be in control of the situation. The freedom to choose when to be active and when to be observing was found to have a stimulating effect on language production. The course was found to be highly motivating for the students involved. Through the MOO medium, all the students have, according to Aarseth & Jopp, found a way to practise the target language, which they voluntarily continued to make use of beyond the period of the course. The writers state that there are clear indications that the course has brought about a new quality of self-motivated, autonomous language practice and cultural contact.

The lingo.uib project group has also developed a MOO for English language students called *A Midsummer Night's MOO*. However, this has not yet been in use for language learning. Aarseth (1998) describe the MOO and its background further. The MOO is built around a literary text, William Shakespeare's *A Midsummer Night's Dream*. The purpose of the MOO is to provide authentic, dynamic, and regular contact with a part of the English culture.

The social aspect of such a MOO, according to Aarseth, makes the learning process more personal and meaningful. At the same time, the contact with native speakers provides important models for the foreign language learners. The learning is claimed to be largely autonomous, with the role of the teacher transformed from "provider" and "manager" of knowledge to cooperator. Aarseth further describe how the MOO is designed to give the students an opportunity to practise their language skills, as well as gain a deeper understanding of the literary text, and of English language and culture in general. Robot programs ("bots") within the MOO simulate the characters of the play and act out parts of it. The students can interact both with the "bots" and with each other, as well as building their own objects, links, comments, etc into the MOO environment. Both formal lectures, group discussions, and individual use of the MOO are meant to be part of the course. The MOO also has the opportunity to integrate synchronous audio/video communication.

At the CALLMOO seminar in Bergen in 1997, Scwienhorst (1997) presented a paper on language learning through the MOO medium. In his paper, Schwienhorst calls attention to the advantageous properties of the MOO in relation to the notion of learner autonomy. Schwienhorst states that if the MOO is an integrated part of the language course, not an optional add-on, and the built-in facilities and opportunities that the MOO system offers are utilised, the MOO should be a powerful medium not only to improve writing skills, but also to enhance oral proficiency and most importantly, metalinguistic and learning awareness that are central to the development of learner autonomy. Schwienhorst concludes by stating that the text-based MOO environment could provide the central core of a language learning environment that can work towards learner autonomy, possibly like no other environment in real life.

In a later article, Schwienhorst (1998) describes how newer MOOs incorporate text, WWW, and 3DVR interfaces within the same virtual reality environment. This gives credit to Levy (1997:172), who predicted that traditional MOOs, which are entirely text-based, will move towards multimedia interfaces based on 3DVR environments. According to Schwienhorst (1998), this development makes the MOO interface even more flexible, and adaptable to any user's needs. There are, however, critical voices related to the usefulness of MOOs as platforms for language learning. One of the critics of MOOs is Paramskas (1999:18), who states that he is sceptical of MOOs' pedagogical value. According to Paramskas, the pace in a MOO is too high for most foreign language learners, the environment is anarchic, and the instructor has little or no control of the activity.

2.4.1.4 Newsgroups/discussion groups

Paramskas (1999:19) describes the Usenet newsgroups as a kind of universal bulletin board. According to Paramskas, the Usenet's universality is both its greatest virtue and greatest vice. The virtue of unrestricted access makes the Usenet a mine of cultural social and scientific information. The reverse side of the coin is that the range of topics includes hate mongering and pornography. Paramskas states that the Usenet newsgroups have no membership requirements and no moderators restricting the postings to the newsgroup. So called 'flaming' (verbal belligerence and insulting remarks) and 'spamming' (multiple cross-posted messages that advertise products or services) is therefore widespread, and in the case of some groups totally crowding out topic-related postings. The Usenet is therefore, according to Paramskas, not necessarily a friendly environment for the L2 learner. In this respect, Paramskas sees Web-sited discussion groups as a better alternative for language instructors who want to exert a certain control over the content and continuity of the discussions. Paramskas therefore predicts that Usenet discussion groups will gradually migrate to Web sites, thus losing both the virtues and vices of unrestricted access.

Warschauer (1995:36) has a rather different view of the Usenet discussion groups, as he sees the opportunity for classes to create their own discussion groups, with limited access. Such a discussion group could, according to Warschauer (1995:37), serve a range of different purposes. The discussion group could be a mechanism for the teacher to distribute information, handouts, and materials. It could be used as a collective class journal that the students are required to post different assignments to at a regular basis. It could be used for pre- or postdiscussions on topics related to the class content. It could be a forum where questions about English usage or problems related to English grammar, spelling, or punctuation can be raised and discussed. In addition, according to Warschauer (1995:38) a class discussion group can greatly facilitate collaborative writing techniques, such as peer editing and joint composing.

A discussion group similar to what has just been described might also be established on a local network. Paramskas (1999:19-20) explains how a LAN (Local Area Network) or intranet discussion group can be set up using conferencing software. Such a discussion group, or conference, functions like a Web discussion group, but is limited to the LAN. Because of the

high-speed connections within a LAN, these conferences can be semi-synchronous as well as asynchronous, ie they can be used for computer-assisted classroom discussions. A LAN discussion group, according to Paramskas, gives both instructor and students several advantages. It is protected against 'flaming', 'spamming', and other outside interference. The speed of interaction is controlled by the user. The messages are posted in chronological order with no overlap. The students have time to think and edit before hitting the 'send' button. The messages are organised according to 'threads' identified in the message header. The different 'threads' of messages constitute an immediately available, and easily navigable, archive of students' postings. Paramskas claims that these features of LAN conferencing make it pedagogically superior to the purely synchronous modes of CMC. In addition, Paramskas states that conference discussions can easily be integrated with classroom materials. The archived discussions may be reread or printed, and teachers may create corrective or grammatical exercises based on student production. According to Paramskas, communication in semi-synchronous LAN conferencing is perceived as authentic. This is a powerful motivating factor, which this format shares with the synchronous formats. Paramskas claims that the authenticity factor is even strengthened by the students' awareness that they are conversing with 'real' people, their classmates, not the sometimes abstract persona of an e-mail penpal or the incognito role-playing characters typical of MOO's. In LAN conferences, Paramskas maintains (Paramskas 1999:21), the students naturally draw on structures already acquired and extend them to meet contextual needs. In addition, according to Paramskas, peer feedback causes errors gradually to diminish in number as students seek to make themselves understood.

2.4.1.5 Online audio/video conferences

Online audio/video conferences are not, to my knowledge, commonly used in Norwegian schools as of today. Such conferences would require both sufficient bandwidth and the right equipment and software. One of the few studies that have been published on the use of online audio/video conferences for L2 learning was conducted by Zähler et al (2000). Zähler et al studied task-based language learning via audiovisual networks. They conclude (Zähler et al 2000:203) that given sufficient bandwidth, carefully chosen tasks, a shared writing tool, and

access to an adviser, audiovisual conferencing is effective in supporting collaborative interaction and language learning.

2.4.2 Formats that build and improve on other media

This section presents formats that are available also outside the computer networks, but which have been improved and made more convenient by being transferred into network applications. The formats include e-mail (section 2.4.2.1) and mailing lists (section 2.4.2.2).

2.4.2.1 E-mail

E-mail is probably the most widely used method of CMC for English teaching. Wolf (1998) describes some of the advantages of using e-mail in the classroom. His first example is how e-mail may facilitate and improve the traditional "pen pal" projects. The use of e-mail, according to Wolff, has a number of advantages compared with traditional pen pal projects, the most important being the speed with which the exchange of letters takes place. In addition, it has become easier to find partners to establish contact with. Wolff claims that the fact that students now can expect an answer to their letters within days or even hours, instead of weeks or months, undoubtedly enhances the students' motivation to take part in such activities. Speed of interaction has other advantages as well, Wolff explains. Learners can ask questions that are of immediate interest about events that have just taken place in the target language country. They can also ask questions with respect to contents of their textbook or questions concerned with the language they are learning. In this way, Wolff states, the use of the new technology bridges the gap between the school and real life. Wolff also describes another way of using e-mail to enhance foreign language learning, namely e-mail used in cross-cultural project work. These projects could be bilateral, with two parties collaborating on a common task, or they could be open projects, where the initiating learner group plans the project and asks anyone interested to contribute with information, opinions etc. Wolff concludes by stating that the use of e-mail makes language learning attain a new quality. According to Wolff, working together with other learners and native speakers in projects leads to a high degree of involvement, makes the use of the foreign language authentic, leads to deeper processing and thus to better learning results.

In his book *E-mail for English teaching*, Warschauer (1995:2) proclaims three main reasons why teachers of English should use e-mail in the English classroom. The first is that e-mail provides students with an excellent opportunity for real, natural communication. E-mail can put learners in contact with other English learners, or with native speakers of English, and provide the authentic context and the motivation for communication that teachers are always struggling to supply. The second reason is that e-mail empowers students for independent learning. Mastering the skills involved in communicating via e-mail can empower the students to use e-mail and other types of telecommunications for the rest of their lives. According to Warschauer, this will benefit the students both in their English learning and later in their professional life. Warschauer's third reason (Warschauer 1995:2-3) is that the use of e-mail will enrich the experiences of the teachers, because it will allow them to join new educational communities, where information, ideas, resources, and materials can be exchanged with thousands of other colleagues. Warschauer (1995:34,47-56) then gives a number of examples of different uses of e-mail for English teaching, including pen pals, cross-cultural project work, and teacher-student writing conferencing. The latter will be more effective when e-mail is used, Warschauer claims, because students are more willing to submit multiple drafts and to make serious, global revisions when their work is submitted electronically rather than on paper. In this way, according to Warschauer, e-mail can assist students in developing a better sense of the writing process. Warschauer concludes his treatise by discussing some principles for implementing the use of e-mail in English teaching. According to Warschauer (1995:92), it is important that students have frequent access to the computers. The more frequent access the students have to the computers, the more rewards they will get out of using e-mail, he claims. Warschauer (1995:94) also believes that it is vital that the students learn 'netiquette' and are encouraged to use the friendly, informal language and greetings that are common in e-mail. In this way, they can create a sense of community, and avoid so-called flaming and bad language. In addition, Warschauer declares that some sort of task-based, collaborative learning project should be included in the e-mail exchange activities. The students should be involved in working together on exciting, meaningful projects that will give them a sense of involvement and accomplishment. Finally, Warschauer (1995:94:95) stresses the importance of having the activities well integrated into the classroom process, claiming that the educational outcome of the e-mail exchanges depends to a large extent on whether they are incorporated as an add-on process or as an integrated process.

An example of a well-run, ongoing cross-cultural e-mail project is the HUT E-Mail Writing Project founded in 1993 by EFL instructor Ruth Vilmi at the Helsinki University of

Technology in Finland. Since its foundation, many students from around the world have taken part in HUT collaborative writing activities. Students have collaborated via e-mail on writing research papers, designing robots and proposing solutions for environmental problems. The most popular of the different activities, according to Vilmi (1998), has been the International Writing Exchange, or IWE. The IWE is run in modules that last only four weeks. Any class can join for any length of time at any time of the year. The participants of IWE are primarily university students, but Vilmi states that this activity could easily be adapted for elementary or secondary school students. Vilmi mentions several benefits of joining the IWE. Students have a wide audience and receive feedback from international peers, so they are motivated to write well. They exchange ideas with students globally, rather than writing only for their own teacher. They learn about other cultures directly, rather than second hand, and according to Vilmi, they read and write much more than in conventional language courses. In addition, Vilmi states that the IWE avoids the, by her claim, inevitable disappointments experienced with pen pal projects when individual students drop out or miss deadlines.

Warschauer and Meskill (2000) emphasise the importance of integrating this kind of exchange projects into the general course goals, and base them on purposeful investigation rather than just electronic chat. They suggest that such projects should involve joint exploration of culture, social conditions, film, or literature and preferably result in some kind of collaborative publication. Warschauer and Meskill declare that these kinds of international, cross-cultural interactions are increasingly required for success in academic, vocational, or personal life. This is why, according to them, language educators now seek not only (or even principally) to teach students the rules of grammar, but rather to help them gain apprenticeship into new discourse communities.

Paramskas (1999:22) is more sceptical to the use of e-mail for language learning. He maintains that technical and human difficulties abound. It is often difficult to find material of common interest to both groups, and too often one group is complaining over lack of response from the other. There is also the question of with whom to collaborate. According to Paramskas, native speakers are bored by second language utterances below advanced level, while other language learners will not function as good language models. Finally, Paramskas claims that teachers tend to over-control the exchanges, reducing the e-mail format to an electronic version of the traditional paper composition, calling on learning strategies irrelevant to the medium, which serves only to publish the end result. Levy (1997:171), on the other hand, claims that, compared with traditional assignments handed in to the teacher, e-mail exchanges of this kind ensure that great care is taken in the construction of the text, because the

audience is real and the motivation purposeful. This in turn invites commitment and accountability on the part of students.

2.4.2.2 Mailing lists

According to Paramskas (1999:23), well-run mailing lists are said to be productive in terms of language development and motivating in terms of cross-cultural exchanges. Mailing lists are described by LeLoup and Ponterio (1995) as a very powerful tool for professional development for language teachers. A prime example of a mailing list for foreign language teachers is, according to LeLoup and Ponterio, FLTEACH (the Foreign Language Teaching Forum). Among the many goals of FLTEACH is an increase in sharing information, ideas, and materials between and among FL educators. Members of FLTEACH are said to benefit from the expertise, knowledge, and "networking" connections of all the other subscribers who choose to participate.

Kitao & Kitao (1996c) state that there are many mailing lists available for TESOL (teachers of English to speakers of other languages), foreign language teaching, and linguistics. Many lists are mentioned, but the list called TESL-L is suggested as one of the most useful lists for TESOL. Kitao and Kitao claim that using such lists will effectively help teachers with teaching and research. Using lists, teachers can obtain useful information, find partners for their research or teaching projects, help their students, and contribute to their profession by aiding other list members. Mailing lists may also be used by students to practise their language skills, or obtain useful information for class projects, etc. Kitao & Kitao suggest several lists that are set up especially for students of English, where they can have an opportunity to communicate with other students of English on subjects they are interested in. One list is also mentioned on which students can conduct surveys for their projects.

2.4.3 Formats that duplicate other media

This section presents formats that duplicate those of other media. These formats are found on the World Wide Web, which offers a wealth of resources for language learning. However, much of what is offered on the Web also exists outside the Web, albeit in other forms. What

makes the Web unique in relation to language learning is the accessibility it provides to these resources. In addition, according to Paramskas (1999:26), numerous web-based research projects testify to the fact that students are more motivated to make use of WWW sources than those found in the traditional library or language lab. The formats in question include what has been termed 'the virtual library' (section 2.4.3.1), different language learning activities (section 2.4.3.2), and dictionaries and other language aids (section 2.4.3.3).

2.4.3.1 "The virtual library"

The World Wide Web, as stated by Paramskas (1999:24), can be used by students to find authentic texts, sounds, pictures, or video clips. They can learn about literature, art, and culture, and they can visit virtual museums or search through library catalogues. Many of these functions used to be performed in libraries, but this was time consuming and depended on the library's collection. According to Paramskas, the availability that the Web has brought to all of these sources of learning has caused an increasing number of teachers to create interactive lessons based on exploration of Web sites. Yet, few studies have addressed the question of differences in achieved learning from use of the new media to an old-fashioned trip to the library and subsequent class activity. A major problem concerning any form of learning via the Web, as Paramskas sees it, is that the Web features no overall mechanism for quality verification. Anyone can create a Web site filled with unverified data. Paramskas (1999:26) states that up until the time of writing his article no studies had been conducted on the use of the virtual library for language learning.

Warschauer & Meskill (2000) describe how the World Wide Web offers a vast array of resources from throughout the world, and state that the majority of these Web pages are in English. Accessing and using these pages in language education, according to Warschauer and Meskill, supports a sociocognitive approach by helping students gain access to discourse communities that extend well beyond the classroom, their immediate circle of acquaintances, and their language textbook. This is seen to be particularly important to foreign language students, who otherwise have no other means of experiencing the target culture in school than through their instructor and select curricula. Warschauer and Meskill suggest that students use

Web pages as authentic materials for conducting research on culture and current events or for gathering material for class projects and simulations.

Bakke & Millar (2000:31) state that there are several reasons why pupils should be allowed to 'surf the Web' to learn English. First, the Web gives access to current material, eg daily news articles. Second, searching the Web is motivating, because the material can be explored in a pace determined by the learner, and at an individually adapted language level. Third, when searching the Web, the pupils are forced to practice reading for the gist, something which is seen as an important skill that is never adequately practised in the traditional English lessons. Finally, pupils should be given opportunities for enhancing their critical sense and developing skills in the evaluation of texts. Since these skills, According to Bakke & Millar, are especially important for the successful use of the Web's resources, the Web is a suitable place to practise them.

2.4.3.2 Language learning activities

Language learning activities of all kinds are flourishing on the Web. Many dedicated individuals² and organisations specialising in second/foreign language learning³ have gathered links to different language learning activities on their Web sites. Meloni (2000) describe how the Web is a goldmine of such materials for EFL/ESL teachers. According to her, many of these sites can be very useful for students who want to improve their proficiency in English. The EFL/ESL resources she lists in her article include language learning activities such as reading and writing exercises, quizzes, and online/offline games, and also ready-made worksheets and lesson plans for the teacher.

Opdahl (2000) has written what is probably the most current Norwegian article on this topic. In addition to listing and commenting on a number of English language resources on the Web, she evaluates the usefulness of these resources in relation to Norwegian EFL learners. Opdahl (2000:47) emphasises that in order for language practice to be effective, it is often necessary to use exercises that are especially adapted to the target learners. According to Opdahl (2000:46), much of the material for English language learning on the Web is not made especially for Norwegian students, and therefore contains exercises in areas where Norwegian EFL learners rarely make mistakes. The opposite problem applies to material originally made

for native speakers. Exercises in certain areas of difficulty to Norwegian students are likely to be non-existent in this material, simply because native speakers do not have problems in these areas. This means, as stated by Opdahl (2000:47), that the teacher has an important role in locating relevant material for EFL learning, and evaluating its function in relation to the teaching process.

Among the greater sceptics to the value of the World Wide Web as a resource for language learners is Paramskas (1999:23), who raises a critical voice against the different language learning activities on the Web. His claim is that because of the long waiting time often required for the needed software to download or the sites to unfold on screen, the same learning activities can be done more efficiently on non-Internet connected machines using disks or CD-ROMs. In addition, Paramskas (1999:25) states that the WWW today displays throwbacks to the most archaic forms of CALL. By this he means that the extensive, individualised feedback and complex error analysis routines of exemplary traditional CALL programs are lost on the move towards multimedia, and, later, to the WWW. According to Paramskas (1999:25), 'the ghosts of early, primitive CALL programs return to haunt latter-day learners'.

2.4.3.3 Dictionaries and other language aids

The World Wide Web gives language learners access to several different types of language aids including dictionaries, thesauruses, and translation services. Paramskas (1999:25) warns that many of the dictionaries on the Web are very incomplete and of uncertain origin. The more reputable dictionaries are also available on CD-ROM, which Paramskas finds more practical. As for the translation services on the Net, Paramskas claims that they serve best as a prime source of examples of how not to translate.

2.5 Effects of NBLT

#Noe om engelsk språks spesielle posisjon? (W 1995:99-100; Shetzer & W 2000:171) hjh jh h
kh khk k k kj jkhjk jk kj jk kj jk kj kj k ljlklhljk j k fgh dfhkjgh dfhgkjhd fhg kfg hfdhg hg hg
kjhg kjg hg gh hh

The previous sections have described the different ways in which NBLT may be implemented in the EFL classroom, and how NBLT may affect the pupils' motivation to learn the target language. However, research on the more direct effects that NBLT may have on language learning has not yet been presented. In their 1995 article *Addressing the need for electronic communication in FL teaching*, the founders of the FLTEACH discussion list, professors Jean LeLoup & Robert Ponterio of SUNY Cortland, predict that 'Successful language teaching and learning of the future will occur in classrooms where instruction is enhanced by electronic connections to TL [target language] culture, language, and life. [...] The outcome can be greatly improved learning and performance of language students' (LeLoup & Ponterio 1995). This optimistic view of the impact of NBLT was not, however, supported by empirical research. While it is true that the use of networked computers for foreign language teaching has become increasingly popular the last few years (see eg Shield et al 1999b; Warschauer & Meskill 2000), Kern & Warschauer (2000:2) point out that until now very little research has been published that explore the relationship between the use of computer networks and language learning. This section gives a short review of some of the literature that exists on this issue both offline and online. In the first section (section 2.5.1), literature that describes the effects that NBLT may have on the learning situation and on the interaction in the classroom is presented. The next section (section 2.5.2) presents literature that deals with the effect of NBLT on pupils' cultural awareness. Finally (section 2.5.3), findings related to NBLT's effect on the language acquisition itself are presented.

2.5.1 Effects on the learning situation

One of the reoccurring findings in studies on NBLT is that the implementation of NBLT has profound effects on the learning situation itself (eg Tella 1991; Warschauer 1996c; Meskill & Ranglova 2000; Tella & Mononen-Aaltonen 2000). In the following, literature related to how NBLT affects the learning situation and the interaction in the classroom will be presented. Ellis' (1994; 1997) description of the traditional EFL classroom given below will provide a useful framework for understanding the changes presented in this section.

Ellis (1994:580) states that natural discourse seldom occurs in the traditional EFL classroom. According to Ellis, the discourse that results from trying to learn a language is different from that which results from trying to communicate. 'The teacher's paradox', as described by Edmondson, is that 'we seek in the classroom to teach people how to talk when they are not being taught' (Edmondson 1985:162; in Ellis 1994:580). Ellis illustrates this by further describing the discourse found in traditional EFL classrooms. According to Ellis, it has been found that the teacher takes up about two thirds of the total talking time. In addition, the teacher is in control of the communication, while the learners are placed in a dependent position. The teacher explains, questions, and commands and the learners respond. Politzer, Ramirez, and Lewis (1981; in Ellis 1994:581) report that 90% of all student moves were responses. This, according to Ellis, testifies to the claim that learners' opportunities for participating productively in the EFL classroom are restrained. In a later work, Ellis (1997:173) states that even in the so-called communicative classrooms the pupils have little opportunity for pushed output, which Swain (1985:249) considers important for L2 acquisition (see section 2.5.3). The responding role assigned to the pupils restricts the range of speech acts they produce, and limits the development of full sociolinguistic competence and the extended linguistic repertoire that this requires. Another factor that, according to Ellis (1994:603), makes the traditional communicative classroom unsuitable for development of sociolinguistic skills is the fact that the interacting parties know each other so well that they feel no need to modify the way they speak in accordance with normal situational factors.

The question, then, is how the implementation of NBLT might affect the learning situation just described. As regards the nature of the discourse in the classroom, there is extensive documentation that NBLT provides the learners with opportunities for natural, authentic communication (eg Tella 1991; Pellettieri 2000; Warschauer 2000). As discussed in section 2.4, both in-class and out-of class computer-mediated communication has been shown

to be perceived as authentic. The implications of this for language acquisition will be discussed further in section 2.5.3, but 'the teacher's paradox' is undoubtedly less of a paradox in NBLT than in traditional teaching.

The teacher's role in the NBLT classroom has been described in several studies. Frizler (1995) states that using the Internet to teach EFL requires changes in teachers' roles, approaches, and attitudes toward teaching. She claims that in order to be effective in the NBLT classroom, teachers must be willing to remove themselves from the classroom limelight, and place the focus of the class on the students. This is precisely what has been found to happen in a number of studies of NBLT. Tella (1991) studied the teacher's role and position in a cross-cultural network-based project involving six Finnish senior secondary school classes and their counterparts in Britain and the USA. She concludes (Tella 1991:143) that the teachers' role did change. Instead of mainly delivering information, teachers became more and more co-workers, co-learners, or consultants with regard to students. The emphasis switched from teacher-centred, large-group teaching toward a more individualised and learner centred working environment. A more recent study was conducted by Sotillo (2000), who studied synchronous and asynchronous computer-mediated communication in two advanced ESL writing classes in the USA. Sotillo (2000:101) states that the technological innovations foster changes in power relations in the classroom, and encourage learner autonomy. Synchronous discussions are, according to Sotillo, highly interactive and primarily controlled by students. She states that the students challenge the traditional role of the teacher as dispenser of knowledge and authority figure. This kind of learner control, according to Ellis (1994:594), promotes language acquisition and communicative competence. Ellis claims that the key to learning through communication in classroom settings is the quality of learner participation, which to a large extent is determined by the degree of control that the learners exercise over the discourse. In cases where participation is controlled by the teacher, there is, according to Ellis, fewer opportunities for learners to practise communicative strategies.

Ellis (1994:599) also states that research has shown that interaction between learners can provide more favourable learning conditions than can interaction involving teachers. In Sotillo's study (Sotillo 2000:101) there was a significant decrease in teacher domination of the discourse in the computer-assisted discussions compared with traditional classroom discussions. Pratt and Sullivan (1994; in Warschauer 1995:42) studied the effects of computer-networking on teaching ESL writing classes at the University of Puerto Rico. Their study showed that in the traditional class discussions the teacher took 85% of the turns and the students 15%, whereas in the electronic discussions these proportions had changed to 35%

teacher turns and 65% student turns. Several other studies of NBLT have reported increased learner autonomy in NBLT settings compared with traditional classroom settings (eg Tella 1991; Schwienhorst 1997; Sotillo 2000). Warschauer (1995:93) describes how NBLT can foster a new teacher-student relationship, with the students becoming more autonomous and the teacher becoming more of a facilitator.

Students' overall language production is also reported to increase in NBLT settings (eg Ortega 1997; Aarseth & Jopp 1998), and all the students typically participate in discussions. Warschauer (1995:44) claims that one of the most consistent findings in studies of networked discussions has been greater equality of participation among students. In the previously mentioned study by Pratt and Sullivan (1994; in Warschauer 1995:42), the percentage of students participating in the discussions increased from 50% participating in traditional discussions to 100% participating in electronic discussions. Other studies also report on the equalising effect of networked communication. Warschauer (1996c) compared equality of student participation in face-to-face and electronic discussions in an advanced ESL composition class at a community college in Hawaii. The findings of his study suggest that electronic discussion may create opportunities for more equal participation in the classroom.

Shield et al (1999b) emphasise that shy learners tend to make greater contributions to discussions and learning events in text-based CMC than in face-to-face situations and that they report increased confidence in using the target language in such environments. Ortega (1997:85) states that computer-assisted classroom discussions leads to increased participation of so-called poorer performing students, female students, and shy students compared to traditional classroom discussions. This coincides with the experience of Grøndahl (1999). In her evaluation of a cross-cultural NBLT project at Røyse elementary school in Hole, Norway (see section 3.3) Grøndahl (1999:5) concludes that through the emphasis on communication over the Internet, the girls too became eager users of the technology, since girls tend to master and enjoy communicative activities (see eg Dalen Halvorsen 1999:51). In addition, according to Grøndahl (1999:6), pupils who were normally considered to be low-motivated, unsuccessful language learners did better than they used to do in the traditional English classes, where they were required to read aloud from a book, do exercises etc (Grøndahl 1999:6). Many of the same observations were made by Tella (1992) in the study described above. The Finnish girls, according to Tella (1992:5) were often disadvantaged in their use of computers, partly because fewer of them had access to a computer at home. Still they participated equally enthusiastically, as their ease of writing and socialising with others helped them overcome their traditional handicap with computers (Tella 1992:89). The Finnish boys, on the other hand,

traditionally dislike writing, according to Tella (1992:39). However, their interest in computers and their comfort with the informal writing style of e-mail communication helped them overcome their dislike of writing.

2.5.2 Effects on pupils' cross-cultural awareness

Through the use of NBLT, pupils may establish contact with pupils from other parts of the world. This section presents literature that focuses specifically on how NBLT may affect the cross-cultural awareness of the pupils.

Several studies have described how CMC can enhance the cross-cultural awareness of L2 students (eg Soh & Soon 1991; Oxford et al 1998; Schwienhorst 1999). Soh and Soon (1991) describe an e-mail project between two EFL/ESL classes. One of the classes was in Singapore and the other in Quebec. The students selected and discussed various topics, including two literary texts from each of the two cultures. According to Soh & Soon (1991:291), the project not only gave the students an opportunity to improve their English skills, but also helped them gain insight into the culture of another country and 'enlarged their awareness of themselves as members of an international, global community' (1991:291).

Bernhardt & Kamil (1997) show how newsgroups can be used for out-of-class discussion in order to foster the growth of cultural knowledge. They studied the use of electronic discussion groups for the learning of language and culture in an elementary university-level German EFL class. Their study show that electronic discussion groups held in English facilitated the learning of culture and, thereby, enhanced the students' affective and cognitive performance (Bernhardt & Kamil 1997:39). A similar conclusion was reached by Lee (1998) in her study on the use of a combination of Internet technologies - online newspapers and online chatrooms - to enhance the learning of advanced Spanish students. The goal of the project was to create opportunities for students to read authentic materials and gain cultural knowledge via online newspapers, to enhance intercultural awareness through exchanges via online chatrooms, and to improve students' writing and speaking skills as well as promote collaborative learning among students. Lee (1998:101) states that the project yielded positive results as regards students' cultural learning and intercultural awareness, and she recommends

that other foreign language teachers experiment with the application of combined Internet resources for the learning of language and culture.

2.5.3 Effects on language acquisition

As we have seen in the previous sections, NBLT often entails marked changes in power relations and interaction patterns in the classroom, and also has a potential for contributing to increased intercultural knowledge and awareness. What remains to be discussed is its effect on the acquisition of language. The research presented in this section has attempted to reveal both if and how language acquisition is affected by the implementation of NBLT in the L2 classroom

NBLT builds on the basic assumption that meaningful communication aids language learning. This hypothesis has been confirmed through numerous studies in the recent past (eg Long 1981; Harley et al 1990; Tanaka 1991; in Ellis 1994:273-282). As early as in 1978, Hatch (1978:404) stated that learners acquire a language through the process of learning how to communicate in it. Long (1981; in Ellis 1994:273) builds on Krashen's Input Hypothesis (see section 2.1.3.2) when he claims that input which is made comprehensible through negotiation of meaning, ie the conversational adjustments that occur when there is a comprehension problem, is especially important for acquisition. Ellis (1994:286) too supports the claim that negotiation of meaning aids acquisition, at least where vocabulary is concerned. According to Ellis (1994:604), learners should be given opportunities for meaningful, authentic communication in the classroom, because this helps to develop communicative abilities and also results in linguistic abilities no worse than those developed through more traditional, form-focused approaches. At the same time, Ellis (1994:581) states that there is very little negotiation of meaning going on in the traditional EFL classroom, because the quality of traditional classroom communication is deficient.

Research on NBLT has tried to reveal if computer-mediated communication can improve the quality of interaction and thereby contribute stronger to the language learning process. Warschauer (1996c), in his previously mentioned study on the differences between face-to-face and computer-mediated discussions (see section 2.5.1), found that students used language which was lexically and syntactically more formal and complex in electronic

discussion than they did in face-to-face discussion. Warschauer hypothesises that the more complex and formal language in the electronic discussions was potentially beneficial to all the students, since it may assist them in acquiring more sophisticated communicative skills.

Other researchers have attempted to establish whether written CMC might have an effect on oral language production. Shield et al (1999b) report on two studies designed to reveal the potential benefits of synchronous and asynchronous CMC respectively. According to Shield et al, Chun (1994: in Shield et al 1999b) found that language learners who used synchronous text-chat became more confident about speaking the target language and Stevens and Hewer (1998; in Shield et al 1999b) found that confidence in spoken L2 production was improved by giving distance language learners access to e-mail. Shield et al conclude that learner confidence in oral L2 production appears to increase with the use of both synchronous and asynchronous CMC tools. This is in concordance with Jung (1997:137), who in reviewing available research on this topic, draws the conclusion that written communication on a computer can contribute to the development of the spoken language.

A later study by Beauvois (1997) describes the effects of computer-assisted classroom discussion on the oral achievement of university level French-as-a-foreign-language students. Four sections of French L2 students took part in the study. The experimental group of two sections went to the computer lab one class period a week for a written electronic discussion as part of the regular curriculum of the course. The two sections composing the control group spent the same time per week in oral discussion on the same topics in the classroom. The data resulting from three oral exams given over the semester showed a significant difference in the experimental group's grade average over the control group's grade average. Beauvois (1997:114) concludes that the findings suggest a link between written electronic communication and the enhancement of oral skills in a second language.

As we have seen, NBLT has been shown to provide learners with opportunities for improving their communicative skills and possibly also their oral language skills. A question that remains to be examined is whether NBLT can enhance learners' grammatical competence as well. The basis of NBLT is, as noted earlier, a recognition of the importance of communication for L2 acquisition. An important question in this connection is therefore if grammar, too, can be acquired naturally through communication. As mentioned in section 2.1.3.2, Krashen (1985:1-2) claims that learners acquire morphological features in a natural order as the result of comprehending input addressed to them. Swain (1985) agrees with Krashen that comprehensible input is necessary for L2 acquisition, but claims that merely comprehending input is insufficient for the development of full grammatical competence. As a

result, Swain (1985:248-249) introduces the 'comprehensible output hypothesis', which states that learners need opportunities for 'pushed output' (ie speech or writing that makes demands on them for correct and appropriate use of the second language) in order to develop certain grammatical features that do not appear to be acquired purely on the basis of comprehending input. According to Swain, merely speaking or writing in the foreign language is not enough. For language production to be effective in enhancing learners' grammatical competence the learners must be pushed into making their output more precise, coherent, and appropriate. This is best achieved through the clarification requests that normally occur in an authentic communicative situation. Evidence has shown that this kind of pushed output improves learners' grammatical competence (eg Ellis 1997:214).

These statements might lead us to assume that EFL teachers should not be teaching grammar. However, a number of studies (surveyed in Ellis 1997:48ff) have shown that learners who perceive instruction outperform those who do not, both with regard to the rate of acquisition and ultimate level of achievement. In reviewing the research on the issue, Ellis (1997:55) concludes that it is possible for L2 learners to acquire a basic grammatical competence via classroom communication. According to Ellis, grammatical features that are important for functional communication, such as English word order, can probably be acquired naturally. However, it appears to be difficult for learners to acquire full grammatical competence through classroom communication. Ellis states that the often restricted input and opportunities for pushed output found in traditional communicative classrooms may have a restraining effect on grammar acquisition. He believes that learners may achieve higher levels of grammatical competence if they experience more frequently the type of communication hypothesised to be important to acquisition. Ellis doubts, however, that this can be achieved in the traditional classroom.

The NBLT classroom, though, is believed to have an advantage over the traditional classroom in this respect, as networked electronic discussions has been shown to contain more elements of authentic, learner controlled discourse (see eg Tella 1991; Sotillo 2000) than do traditional classroom discussions. A study that found NBLT to be superior to a more traditional approach to language teaching with regard to, among other things, grammar was conducted by Meskill and Ranglova (2000) at the University of Sofia in Bulgaria. In this study, new students were randomly assigned to either the traditional EFL course or an EFL course based on NBLT. Students' language skills were measured by extensive testing both before and after the course. Gains in language proficiency were calculated for both groups at the end of the course. According to Meskill & Ranglova (2000:28-29), the results revealed no effect on the dictation

and listening test, but significant gains on the part of the NBLT group in reading and vocabulary, grammar and writing. In addition, reports from the teachers indicated that the NBLT course also resulted in superiority in oral skills.

Another study, conducted by Pellettieri (2000), examined the effect of chatting on grammatical competence in a group of Spanish EFL students. The results presented by Pellettieri (2000:83) show that task-based synchronous CMC, such as chatting, can indeed foster the negotiation of meaning and play a significant role in the development of grammatical competence among classroom language learners. Pellettieri explains these findings by pointing at the data, which suggest that because in CMC students have more time to process language than in oral conversations, and because they can view their language as they produce it, they are more likely to focus on language form. According to Pellettieri, the study also demonstrates the importance of the language task for the quantity and type of negotiation produced in the discourse. Pellettieri states that in order for synchronous CMC language tasks to effectively promote grammatical competence they should be goal-oriented, with a minimum of possible outcomes, and they should be designed in such a way that all participants are required to request and obtain information from one another for successful task completion.

The studies described above have demonstrated the potentially positive effects that the NBLT classroom has on L2 acquisition compared with the traditional language classroom. Other studies have focused on comparing different approaches to NBLT to find out what methods of NBLT have the strongest influence on language acquisition. One question that has been looked into is whether synchronous or asynchronous CMC should be employed. Sotillo (2000) studied discourse functions and syntactic complexity in synchronous and asynchronous communication. She compared ESL students' synchronous and asynchronous discussions of reading assignments to see if there are qualitative and quantitative differences in discourse functions between the two modes of CMC, and to find out which mode produces more syntactically complex learner output. According to Sotillo (2000:82), the results showed that the quantity and types of discourse functions present in synchronous discussions were similar to the types of interactional modifications found in face-to-face conversations that are deemed necessary for second language acquisition. Discourse functions in asynchronous discussions were, according to Sotillo, more constrained, and similar to the question-response-evaluation sequence of the traditional language classroom. However, in the matter of syntactic complexity, Sotillo found that asynchronous discussions give learners more opportunities to produce syntactically complex language. She therefore concludes that both synchronous and

asynchronous discussions can be used as novel tools to enhance the language acquisition process, but that the two modes may be exploited for different pedagogical purposes.

Shield et al (1999b) reach a similar conclusion from slightly different arguments. They state that both asynchronous and synchronous CMC can be of benefit to language learners. Asynchronous tools, according to Shield et al, promote metacognitive learning strategies such as noticing and a focus on form, while synchronous tools promote cognitive learning strategies, ie manipulating incoming information in ways that enhance learning. In addition, according to Shield et al, both synchronous and asynchronous tools increase learners' confidence in L2 production.

Another question is whether in-class or out-of-class (cross-cultural) communication is more advantageous for L2 acquisition. The proposed advantages of in-class discussions, or CACD, are described above, in section 2.4. To sum up, the advantages include ease of organisation, protection against 'flaming' and 'spamming', exposure to comprehensible input produced by peers of a similar level and shared background, and better opportunities for the teacher to monitor and control the interaction, eg by being able to expel participants who display unwanted behaviour. There are, however, arguments that speak against CACD being the most effective mode in relation to language acquisition. First, the extra motivational factor claimed to lie in communication involving pupils from another country (see eg Soh & Soon 1991; Warschauer 1996b) is missing in CACD. Second, according to Doughty & Pica (1986:321), there is an inverse relationship between similarities between learners and the need for negotiation of meaning: the greater the similarity between learners, the less the need for negotiation. The best opportunities for language acquisition, according to Doughty & Pica, are provided when all participants are non-native speakers of varying proficiency levels and different L1s. If this holds true, it means that in-class discussions might be effective in promoting language acquisitions in many ESL classes, but in EFL classes in-class discussions are less effective than cross-cultural discussions involving other language learners.

Related to the previous question is the question of whether to involve native speakers or other language learners in the CMC exchanges. Different theorists provide different answers to this question as well. As just noted, Doughty & Pica claim that communication between non-native speakers provide the best conditions for language acquisition. Other advocates for the use of non-native speakers as discussion partners is Ortega (1997:84), who argues that input produced by learners of a similar level is advantageous for language acquisition, and Paramskas (1999:22), who claims that native speakers will tire of communicating with L2 learners below advanced level. Ellis (1994:287), on the other hand, states that the joint efforts

of native and non-native speakers to construct discourse promote acquisition in a number of ways. For example, through repeating previous utterances, constructing utterances by borrowing from and extending elements from the preceding discourse, and building up an utterance over several turns.

2.6 Summary

The changing role of ICT in the subject of English in the Norwegian national curriculum has gone hand in hand with the development of ICT, and with the shifting approaches to language learning in general and to CALL in particular. There has been a steadily growing emphasis on the role of communication in the language learning process, and ICT has gained an increasingly prominent position in the English language classroom in this context. As a result of this, research on CALL has recently concentrated more on studying the effects of network-based language teaching. Studies of the different formats involved in NBLT have repeatedly described an increase in motivation for language learning, which has been shown to have a profound effect on pupils' achievement.

The success of NBLT, however, depends not so much on the formats involved as on the way they are used. Many of the theorists described in this chapter have proposed different principles that they believe to be essential to the outcome of NBLT. Together, these principles can be said to comprise a set of 'ground rules' for the successful implementation of NBLT. The principles mentioned are as follows:

- (1) Students should be given extensive instruction and practice in the use of computers and computer communication software
- (2) Students should be given ample opportunities to practice their communicative skills, without undue interference from the instructor
- (3) The communication should be related to solving a specific task
- (4) The task should be goal-oriented, with a minimum of possible outcomes, and designed in such a way that all participants are required to request and obtain information from one another for successful task completion

- (5) The communication activities should be carefully integrated into the overall structure and goals of the course
- (6) Students should understand the purpose of the activity
- (7) Students should perceive the purpose as authentic and tied to larger, more important goals
- (8) Students should be allowed and encouraged to use a communicative style appropriate to the medium of communication
- (9) Teachers should be willing to surrender some of their power and control to the students.

When at least some of these principles are followed, NBLT has been shown to be advantageous to language learners in a multitude of ways, regardless of what format of CMC is employed. All the different formats of CMC have been shown to have the potential, to a greater or lesser extent, of contributing to the learning processes in the classroom in several of the following ways:

- (1) Students' motivation increases
- (2) Communication is perceived as authentic
- (3) Students have time to plan their utterances
- (4) Students' language is more complex than in normal (face-to-face) classroom communication
- (5) Students are given opportunities to produce interactional modifications ('pushed output'), which are held to promote L2 acquisition
- (6) Students get meaningful reading practice
- (7) Students' anxiety and inhibitions about using the L2 decreases
- (8) Students' participation in the classroom activities becomes more equal
- (9) Participation of shy learners and so-called poorer performing students increases
- (10) Students' production of language increases
- (11) Confidence and skills in oral language production are enhanced
- (12) Students' grammatical competence increases
- (13) Students become more autonomous learners
- (14) The teacher-student relationship is altered in such a way that the teacher becomes less dominant and more of a guide or facilitator, while the students gain more control of the learning situation

- (15) Focus is shifted from learning the language to achieving common goals in social interaction. The foreign language becomes a means of communication
- (16) Students' cross-cultural knowledge and understanding increases.

However, different formats have been shown to enhance different aspects of the language learning process. Some sort of combination of the different formats, such as may be witnessed in some of the task-based projects described or within the MOO format, therefore seems likely to be most beneficial to L2 learners.

#Eng. språk spesielle possisjon... (jmf innledning)

US dep. of education:

<http://www.ed.gov/Technology/guide/international/secondlanguage.html>

Perhaps no other area in the curriculum gets so much benefit from Internet based international collaboration in projects (as ESL).

² See eg S. Kathleen Kitao and Kenji Kitao's homepage at <http://www.ling.lancs.ac.uk/staff/visitors/kenji/onlin.htm> or Robert Peckham's GlobeGate at <http://globegate.utm.edu/>

³ See eg the FLTeach site at <http://www.cortland.edu/flteach/> or Bray's English Centres' Netsurflerning at <http://www.netsurflerning.com/>

3 THE INVESTIGATION

In this chapter, the reason for the choice of method in carrying out the investigation will be presented, and the investigation described further.

3.1 Choice of method

Investigations can be classified by their object/aim. According to Ilstad (1987:9), three possible objects/aims and combinations of these may be conceived of, as presented below in figure 3.1.

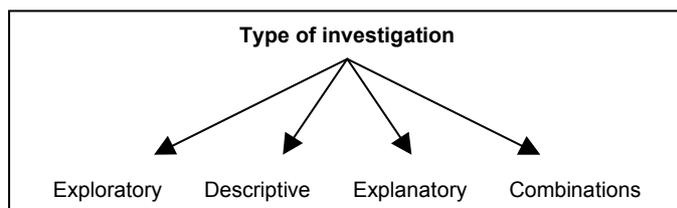


Figure 3.1: Type of investigation

The purpose of an exploratory investigation is to gather information about a topic, often as a preparation for later, more thorough studies. Exploratory investigations are suitable for arriving at a more precise approach to an area of study. They are considered to have the lowest level of ambition of the different types of investigations, since the aim is merely to obtain a general understanding of the topic in matter. Methods to be used in this kind of investigations include literary studies, conversations with persons of relevance, a small amount of interviews with informants from the population in question etc.

Having arrived at a more precise formulation of the problem, the investigator can concentrate on more thorough and systematic studies of the units. A descriptive investigation is a pure description of a phenomenon without giving explanations or reasons for it. This kind of investigation requires relatively large and representative samples from the populations in question.

An explanatory investigation is suitable for situations where extensive knowledge about the area to be investigated is present, so that hypotheses or theories may be framed and their

tenability tested. The object of an explanatory investigation is to find the causes for the patterns observed, through testing whether hypotheses (especially about causal relations) are supported or must be rejected in the light of empirical data.

3.1.1 Choice of type of investigation

The object of this paper is to describe possible uses of computer networks in the English language classroom and to what degree such use of network technology affects the motivation for learning the language. This question should indicate that the approach is a descriptive one. The emphasis of the analysis will be on describing arithmetic means, percentages and relations between variables. The investigation will also contain elements of explanatory form. Although no attempt will be made to set up models of causality and test them empirically, it seems natural to discuss possible explanations for the patterns that are revealed in a separate section. However, the conclusion remains that the investigation essentially is of a descriptive character.

3.1.2 Choice of research design

The research design is a plan for how to conduct the investigation, or how to get from the initial set of questions to be answered to a set of conclusions about these questions. The research design guides the investigator in the process of collecting, analysing, and interpreting observations (Yin 1989:28). Relevant situations for different research strategies, presented in tabular form (taken from Yin 1989:17), are given in table 3.1 on the next page.

Table 3.1: Relevant situations for different research strategies

Strategy	Form of research question	Requires control over behavioural events?	Focuses on contemporary events?
Experiment	how, why	yes	yes
Survey	who, what, where, how many, how much	no	yes
Archival analysis (literature studies)	who, what, where, how many, how much	no	yes/no
History	how, why	no	no
Case study	how, why	no	yes

With this table in mind, it is possible to rule out the methods that do not correspond with the object of this thesis. Since the focus is set on a particular point in time, namely language learning in schools today, a historical analysis of the issue can be ruled out, although the history behind the current situation may be interesting as background material to further elucidate the topic. This particular topic has a very short historical background, since the use of computer networks for language learning purposes is still in its dawn in Norwegian schools. This also limits the use of literature studies as research method, since there is very little literature available on the motivational effects of using networked computers in the English language classroom.

Before an experiment can be used as research strategy, it must be clarified if it is ethically justifiable and practically advantageous, or even possible, to carry out an experiment to obtain the relevant answers. The experiment as research strategy makes strict demands on the control of factors that may influence the execution and the outcome of the experiment (Halvorsen 1987:66). In the case of this investigation, an experimental approach would not be feasible because it would be difficult to comply with these conditions.

This leaves us with two research methods, viz case study and survey, which may be classified as intensive and extensive studies respectively. Halvorsen (1987:62) describes an intensive study as an in-depth study, which deals with as many characteristics as possible of just one unit. An extensive study, on the other hand, is described as a broad study, which examines all the units through just one variable. Most investigations will fall somewhere in between these to extremes. When an extensive study is used, the researcher will have a good basis for drawing general conclusions about the kind of units that are studied. An intensive

study leaves less room for generalisations, but gives the researcher a much more detailed knowledge about the unit.

As the object of this investigation was to be able to generalise about the effects of ICT in the EFL classroom, an extensive approach was chosen, and consequently, a survey was carried out. According to Yin (1989:18), a survey is advantageous when the object of the study is to describe a condition or phenomenon. This is in concordance with this thesis' descriptive approach to the issue.

The research material for a survey may be collected in different ways. Selnes (1989:86) has divided the different methods of data gathering roughly into three main categories:

- Personal interview
- Telephone interview
- Postal interview

For the sake of this investigation, the most suitable method was the postal interview. To conduct a personal interview with each of the informants would be too demanding on both time and resources. Telephone interviews would be practically difficult to carry out, since the informants were whole classes of schoolchildren, and in addition, the respondent would have very little time to think through the questions before giving an answer. The decision was therefore made to send out questionnaires by mail. One of the advantages of postal interviews is the relatively small workload and cost of each interview, which makes this kind of interview ideal for handling a large number of geographically scattered informants.

3.1.3 Advantages and disadvantages of survey investigations

According to Selnes (1989:95), the use of questionnaires in an investigation has certain advantages and disadvantages. The main strength of the questionnaire as a means of gathering data is that the information is collected in a standardised situation. An investigation based on questionnaires, or a survey investigation, is also to a large degree self administering, and many respondents are covered in a short period of time. In relation to the object of this thesis and its descriptive approach, the survey investigation has been a suitable method of data collection.

One of the greatest weaknesses of a survey investigation is the fact that the respondents, because of self-selection, may not constitute a representative sample of the population. Since

the informants are usually not obligated to answer the questionnaire, distortions may occur in that for instance only the most motivated of the possible respondents actually send back their answers. In the case of this investigation, this was not too much of a problem, as the pupils were required by their teacher to answer the questionnaire, and all the pupils that were present did so. Another weakness of survey investigations is the lack of dialogue, which means that they cannot capture ambiguous information, and the possibilities for following up or clarifying the individual answers are limited. Besides, the standardisation does not give room for individual adaptations to the different respondents. Since the respondents are not observed in their true element, the collected information will be limited to the often standardised answers to the specific questions in the questionnaire. The disadvantages of using a questionnaire may be reduced if the researcher is conscious about them. I have tried to remedy these weaknesses by providing open questions and leave room for supplementary comments to soften up the rigid structure of the questionnaire. Each of the responsible teachers have also been contacted and given the opportunity to comment on and ask questions about the survey.

3.2 Population

The population, which this investigation is meant to cover, is the EFL pupils in Norwegian elementary schools. The reason for my choice of the elementary school level is partly that I am an elementary school teacher myself, so this is where my interest lies, and partly that I felt that this age group has largely been neglected in NBLT research⁴. The investigation may of course be valid for other age groups as well, but I have no evidence to support this claim. It is also possible that the results are valid for EFL pupils in other countries. If this is the case, the population could be said to be EFL pupils in elementary schools around the world. However, although the results may be valid for countries with a school system and other conditions more or less similar to our own, the conditions in other countries may be too different from our own for the investigation to have any validity. I have therefore chosen to limit the population to EFL pupils in the elementary schools in Norway.

3.3 Informants

The informants in this survey were the pupils in six elementary school classes from six different schools located in three different areas of Norway:

- Røyse skole and Vik skole in Hole, Buskerud (7th grade)
- Eydehavn skole and Stokken skole outside Arendal (7th grade)
- Aurdalslia skole and Søreide skole in Bergen (6th grade)

The classes from Røyse, Eydehavn, and Aurdalslia used ICT frequently for communication purposes in their English lessons, the other three did not. The six classes were chosen in such a way that each of the three "ICT classes" had a corresponding "non-ICT class" of the same age and approximately the same size in a neighbouring school. The classes were located through use of the World Wide Web, newsgroup postings, and e-mail correspondence with teachers around the country. I originally wanted to have a much larger number of informants, but at the time of the investigation (the school year of 1998/99), it was very difficult to find elementary school teachers that implemented this kind of NBLT in their classes. In fact, the three classes that took part in the investigation were the only ones I was able to find at the time.

3.4 Implementation

In the following, the practical implementation of the investigation will be described, from operationalisation of the research question to the received answers.

3.4.1 Operationalisation of the research question

Holme & Solvang (1986:154) define operationalisation as translation of theoretical statements into empirically measurable studies. Here I will attempt to show the connection between the abstract theoretical level and the measurable operational level. I have tried to operationalise the

concepts being studied through several different variables. These variables constitute the questions in the questionnaire (see Appendix 1).

3.4.1.1 Assessment of motivation

To assess the pupils' motivation for learning the English language they were asked questions about their *attitudes* towards the subject of English, their *efforts* or time spent working with the subject, their actual *use of the language* outside the classroom, and to what extent they felt the subject to be *useful* to them. Together, the questions were intended to determine the pupils' motivation for learning the language, as defined by Gardner (1985:10) as a combination of attitudes, effort, and desire to learn the L2. These measures of motivation are found in questions 6 through 16 in the questionnaire, as described below.

Questions 6, 7, 8, 9, and 16 deal with the pupils' *attitudes* towards the subject. Motivation is often reflected in the pupils' attitudes, or "job satisfaction". Gardner (1985:36ff) points out the close relationship between attitudes and motivation. He argues that research has shown that differences in motivation are related to differences in attitudes towards the learning situation.

Question no. 10 attempts to say something about the *efforts* put into the language learning process, by looking at the time spent working with the subject outside class. This can also be an indication of the degree of motivation, in that according to Ellis (1994:523), highly motivated pupils will manifest greater effort and perseverance in learning.

Questions 11, 12, and 13 investigate the actual *use of the language* outside class. Language use and motivation influence each other in that motivated learners are more ready to seize an opportunity to speak the language, and such authentic use of the language strengthens the motivation to learn. As Ellis (1994:516) puts it: "It is the need to get meaning across and the pleasure experienced when this is achieved that provides the motivation to learn a second language".

Questions 14, 15, and 16 indicate the perceived *usefulness* of learning English. When pupils feel a need to learn the foreign language they will be more motivated to learn than if such a feeling is not present (see eg Imsen 1992:90).

3.4.1.2 Scale of measurement

Many of the questions required a more graded answer than *yes* or *no*. I here used an adapted Likert scale⁵, a five-graded scale with the most neutral answer in middle position. Each of the five options on the scale was given a numeric value, most from one to five (see section 4.2). I chose to give the respondents no more than five options because the questionnaire was meant for children, and I therefore wanted to keep it simple. I also used a combination of structured and open answers, to shed light on the questions from different angles.

3.4.1.3 Control questions

To be able to compare the respondents' answers more correctly, and in different ways, they were given some general questions to begin with, such as their sex, whether or not they had access to the Internet at home, and whether or not they had any close relatives that were English-speaking. In addition, a separate questionnaire was worked out for the classes' English teachers to answer (Appendix 2). This questionnaire was designed to reveal to what extent the class was subjected to NBLT, and to what extent methods of teaching that are more traditional, such as the use of textbooks or the blackboard, were used. In addition, there were questions concerning other aspects of the learning situation, eg how much time the different parties speak during the lessons, and to what extent the subject is taught across the curricula. Finally, the teacher was asked about his/her perception of the pupils' motivation in working with the subject.

3.4.2 Pre-testing

The questionnaire had to be designed keeping in mind that the respondents were children at 10-12 years of age. Both the extent of the questionnaire, the kind of questions asked, the language, and the methods of answering had to be adjusted to suit the age group. The questionnaire was

pre-tested with a class of 6-graders in my own school. This was done to make sure that the questions were understood, that there were no misunderstandings, and that the pupils were able to answer all of them. I also wanted to find out approximately how long it took the pupils to answer it. The teacher was instructed to report any comments from the pupils regarding the process of answering the questionnaire. In addition, the teacher was given the English teacher's questionnaire and asked to answer it and make any necessary comments.

The results of the pre-testing showed that the language of the pupils' questionnaire needed a few additional changes to make it more easily understood by the children. The other aspects seemed to work fine. The teacher's questionnaire did not appear to be in need of any further adjustments.

3.4.3 Dispatching the final version

The final versions of the two questionnaires were sent to the six school classes at the end of May/beginning of June 1999. By then I had already been in contact with the main teachers of the respective classes via e-mail or telephone, and had explained to them who I was and what the questionnaire was about. All the teachers that were contacted were willing to do what was required of them to participate in the investigation. The questionnaires were addressed to the classes' main teachers, each of whom was responsible for distributing the questionnaires to the pupils, collecting them again, and sending them back to me. In the cases where there was a separate English teacher, the main teacher had already made sure that the English teacher was willing to answer the teacher's questionnaire.

As an attachment to the questionnaires, a dispatch note with instructions on how the questionnaires should be administered was also posted (Appendix 3). In order to get the pupils to answer the questionnaire as truthfully as possible the teacher was instructed to tell the pupils that their answers would be treated anonymously, and that he or she (the teacher) would not look at their answers before sending them back to me. The pupils were also supposed to be told what the investigation was about, and be explained the importance of answering the questions honestly in order to ensure the validity of the results. The teacher was given my telephone number, and was encouraged to call me if there were any problems or questions regarding the investigation. An addressed, reply-paid envelope for the replies was also enclosed.

3.4.4 The replies

Prior to distributing the questionnaires, I had made arrangements with the respective teachers that were to receive them about how to receive the replies. This may have been an important reason why all of my informants responded to the questionnaire. The number of replies to the pupils' questionnaire from the different schools was as follows:

- Røyse skole: 17 replies
- Vik skole: 15 replies
- Eydehavn skole: 20 replies
- Stokken skole: 21 replies
- Aurdalslia skole: 23 replies
- Søreide skole: 18 replies

This adds up to a total of 114 replies, 60 from the "ICT schools" and 54 from the "non-ICT schools".

3.5 Analysis and measurements; validity and reliability

The analysis of the questionnaires was twofold. The answers to the open questions were studied for their content. All the answers were examined and classified. Although in some cases there were almost as many different answers as there were respondents to the questionnaire, I tried to group them into a few main categories. The statistical analysis program 'SPSS' was used to register and analyse the answers to the closed/standardised questions. The analysis was performed mainly by studying frequency distributions.

3.5.1 Validity

By the term *validity*, I mean the degree to which the investigation measures what it is intended to measure. Yin (1989:40) refers to this as 'construct validity', which involves establishing

correct operational measures for the concepts being studied. The question in the case of this investigation is whether the variables, or the questions in the two questionnaires, measure what they are intended to measure, namely motivation and degree of NBLT, respectively. There will always be uncertainty as to whether the correct questions were asked, and whether they were formulated in the most appropriate manner, etc. One way of ensuring a survey's validity is by making it extensive, so that several of the questions overlap. However, I did not want the questionnaire to be too extensive, partly because it was designed to suit children, and partly because I depended on getting already busy teachers to carry out the investigation with their pupils.

As my respondents were school children, one might expect them not to take the investigation seriously, and therefore not to answer the questions sincerely. If so, this would be a threat to the survey's validity. To avoid this, the teachers were instructed to describe the object of the investigation, and to emphasise the importance of the pupils answering truthfully. The high portion of answers to the open questions indicates that the pupils have indeed taken the investigation seriously, and have been committed to answering the questionnaire to the best of their ability.

3.5.2 Reliability

The term *reliability* refers to the investigations dependability, ie how good or dependable the measurements and results are. The reliability is thus strongly related to the data collection procedures. According to Yin (1989:41), an investigation is reliable if the operations of the study can be repeated, with the same results. This requires the investigation to be as free from errors and biases as possible. Errors that can affect the reliability of a study may occur in several different phases of the research. Figure 3.2 below gives a survey of sources of errors in the process of the investigation in a set-up taken from Holme & Solvang (1986:15), in my translation.

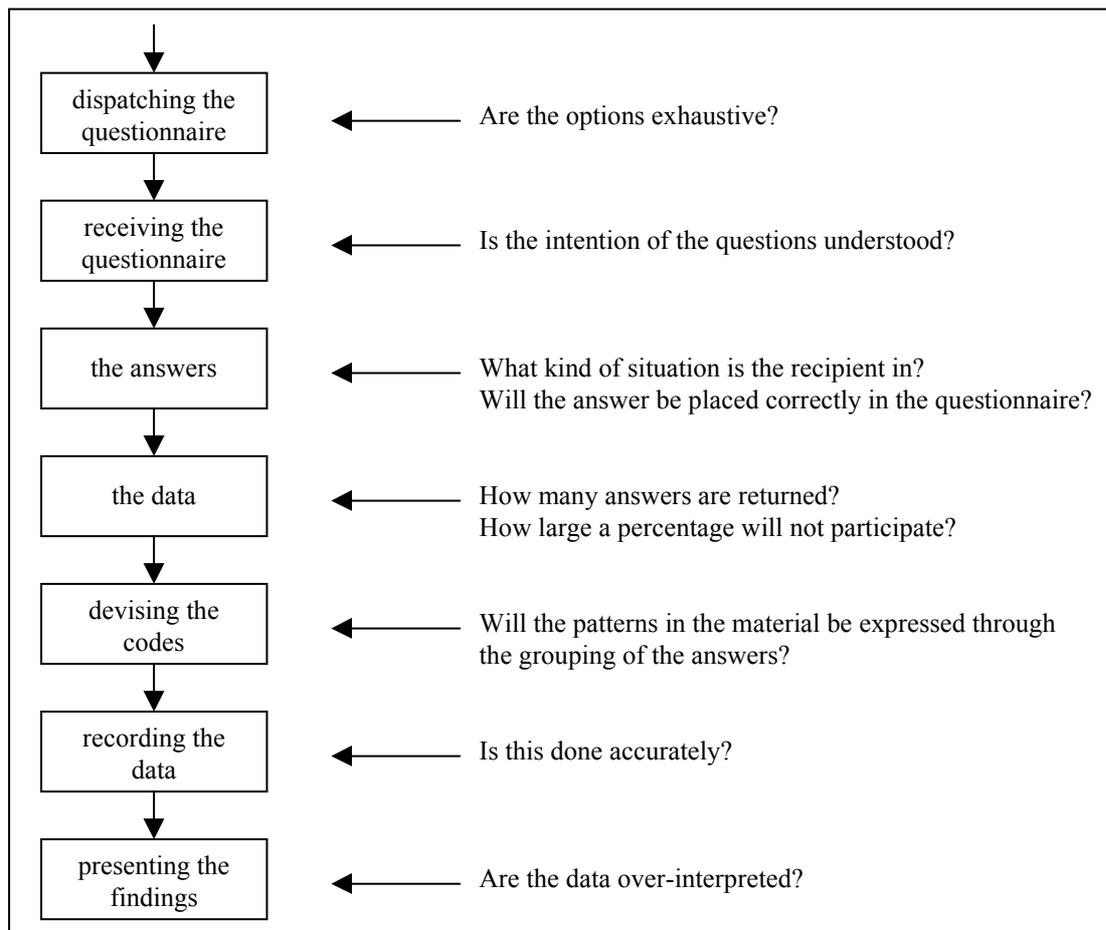


Figure 3.2: Possible sources of errors in the process of investigation

Although I have tried my best to minimise such errors in the process of investigating the issue, the possibility cannot be ruled out that errors may have occurred to some extent. In order to answer this question an identical investigation would have to be carried through, and the results compared.

⁴ In my search for literature in the field, I have come across large amounts of research project papers and other publications on the use of NBLT at college or university level (eg Warschauer 1996b; Warschauer 1996c; Shield et al 1999b; Meskill & Ranglova 2000; Opdahl 2000; Pellettieri 2000; Sotillo 2000; Warschauer 2000; Zähler et al 2000). When it comes to the elementary school level, on the other hand, there does not seem to be much published about the issue.

⁵ The Likert technique presents a set of attitude statements. Subjects are asked to express agreement or disagreement on a five-point scale. Each degree of agreement is given a numerical value from one to five. Thus a total numerical value can be calculated from all the responses.

4 PRESENTATION OF RESULTS

My analysis of the responses to the pupils' questionnaire (Appendix 1) is based on the operationalisation of the research question, described in section 3.4.1. The results from the 16 questions in the questionnaire are presented in three different sections, the control questions (nos. 1-5) in section 4.1, the closed/structured questions (nos. 6, 9-13, and 15-16) in section 4.2, and the open questions (nos. 7, 8, and 14) in section 4.3. The results from the closed/structured questions are presented graphically. The data from the open questions have, as far as possible, been systematised and categorised manually to let them shed further light on the research question. In section 4.4, some additional findings from the investigation will be considered. First, in section 4.4.1, the distribution of the responses according to the sex of the respondents will be analysed. Next, in section 4.4.2, a few interesting findings from the teacher's questionnaire (Appendix 2) will be presented. The latter concern differences between the classes in other aspects of the language teaching process.

4.1 The control questions

The first five questions of the pupils' questionnaire were what I have called control questions, which were there for two main reasons. First, to make it possible to sort the answers according to school, class, and sex (questions 1-3), and second, to enhance the validity of the survey (questions 4-5).

4.1.1 Questions 1-3: School, class, and sex

These questions were, as already mentioned, included to make possible a sorting of the answers. Questions 1 and 2 showed which schools and classes were involved in the survey.

The schools and classes were:

- Røyse skole, class 7
- Vik skole, class 7B
- Eydehavn skole, class 6
- Stokken skole, class 6A
- Aurdalslia skole, class 7B
- Søreide skole, class 7

Question 3 revealed the number of boys and girls in each class, which was as follows:

- Røyse class: 8 boys, 9 girls
- Vik class: 8 boys, 7 girls
- Eydehavn class: 11 boys, 9 girls
- Stokken class: 10 boys, 11 girls
- Aurdalslia class: 10 boys, 13 girls
- Søreide class: 10 boys, 8 girls

4.1.2 Question 4: Access to the Internet at home

Whether or not the pupils had access to a networked computer outside school, might influence their answers to the questions regarding their use of the English language (questions 11 and 12), and also to the question of their perceived usefulness of the language (question 15). It was therefore necessary to know if they had access to the Internet at home. The results are presented in table 4.1 below. The darker-coloured areas indicate the ICT classes, while white areas indicate the non-ICT classes.

Table 4.1: Access to the Internet at home

Class	% pupils w/access
Røyse class	70.6
Vik class	60,0
Eydehavn class	35,0
Stokken class	42.9
Aurdalslia class	47.8
Søreide class	61.1
Average, ICT classes	51.1
Average, non-ICT classes	54.7

Table 4.1 shows that more pupils from the non-ICT classes had such Internet access, which means that they should have an advantage over the ICT classes when it comes to the above-mentioned questions. The exception is Røyse/Vik, where more pupils from Røyse have Internet access. Still, when all the classes are viewed together, the average of pupils with Internet access is higher in the non-ICT classes.

Figure 4.1 below gives a graphic representation of these results. The darker-coloured bars represent the ICT classes, and the lighter-coloured bars the non-ICT classes.

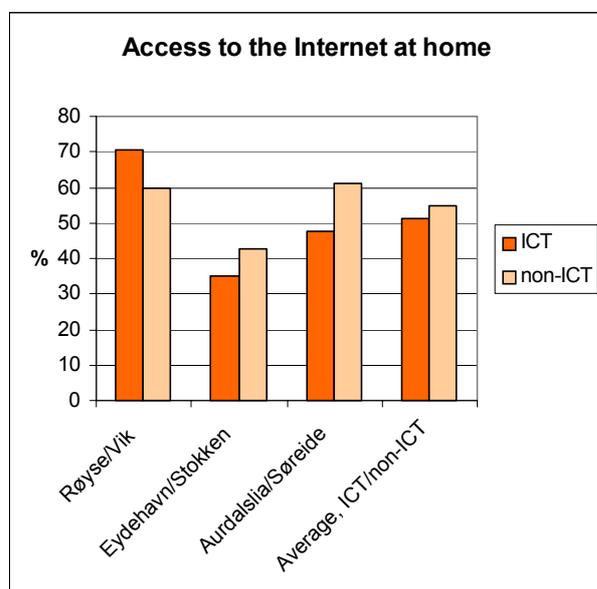


Figure 4.1: Access to the Internet at home

4.1.3 Question 5: English-speaking family members

The pupils were asked if they had any close relatives, eg parents or grandparents, who were English-speaking. This question was asked because, if so, it would influence the answers to the questions related to the use and usefulness of the English language (questions 11, 12, 13, 15, and 16). Six pupils answered in the affirmative to this question. The answers from these pupils are left out in the analysis of questions 11-13 and 15-16. This is to avoid distortions caused by the fact that these pupils will use the language more, and find it more useful than the other pupils, regardless of the teaching methods they are subjected to in school.

4.2 The closed/structured questions

The answers to the closed/structured questions (nos. 6, 9-13, and 15-16) have been analysed by looking at the differences between the means of the samples. The results are presented both in tabular form and graphically, in bar charts. Areas and bars with a darker colour represent the ICT-classes, and those with a lighter colour the non-ICT-classes. Except for the yes/no questions, most of the questions were answered on five-graded scales. These have been coded from one to five, or five to one, one being the most negative and five the most positive in relation to motivation. The exceptions are questions 6 and 9, which have an absolutely neutral answer in middle position, and are therefore coded with zero in this position, with negative numbers for the negative answers, and positive numbers for the positive answers.

On the questions related to the use and usefulness of the English language (questions 11, 12, 13, 15, and 16), the answers from the six pupils who have English speaking family members are left out. In addition, one pupil did not answer questions 11, 12, 13, and 15, which means that the percentage of replies for these questions is 92.1 and 93, respectively.

4.2.1 Question 6: Boring or fun

Question 6 asks for the pupils' feelings towards the English lessons. I wanted to find out how boring or how fun they felt the lessons to be. This says something about the pupils' *attitudes* towards the subject. The answers were given on a five-graded scale, ranging from -2 ('very boring') to +2 ('very fun'). The neutral answer 'OK' in middle position was given the value zero. The results are presented in table 4.2 below.

Table 4.2: Attitude towards the English lessons

Class	Score
Røyse class	1.12
Vik class	-0.10
Eydehavn class	0.45
Stokken class	0.19
Aurdalslia class	0.39
Søreide class	0.61
Average, ICT classes	0.65
Average, non-ICT classes	0.23

Table 4.2 shows that, overall, the pupils from the ICT-classes found the lessons more fun than did the pupils from the non-ICT classes. The exception is Aurdalslia/Søreide, where it is the other way around.

Figure 4.2 below presents the same results graphically.

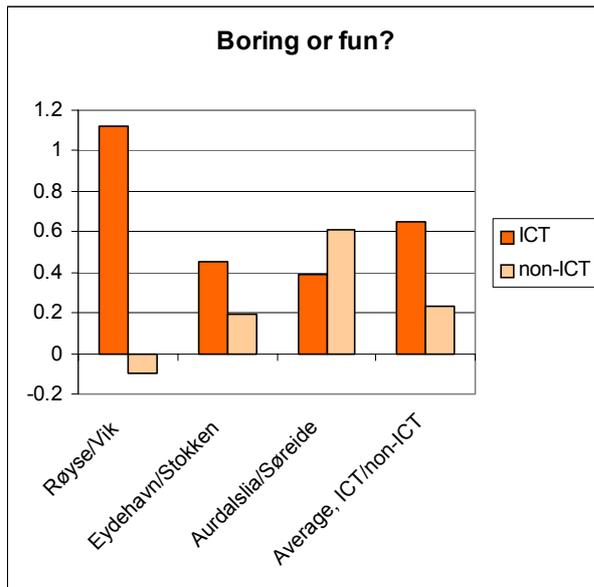


Figure 4.2: Attitude towards the English lessons

4.2.2 Question 9: More or fewer English lessons

This question asks if the pupils, in case they were able to change some of the subjects around, would have liked to have more, fewer or the same number of English lessons. The answers are coded as follows: 'fewer' = -1, 'the same' = 0, and 'more' = 1. This question, too, tells us something about the pupils' *attitudes*. The results are presented in table 4.3 below.

Table 4.3: More or fewer English lessons

Class	Score
Røyse class	0.353
Vik class	0.067
Eydehavn class	0.100
Stokken class	0.095
Aurdalslia class	0.348
Søreide class	0.222
Average, ICT classes	0.267
Average, non-ICT classes	0.128

As can be seen from table 4.3, the tendency in all the classes was towards wanting more English lessons. However, the ICT classes are markedly more positive in their responses than the non-ICT classes.

A graphic presentation of these findings is given below in figure 4.3.

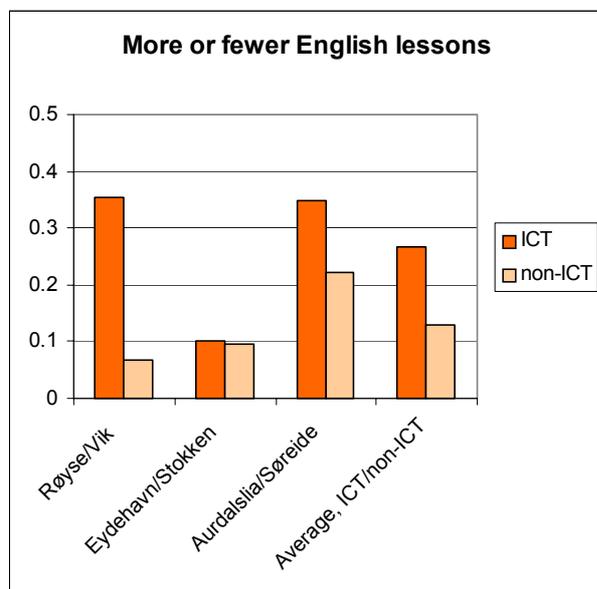


Figure 4.3: More or fewer English lessons

4.2.3 Question 10: Time spent on school-related work

Since I was not able to observe the pupils in the classroom situation, their work effort was estimated from their reports on the time spent on homework and other school-related work in English outside the English lessons. The results are presented below in table 4.4.

Table 4.4: Reported time spent working with English outside class

Class	Score
Røyse class	3.21
Vik class	2.67
Eydehavn class	2.95
Stokken class	2.10
Aurdalslia class	2.26
Søreide class	2.22
Average, ICT classes	2.81
Average, non-ICT classes	2.33

Table 4.4 shows that the pupils from the ICT classes tended to spend more time working with the subject than did the other pupils.

The results can be seen in graphic form in figure 4.4 below.

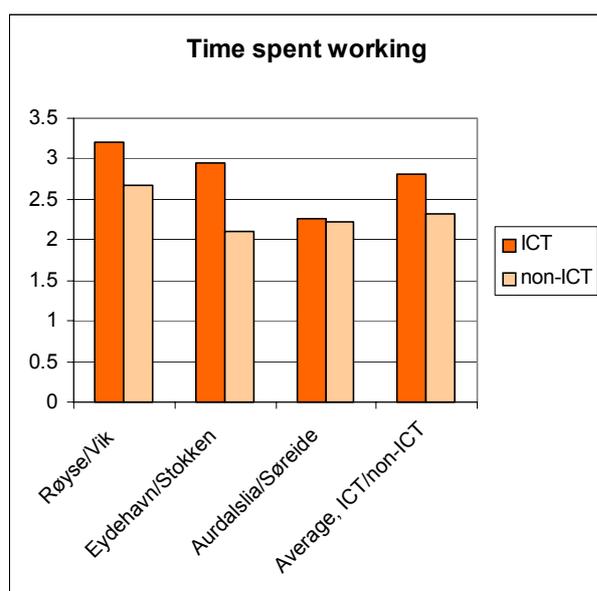


Figure 4.4: Reported time spent working with English outside class

4.2.4 Questions 11 and 12: Reading and writing English

Here I wanted to see if the use of NBLT in school would affect the pupils' use of the language outside school. Question 11 asked if the pupils read English outside school, question 12 if they

write English outside school. The two questions were split into an A and a B-part. The A-parts ask if the pupils read/write English in connection with traditional media (letters, books, magazines, and the like). The B-part asked if they read/write using network technology (Web-surfing, e-mail, chatting, and the like). Table 4.5 below presents the results from the A-questions.

Table 4.5: Reading and writing English, traditional media

Class	Score
Røyse class	2.68
Vik class	2.91
Eydehavn class	2.66
Stokken class	2.43
Aurdalslia class	2.72
Søreide class	2.22
Average, ICT classes	2.68
Average, non-ICT classes	2.52

It appears from table 4.5 that except from the Røyse/Vik classes, there is a slight tendency for the ICT-classes to read and write more in the traditional way, outside school.

Figure 4.5 below shows these results in graphic form.

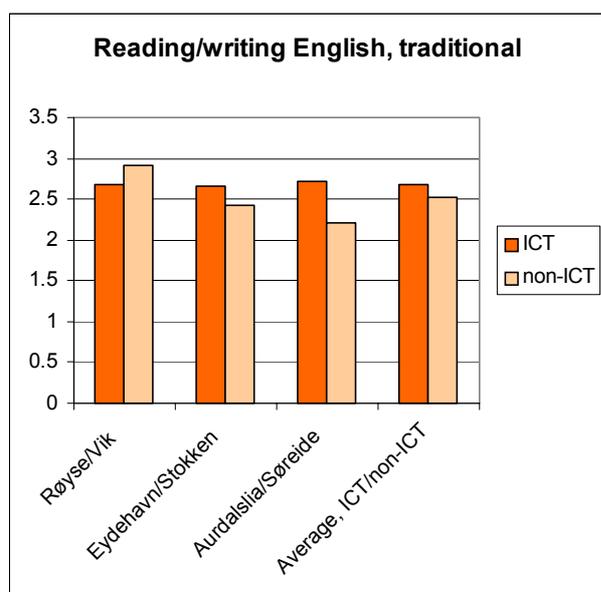


Figure 4.5: Reading and writing English, traditional media

The results from the B-questions are presented below in table 4.6.

Table 4.6: Reading and writing English, network technology

Class	Score
Røyse class	3.15
Vik class	3.04
Eydehavn class	2.31
Stokken class	2.10
Aurdalslia class	2.65
Søreide class	2.31
Average, ICT classes	2.70
Average, non-ICT classes	2.48

Table 4.6 indicates that this tendency for the pupils from the ICT classes to read and write more applies to reading and writing using network technology as well. This is so in spite of the fact that more pupils from the non-ICT classes had access to a networked computer at home.

Figure 4.6 below presents the results graphically.

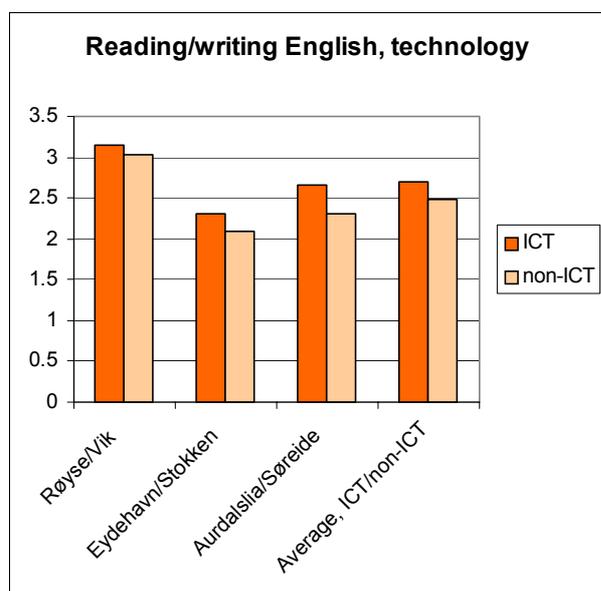


Figure 4.6: Reading and writing English, network technology

Table 4.7 below presents the results from the four parts (questions 11 A and B, and 12 A and B) put together.

Table 4.7: Reading and writing English outside school

	Average, ICT classes	Average, non-ICT classes
Reading, traditional media	2.88	2.70
Reading, technical media	2.88	2.69
Writing, traditional media	2.50	2.29
Writing, technical media	2.54	2.14

The results show that the most marked difference lies in the *writing with technology*. As already mentioned, fewer of the pupils from the ICT-classes had access to the Internet at home. Still, they write more e-mail messages and the like in English outside school than the other pupils do.

These results are presented graphically in figure 4.7 below.

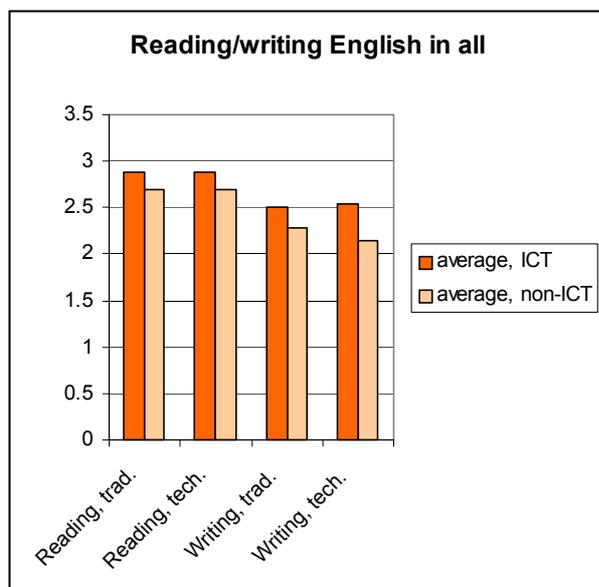


Figure 4.7 Reading and writing English outside school

4.2.5 Question 13: Speaking English

This question was included as a kind of control question. The amount of English spoken outside the classroom will necessarily be determined to a large part by how many people in the pupil's circle of acquaintances are English-speaking, and to whom the pupil has the opportunity

to actually talk. This factor is not affected by the methods of teaching implemented at school. The expected outcome of this question was therefore that there should be little or no difference between the ICT and the non-ICT classes in the amount of English spoken outside school. The purpose of including this question was to check the reliability of the answers given to the questions about reading and writing in English (questions 11 and 12). If the prediction that there should be no differences between the ICT and the non-ICT classes on the question of speaking English proved to be correct, then there is a greater probability that the differences found in the amount of reading and writing English were caused by the differences in language learning methods. The results are presented below in table 4.8.

Table 4.8: Speaking English outside school

Class	Score
Røyse class	2.5
Vik class	2.64
Eydehavn class	2.75
Stokken class	2.6
Aurdalslia class	2.7
Søreide class	2.81
Average, ICT classes	2.65
Average, non-ICT classes	2.68

As can be read from figure 4.8, the prediction was correct. There is no difference between the ICT and the non-ICT classes in the amount of English spoken outside the classroom.

Figure 4.8 below presents these results graphically.

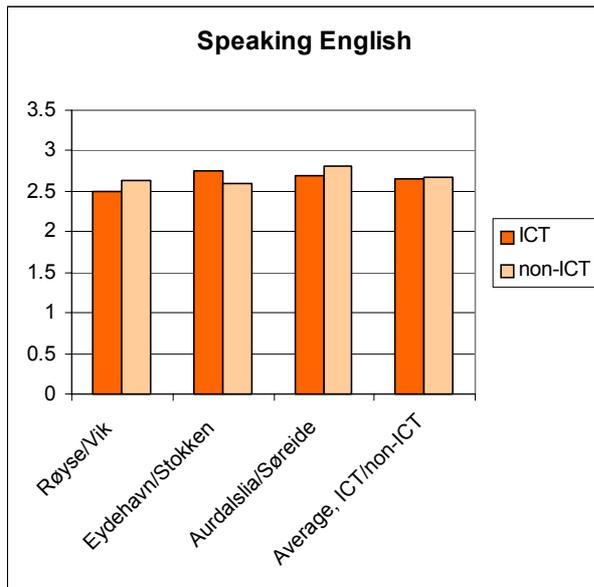


Figure 4.8: Speaking English outside school

4.2.6 Questions 15: Usefulness in everyday life

The purpose of this question was to see if there were differences between the classes in the pupils' perception of the usefulness of knowing the English language in their everyday life outside school. Table 4.9 below presents the results.

Table 4.9: Perceived usefulness in everyday life outside school

Class	Score
Røyse class	3.91
Vik class	3.93
Eydehavn class	3.69
Stokken class	3.50
Aurdalslia class	3.22
Søreide class	3.31
Average, ICT classes	3.55
Average, non-ICT classes	3.56

As shown by table 4.9, there is no difference in the perceived usefulness of the language in the pupils' everyday life.

These results are presented again in graphic form in figure 4.9 below.

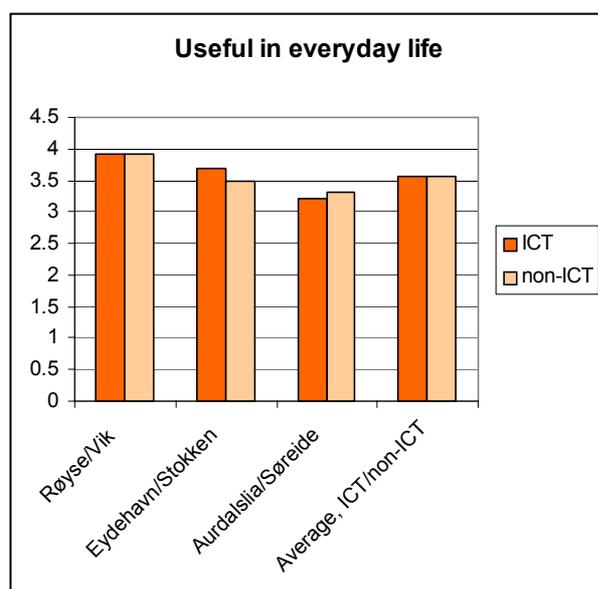


Figure 4.9: Perceived usefulness in everyday life outside school

4.2.7 Question 16: Imagined usefulness in the future

This question sought to reveal any differences in the pupils' recognition of the future value of their knowing English. This tells us something about their attitudes towards the language. The results are presented below in table 4.10.

Table 4.10: Imagined usefulness in the future

Class	Score
Røyse class	4.76
Vik class	4.71
Eydehavn class	4.56
Stokken class	4.60
Aurdalslia class	4.35
Søreide class	4.63
Average, ICT classes	4.54
Average, non-ICT classes	4.64

The difference between the classes is, as shown by table 4.10, minimal on this question.

Figure 4.10 below displays these results graphically.

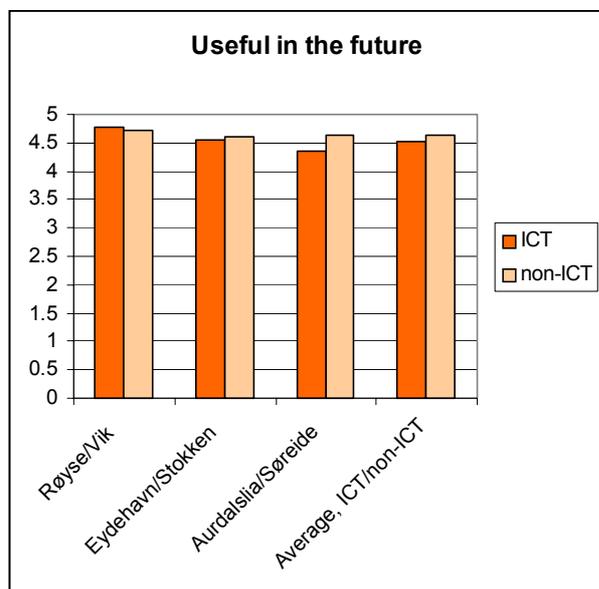


Figure 4.10: Imagined usefulness in the future

4.3 The open questions

The pupils' questionnaire contained three open questions, nos. 7, 8, and 14, concerning the activities in the classroom (see Appendix 1). They were included to shed further light on the question of motivation, and to give the pupils an opportunity to express themselves more freely on the issue.

The responses were categorised and analysed to see if any answers would gain distinction. The answers were grouped into the following six categories:

- ICT-related (chatting, e-mail, web-use, ICT-related projects, etc)
- Games (children's games, board games, etc)
- Other written activities (exercises, letters, stories, etc)
- Other oral activities (dramatisations, discussions, etc)
- Listening and/or reading activities (listening to tapes/CDs, reading aloud, reading silently, etc)
- Other activities

The results are presented in the sections below.

4.3.1 Question 7 - What is most fun

This question generated 178 answers, distributed as presented in table 4.11 below.

Table 4.11: Answers to question seven in the pupils' questionnaire

Type of activity	Number of answers	Percent of answers
ICT-related	61	34
Games	26	15
Other written activities	22	12
Other oral activities	14	8
Listening and/or reading activities	28	16
Other activities	27	15
Total	178	100

Keeping in mind the fact that not all the classes were involved in ICT-related activities in their English lessons, there is no doubt that these activities were popular among the pupils who participated in them.

4.3.2 Question 8 - What is most boring

This question produced 122 answers. The answers were distributed as described in table 4.12 below.

Table 4.12: Answers to question eight in the pupils' questionnaire

Type of activity	Number of answers	Percent of answers
ICT-related	7	6
Games	0	0
Other written activities	49	40
Other oral activities	3	2
Listening and/or reading activities	30	25
Other activities	33	27
Total	122	100

Only seven of the 122 answers to what were the most boring activities were ICT-related. In addition, it is worth noticing that the pupils who gave ICT-related answers to this question all mentioned another ICT-related activity as being the most fun in question 7.

4.3.3 Question 14 - Mention some activities

The question of activities at school where knowing English is useful generated 78 answers. As many as 56 of these were ICT-related, despite the fact that not all classes were engaged in such activities. The answers were distributed as presented in table 4.13 below.

Table 4.13: Number of answers to question 14

	ICT-related answers	Other answers	Total no. of answers
ICT classes	45	7	52
Non-ICT classes	11	15	26

Part of the reason for asking this question was to see if there were differences between the classes in the number of answers the pupils were able to come up with. The analysis showed that there were 52 answers from the ICT classes (45 of which were ICT-related), and only 26 answers from the non-ICT classes (11 of which were ICT-related).

4.4 Additional findings

In this section, a few additional findings considered to be of interest with regard to the research questions will be presented. In addition to the analyses that are already presented, the data was also analysed to see if there were any differences between boys and girls in relation to the motivational aspects of NBLT (section 4.4.1). The answers to the teachers' questionnaires were also compared to see whether any interesting differences could be revealed (section 4.4.2).

4.4.1 Differences between boys and girls

The analysis of the differences between girls and boys revealed that the girls generally express more positive attitudes towards the English lessons than do the boys, but this applies to both ICT and non-ICT classes. No important differences were found between the ICT and non-ICT boys and girls, except from the fact that all the pupils reported that they wrote more using traditional media than technological ones, except the boys from the ICT classes, who reported writing more using technological media, as presented in table 4.14 below.

Table 4.14: Sex differences in writing English with traditional and technological media

	Traditional media	Technological media
Girls, ICT classes	2.71	2.46
Girls, non-ICT classes	2.40	2.25
Boys, ICT classes	2.29	2.61
Boys, non-ICT classes	2.17	2.04

Figure 4.11 below presents these findings graphically.

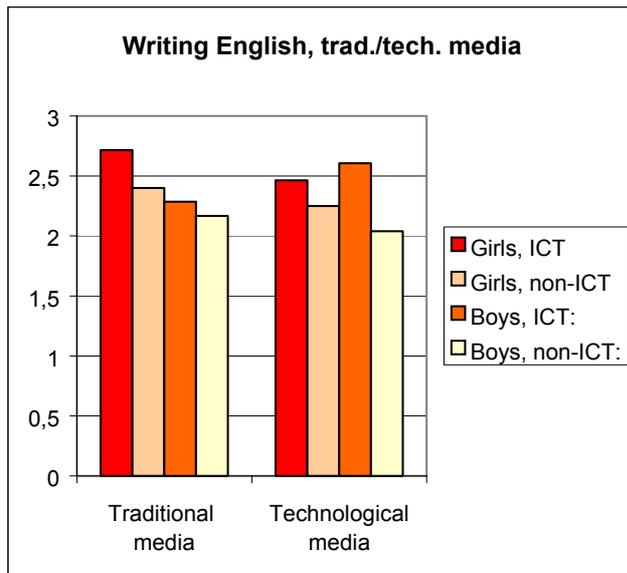


Figure 4.11: Sex differences in writing English with traditional and technological media

This implies that although the girls from the ICT classes wrote as much English as the boys, or even more, outside class, they did not make use of the new media outside the classroom to the same extent as did the boys. In this respect, the NBLT seemed to favour the boys more than the girls. However, this favouring of the boys does not apply to any of the other questions. Overall, the girls seem to be motivated by the NBLT just as much as the boys.

4.4.2 Observations from teacher's questionnaire

The teacher's questionnaire was designed to document the differences in computer use between the ICT-classes and the non-ICT-classes. In addition, there were questions concerning various other parts of the teaching situation, eg the communication in the classroom, the use of audio-visual and other teaching aids, the use of traditional textbooks, etc (see Appendix 2). All the answers were analysed and compared to reveal any differences between the classes.

The differences in ICT use were more or less as anticipated. With the exception of Søreide skole, which had carried out a short project where computers had been used for information gathering, the non-ICT classes reported no computer use in the English lessons. All the ICT classes, on the other hand, reported using computers both for communication, for information gathering, and for presentations.

Two other observations are worth mentioning. The first is the fact that the class from Røyse skole used NBLT *instead of* the ordinary textbook, while the other two ICT-classes used it *in addition to* the textbook. Next, English was used in cross-curriculum projects in all the ICT-classes, and none of the non-ICT-classes.

4.5 Discussion of results

The goal of this investigation was to reveal how NBLT affects pupils' motivation to learn the English language. My assessment of the pupils' motivation is based on Gardner's (1985:10) definition of motivation described earlier in section 1.3. Gardner emphasises the effort expended in trying to learn the language, the desire to learn the language, and the attitudes towards learning the language in his description of the motivated individual.

The results of the investigation show that pupils who were subjected to NBLT express more positive attitudes towards learning the language than do pupils in the traditional classes. The pupils in the NBLT classes found the lessons more fun, and a greater number of pupils would like to have had more English lessons. The NBLT pupils also seem to put greater effort into achieving the goal of learning the language, as they report spending more time on school-related work in English outside the English lessons than do the other pupils. When it comes to the pupils' desire to learn English, this is difficult to assess. However, their actual use of the language in their daily lives outside school and the extent to which they feel that knowing the language is, or will be, useful to them might be said to serve as a measurement of the pupils' incentive to learn the language. As we have seen, there is a tendency for the pupils in the NBLT classes to use the language more outside school. Their assessment of the language's usefulness to them does not differ, though, which indicates that this is probably determined to a large extent by factors other than the teaching methods employed in school.

The investigation shows that the pupils display an overall positive attitude towards ICT-related activities. This is in concordance with Warschauer's (1996b:9) findings discussed previously in section 2.3. Warschauer (1996b:10) emphasises the importance of integrating the computer work into the goals and structure of the course. He states that the best results in relation to NBLT's motivating effect are achieved when online activities are well integrated into the ongoing structure of students' assignments and interaction rather than included as an

informal add-on. Warschauer's statements fit well with the results of the present study, as the school that scored highest on motivation throughout the survey was Røyse skole, the one school that had totally abandoned the textbook in favour of NBLT.

The results of this study also reveal that the girls and the boys are equally motivated by NBLT. However, this does not mean that both sexes are equally intrigued by the same aspects of this approach. According to Dalen Halvorsen (1999:51), boys are especially interested in computer games, the World Wide Web, and the technical features of the computers, while the girls are more concerned with the communicative aspects. This is in agreement with Grøndahl's (1999:5) observations from Røyse skole and with the conclusions of Tella (1992:89), both discussed earlier, in section 2.5.1.

When asked to mention activities in school where knowing English is useful to them, the pupils from the NBLT classes returned almost twice as many answers as the pupils from the traditional classes. This is probably because in the NBLT classes, English is not merely used in order to learn the language, as is the case in the typical, traditional EFL classroom. In the NBLT classroom the language is used for a real purpose. It becomes a means of communication and information gathering, an essential tool for the pupils to utilise in their work on projects and tasks. According to Warschauer (1995:99), more non-native than native speakers use English on a daily basis to do business, conduct research, access academic information, communicate with friends and colleagues, etc. With an estimated 85% of the electronically stored information in the world being in the English language (Crystal 1997; in Shetzer & Warschauer 2000:171), there has become an overlap between English language learning and the ability to profit from the new online media in research and project work. It is interesting to note that in all the NBLT classes involved in the present study, English was used in this kind of cross-curriculum work, while in the traditional classes, English was taught isolated from the other subjects, and, thus, far removed from these authentic and dynamic uses. This clearly indicates what Grøndahl (1999:5-6), too, noted in her evaluation of NBLT at Røyse skole, viz the important role that NBLT can play in giving the subject of English a more central and important position among the subjects in Norwegian schools today.

5 SUMMARY AND CONCLUSIONS

From the review of some of the available literature on the subject, and the results of the conducted investigation, it seems fair to conclude that NBLT has the potential of increasing pupils' motivation for language learning, compared with the traditional language classroom. However, the word 'potential' is the essential word in this context. It is important to realise that the network technology does not constitute a method of teaching, any more than books or the library does. As Ortega puts it: 'It is not computers per se that can be beneficial or harmful, but the use we put them to. The newest technologies can be made to serve the most traditional pedagogies'.

According to Warschauer & Meskill (2000), research has shown that simply bringing new machines into an institution does little to bring about the changes in organisation and practice needed to make effective use of those machines. There is a tendency to use the new technology in ways consistent with the established practice. This often results in inefficient or even demotivating use of the technology, in which pupils see their interpersonal connections and personal influence reduced rather than increased. Bakke & Millar (2000:29) state that if a teacher aim to use the Net as part of a traditional teaching programme, then that teacher is in danger of falling through from the start.

The key to successful implementation of NBLT, then, lies not in hardware or software, but in "humanware", ie the teacher's ability to plan, implement, and evaluate effective pedagogical uses of the technology. When all this is said, the fact remains that appropriate use of the network technology allows for a more thorough integration of language, content, and culture than ever before, and provides pupils with unprecedented opportunities for authentic communication and autonomous learning. In addition, NBLT allows pupils to engage in the types of online communication and research which is likely to be essential for success in their academic and professional pursuits.

5.1 Weak and strong points of the investigation

In the course of writing this thesis, I have become aware of both weak and strong points of the conducted investigation. The results of the investigation corresponds largely to results from previous investigations in the same area of research (eg Warschauer 1996b; Meskill & Ranglova 2000). This, in addition to the fact that all my informants responded to the questionnaire, supports the validity of the results. However, caution should be exercised in generalising from the results, because of the small number of classes participating in the survey, which is one of the weak points of this investigation.

Another weak point of the study is related to what was stated above about how NBLT does not constitute a particular method or approach, but can be used to support totally different approaches to language learning, depending on how it is implemented in the classroom. As none of the classes were observed in the learning situation, I do not know enough about *how* the technology was being used, except that it was used for communicating with pupils in other countries, mostly via e-mail or chatting. I know little about how well integrated into the syllabus the network-based activities were, and little about the context in which the communication was performed, whether the communicative activities were task-based or based on pen pals, etc. Had the investigation procured more information of this kind, the results would have been more interesting and valuable to language teachers interested in making use of the new technology in their own classes.

5.2 Possible future research

As NBLT constitutes a relatively new area of research, more studies are needed that compare NBLT with other approaches to language teaching. However, such research should also monitor and document other aspects of the learning situation, such as teaching style, degree of integration of the network-based activities into the syllabus, etc, and concentrate on particular approaches to NBLT instead of NBLT in general. In this way, the research might be useful in describing which approaches to NBLT are effective in enhancing motivation and language learning, and which are not. The research should perhaps also focus more directly on the

learning outcome of the activities, eg cultural knowledge, communicative skills, language acquisition, etc, in order to show what types of NBLT supports what kinds of learning. In addition, different research strategies, such as observation, self-report data (eg questionnaires or think-aloud protocols), and computer-collected data of linguistic outcomes, should be combined to enhance the validity of the studies.

Network technology is most likely going to be an inevitable part of the foreign language classroom of the future. There is thus a need for more research that compares different formats of CMC used in language learning, and research that compares different approaches to communication and language learning within the same format, eg by manipulating tasks or activity types. Such research would be of great practical value as a guide for language teachers and others involved in designing NBLT tasks and activities.

The different formats of CMC are themselves evolving and changing. The trend is moving towards a merger of several formats, including multimedia formats such as sound, moving pictures, and video clips. One possible future of NBLT lies in joining the most advanced forms of cognitive CALL with today's sociocognitive CALL, ie adding communication (sociocognitive CALL) to virtual reality microworlds (cognitive CALL) to create three-dimensional, networked, cross-curriculum, cooperative virtual learning environments with open sound communication. This technology will allow pupils to engage in new kinds of collaborative problem solving using oral CMC. Such task-based, cooperative learning through 3DVR, multimedia networks is already becoming a reality in Norwegian schools⁶, although the technology is still in an experimental stage, and for the time being, much too expensive for schools to purchase. Should this kind of network-based teaching win through, though, it will probably generate research in hitherto unexplored areas of NBLT, such as research on language learning through oral CMC and language learning in 3DVR environments.

⁶ See eg the EDU-action project (<http://amt.fou.telenor.no/EduAction/>) between Ringstabekk skole in Bærum and Nordberg ungdomsskole in Oslo.

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