UNIVERSITY OF JYVÄSKYLÄ

TALKING HEADS?

Integration of Desktop Conferencing

into a Language Classroom

A Pro Gradu Thesis

by

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Tutkimuksen kohteena on kolmen Jyväskylän ala-asteen yhteiskokeilu, jossa tavallista kouluopetusta täydennettiin etäopetuksella. Koulujen ranskan kielen opetusryhmät yhdistettiin desktop videoneuvottelun avulla yhdeksi ryhmäksi, jonka opettaja oli vuoroviikoin eri kouluilla. Opetustilannetta kuvaillaan mahdollisimman kokonaisvaltaisesti, vaikkakin lähinnä opettajan näkökulmasta. Tutkielmassa selvitetään uuden teknologian vaikutusta luokka-huonetilanteiden hallintaan, vuorovaikutukseen ja kommunikaatioon, sekä oppijan autonomi-an merkitykseen.

Materiaali kerättiin havainnoimalla tunteja ja haastattelemalla ranskanopettajaa. Opettajan teemahaastattelun rungoksi otettiin edellämainitut tutkimusalueet. Opetustilanteista tehdyt havainnot yhdistettiin haastattelumateriaaliin, joka järjestettiin tutkimuskysymysten mukaisesti. Lopuksi tutkielmassa pohditaan taustakirjallisuuden avulla, miten vastaavia opetusjärjestelyitä voitaisiin tulevaisuudessa kehittää.

Desktop videoneuvottelutekniikassa havaittiin joitakin puutteita, joista osa kuitenkin korjattiin jo kokeilun aikana. Ongelmallisia tilanteita syntyi enimmäkseen videoneuvotteluyhteyden katkeamisesta ja huonosta ääniyhteydestä. Opettaja piti tärkeimpinä työkaluinaan jaettua valkotaulua ja dokumenttikameraa, joiden sujuva hallinta vaati kuitenkin melko paljon harjoittelua. Tuntien suunnittelussa opettaja painotti joustavuuden tärkeyttä, sillä ajankäytön arvioiminen oli vaikeaa ja tekniset ongelmat mahdollisia. Luokkatilanteen hallintaan ää-niongelmat vaikuttivat eniten, sillä huono kuuluvuus tai jopa yhteyden katkeaminen vaikeutti kommunikoinnin sujuvuutta. Opettaja piti kuitenkin telemaattista parityötä hyödyllisenä työmuotona. Pari- ja ryhmätöissä vaikeutena oli työn etenemisen valvominen, jota ala-asteikäiset oppilaat tuntuivat vielä tarvitsevan. Videoneuvotteluyhteydessä oppilaiden häiriköinti vaikutti tunnin kulkuun enemmän kuin tavallisessa luokkahuonetilanteessa. Opettajan mielestä yksittäisen oppilaan huomioiminen oli vaikeaa, vaikka kasvoista kasvoihin näkeminen joka kolmas viikko auttoikin asiaa. Kirjallista palautetta oli opettajan mukaan helppo antaa oppilaiden tehdessä tehtävät henkilökohtaisiin kansioihinsa tietokoneelle. Opetus oli opettajakeskeistä, joten opettajan ja oppilaiden välisen yhteyden katkeaminen vaikutti oppilaiden työmoraaliin. Useimpien ala-asteikäisten mielenkiinto tehtävien tekemi-seen lopahti kun opettaja ei sitä valvonut.

Tulosten perusteella oppilaan autonomisuus näyttäisi olevan tärkeä tekijä etäoppimisen etenemisessä ja sitä pitäisikin kehittää teknologiataitojen rinnalla. Työmenetelmät voisivat olla oppilaskeskeisempiä, jolloin opettajalle jäisi aikaa olla muutakin kuin pelkkä puhuva pää kuvaruudulla. Oppilaiden tehdessä yhteistoiminnallisten periaatteiden mukaan järjestettyjä tehtäviä tai projekteja, opettaja voisi keskittyä lähiryhmänsä kanssa esimerkiksi ääntämis- ja puheharjoituksiin. Desktop videoneuvottelun avulla tapahtuva opetus on etäopetuksen ja tavallisen luokkahuoneopetuksen välimuoto, joten työmenetelmiä ja opetusmateriaaleja tulisi kehittää sen ominaispiirteisiin sopivaksi.

Asiasanat: co-operative learning, desktop conferencing, distance education, language learning, learner autonomy, videoconferencing

CONTENTS

INTRODUCTION

The impression most of us have about learning and teaching is that they take place in classrooms. However, for the needs of those who are unable to attend regular classroom-based instruction, a variety of choices for learning at a distance already exist today. The reasons for choosing distance education, and, especially, the means through which it can be carried out have changed radically over the last decade. Instead of correspondence courses, distance education today means applying new information and communication technologies for instructional purposes. New technologies and networking enable creating new kinds of flexible and open learning environments, where the learner should be able to learn more independently and efficiently than in a traditional classroom. The ideal learner, according to the constructivist learning paradigm, is the learner who assumes an active role in processing information and takes responsibility of his or her own learning.

However, application of new technology does not guarantee an innovative concept of learning. The traditional behavioristic approach to learning can be applied to technology-based education as has been the case in many of the earlier Computer-Assisted Language Learning (CALL) programmes with drilling exercises. Although pedagogical questions related to applying new technologies were not answered, there is more and more pressure on the schools to keep up with progess and offer equal skills for the learners to survive in the so called information society. Teachers are usually the ones who are expected to take the innovations into the classrooms, although they did not possess the knowledge and skills called for. When the technological aids do not make miracles, teachers are confused and possibly ready to abandon them. The Internet, CD-Roms and language learning programmes are often used as an additional entertainment for the pupils. The teaching is not reorganised to suit the special characteristics of the technology applied, but the technology supports traditional classroom practices. With the help of educational technology, constructing a more open learning environment that supports learner independence could be possible, but developing it to the needs of different learners

and integrating the technology into traditional classrooms remain difficult.

The main goal of this study is to describe what happens in three primary school classrooms united by desktop conferencing technology. This study concentrates on the teacher's point of view. It aims at describing the learning situation as a whole so that the findings could be useful to anybody planning to use desktop conferencing. In addition, this study views the learning situation in the light of the prevailing pedagogical approaches. Related to this is the goal of finding possible ways to develop pedagogical practices in classroom-focused desktop conferencing. In this study, I describe both advantages and disadvantages, trying to find factors that would be meaningful for developing a pedagogy for a new learning environment like desktop conferencing.

The theoretical framework of this study is a compilation of different educational approaches. Since the objective is to gain a holistic view of managing a desktop conference, the background also has to deal with various issues that relate to understanding, describing and developing this new means of education. The background section consists of four parts. The first deals with the concept of distance education introducing desktop conferencing and the notion of learning environment. The second part gives an overview of the related pedagogical issues. Topics included in this part are learner autonomy and co-operative learning. Furthermore, the special interests of language pedagogy will be explored. The third part gives a more practical overview of what happens in a classroom, with a particular emphasis on language classrooms and the role of the teacher. The fourth part brings up earlier experimentations which share some features with the case under study here. After the background section, the case and the research design will be presented. The findings combine my observations and the teacher's experiences on desktop conferencing during the first year of the project. This section is organised in accordance with the topics included in the background, although there are some exceptions. The discussion summarises the experiences gained during the project and draws on the issues presented in the background section to find possible future solutions to enhancing this form of education.

1 DISTANCE EDUCATION AND OPEN LEARNING

1.1 Definitions

Distance education is by no means a recent innovation. New technology in the form of reliable mail service enabled the initiation of correspondence education in the mid-1800s. However, academic research in this domain has been introduced fairly recently. It was as late as by the early 1970's that the theoretical foundation was laid for distance education as an independent field in educational research (Keegan 1990:7). Keegan (1990:92) refers to Daniel (1979) who lists three sources for the emergence of distance education: "a long tradition of independent study; modern developments in the technology of education; and new theoretical interest in open learning". Distance education thus originates from a combination of different areas of study. Keegan (1990:7) regards distance education as a distinct educational field with links to educational technology, adult education and the study of non-traditional/open systems.

The term *open learning* is often used to refer to distance education. Bates (1995:27) clarifies their difference arguing that open learning is "primarily a goal, or an educational policy" whereas distance education is "one means to that end". Lewis and Spencer (1986:9-10) define open learning as "a term used to describe courses flexibly designed to meet individual requirements". Open learning is often applied to situations where there are barriers that exclude the possibility of attending more traditional courses, but it also suggests a learner-centred philosophy. These characteristics could also describe distance learning, but there exists an important difference. Lewis and Spencer (1986:17) argue that distance learning usually implies geographical distance between learner and providing institution whereas open learning schemes can be attended by full-time students in institutions as well. As to the hierarchical relation of these two concepts, Lewis and Spencer (1986:17) define distance education as a subcategory of open learning. Holmberg (1989:2) refers to Dewal and Foks who object this to view. Dewal (1986) claims that distance

education institution can be an open institution but not necessarily: open education is a structural change with respect to time, place, content and mode of learning. According to Foks (1987), open learning is a state of mind when compared to distance education with certain characteristics differentiating it from campus-based learning. However, Holmberg (1989:3) states that the distinction between open and distance learning is blurred in the usage today.

Terms *distance teaching* and *distance learning* are often used interchangeably with *distance education*. Keegan (1983:29) defines distance education as including both distance teaching and learning. Keegan (1990:44) presents the following five characteristics as essential to defining distance education: 1) the quasi-permanent separation of teacher and student, 2) the influence of an educational organisation both in the planning and preparation of learning materials and providing student support, 3) the use of technical media to unite teacher and learner, 4) the provision of two-way communication, 5) the quasi-permanent absence of the learning group apart from occasional face-to-face seminars. Holmberg (1989:3) defines the term *distance education* as covering "the various forms of study at all levels which are not under the continuous, immediate supervision of tutors present with their students in lecture rooms or on the same premises but which, nevertheless, benefit from the planning, guidance and teaching of a supporting organization". Holmberg's definition is somewhat narrower in comparison with Keegan's. Both definitions deal with the physical separation of teacher and learner and the support of an educational organisation, but Keegan adds to this the aspect of the media used in distance education.

1.2 Means of distance education

Henri (1993:86) states that the most important challenges distance education has been able to meet are increased accessibility of education to a greater number of people and a certain democratisation of learning. Consequently, he justifies the use

of media and communication technology by saying that it serves the goal of better accessibility. In addition to the access view, there is another view concerning the evaluation of distance education, namely that of quality. According to Husu (1996:140), there are two kinds of access issues. Firstly, teaching and studying methods are explored to find appropriate ones for the medium used, and, secondly, technologies that suit a classroom environment are developed. These issues form a basis for the quality aspect; if distance education is accessible enough, quality dimensions can be taken into consideration. Husu maintains (1996:141) that "the quality of distance education is a relative rather than an absolute term and it depends on both the technologies used and the attitudes and experiences of the persons who use those technologies".

There are plenty of studies where different media used in distance education have been compared in relation to their effectiveness. According to Willis (1994:42), these studies, which most often compare traditional face-to-face to mediated instruction, do not reveal any significant difference in student achievement, attitudes and retention. On the basis of these results, media comparison studies are no longer as numerous as before. Sherry (1996) points out that the variety of different media available is also a problem for researchers. Comparisons between, for instance, print-based independent study courses, projects on the Internet and audioconferencing could not be expected to be valid.

Distance education can be mediated through a variety of different means. They vary from correspondence courses and educational television programmes to multimedia conferencing. Bates (1995:23) argues that there are three generations of distance education. Correspondence courses are an example of the first using predominantly only a single technology. One characteristic of the first generation distance education is the lack of direct interaction between the student and the teacher. The second generation is based on a multiple-media approach, but it still lacks two-way communication. Broadcast media, such as instructional radio or television programmes exemplify the media of this generation. On the contrary, direct interaction between the remote student and the teacher, and possibly between students as well, is typical of the third generation distance education. For example,

in audio conferences the teacher and the learner have the possibility for real-time communication.

Modern distance education, as compared to broadcast media for example, is characterized by interaction, which is an important factor in assessing the quality of a distance learning situation. Willis (1994:46) divides interaction into two categories. *Individual interaction* means interaction between the student and course information whereas *social interaction* takes place between the student and the teacher or other students. Interaction most often refers to the latter definition. Social interaction can be *synchronous* (real-time, live and conversation-like), for example, through using two-way audio or video. It may also be *asynchronous* (delayed), as in the case of correspondence courses.

Traditional distance education uses asynchronous media, but new interactive technologies even allow replicating the traditional classroom experience. They also make it possible to use the existing courses. Although live on-air interaction may not necessarily be the most important factor for student outcome, Willis (1994:48) maintains that "live, interactive learning is what we are familiar with, it's 'school' ". Thus it may take time for distance education to evolve out of the preconceived ideas of what education should be, to become an entity unto itself. One of the means to create a synchronously interactive distance classroom is desktop conferencing.

1.3 Desktop conferencing

The most recent tools for distance education combine different media and are most often supported by computers. Benigno and Trentin (1997:32-33) use the term *CMC* (*computer mediated communication*) to refer to media in which computers are used. The most important characteristic of CMC is its capacity to reproduce interpersonal communication; one-to-one, one-to-many and many-to-many interaction. The terms *computer conferencing*, *teleconferencing* and *audio/videoconferencing* may sometimes be used as synonyms although their

relations are more complex. Teleconferencing is a more general term that embraces the two others. Computer conferencing is based on the written word whereas audio/videoconferencing (or simply videoconferencing) links its users through both audio and video channels. (Benigno and Trentin 1997:32-33.)

Willis (1994:165) points out that "the amalgam of both visual images and sound in one highly sensory medium makes video a versatile and appealing ingredient in the array of instructional technologies available to the distance educator". In addition, Willis (1994:189-190) lists three primary advantages of videoconferencing. Firstly, it allows an increased access to human resources, in other words time, distance and travel are no longer a hindrance to face-to-face teaching. Secondly, videoconferences enable participants to be in multiple locations at the same time and to acquire the same information collectively. The third advantage is the convenience and cost-effectiveness of the method when compared to travelling.

There are different types of videoconferencing systems the choice of which depends on the size of the audience. According to Saba (1997), satellite videoconferencing is for larger groups (hundreds to thousands of viewers), room videoconferencing systems are for groups of 25 to 50, and personal videoconferencing units are used for more individual purposes such as counselling and interviewing. Saba (1997) shows the difference in cost-effectiveness as well: a satellite-based videoconferencing costs millions of dollars, and thousands of dollars are needed for room videoconferencing systems, whereas a desktop conferencing station adds only a few hundred dollars to the cost of a personal computer. Videoconferencing does not depend on computers, but, if the system is connected to a workstation, the technology is called *desktop conferencing*, or as in Saba's (1997) definition: personal videoconferencing. In addition to the functions of videoconferencing, i.e. carrying interlocutors' voice and image, desktop conference stations allow, among other things, transferring files, sharing screens and software applications. Since different communication channels (sound, audio, graphics, text) can be used simultaneously, desktop conferencing is also called *multimedia conferencing*. (Benigno and Trentin 1997:33.)

The range of options available for distance education technology is wide.

Educators can choose between synchronous and asynchronous media, for example, or they can combine them. Desktop conferencing enables a two-way transfer of sound and data, and a videoconference connection, which makes it an attractive technology for the needs of classroom-focused distance education. When a suitable technology for a particular educational purpose has been found, there still remain the questions related to the choice of pedagogical and didactic approaches.

1.4 Learning environment

The concept *learning environment* is used in a variety of contexts today. In some cases, it may even refer to a traditional classroom environment. However, the concept is closely related to the development of distance education and the use of educational technology, which allow instruction to expand outside the traditional classroom. Sariola (1998:25) relates the idea of learning environment to open study: "The open learning environment is seen as an environment for the teacher's and pupil's activities within which learning is seen as an active process in a multi-information, co-operational network environment." He also claims that this openness is often associated with telematic networks, and with learning independently of time and place.

Wilson (1995:25-26) regards *environment* as a new metaphor for instruction, which complements the established ones, of which he lists four commonly used metaphors. The most common is the *classroom* metaphor, which defines instruction as something that takes place in classrooms during a certain period of time and is led by a teacher. Second, the *product delivery* metaphor regards instruction as "a package to be exported from its production site to its delivery site". Third, *systems* definitions view instruction as a whole consisting of "inputs and outputs, interlocking mechanisms, and self-correcting feedback and maintenance". Fourth, the *process* metaphor is described as "the flip side of systems models -the systems models identifying the structure and the process models identifying the flow through

that structure". The systems and process metaphors are a way to describe the dynamics of instruction.

Wilson (1995) maintains that the idea of a learning environment relies on constructivist ideas of instruction, which is why it attracts today's instructional designers. A learning environment as defined by Wilson (1995:26) consists of two elements at a minimum: the learner and the setting where s/he acts, for example using learning tools, collecting information and interacting with other learners. The learners can set their own goals, decide on the learning activities, and they are provided with adequate support and guidance. A successful learning environment, where learners assume a greater role than in a traditional classroom, cannot be fully predefined. This may create a feeling of uncertainty and uncontrolledness. Another danger in instruction based on the environment metaphor is that an individual becomes isolated, although the ideal would be a learning community where individual activities are complemented by other learners' contribution. Wilson (1995:27) defines a constructivist learning environment as "a place where learners may work together and support each other as they use a variety of tools and information resources in their pursuit of learning goals and problem-solving activities".

Huttunen (1996:12) divides a classroom learning environment into three levels: physical, mental and social level. The *physical* level refers to the actual place where learning takes place and to learning materials, tools and technology available. The *mental* level reflects the educational approach behind the learning environment. It can be seen in classroom interaction and the central strategies used in the classroom. The *social* level relates to the roles the teacher and the learners assume. Learning to learn and the idea of learner autonomy are important issues on this level.

In a successful learning environment the learner and the instructor share power and co-operation between learners is supported. Creating a constructivist learning environment often means that the tools and information resources offered by educational technology are used. This is why the conept of learning environment is a kind of link between the possibilities offered by new technologies and pedagogical approaches.

2 PEDAGOGICAL FRAMEWORK

2.1 Constructivism

Pedagogical theories today are based on cognitive psychology, more specifically on the ideals of constructivism that have gained ground from the ideals of behaviorism. The behaviorist tradition regards the learner as a passive receptor of information (Tella 1994:32). The constructivist conception of learning means that advanced thinking skills and cognitive structures are acquired when the learner adopts an independent, active and processing approach to building up his/her knowledge and consciousness (Olkinuora 1994:65). The starting point for teaching should thus be the learner's way to construct his or her view of the world, since this is the way s/he will reconstruct the learning content. The objective of education based on constructivist conception is a learning environment that presents the learner with problems, tools, guidance and support. (Rauste-von Wright 1994:12.) However, changes take time. Tella (1996:40) claims that in teaching practices there remain relics of behaviorism which may even be regarded as characteristics of good teaching. Questioning those features is one of the goals of the new learning paradigm.

Benson (1997:21) states that constructivism in language learning "supports conceptions of language as the raw material of meaning". He maintains that language is seen as a means to construct subjective realities, not as a simple reflection of reality. This is why languages should be described in relation to the meanings in different interactions. Consequently, language learning is not only internalising structures and forms but constructing one's own version of the language to be learnt. The main emphasis is on creativity, interaction, engagement with the language, and negotiation of meaning.

As to the implications of constructivism, Tella (1996:40) argues that such fashionable concepts as *learner-centredness* and *learner autonomy* can be seen as a part of constructivist ideology. Willen (1984:3) notes that autodidactic learning has a variety of other names in research such as self-directed, self-initiated or self-

planned learning, non institutional learning and independent study. The fact that these terms are used interchangeably makes it difficult to recognize the meaning attached to them. Especially important in this study are the concepts *self-directed* and *autonomous learning*. Holec (1979:4) defines their difference fairly clearly: self-directed learning implies learner autonomy, but an autonomous learner is not necessarily a self-directed learner. In other words, the learner may be able to take charge of his or her own learning, but does not use the ability when learning. The concept explored here is learner autonomy, because it is the precondition for self-directed learning.

2.2 Learner autonomy

2.2.1 Definitions

There are a number of definitions of learner autonomy and different ways to promote it have also been suggested. Little (1997:94) points out that learner autonomy is not a new goal for schooling, since learners have always been expected to be able to exercise the skills learnt at school outside classroom as well. The difference is that only recently has learner autonomy become an explicit goal in education.

Holec (1979:7) maintains that learning is autonomous when two conditions are met: first, the learner has to be able to take charge of his or her own learning, and, second, "there must be a learning structure in which control over the learning can be exercised by the learner". A similar definition is given by van Lier (1996:13) who states that an autonomous learner "must be able to make significant decisions about what is to be learned, as well as how and when to do it. Further, the autonomous learner is responsible for learning as well as lack of learning, so long as adequate opportunities are available in the setting". Both definitions emphasise the learner's responsibility and also the meaning of the learning context. Compared to these two,

Little's (1997:94) point of view is more general: human beings are autonomous when they can perform a task 1) without assistance, 2) beyond the context of acquisition of the knowledge and skills and 3) flexibly. He maintains that learner autonomy entails two main concerns, namely the knowledge and skills that are the aim of learning, and the processes by which they are acquired. In other words, it is a matter of both learning and learning how to learn. The need for learning how to learn is implicitly included in the definitions above, but Little (1997) emphasises it as a goal of education.

Benson (1997:19) presents three different ways of looking at learner autonomy: technical, psychological and political. According to the *technical* versions, learner autonomy means learning that is not supported by an educational institution or a teacher. The most important question is how to give the learners adequate skills and techniques to be able to learn in such situations. *Psychological* versions understand autonomy as a capacity, which consists of attitudes and abilities, and enables taking responsibility for learning. Learner autonomy develops as a result of an internal transformation. *Political* versions stress the importance of learner control over both the learning process and the content. The main issue is how to ensure such conditions that this control would be possible.

2.2.2 Growth of learner autonomy

According to Nunan (1988:46), growth of learner autonomy results from learners being sensitised to the learning process through new learning experiences. He sees that these experiences, including new methods, materials and approaches, should be monitored to avoid experiences objected by learners. Furthermore, Nunan (1988:3) argues that, since everything cannot be taught in limited class time, choosing the aspects of the language which the learners themselves appreciate should increase student motivation.

Motivation is the most important factor for van Lier (1996:98) in the growth of

autonomy. He argues that in language learning, as in most other areas of life, there are different sources of motivation for different people. Some people like doing drills while others prefer role plays. Some learners are eager to discuss in a foreign language whereas others hate it. Van Lier (1996:99) divides motivation into *intrinsic*, which all learners possess as an innate ability, and *extrinsic* consisting of environmental factors, for instance norms set by the society. Van Lier (1996:113-116) explains that, in classrooms, the goal should be to find a balance between these two so that both the needs of an individual and the needs of the society would be taken into consideration. Intrinsic motivation in the classroom relates to the benefits of exploration and interest whereas sources of extrinsic motivation are usually external rewards such as grades or certificates. There is a danger that extrinsic rewards take over intrinsic aspirations and lead to the award-giver controlling learning. In this case extrinsic motivation could be a threat to learner autonomy.

Nunan (1997:192) claims that learning materials can be designed or adapted in a way that they promote learner autonomy. His basic assumptions include the ideas that autonomy is not an innate ability, but, to some extent, it is necessary for becoming an effective language user. Autonomy can be developed proceeding through different levels of autonomy. The extent of autonomy an individual can reach is dependent on his or her psychological and cognitive abilities as well as on the learning context.

Kasworm and Yao (1992:78-79) present a three-stage design model for developing adult learners' autonomy and self-directedness, which exemplifies the way autonomy can be acquired through teaching. The model is a continuum where the first stage is characterised by high instructor dominance and low student autonomy. At stage two, instructor dominance is moderate and the features of the third stage are low instructor dominance and high student autonomy. Huttunen (1990:41) points out that although autonomy has mostly been connected with adults and adult learning, it is important that the concept be introduced at an early age. Huttunen (1990) asks, how else it is possible that a person grows autonomous than by giving him or her a chance to practise the skills needed already as a child.

Nunan (1997:194-195) does not focus on adults only in his five-level model for

gradually developing learner autonomy. At the initial level, learners are made aware of the aims, content and learning strategies. At the second level, the learners are already more active making choices of the options given concerning content and procedures. Thirdly, the learners are encouraged to modify and adapt goals, content and tasks. The fourth step is that the learners will decide on the goals and content, and design the learning tasks independently. Finally, an autonomous learner continues creating his or her own material from the resources available in the community without the support of any formal learning arrangements.

Learner autonomy does not develop by itself. It is a difficult process to get learners, especially primary school pupils, to assume responsibility of their own learning. In order to gain this, the teacher needs to recognize that teaching learning strategies and skills is one of his or her responsibilities. To attain the educational goal of learner autonomy, learners need to have new learning experiences that would increase motivation, which again is one of the main conditions for the development of autonomy. In this study, the special features of the learning arrangements for desktop conferencing are viewed to find out whether they enable or even promote a more autonomous way of learning.

2.3 Co-operative learning

In addition to individual development as a skillful learner, pedagogical approaches today emphasise the meaning of social skills and ability to co-operate. New technologies offer different ways of promoting direct interaction even in distance learning contexts where it was not considered possible before recent innovations, which allow synchronous multipoint communication and sharing files and documents. The possibility for co-operation thus exists in technology-based education. The following chapter will deal with different theories of co-operative learning, which could be, according to Kohonen and Leppilampi (1994:99), a way to integrate and restructure the field of pedagogy if used on a regular basis.

Anne Vähäpassi (1998:53-67) gives an overview of four variations of co-operative learning which all share the basic features of the approach. The Learning Together approach developed by David Johnson, Roger Johnson and Edythe Holubec (1987,1990) emphasises positive interdependence among students, which is established by the teacher's face-to-face promotive interaction. To ensure that working in a group also develops individual performance, students are held individually accountable for their work. One precondition for learning in a group is social skills which have to be taught as well. Both the social and academic skills are analysed in group processing, which is one of the principal phases of Learning Together. However, Vähäpassi (1998:56-57) argues that this model still relies on a behaviouristic approach where the teacher sets the objectives and less autonomy is given to the groups.

Second, Vähäpassi (1998:57-60) presents the Structural Approach to Co-Operative Learning by Spencer Kagan (1994), which is "based on the creation, analysis and systematic application of structures, which are content-free ways of organising social interaction in the classroom". The approach has six key components. First, structures and activities are clearly divided; activities carry content but different structures can be used over and over again to exercise different skills. Second, the basic principles of Kagan's (1994) model are positive interdependence, individual accountability, equal participation and simultaneous interaction. Third, concepts *teambuilding* and *classbuilding*, which refer to the teacher's work in creating an encouraging and positive atmosphere, are considered important. The students should have a team identity, but they should also have the feeling of belonging to a bigger group, namely the class. Fourthly, Kagan (1994) emphasises the difference between groups and co-operative teams. The members of the latter have a strong team identity and stay together longer than more randomly formed groups. The fifth key element is the change needed in the management style of a co-operative classroom. Since the students talk and work together in groups, traditional whole class teaching style is no longer effective. The sixth key component is social skills, which are important in co-operative work and thus should be acquired. Vähäpassi (1998:60) claims that the Structural Approach to Co-Operative

Learning introduces practice before theory giving teachers practical hints instead of a theory.

The third method introduced by Vähäpassi (1998:61-62) is the Complex Instruction method developed by Elizabeth Cohen (1994). It underlines the importance of status issues in classrooms: high-status students interact and thus learn more than low-status students. The method offers two strategies to cope with this dilemma. First of these strategies is multiple-abilities treatment based on creating tasks for co-operative groups in a way that solving them demands a variety of skills. The students need co-operation since none of them has all the abilities needed. The second strategy is assigning competence to low-status students, which means that "the teacher recognises and makes a public statement about the work they have accomplished". According to Vähäpassi (1998:62), Complex Instruction differs from the two methods presented earlier in the question of authority. It delegates authority from the teacher to students by giving them clearly defined roles, which relate to encouraging discussion in the group and managing the work.

The fourth important model of co-operative learning summarised by Vähäpassi (1998:64-66) is the Group Investigation method created by Yael and Shlomo Sharan (1992). It emphasises four elements: investigation, interaction, interpretation, and intrinsic motivation. In the beginning, a steering committee is formed to take care of timing and problems arising during the process. The investigation starts with the teacher outlining the problem after which the students proceed through six stages in planning and carrying out Group Investigation. The class decides on the subtopics and forms groups, the groups plan and then carry out their investigations, which is followed by the planning of presentations. Finally, the teacher and the students evaluate the projects. Among other things, the teacher role is that of a facilitator including leading the introductory discussions, providing material, and helping with study skills. Vähäpassi (1998:68) argues that Group Investigation allows moving outside classroom towards a more collaborative way of learning. The characteristics that the four variations share are interaction, positive interdependence, individual accountability and the emphasis on social skills. They differ especially in the amount of autonomy and control given to the learner.

Lehtinen (1997:25-26) claims that in co-operative learning, there is sometimes a contradiction between theory and practice. Theory emphasises the importance of social interaction between peer groups whereas the results of co-operative projects may be very modest in the end. All the pupils do not always participate and discussions on the most complex questions related to the project do not meet the goals set for learning. According to Lehtinen (1997:26), forming co-operative groups is not enough as such but successful learning demands interactional tools to analyse information, documentate the work of the group, and portray the ideas developed. Discussions are not always enough but the group should be able to illustrate the thinking process in a way that the others can follow it and that it can be referred to later on.

2.4 Instructional strategies for language learning

The broad pedagogical guidelines of constructivism, learner autonomy and co-operative learning apply to language learning. Holec (1979:23) states that the first objective is that teaching should aim at helping the learner acquire the linguistic and communicative abilities s/he has defined. The second goal is to help the learner to develop an autonomous approach to learning, in other words to learn to learn. Nunan and Lamb (1996:12) share this view maintaining that language programs should have two goals: those related to language content and those related to learning process. They claim that learning centredness, pedagogical goals and content of learning should be made explicit to learners.

Nunan and Lamb (1996) recognise that language learning has some special needs; language pedagogy has aimed at developing ways to learn to communicate, in other words, to increase fluency. However, the importance of accuracy has not been forgotten either; grammar and lexis study are recognised as integral parts of language learning. "Language is, at one and the same time, both a system of rule-governed structures and a system for the expression of meaning", thus "learning is a

matter of habit formation as well as a process of activation through the deployment of communicative tasks" (Nunan and Lamb 1996:16). The question raised is how to integrate traditional exercises with communicative exercises. The approaches explored in this chapter are Communicative Language Teaching (CLT), which has been very influential during the last decade, and the more recent Task Based Learning (TBL).

Littlewood (1985:1-2) claims that Communicative Language Teaching (CLT) concerns more the goals of second language teaching than techniques or methods, the communication skills being the objective. The new dimensions that CLT introduces are communicative function of language and learning activities including communication in real situations. Although the goal is communication, all the activities do not have to involve communication. Language remains a system of structures that need to be acquired to be able to master the communicative functions of the language. The basis of Littlewood's (1985:6) framework for communicative methodology is a creative use of language, which comprises learning activities constituting the goal of learning. A prerequisite for a creative use of language is the internalisation of structures and vocabulary. The activities involving creativity include, for example, discussion, problem-solving, role-playing, purposeful reading and listening and learning through a foreign language (Littlewood 1985:13).

According to Littlewood (1985:7-9), two kinds of meanings should be differentiated when considering different techniques for communicative methodology. Firstly, the *conceptual* (or *referential*) meaning of language is mostly concerned with the way in which the world can be described through language. It relates to *situational techniques* and *information exchange tasks*. Situational techniques have two major functions: linguistic function in that they help in internalising structures and vocabulary, and conceptual function relating to learners' way of viewing the world through a new language. If these techniques are taken a step further towards communicative language teaching, we end up with a set of techniques called information exchange tasks. These tasks include an information gap which needs to be filled by exchange of information with other learners. The tasks may be based on the relationship of language and concepts but they have been

elaborated and new elements, such as problem-solving, have been added to include the communicative dimension. This is how Littlewood (1985) combines learning structures and using language creatively in search of the communicative goal.

The second meaning introduced by Littlewood (1985:9-11) is the *communicative function* that relates to the way we carry out communicative acts. Words perform different kinds of communicative acts in different situations; the same sentence might function as a request or a reproach depending on the situation. The communicative function is the focus of functional techniques. Functional activities aim at acquisition of socially appropriate forms. They involve practising e.g. giving directions or making suggestions. The most creative form of functional techniques is a role-play activity where the situation is credible and authentic enough for learners to imagine themselves in it, and where learners have more choice of what they want to express. The main difference between the two is the focus on a different aspect of meaning. In situational techniques, learners concentrate on a particular structure whereas in functional techniques the focus is on a particular communicative function. As to the grammar, situational techniques aim at learners knowing the grammatical role of each word. By contrast, in functional techniques individual grammatical elements are introduced in relation to functions that are being practised. Littlewood (1985) states that the two approaches could complement each other in that using both of them gives learners a good idea of the grammatical structures and also an ability to apply them into communicative functions.

Huttunen and Reijula (1998:7) claim that developing oral skills has become the main goal of language teaching in Finland, even to the extent that the content of lessons is often purely communicative, whereas other exercises are homework. In their opinion, a command of language is finally seen as an ability to communicate, and not simply as knowledge of different areas of language skills. Furthermore, Huttunen and Reijula (1998:9) argue that the ability to communicate requires understanding the communication strategies of the language and culture in question.

Communicative competence taken as the goal of language learning, the position of grammar in language learning has been under discussion. Jaakkola (1998:6) states that knowing a language consists of knowing both how to produce grammatically

correct sentences, in written and spoken language, and how to use them in different contexts and situations. Pedagogic grammar is, according to Jaakkola (1998:6,7), an essential element in developing communication skills as well. It has three dimensions: language form, meaning and use, any of which can serve as a starting point for teaching. The language form and meaning change according to different contexts where language is used. They are thus interdependent; all the elements are equally important.

Task-based learning (TBL) aims at combining grammar and lexis study with communicative tasks. Willis (1998:3) argues that "a focus on both accuracy and fluency can be naturally incorporated if tasks are used systematically as the central part of a larger framework". She presents a model where learners first use language in a holistic context, after which particular language forms are studied further. Grammar is taught through using tasks, which are designed to emphasise language use and meaning. Willis (1998:3) defines task as "a goal-oriented activity in which learners use language to achieve a real outcome. In other words, learners use whatever target language resources they have in order to solve a problem, make a list, do a puzzle, play a game, or share and compare experiences". The TBL approach entails three essential conditions for learning: *exposure* to the target language use, *opportunities* to use the target language, and *motivation* to try and comprehend the exposure, and use the existing skills and knowledge to communicate. The additional desirable condition is emphasis on language form in order to prevent fossilisation (Willis 1998:4).

In one way or another, communication is emphasised in all these approaches to language learning, although the aspect of accuracy has not been forgotten either. Language skills are not seen as separate entities but language learners today should gain a more holistic view of language in use. The promise of educational technology depends on the possibilities it offers for communication and interaction. If face-to-face communication is not possible, technology can be used to bridge the gap between teachers and learners. Furthermore, information and communication technology enables using a foreign language with native speakers more easily and even in more authentic situations than through e.g. traditional correspondence.

3 CLASSROOM PRACTISES

3.1 Teacher as a facilitator

The pedagogical aspects presented in the preceding section set certain expectations on the teacher. The most important change in the role of the teacher is the greater importance given to his or her role as a facilitator. Hoyle (1969:59) defines teacher roles in the following way: "In the classroom the teacher has two basic sets of roles to fulfill. One set corresponds with the major functions of instruction, socialization, and evaluation. The second set is concerned with motivating pupils, maintaining control, and generally creating an environment for learning. We can call these 'facilitating roles'." Doris Carey (1993:107) states that "the notion of the teacher as expert is being replaced by the idea that the teacher must facilitate learning; that is, the responsibility of the teacher is to guide student learning". Both Hoyle (1969) and Carey (1993) use the concept *facilitation* when defining the role of the teacher. Thus the idea of the teacher's facilitating role is not new, but what Hoyle (1969) means by the term is probably not the same as the meaning attached to it today. The functions are mostly similar, whereas the way they should be implemented and emphasised is different. In Hoyle's (1969) definition, the teacher facilitates learning in the sense that s/he influences the atmosphere and the classroom setting. Today the constructivist ideal of teacher as a facilitator underlines the teacher's responsibility of guiding students to learn how to learn.

Facilitation, however, implies more than student guiding. Carey (1993:109) argues that "the facilitated environment is one that provides a safe, rich, and challenging place for the learner to set goals, assess progress, and plan new learning". The notion of teacher as facilitator consists of many underlying assumptions of how the teachers behave and think. Carey (1993:109-114) lists four of these stating that often the assumptions are inaccurate. The first assumption is that "teachers behave as facilitators around computers and interactive media". An interactive and individualised environment does not necessarily imply that the teacher wants or is able to use it in a facilitating way. The second assumption is that

teachers want to act as facilitators. Many teachers still prefer teacher-centred model of learning, possibly because of the control. Thirdly, it is assumed that teachers have the skills needed for facilitating. New skills are called for, for example, in assessment and curriculum development. Fourthly, is is often assumed that facilitation is incorporated into teacher training, although teacher training often provides models for a teacher-centred role.

According to Holec (1980:29), the teacher should guide the learner to decide on his or her objectives, learning content, methods and techniques, to monitor the learning procedure and to evaluate the learning process. Tella (1994:21) argues that the role of the teacher changes as learners gain easy access to information that was earlier given by the teacher. He continues that the teacher should encourage learner independence and guide learners' developing information processing skills. As the teacher gradually moves further back, the learner has to develop autonomous strategies and take more responsibility of his or her own learning. When a learner looks for information independently, s/he will probably find conflicting sources of information. The teacher should then be able to offer the learner tools, for example different criteria, to cope with conflicts. (Tella 1994:29.)

Learner autonomy does not mean that the learner is left alone to do whatever s/he pleases, but the teacher is involved in every stage of the development process. Tella (1996:42) states that, in many teaching situations, the teacher remains the person who structures the learning material and an expert of the content matter. Teacher-managed instruction is not a swear word in the way teacher-centredness is. Creating a facilitated learning environment and activating learners is a matter of careful planning and it should be a joint effort of teachers and learners. Therefore, a change in the role of the teacher does not imply less work or importance for teacher.

3.2 Distance teaching

The ideals of learner autonomy and teacher facilitation are easily related to the principles of distance education, but the realisation of these ideals in practise is more difficult. Sherry (1996) calls for instructional theories that would account for the special needs of distance education: "Too often, instructional designers and curriculum developers have become enamored of the latest technologies without dealing with the underlying issues of learner characteristics and needs, the influence of media upon the instructional process, equal access to interactive delivery systems, and the new roles of teacher, site facilitator, and student in the distance learning process." This statement shows how many different areas should be considered when planning and implementing distance teaching.

Rudolf Delling claimed in the late 1960s that distance education had little of the characteristics of teaching because, in general, there was no teacher in the system but the helping organization consisted of variety of machines, people, and materials (Keegan 1990:53). Delling reduced the role of the teacher to a minimum and emphasised the autonomy and independence of the learner. In the 60's, however, distance education was mostly used among adults, which probably explains the small role of the teacher in his theories. Moore differentiated in the 1970's two types of teaching activities: *face-to-face* teaching and *distance* teaching (Keegan 1990:63). These can no longer be separated since new technology makes it possible to replicate a face-to-face teaching situation at a distance as in desktop conferencing.

Bates (1995:48-51) presents two instructional models in distance teaching: the *remote classroom model* and *front-end systems design*. The first means traditional face-to-face teaching transferred to the distance teaching context. The teaching strategy remains the same although the delivery method is different. The second model, on the contrary, was developed for distance teaching and it applies, according to Bates (1995), particularly to courses using one-way technologies. It relies heavily on theories of instructional design where content and method planning is a team process. Other characteristics are that technology is taken into consideration in designing both the course and specific learning tasks. Furthermore,

content and skills are set following the learning objectives. Disadvantages are said to be lack of adaptation to the needs of individual learners and slow development time from design to delivery of a course. Bates (1995) sees that in the first model, the teacher and the learner are given more freedom to decide on the structure and content of a course. Therefore it depends heavily on the teacher's skills and conscientiousness. In this model, the risk of the traditional classroom teaching being replicated is great, which means that advantages of technology are not necessarily exploited.

When technology comes along, the teacher has not only to concentrate on the pedagogical aspects but also to adjust to new equipment and their special features. Sherry (1996) maintains that "The most important factor for successful distance learning is a caring, concerned teacher who is confident, experienced, at ease with the equipment, uses the media creatively, and maintains a high level of interactivity with the students". These criteria are demanding since technology brings new dimensions to the concept of a good teacher. Teachers who are at ease with technology and, moreover, able to use it creatively and interactively are not numerous.

Interaction plays a major role in educational theories today. It should not limit to the teacher correcting students' errors and students asking occasional questions on the subject matter. Sherry (1996) claims that "successful distance education systems involve interactivity between teacher and students, between students and the learning environment, and among students themselves, as well as active learning in the classroom". Thus interactivity does not limit to teacher-student relationship but the feeling of connectivity exists among all the people linked to the situation. Without this kind of interaction, the student becomes isolated and the situation changes from distance education to independent study.

Rönkä (1997:6) argues that distance education using well equipped system for transferring sound, data and videoconferencing enables flexible interaction between teacher and different learner groups. He considers videoconferencing the best means for fairly natural interaction emphasising particularly the importance of social interaction. It gives the teacher possibilities to motivate, guide and give feedback to

learners in a real-time context. To ensure the interaction new methods for classroom management in distance education using videoconferencing should be developed. However, Rönkä (1996) notes that technical problems may cause difficulties for fluent interaction and communication.

The most important issue that has been dealt with in this chapter is whether the strategies the teacher uses in traditional classrooms can be applied to distance education. Videoconferencing and desktop conferencing allow the application of the remote classroom model, which means that a traditional classroom is can be created at a distance. However, there seems to be a need for new classroom management strategies especially for the needs of videoconferencing. Ensuring interaction is a precondition for successful distance education.

3.3 Classroom interaction

For many, teaching means that the teacher distributes knowledge, in other words, tells students what s/he knows. This kind of instruction called direct instruction "involves explicit instruction by textbook or teacher on specific features of the language" (Nunan and Lamb 1996:63). Direct instruction thus stresses the importance of the teacher as the possessor of knowledge. Ideas of direct instruction persist although the emphasis has now moved to a more interactional view of the learning process. Willis (1985:55) claims that "meaningful talk by teacher and students should be central to the learning process not peripheral" and that "we should promote meaningful interaction from the very beginning of language learning instead of regarding it as a useful classroom bonus which may or may not happen later on." Willis's emphasis is on meaningful talk by both teacher and students.

The standard pattern in traditional classroom interaction is usually the following: teacher asks, students respond, and teacher evaluates the answers. Questions posed by the teacher can have three functions: eliciting information, checking understanding, and controlling behavior Teacher questions can be categorised using

different criteria. They can be factual questions related to basic information, or high-order questions on which students have to reflect. These categories are also called "closed" and "open" questions respectively. (Nunan and Lamb 1996:80,84.) Another division is made between display and referential questions. The teacher knows the answer already when s/he poses a display question, but referential questions do not have a ready-made answer anywhere in the textbook. The latter type of questions should result in a more natural communication and complex language by students. However, eliciting answers to questions that the teacher could have answered him or herself, can stimulate more spontaneus communication as well. (Nunan and Lamb 1996:88-89,91.)

To have enough time to think the question through is especially important for a language learner although, as to managing the classroom, silence may slow down the pace of the lesson and the students may become distracted easily. In general, giving more time to think of the answer to a question should be beneficial, but in some tasks waiting could disrupt the flow of the interaction. (Nunan and Lamb 1996:84-87)

Nunan and Lamb (1996) regard error correction as usually valuable for learning, but the individual needs and expectations of learners should always be considered. The most difficult questions are which errors and which students to correct. There are also several choices of how and when to correct a student. The teacher can either interrupt the speaker or wait for him or her to finish. If accuracy is the focus in a given activity, feedback should be given right away. If the teacher does not want to interrupt the student but indicate that something is wrong, s/he can use non-verbal communication. Repetition of the answer with a rising intonation is one possibility. When something needs to be corrected, the teacher can provide the correct answer, expand on the student's answer, or ask another student. (Nunan and Lamb 1996: 68-70.)

Rönkä (1997:11) argues that the role of the teacher as the mediator and tutor in interaction may be emphasised in distance education through videoconferencing in comparison with traditional classroom instruction. However, he does not see this as a disadvantage if the dominant role of the teacher in interaction supports humanistic

aspects of teaching such as caring and respecting the views of all the pupils.

3.4 Classroom management

Classroom management is a vast area of study, and therefore this section deals only with topics that are of interest for this study, namely planning, monitoring and maintaining control, and managing group work, with a special focus on distance education.

A shift from a teacher-centred classroom into a learner-centred one demands changes in planning as well as in other fields of classroom management. Sariola (1998:24) claims that the behaviorist model of teaching arrangements, where the teacher controls the learning process, has started to give room for a more learner-centred approach. He continues that activating students according to socio-constructivist principles needs including the whole learning environment in the planning. "The objective of planning centred on the learning environment is a situation in which the teacher creates for the individual pupil the possibility for interaction with other learners and the teaching arrangements" (Sariola 1998:25).

Bennett and Dunne (1992:8) argue that teachers plan their lessons around the content. Nunan and Lamb (1996:105-108) share the same view saying that teachers use most of the planning time for the subject matter, then come instructional processes, and finally objectives. They consider instructional tasks the basis of planning. Other points they consider important in planning are the aim of the lesson, time to be used for a particular task, number of tasks to be included in a lesson, and possible differentiation of levels of difficulty in tasks. Bennett and Dunne (1992:8) bring up criticism directed toward topic-based approach to planning and instruction. They note that teachers are not necessarily explicit about what they want their pupils to learn and how pupils' work will be assessed. As a solution for this, they suggest that the National Curriculum should be taken into account in planning. It should clarify teachers' intentions to some extent and help teachers to decide on what to

assess. Although careful planning is one precondition for successful instruction, decisions concerning the progress of the lesson have to be made on the spot as well. Nunan and Lamb (1996:105-107) claim that the key challenges for teachers are decision-making and problem-solving as part of their work. They maintain that the teacher should be able to interpret how interested or bored learners are to decide on pacing since the way learners behave is the most important sign that teachers use to interpret the way the lesson is going.

Even though a teacher would be successful in interpreting learners' state of mind, behaviour problems still occur from time to time. Nunan and Lamb (1996:123-124) approach behavior problems from a preventive aspect. They suggest that the classroom environment be created in a way that it prevents student misbehaviour. They consider the following strategies suitable for prevention: moment-by-moment monitoring, different activities for different learning groups, good preparation for the lesson, creating an environment which makes it possible for learners to work independently and do tasks that are not too difficult but not too easy either, giving explicit instructions on or modeling what the pupils are expected to do, and teaching effective time management.

The use of small group and pair work in language classrooms can be justified by relying on ideas of both constructivism, communicative language teaching, and co-operative learning. Nunan and Lamb (1996:142) regard small group activities as highly student-centred and communicative since those kinds of activities usually increase the amount of active speaking and listening. Brumfit (1984:77) underlines the intensity of involvement which has a positive effect on the quality of practise. Furthermore, he argues that the setting in small group work is more natural as a conversational context, which reduces the possibility of stress caused by the need to perform in front of a larger audience. Stotz (1991:49-51) presents three rationales for using group work in non-native language classrooms. Firstly, group work activities support the constructivist view of learning where interaction by teachers and learners plays a major role. Secondly, Stotz (1991) brings up the concept *individualisation*. Although all the individuals' needs may not be satisfied through group activities, using them is one step toward individualisation. The third rationale

for group work is that it gives opportunities for learners to practice different interactional situations and the discourse used in them.

Small group and pair work have, however, some disadvantages. Nunan and Lamb (1996:142-146) list a range of problematic areas. They point out that "a major issue in the management of group work is deciding on a policy for assigning students to groups". Whether the group work succeeds depends largely on the initial phase of forming groups. Thus also the procedural questions should be negotiated with the students, and pair and group work justified. Large classes can make monitoring difficult, which again may lead into discipline problems and have a time-consuming effect. Furthermore, the teacher has to decide on what to monitor: the contribution of individual students, the group atmosphere, or the activeness of the group. In the final stage, there are problems concerning giving individual feedback.

Brumfit (1984:78) also recognizes the difficulty of teacher monitoring the language used in all the groups, but he actually considers it beneficial. He sees that, since the teacher cannot control the language used in the groups, it will be "at the level of the students, but it will be socially constrained by the fact that the group is a social organization". The teacher's involvement will be more casual resembling more like chatting than teaching. This again should produce data for acquisition for the students. According to Brumfit (1984:79), the feedback given by the group will be more instantaneous and possibly less threatening than the one given by the teacher.

Effective classroom management starts from planning, the aim of which should be creating a learning environment where learners can interact with each other and with the environment itself. The desktop conferencing technology should allow the interaction, but the teacher makes the decisions on how to organise it. Planning in an ordinary classroom centres around the content which is followed by the instructional processes and objectives. During the lessons, the teacher's ability to interpret the students behaviour is emphasised, which is an interesting point to look at in desktop conferencing. Possible behaviour problems should be prevented through, among others, planning, clear instructions and monitoring. Managing group work has its problems, but it should be favoured in language classrooms because of the advantages it has on practising speaking and listening.

4 EARLIER EXPERIMENTATIONS WITH VIDEOCONFERENCING

4.1 Kilpisjärvi and LIVE projects

A well-known example of distance education through videoconferencing in Finland is the Kilpisjärvi project, which was carried out between 1994-1997. Pupils in a lower secondary school in Kilpisjärvi followed lessons in Helsinki II Normaalikoulu. In this way, the pupils in Kilpisjärvi were able to go to the lower secondary school in their own village. 17% of their education was given at a distance. The technology was based on an ISDN connection and it enabled videoconferences and transferring sound and data. (Rönkä 1997:3-4.)

According to Rönkä (1997:6), the project showed that distance education emphasises the importance of taking the strengths and weaknesses of the technology used into account already during the planning phase. Moreover, all the methods used in traditional classrooms cannot be applied to distance education, whereas co-operative learning, project work and problem-based learning were found to suit distance education based on videoconferencing. Rönkä (1996) points out that one of the major pedagogical problems in distance lessons using videoconferencing is that dividing attention equally between learner groups gets tiring for the teacher. Another problem area is the controlling and guiding of remote pupils when they work independently. Rönkä (1997:10) also maintains that the role of the teacher easily becomes more emphasised in videoconferencing than in a traditional classroom. The smoothness of the lessons is the teacher's responsibility, which makes him or her the central character during the lessons. One of the results of the Kilpisjärvi Project was, however, that the technology as such is not an obstacle for using learner-centred methods.

The LIVE project realised by the Media Education Centre of the University of Helsinki was a direct continuation of the Kilpisjärvi project. It started in 1997 and will go on until the year 2000. It aims at developing didactic models for virtual school created by modern information and communication technologies. More specifically, the media used in the project comprise audioconferencing, e-mail, fax,

Internet and videoconferencing. The participants are from three different schools from Helsinki, Kilpisjärvi and Tuusula; the greatest distance between the schools is 1200 km. (Nummi et al. 1998:108.)

According to Ristola and Rönkä (1998:92), the LIVE project aims at being more independent of time and place than earlier videoconferencing projects adding mobility and flexibility to learning. Nummi et al. (1998:126) claim that the project emphasises the importance of group work, communication and information management. The pupils are divided into co-operative teams who set common goals and the responsibilities for the team members. The teams are divided into a LIVE team, which is sent to gather information from outside the school, and a local team staying at school to collect background information from diverse sources, for example, the Internet. The teams communicate using Nokia Communicator for audioconferencing, and sending e-mail and faxes. According to Nummi et al. (1998:126-129), the project consists of three levels. At the first level, schools are not in contact with the other schools, but the second level is based on co-operation and areas of expertise of the two schools. The schools plan learning together using videoconferencing, which is also used for the communication between the local teams in the two schools. The LIVE teams of both schools communicate between themselves and with the local groups using the Communicator. The third level emphasises the application of interactive multimedia - transferring texts, pictures, sound and video. After every level, the pupils present their work and write about their learning experiences in individual folders, which will be part of the team portfolio used for assessment.

Findings of the pilot stage by Ristola and Rönkä (1998:99) suggest that planning, especially didactic media planning, plays an important part in facilitating flexible learning. It emphasises the appropriate use of the technology in order to enhance the quality of the learning content and involves for example choosing the communication channel suitable for a particular learning goal. Ristola and Rönkä (1998:100-101) maintain that the pupils were expected to have the metacognitive skills needed to process great amounts of information, but some development was also noted in this area during the pilot stage. Furthermore, the pupils' social and co-

operative skills developed. The role of the teacher was mostly supportive, except for the introductory and evaluation phase, when s/he was more active.

4.2 Other projects

One example of using videoconferencing for collaborative language learning is a project called HIPERNET. The methodological orientation of this particular project was collaborative task-based learning at a distance. Videoconferencing was in a central position in the project since carrying out the task depended on students being able to communicate and co-operate when planning and rehearsing their presentation. The aim of the students involved was to give a presentation on their project work in French. The performances of the students whose collaboration had been computer-mediated were compared to students who had collaborated face-to-face. There was no relevant difference in the performances of the two groups, which indicated that videoconferencing can sufficiently replace face-to-face communication in collaborative task-based learning. (McAndrew et al. 1996:207-217.)

Benigno and Trentin (1997:33) maintain that desktop conferencing is particularly effective when different groups should co-operate on a joint project, for example drafting a report together. They claim that, in comparison with text-based communication, using desktop conferencing differences of opinion are easier to sort out, expressing different points of view is less complicated, and a solution can be found more quickly than by using e-mail, for instance. A negative finding of the use of desktop conference stations is that all the functions are not always utilized to the full. Benigno and Trentin (1997:33) cite the experiments of Manca and Trentin (1996) where in 88% of cases the desktop conference equipment was used mainly for videoconferencing, although its greatest advantage is said to be the multimedia functions.

Videoconferencing, possibly added with modern information and communication technologies, has been found to be a good means of ensuring interaction in distance

education. However, the model of traditional teacher-centred classroom does not necessarily suit distance education setting, but co-operative and task-based learning methods have been used successfully. Earlier studies on videoconferencing emphasise taking the characteristics of the media used into account already during the planning phase. The LIVE project is an example of integrating information and communication technology introducing the element of mobility into learning, which makes instruction more flexible and independent of time and place. The main disadvantage found is one-sided use of a medium that could be utilised in a variety of different ways.

5 PRESENT STUDY

5.1 The case: Telematic French

The experimental project on desktop conference teaching called Telematic French launched by the city of Jyväskylä was based on the idea that all primary pupils should have equal opportunities for choosing the languages they want to learn. In the Finnish primary school, a second foreign language is compulsory starting from the third grade. In the fifth grade, languages are offered as an optional subject. The most popular foreign language in Finland is unquestionably English and, consequently, all primary pupils are offered a chance to learn it either as a second or a third language. As to the other languages, the range of choice varies considerably between different primary schools. Schools with more pupils have more resources and schools in cities often have better chances of getting part-time teachers from secondary schools, for example. Moreover, where there are more pupils, it is also more likely that there will be more than the required number of pupils choosing an optional language. The minimum group size for organising teaching of an optional subject was twelve when the present project started but has risen to fifteen since.

The fourth-grade pupils in three primary schools in Jyväskylä (Halssila, Huhtasuo and Pupuhuhta) were given a choice of French as an optional third language, which would begin in the fifth grade. None of the schools reached the required number of twelve pupils for organising French classes. The schools started to think of ways to organise teaching in co-operation to create a group of twelve. Bringing pupils together by car seemed to be quite difficult to arrange because of different timetables. Furthermore, this solution was seen to consume too much time and money. This is when the idea of distance education came up. Videoconferencing, or more specifically desktop conferencing, was found to be the means of distance education best suitable for creating a setting corresponding to a traditional classroom. The city of Jyväskylä agreed to fund the equipment needed.

Telematic French was accepted as one pilot project of a national research project Etäkamu - Distance Learning in Multimedia Networks. This made a larger-scale

research on the project possible. The Information Technology Research Institute at the University of Jyväskylä had one researcher working as a project leader and the Institute also found two undergraduate students to participate in the project. The fact that the research team and the other participants cooperated closely all the time made it possible to develop the learning environment during the school year.

The national research project covered a variety of topics related to distance learning and multimedia, but it had set criteria for creating a common ground for all the projects. Pedagogical criteria for evaluating different learning environments included constructivism, active role of learners, co-operative learning, intentionality of learning, contextuality, transfer and reflectivity. Constructivism, active role of learners and co-operative learning are the main concerns of this study.

5.1.1 Technology

The lessons took place in a normal classroom environment, which had to be the starting point for designing the learning arrangements. The first criterion for choosing the set of equipment for the project was that it should be cost-effective but efficient enough, and also easily movable. These criteria led to creating a desktop conference unit which included a PC with a monitor, a small video camera, a sound mixer with four channels and a video signal switch. The teacher had one video camera with her. Later on, hand microphones were added. All this was placed on a desk with rollers so that the unit would be easy to move from one place to another. The cost of the whole system including the desk was around 30 000 FIM. Furthermore, the schools had television sets, videocassette recorders, and cassette recorders that were used during the desktop conference classes. The teacher sometimes used the faxes at the schools for distributing material. The picture below represents one of the desktop conference units and the classroom arrangements (see also app. 1).
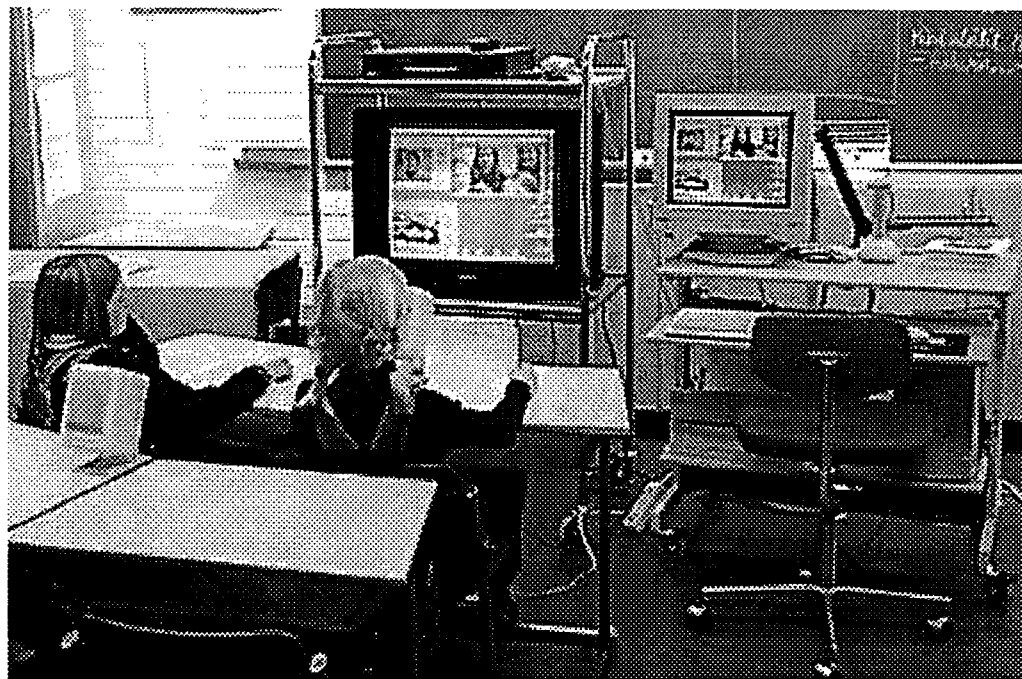
Figure 1. Desktop conference unit.

Photo by Kampus Data

An important factor in the selection of technology was the need for a videoconference connection between the three parties. There would not have been enough pupils in two groups only. One option for creating a multipoint videoconference system would have been through an ISDN connection, but buying or renting a video bridge was considered far too expensive. The best option for the present project was found to be the videoconference programme called Apple Videophone, which was available free of charge on the Internet. The system was based on the Cygnet local area network connecting all the primary schools in Jyväskylä.

The equipment used in the project offered, in addition to the possibility for two-way interaction, two main tools that the teacher had to learn to manage. Firstly, all the groups involved in a desktop conference shared the whiteboard facility, which resembles the blackboard that is found in every ordinary classroom, and all the participants had equal access to it. The whiteboard facility has two important

functions that can be used for teaching. First, one can write on the whiteboard either freehand or using the keyboard. It is possible to choose the colour and font of the text. Second, the facility allows transferring files onto the whiteboard so that all the participants can view them. The second important tool is the document camera through which the teacher can share documents with the distance groups as well. When a document has been photographed, it can either be viewed in a file or it can be removed onto the whiteboard to share it with all the groups.

5.1.2 Organisation of the lessons

In the autumn, when the teaching started, there were altogether twelve pupils in the group: two boys in Halssila, three girls and two boys in Huhtasuo and three boys and two girls in Pupuhuhta. Fairly early in the beginning, the group in Pupuhuhta changed slightly. Three boys dropped out from the French classes and two girls came along so that the group totalled four. The total number of pupils in the three groups was then eleven. The groups remained the same for the whole year except for Huhtasuo, which had only two girls after the Christmas break when one of the girls moved away from Jyväskylä.

The pupils had two forty-five-minute lessons per week, on Mondays at 8 a.m. and on Fridays at 1.15 p.m. It was not possible to have these lessons in the middle of the school day because the optional subjects were always placed in the early morning or in the late afternoon. The first lesson was held on August 29, 1997 and teaching continued until the end of May 1998. The teacher was physically present at each school for one week at a time; she changed schools each week for the whole school year. A technical support person was present in every group during the first semester. However, since one of the aims of the project was reasonable costs, the pupils were taught to use the equipment independently. The pupils, the teacher and the research group gathered together three times during the year to have a lesson in an ordinary classroom. In this way, the pupils got to know each other better and

hopefully started to regard the distant pupils as their classmates as well.

5.1.3 Teaching material

It could not be guaranteed that the pupils could continue studying French as an A2 group in secondary school, because the pupils would go to different schools. This is why the teaching was not as regulated as in ordinary learning groups. For instance, the pupils had neither exams nor grades, apart from one test which was meant to be a kind of self-check for the pupils. However, the learning goals were set accordingly to the regular A2 level, because one of the aims of the project was to find out whether desktop conference teaching could meet the same requirements as traditional teaching.

The publishing company WSOY participated in the project as a material developer. The text book used was Chouette, which is meant for pupils learning French as their second foreign language. Some games and exercises were taken from Petite Chouette, which is a lighter version of the textbook for those starting to learn French. Furthermore, Asterix CD-Rom and the Internet were used. The teacher also prepared some material herself.

5.2 Research questions

This study aims at a holistic view of the case studied, thus both the technology used and its pedagogical concerns are dealt with. Another goal is to find out how the teacher experienced the desktop conference classes. Finally, this study aims at bringing up possible ways of developing this particular means of distance education. Thus the four main areas of research are the functioning of the desktop conferencing technology, the changes it causes in classroom management from the teacher's point of view, the role of learner autonomy and co-operation, and the importance of

interaction in this particular experimentation. This chapter views the theoretical background in order to clarify the research questions, which were actually under constant change during the study.

Distance education can be organised in a number of ways using technologies that may differ greatly from each other. The literature on desktop conferencing presented in this study regards it as the best option for organising distance education, because it allows replicating a setting which is fairly similar to the traditional classroom (p.27). This makes desktop conferencing an interesting distance education medium to be used to complement education in schools. However, the possibility to imitate traditional classroom teaching practices is also a disadvantage if the special characteristics and demands of the technology are not taken into account. The technology used in desktop conferencing offers new tools for classroom management and interaction, but it is often used simply to create the audiovisual connection between the teacher and students (p.35). Thus, in this study, the relation between the traditional classroom context in a primary school and desktop conferencing technology is one of the main concerns. More specifically, the present study aims at finding out how the technology works in a primary classroom and what advantages and disadvantages it brings.

The present study describes from a practical point of view how the learning setting has been organised in the desktop conferencing classes under study. Taking the teacher as the participant in focus somewhat directs the choice of study areas in the classroom situation. The pedagogical approaches today emphasise the role of the teacher as a facilitator, especially when new educational technology is used (p.24). However, changes cause a great deal of pressure for the teacher who is expected to master the new technology and be able to guide the learners both in using the equipment and learning through the new medium (p.24). Thus the present study asks whether the role of the teacher changes as a result of the new learning arrangements under study and what the teacher has to take into account when managing a desktop conference classroom.

When the role of the teacher is that of a facilitator, the learners are guided towards a more and more autonomous way of learning. Learner autonomy is an

explicit goal of schooling and thus learning how to learn should be a concern of all education (p.14). This study looks at whether the preconditions for successful development of learner autonomy exist in learning through desktop conferencing. Co-operative learning is a pedagogical approach that combines certain amount of autonomy with co-operation emphasising the meaning of social skills (p.17). The learning group created with the help of desktop conferencing equipment is different from a regular classroom group, which is why the suitability of the setting for co-operation will be studied.

Co-operation is closely related to the issue of interaction. Along with the development of new technologies, accessibility of education is no longer the biggest issue, but the studies of distance education concentrate more and more on the quality of education. An important factor in assessing the quality of distance education is the way participants are able to interact in a learning situation (p.8), which makes interaction one of the main research topics of the present study. The advantages and disadvantages of the setting used for interaction will be explored.

One of the aims of this study is to find out ways to develop desktop conferencing in language teaching. Integration of new technologies into classrooms demands new practices (p.27) in order to get the best out of them. The key words for developing technology-based education are learner autonomy and co-operative learning. As to language learning, the possibility of applying Task-Based Learning and Communicative approach in desktop conferencing will be examined. This discussion will also include information gained from the earlier studies, which were dealt with in the background section.

To sum up, the main research questions are: 1) what advantages and disadvantages does the desktop conferencing technology bring to a primary school language classroom, 2) how does the new kind of learning setting affect the teacher's role and classroom management, 3) how does the technology affect classroom interaction and communication?

5.3 Data and methods

Data collection was carried out during one school year 1997-1998 in the three primary schools. The methods used were qualitative including case-study method, observation and interviewing, which will all be described in the following three chapters. The data was not analysed with any specific method, but it was used to describe the case in a holistic manner. Thus the findings are organised according to the research questions.

5.3.1 Case study method

The present study concentrates on one particular experimentation, which was a pilot project involving only a small number of people. Thus the results of the study cannot be generalised. However, since the main aim of the study is to describe the learning arrangements in question and the teacher's subjective experiences added with the researcher's own views, the qualitative methods of observation and interviewing, and the case study method seemed suitable for the purpose.

This study is based on individual interpretations on a situation in which both the teacher interviewed and I as an observer were involved. Interaction between the teacher and the research group made it possible to develop the system continuously and gain useful insights for the research. The focus of the study changed as the project developed. However, the main emphasis of the study, creating as comprehensive an idea as possible of the learning environment as a whole, integrating the fields of information technology and education, remained the same despite new ideas brought along by observation.

Syrjälä and Numminen (1988:1) regard the case study method as an independent research approach, which lends itself to the analysis of qualitative data. They present seven characteristics of the case study method. First, the basis for a case study is an individual's interpretation of real-world situations where s/he is involved. Second, a case study is a comprehensive and systematic description of a particular phenomenon. This means that it is studied as a whole from different viewpoints.

Third, a case study brings together theories of different disciplines. Fourth, a phenomenon is studied in its natural environment; no artificial arrangements are made. Fifth, interaction between the researcher and the informants is essential in gathering data. Sixth, a case study is opportunistic in the sense that the basis for choosing the object of study is the availability of information. The goals of a case study may also change according to the situation studied. Seventh, a case study is bound up with values since the researcher's values affect the interpretations s/he makes. These values should be recognised and dealt with in the study. (Syrjälä and Numminen 1988:8-11.) All these characteristics of the case study method apply to the present study and can be used as a justification for taking just one particular case as the target of this study.

5.3.2 Observation

The teaching experiment under study here took place in ordinary classrooms. However, the technology, which allowed linking three classrooms together, made the setting much more complex. It is difficult to describe the setting, especially to a person with no prior experience on desktop conferencing. Since I only had a vague idea of what the situation would be like, observation was necessary for me in order to understand the setting well enough to be able to describe it. I observed a total of 32 forty-five-minute desktop conference lessons in the three different classrooms during one school year.

The main reason for choosing observation was that it seemed the most suitable method for describing the setting as comprehensively as possible. Patton (1990:202) states that "the purpose of observational data is to *describe* the setting that was observed, the activities that took place in that setting, the people who participated in those activities, and the meanings of what was observed from the perspective of those observed". The advantages of observation as a research method as mentioned by Patton (1990:203-205) are: holistic perspective, inductive approach, possibility of

discovering new things, getting information on sensitive topics, moving beyond the perceptions of others, and integrating observer's reflection and introspection into the field research. As to the disadvantages, Hirsjärvi and Hurme (1982:18) consider the possible overflow of information, which makes registering the relevant matters difficult, and uniqueness of what is observed problematic in using observation. It is impossible to go back into what happened unless the situation is recorded on a video. When I started observing the lessons the topic was still fairly new to me and, consequently, I did not have any preconceived ideas of the setting or the technology used. This may have helped me to look at the situation from a useful perspective, namely that of an ordinary teacher. On the other hand, if I had had a better understanding of the situation beforehand, sorting out the relevant matters from all the information would have taken less time and my observations could have penetrated deeper.

Although the main aim of observing Telematic French lessons was to be able to describe and understand the setting, I did not want to remain as a complete outsider in the development process. After a lesson, I and the research group could talk about it with the teacher and try to find new ideas and solutions to the problems that had occurred. Patton (1990:206) states that the extent of participation by the observer may vary "from complete immersion in the setting as full participant to complete separation from the setting as spectator". Patton (1990:207) maintains that the purpose of participant observation is to gain an inside view of the setting and activities under study, thus the observer should share the situation with other participants, experience what is happening and aim at understanding it. A participant observer combines his or her own experience and observations with other participants' views obtained through informal, natural interviews. According to Patton (1990:207), describing the situation for outsiders after having gained an inside view as a participant is the greatest challenge of participant observation. The other undergraduate and the project leader followed the lessons as well. Our observations and comments were recorded in an Internet-based diary, which was available also to the teachers involved in the project. This is how I was able to compare my own experiences with other observers' and participants' views.

The classroom situation was observed as a whole, but the observation mainly focused on the areas covered by the research questions (see app. 2). The functioning of technology was a fairly obvious target, but the advantages and disadvantages of different technological tools were also under observation. Classroom management was another important area of observation since the teacher's experiences were focussed on. This included observing what kind of different tasks the teacher used, how she gave instructions for them and controlled the pupils. Thr role of the teacher in both the local and distance groups was concentrated on, and, also, the role of the pupils was observed especially from the point of view of learner autonomy. One of the most important areas of observation was how interaction worked in a desktop conferencing classroom.

Observing the lessons during quite a long period gave a good idea of the development process and made it possible to understand the complexities of the new learning arrangements. All the observers were also active in searching ways to develop the system used and in planning new classroom practises in co-operation with the teacher and the pupils. The inside view of the classroom practises obtained through observation was complemented by interviewing the teacher.

5.3.3 Interviewing

This study is based on one case only which means that the number of possible informants is small. Furthermore, since one of the main goals was to find out about the teacher's personal experiences and opinions, interviewing seemed the best method for this purpose. Questionnaires, for instance, rarely help to gain insights into informant's thoughts or into the relevant aspects of his or her ideas (Hirsjärvi and Hurme 1982:16). On the basis of my observation, I was already familiar with the situation under study. I had a clear idea of the topics I wanted to cover, but I also wanted to give room for the teacher in the experimentation to express her ideas and experiences freely.

Hirsjärvi and Hurme (1982:29-31,35) list three different interviewing methods for research purposes. In the most structured version, which is called a *schelude* interview, the questions and their order have been set before the interview. The interviewer is not supposed to encourage discussion on any other questions; the interview has to be similar to all the participants. The least standardised version, an *open* interview, is not based on ready-made questions. It enables a free discussion on topics that come up during the interview. The researcher usually organises the material afterwards and s/he may need to carry out several interviews with the same person. The method of *semistructured* interviewing is placed between these two extremes.

A corresponding approach introduced by Patton (1990:280, 283-284) is the *general interview guide approach*. In this approach, the interviewer prepares an outline of the issues s/he wants to deal with during the interview. The topics of the interview are determined beforehand but the wording of questions is decided during the interview. This approach gives room for the interviewer to build a conversation with the interviewee by developing and asking questions that will clarify the respondent's views on the topic. The main advantages of the interview guide approach are that it is systematic and flexible at the same time. It gives a clear focus to the interview allowing free expression of individual views and experiences.

In the semistructured interview I conducted there were four main themes, which were based on the research questions (see app. 3). The findings are also organised accordingly with them. The questions asked from the teacher are printed in italics. The first main topic of the interview was the teacher's opinion concerning the technology used and the tools she could use during the lessons. The second broad issue was classroom management including the subtopics of planning, monitoring and maintaining control. Third, possible ways to promote and develop learner autonomy were also dealt with. Fourth, the possibility for and quality of interaction between the teacher and the pupils were discussed. In the end, the findings are combined with the ideas presented in the theoretical background in order to find possible ways to develop the existing system.

6 FINDINGS

6.1 Technology

The teacher was given a short instruction period to familiarise herself with the equipment. The first lessons were mainly about showing what the students could do with the equipment and how they should behave during the lessons. The pupils were introduced to the different kinds of facilities available to the teacher and to the ones the pupils should know how to use during a lesson. An important part of the introductory lessons was to show the pupils how great an influence disturbing behaviour has on the fluency of a desktop conference session.

In the beginning, most of the pupils were quite enthusiastic about working on the computer. Some of them were a little disappointed when they understood that they could not use the computer all the time, sometimes not at all during a lesson. Picture and sound reproduction fascinated pupils to the extent that it was hard to control them before they got used to seeing themselves on the television or computer screen. However, this did not take many lessons, although occasionally one or two pupils wanted to experiment what different movements would look like on the screen, thus disrupting the lesson.

How long did it take for the teacher to learn to use the technology? The teacher learnt the basic conditions for successful use of the tools in a few weeks. However, the feeling of being at ease with the equipment and the ability to apply them in a creative manner take more time to develop, especially if one has not used videoconferencing earlier. For the teacher of the present project it took about six months to feel at ease with the equipment, depending on the tasks.

6.1.1 Desktop conferencing tools

Which tools did the teacher find the easiest and the most difficult? The teacher

found that the easiest function to learn was taking picture clips and removing them onto the whiteboard. The most difficult thing was to learn to use the equipment and all the functions smoothly. For example, moving a crossword puzzle onto the whiteboard was not difficult but to fill it quickly - writing the words on the appropriate lines or rubbing something off - was another thing. I noted that during the first two lessons the teacher faced the following problems: a picture taken by the document camera and placed on the whiteboard was not legible, or she chose the whiteboard for doing an exercise that could have been done more efficiently orally. One important factor in managing the equipment was the video signal switch; the teacher had to choose between showing herself or the group to the distant groups. If the pupils could not see the teacher for some time, they became more restless.

Was the teacher able to use all the tools to the full? The teacher said that certain tools were easier for her than others and, consequently, the tools she managed well, such as the picture clips, were used more frequently. Furthermore, she thought that there may have been some functions that were not used at all. The main criterion the teacher used for choosing between different possibilities was their correspondence with tools used in an ordinary classroom. For example, using the whiteboard corresponds closely to using an overhead projector. Another criterion was how well the possibilities offered by the computer could be utilized.

What possibilities do the new tools offer? The teacher emphasised the importance of picture clips. The document camera is available for the teacher all the time and thus sharing a document, a book or a magazine for example, with the pupils does not always need to be planned beforehand as would be the case if she had to rely on photocopies. This should lighten the teacher's work load. In one of the lessons I observed that the teacher even used the document camera to share the text book with a pupil who had forgotten his book home. I noticed that, as the whiteboard facility was shared by all three groups, the pupils were quite enthusiastic about getting to write on it. Using the whiteboard corresponds to the use of blackboard or overhead projector in the sense that through it everybody sees the same document at the same time, but adds the possibility to work on it co-operatively more easily. I observed, however, that the picture clips are often

somewhat unclear, especially when they include text from a book.

The teacher also pointed out the benefit of having the Internet connection and CD-Roms at hand all through the lesson, which means that they can be used at any point of the lesson without major classroom arrangements. The pupils liked doing exercises on the Internet and they seemed eager to participate in a lesson which was based on searching information from the Internet. One experimental lesson was carried out on the Internet so that the pupils had explicit instructions of where to go and what to look for. The only problem here was that the pages were slow to load. The pupils" concentration span was too short for waiting photos of Paris to appear on the screen.

6.1.2 Problems and possible developments

It seemed to me that problems with technology were a part of everyday life during the desktop conferencing sessions. Especially difficulties with the sound created confusing situations both for the teacher and the pupils. In as many as 25 lessons out of 32 observed there occurred some disturbances in sound reproduction. The most common problems were echoing of the sound, losing the sound connection partly or completely, and transformation of speaker's voice into unnaturally high or low. The teacher and the pupils learned to locate the problem more and more rapidly over time, but sometimes they could not find anything wrong with the equipment. Problems with picture reproduction occurred less frequently than with sound. Sometimes the picture did not change whereas the sound was not affected at all. The connections either could not be established without a considerable delay or there was a complete breakdown in the middle of teaching in 13 lessons out of the 32 observed.

What functions would the teacher like to change if she had the possibility to do it? In the teacher's opinion, none of the actual tools as a whole needed improving, although some more specific and detailed functions could be more easily

manageable. For example, when using the whiteboard facility, the teacher had some trouble with increasing the font size. Furthermore, images placed on the whiteboard sometimes seemed to move by themselves. These kinds of details may have a significant effect on the smoothness of the lesson, and this is why those functions should be simplified so that they would not consume valuable contact time. However, the teacher found that the most significant problems concerned the sound reproduction. She stated that ameliorating the quality and reliability of connections in this area would be important especially for language learners who need constant modelling of right pronunciation and feedback of their own efforts.

Should there be additional communication channels, such as the e-mail? The teacher thought that additional communication channels between the teacher and the pupils could facilitate teaching. She found that the use of e-mail would be a useful information channel if the pupils could have access to it any time they wanted to. Otherwise the pupils may not be conscientious enough to check their mail regularly. Its utility would depend on how active the pupils would be. She also found that a phone, either portable or fixed, would be useful to have in every desktop conference unit during the conference in order to keep the information flowing between the teacher and the pupils despite technical problems.

To sum up, the new technology was observed to be a motivating factor for some of the pupils, and the teacher did not find it too difficult to use. The desktop conference tool that the teacher found easy to manage was taking picture clips, whereas she criticised some functions which were not user friendly enough to ensure their effective use during the lessons. The teacher's choices between different tools were primarily based on the idea of the aids used in a traditional classroom. However, the teacher recognised some new possibilities of the desktop conference tools, such as sharing a document with all the pupils without having to copy it to everyone. Furthermore, having the Internet connection and CD-Rom stations included in the unit makes it easier to incorporate them into the lesson without any special arrangements. As to technical problems, the difficulties with sound reproduction appeared most harmful to the progress of the lessons. The negative influence of breakdowns in connections could be decreased by having other means

of communication, such as the telephone, available.

6.2. Classroom management

6.2.1. Planning

The teacher had to plan well in advance whether she would like to use some extra material that should be faxed to schools. If she had planned a project work, she would have had to ask somebody to take additional material like cardboards, magazines, scissors and colouring pens into the classroom before the lesson.

How much time did planning a desktop conference lesson take compared to an ordinary lesson? The teacher argued that there was no great difference between the time used for planning an ordinary and a desktop conference lesson. In the beginning, planning took more time, but as she got to know the new tools, the planning became more routinized. There were a lot of things that needed to be taken into account. Among other things, she had to think of the time it took to write on the whiteboard or to go through the exercises involving all the students. However, progress was often slower than planned. Consequently, the plans could often cover two lessons instead of one, which naturally lightened the workload. The fact that the teacher did not have a MacIntosh at home meant that she had to find time for planning at the school computers. The teacher argued that one important difference in the planning of a desktop conference lesson when compared to an ordinary lesson was the need to compare the effectiveness of all the different means available for teaching. For example, she had three options for checking the exercises: using a document camera to show the answers from the teacher's book, writing the answers on the whiteboard, or faxing the correct answers to the schools.

What was the most important factor for the teacher in planning: smoothness of classroom processes, content matter and teaching objectives? The teacher placed the planning of learning content first, smoothness of classroom processes second

and teaching objectives last. She ranked the three features in the same order if the question was about an ordinary classroom, but she thought that the role of smoothness became much more emphasised in desktop conferencing because of the technical problems. As to the learning content, the teacher found that its planning depended too much on the chapters in the textbook, whereas defining the objectives in the long run would have been more important. The teacher also underlined the role of flexibility. Technical problems caused situations where improvisation was necessary, but sometimes difficult.

6.2.2 Small group and pair work

In the desktop conferencing studied, it was possible to form groups or pairs either from one group only or by mixing different groups. Two of the groups had four or five pupils, whereas one group had only two members. If the pupils worked within their own group, the group of two obviously lacked the possibility to change partners. However, pairs could also be formed mixing local and distance groups. They were then called telematic pairs.

An example of a group project, which was carried out inside the local groups, was a vocabulary-building task. The pupils had to look for pictures in magazines that illustrated the given words in a certain topic area. The words were written beside the appropriate pictures, and, finally, the pupils presented their posters to the distant groups. Another example is a pronunciation exercise. Pronunciation was practised in groups who had, for example, one passage of a text as their responsibility. The whole text was then read aloud uniting the work carried out by the groups.

How did the teacher form groups or pairs? The teacher said that the criteria she used for dividing pupils into small groups or pairs were activeness and liveliness. She did not want to put together two pupils both of whom were usually making noise, nor did she form a pair of a very quiet and a very lively pupil.

What was the most difficult thing in managing group work? According to the teacher, the most difficult area in using pair and group work was monitoring the distance groups. It was almost impossible for the teacher to see who contributed in the group. I observed that when a pair or a group worked on the computer, there was almost always one who contributed more than the others. They were also easily distracted from the work they were supposed to do to something else they had in mind. Consequently, giving adequate feedback was problematic unless the work was presented to the others by the whole group.

How did the telematic pairs work? The teacher found that the success of telematic pair work depended at least partly on the way the pupils used their voice. However, the greatest difficulty in mixing groups was taking turns in using the videoconferencing connection. Telematic pair work was generally more effective than pair work between partners physically in the same classroom, although it was more difficult to organise. The pupils have more responsibility for the effectiveness of small group and pair work than in an ordinary classroom where the teacher has better chances of monitoring and guiding their work.

6.2.3 Monitoring and maintaining control

In addition to monitoring the pupils, the teacher has to be able to control the equipment at the same time, which means that the teacher has more threads in her hands than in an ordinary classroom. In general, the most common way to monitor pupils' learning and contribution is to ask questions. The homework and the exercises done during the desktop conference class were usually dealt with orally so that all the pupils could take part in checking them. The answers were given orally but they were also written down in order to avoid time-consuming repetition.

Were there any difficulties in monitoring how the pupils had succeeded in doing their exercises? Checking the exercises took quite a lot of time and sometimes the pupils got bored and restless during it. If sound problems occurred, or the pupils had

not done their work, there had to be a lot of repetition and pulling out of the answers. Moreover, if the teacher wanted to pay attention to pronunciation, it took even more time. In the teacher"s opinon, pronunciation was the most difficult thing to monitor. As mentioned earlier, the teacher also noted the difficulty of monitoring group work in distance groups.

Did the teacher lose control of her pupils? According to the teacher, and the observers as well, the worst instances of losing control happened when the connections were completely cut off or when the pupils had to wait, for example, for the sound connection to recover. Even though the pupils would have had work to do, they rarely had the patience to concentrate on it when there was no sign of the teacher. I noticed that if the pupils got restless, this had an instant effect on the progress of conferencing. Two boys making noises was a much greater nuisance than in a traditional situation since it caused a complete block in the communication between the teacher and the pupils.

What was the best way to reassure control? The teacher found that addressing a group as a whole was ineffective. Consequently, she usually had to address individuals directly. Changing the topic or exercise caught the attention of most of the pupils, but not all of them. The best ways to attract pupils' attention were eye contact, varying the position of the camera and the using voice differently. The teacher noticed that the pupils concentrated best on the exercises on the whiteboard. However, maintaining a reasonably calm atmosphere sometimes required even throwing a pupil out of the classroom.

Planning a desktop conference lesson is clearly different from planning an ordinary class. Estimating time needed for different phases of a lesson was more difficult than in a more familiar classroom context. Choices concerning technology were an extra ingredient to planning, which also contributed to the smoothness of classroom processes. All in all, the teacher emphasised the importance of flexibility in lesson plans, since the situation may change completely due to technical problems. As to pair and group work, the difficulty of monitoring came up; the distance groups were easily distracted from their work since there was nobody watching them. The telematic pairs worked best, the only problem being the greater demands on

classroom organisation. The greatest difficulty in the teacher monitoring and controlling the class were the problems with the sound, which caused the need for repetition and sometimes even a complete breakdown in connections.

6.3 Interaction in desktop conferencing

6.3.1 Classroom setting

One of the pupils usually sat at the computer whereas the others followed the lesson on a television screen. All the pupils of the group with the teacher present sat at their desks because the teacher used the computer most of the time. On the screen, as in the picture below, they could see their own and the two other classrooms.

Figure 2. Computer screen during a desktop conference.

Photo by TITU

The pupils had to sit as close as possible to the camera, which had a built-in microphone, otherwise they could not be seen or heard. Later on, hand microphones were added to increase audibility. One group had two loudspeakers, which was also one reason why the pupils in a group of four had to sit fairly close to each other. Furthermore, the pupils had to sit not far from the television set due to the small size of the images on the screen.

How suitable did the teacher find the classroom setting for communication? According to the teacher, the classroom arrangement around the desktop conference equipment underwent some changes right in the beginning. The reason was that the pupils were too far from the microphones and loudspeakers. The main precondition for the arrangement to function, in her opinion, was that the pupils kept to their seats. Otherwise the teacher could neither see nor hear them, let alone monitor them. The pupil sitting at the desktop could not be seen on the screen unless s/he turned the camera. The teacher found this somewhat disturbing because there was the danger of forgetting him or her. To be able to monitor and address everyone, the teacher suggested that the setting be rearranged in a way that even the pupil behind the desktop could be seen all the time.

The teacher added that a group of four seemed to function fairly well, whereas a group with more pupils would be hard to arrange so that everyone would see, hear and be heard equally well. In that kind of situation, alternatives for sound reproduction should be considered, for example, placing microphones on the ceiling, or giving every pupil a small microphone of their own. A group of two, on the teacher's opinion, gives pupils a more equal position since both can be seated at the desktop together.

The video connection made it possible for the participants to use non-verbal communication in interaction, although not as efficiently as in an ordinary classroom setting. The participants' images were so small on the screen that it was difficult to recognise people at first. The picture reproduction functioned fairly well although it was usually somewhat slower than the transmission of sound. Seeing the teacher in slow motion was sometimes very amusing for the pupils. Moreover, the teacher had to take special care of the way she looked at the camera. When she concentrated on

the picture on the computer screen, she could not have eye contact with the pupils. It seemed to me that the pupils often got more restless when the teacher did not have her eyes on them.

The problems I observed in the beginning were mostly related to the sound production. At first, it was difficult to avoid talking at the same time with the other pupils or the teacher, which caused blurring of the sound. Sound problems were also caused by connections not functioning properly. As a result of unclear sound, the pupils and the teacher were often forced to repeat the same thing many times, which again caused annoyance especially in the pupils who got tired of repeating and decided that moving lips is enough or that it is better to stay quiet. When there were no technological audio problems, speaking and hearing still demanded an effort from everybody. Many pupils had difficulties with speaking loud enough, which may have resulted in them preferring silence to interaction.

6.3.2 Social interaction

Especially in the beginning the pupils preferred talking to the technical support person first. Later on, the pupils contacted the teacher fairly naturally, at least when exercises were checked. They normally asked for a turn to speak by raising their hands, but sometimes they were less formal in their turn-taking. What is notable is that the pupils were very aware of the differences compared to the interaction in an ordinary classroom, for example, if a pupil's left hand was not completely seen on the screen, s/he raised the hand that was visible to the teacher. Once a pupil at the computer asked another pupil in the group: "Will you raise your hand or shall I say the answer?" This example illustrates how well pupils could co-operate to interact more efficiently with the distance groups.

The teacher and all the pupils met three times in a regular classroom environment. The aim of these gatherings was first and foremost that everybody would get to know each other as persons, not simply as talking heads on the screen.

During the meetings everybody seemed more at ease than during the conferences. The teacher planned language learning games which were otherwise difficult to realise in the conference context. It was noticed that the pupils were more active in the desktop conference lessons following the meetings.

What differences did the teacher notice in the relationship between her and the pupils in a telematic lesson compared to an ordinary lesson? She found that there was not that much room for spontaneous communication in the telematic classroom as in a traditional classroom. The pupils probably did not say what they would have wanted to say when they felt that it was too much trouble to use the hand microphone and ask for a turn to speak. It often felt as if the pupils had spoken up only when they felt they had something really important to say. I would like to add that this remark did not apply to all the pupils, some of them did not hesitate to contact the teacher even in matters that would not have required it. In general, however, it really seemed to be the case that, occasionally, the pupils in the distance groups said something they would have wanted the teacher to hear, but did not bother to make the effort to say it louder or to use the microphone.

The teacher also felt that taking notice of an individual pupil was more difficult than in an ordinary classroom, where it comes more naturally. It is easier to control pupils when one can go and walk around the classroom among them. However, I observed that the pupils contacted the teacher also in the matters related to maintaining control. They would, for example, ask the teacher to solve an argument over a pen, as in an ordinary classroom. The teacher was clearly the one who most often initiated interaction, with a whole group or with an individual pupil. However, some of the pupils seemed comfortable with communicating with the teacher also when she did not ask for it.

6.3.3 Communicative exercises

Learning pronunciation is an important area in language learning practised through pronunciation and communicative exercises. It was noted during the lessons that there were some difficulties in modelling the pupils' pronunciation. A cassette recorder was used but the sound quality was rarely good enough. The pupils seemed more motivated to repeat after the teacher than the tape. Another difficulty observed was that, when the pupils could not hear the model well, they relied on the book and most probably got the pronunciation wrong. The teacher was asked about the possibilities that the technology could offer in this particular field of language learning.

Would it be possible to use the target language more in the lessons? The teacher did not find any objections to the use of the target language in teaching but saw the problems with sound as a major drawback in that area. I would add that the teacher used French for greetings and some instructions.

Does desktop conferencing enable natural-like communication? The teacher considered it possible to create natural-like communication situations in desktop conferencing classes. She found that, it was possible to convert all kinds of interactional situations into communicative exercises in desktop conferencing. She did not see any limitations set by the equipment, although organisation must be well planned. I observed that most interaction between the pupils was attained through competitions, for example doing a crossword puzzle assigned to the group. Another example of a successful communicative exercise involving all the pupils was the one where the teacher asked a pupil something fairly simple, such as "Where do you live?", the pupils answered and then got to choose a question for another pupil. This went on until all the pupils had posed a question and answered.

According to the teacher, the pupils had to concentrate on the fluency of communication especially when working with telematic pairs. The message had to be conveyed clearly, otherwise it was not understood. In order to create an effective environment for communication, the teacher thought it necessary to change the classroom arrangement somewhat. To give the pupils time to communicate in pairs

or in groups of three through the desktop conference, the others should be given exercises they could do by themselves or in a group in a way that they would not disturb the communication. The teacher pointed out that, when communicative pair work was carried out while others were listening, some pupils were nervous and could not perform as well as they could have in a more private situation.

6.3.4 Feedback and error correction

In desktop conference lessons, there was no possibility for natural one-to-one interaction between the pupils of the distance groups and the teacher. However, the teacher had a direct contact to all the pupils regularly because she changed schools each week. The teacher had the possiblity to give written feedback when she checked the exercises the pupils had saved in their personal files.

How did the teacher find giving feedback in comparison with an ordinary classroom? The teacher felt that she could not see the pupils' weak and strong points as well as in an ordinary classroom. The pupils who did not participate actively during a lesson were quite easily left unnoticed. In an ordinary classroom physical proxemity and non-verbal interaction have a stronger emphasis. The teacher also felt that the pupils did not have an equal opportunity to get the teacher's attention. Those who had to be reproached all the time got most attention, then came the pupils who actively took part in the lesson and last the pupils who remained silent all the time. The differences are the same as in an ordinary classroom but they become more evident in videoconferencing. The teacher pointed out that, in the classroom where she was physically present, the pupils received more attention than the distant groups. However, she remarked that this was actually the idea since the teacher spent an equal amount of time with every group in order to strengthen the areas, such as giving feedback, that were easily disregarded during sessions at a distance.

As to the written feedback, the teacher found it was easy to give individual

feedback to everyone when the pupils had saved their homework to their own files with the help of the document camera. The only problem was that the pupils did not always check the feedback they had received. The teacher felt that there should have been more oral feedback, but the time was often limited. Tackling technical problems sometimes took the time reserved for feedback. Furthermore, the teacher considered the absence of one-to-one interaction a limitation as well. She suggested that the lesson be shorter for distance pupils, who would then get more homework, whereas the teacher would have more direct contact time with one of the groups.

How did the teacher correct the pupils during a desktop conference? The teacher argued that the best way to correct pupils in a telematic lesson was to wait until the speaker had finished and then ask if the others had different ideas. There was no use in trying to interrupt a pupil because the delay in sound reproduction made it difficult to estimate when to intervene. When two people spoke at the same time, the voices got blurred and nobody could hear anything.

It seems that desktop conferencing emphasises the differences between learners as to their communication skills. The pupils making noise are even more dominant since the noise makes it impossible for the teacher to hear the others. Noticing individual pupils in distance groups is more difficult, which is why giving feedback and correcting errors are problematic as well. However, the fact that the teacher regularly had a direct contact to the pupils helped in giving feedback. The teacher found the possibility to give individual written feedback on the exercises in the pupils' personal files useful. However, the pupils were not active enough to go back to their files to check the feedback.

6.4 Learner autonomy

In the telematic classroom, the pupils took turns in being the "telematic monitor", whose duty was to set up the desktop conference system before the beginning of a lesson. The main idea in assigning the role of the monitor to the pupils was to give

them more responsibility and guide them towards independence in managing a desktop conference. If the pupils were able to manage the system by themselves, there would be no need for technical support during the lessons.

All the pupils were introduced to the equipment during the first lessons and a couple of weeks later a double lesson was dedicated to technical questions. However, all the students did not learn to set up and manage the system effectively. This came quite clear in situations where the teacher tried to give explanations for carrying out a certain task. If the monitor pupil was not familiar with even the most common functions, s/he could not follow the teacher's directions without the help of the other pupils or further explanation by the teacher. This was difficult and time-consuming for the teacher who could not see what the pupil had already done and where s/he had gone wrong. Autonomous management of technology was not, however, the only concern.

What possibilites does the teacher have to direct learners toward autonomy in desktop conferencing? The teacher argued that it was easier to activate the pupils when they were all physically present. She thought that although seeing the teacher in the camera had some effect on motivating the pupils, it could not always outweigh the passiveness caused by the teacher appearing as a talking head on the screen. I share this view since it sometimes seemed as if the pupils were watching television. However, to activate the pupils, the teacher gave them work they had to present to the others, thus giving them more responsibility of their learning. She claimed that otherwise it was easier to avoid "publicity" and hide in a desktop conference than in a classroom.

In general, the teaching was teacher-centred. During an experimental period planned by the observers and the teacher together, the pupils were given more freedom to choose what they wanted to do, and they were also supposed to evaluate their own learning. This, however, was not fruitful. All the work that should have been done during the breaks, such as saving the exercises in the personal files, was not done properly. When there was no obligation, only those pupils who always did their homework, did exercises voluntarily. It was concluded that a short period like that was not enough to direct pupils into a completely

different way of learning than they had been used to. Developing learner autonomy should have been aimed at more systematically already in the planning stage, since that is how the pupils could have got the most out of the lessons.

6.5 Advantages and disadvantages of desktop conferencing

This section summarises the most important findings on the Telematic French Project in the areas of technology, co-operation, interaction and the role of the teacher. A fairly obvious advantage of using videoconferencing in distance education, as compared to audioconferencing for example, is that every participant can see all the others. This experiment proved that visual contact is important especially in maintaining pupils' interest. It is also essential for the teacher to be able to monitor the groups. Seeing and hearing the other group members at a distance is socially important since, in that way, the participants can have a feeling of working together in a group. There is thus a possibility for co-operation and creating situations where communication feels, at least almost, natural.

The teacher found some difficulties in using the whiteboard, which had an impact on the smoothness of the classroom management. The font size, for example, could not be changed quickly enough. There was also the danger that when all the groups were working on the whiteboard, the writing of the image could disappear. However, even more important is that the material transferred to the whiteboard was often from a textbook, which has not been designed for such use. Occasionally the images were blurred and the text was unclear. The main advantage of using a document camera and the whiteboard was found to be the possibility to share any kind of material without the need to plan everything beforehand. Furthermore, these tools enabled working on a document by all the groups synchronously. These advantages could be utilised even more, but this demands developing materials suitable for the system. For instance, there could be a storage of images and exercises that would have been specifically designed for the whiteboard use.

Although desktop conference lessons can be based on traditional textbook material, the quality of the lessons should be ensured through material design whereas the smoothness and effectiveness demand some minor improvements in technology.

The fact that the desktop conference technology used allowed sharing documents, made it possible for all three groups to work together on the same material. Filling a crossword puzzle shared by all the three groups is an example of an exercise that caught everybody's attention since it was presented as a competition between the three schools. In these situations, the pupils co-operated efficiently: one of them wrote the answers on the whiteboard while the others provided him or her with the information s/he needed. As to group work, the teacher found it difficult to monitor the distance groups. The pupils were easily distracted from their work when the the teacher was not present. This is an area where the pupils have to assume a greater responsibility of their own work.

It took some time before the participants in the conference could adjust to mediated interaction. However, the pupils and the teacher learnt the rules for communicating through desktop conferencing fairly soon. They had to remember not to speak at the same time with the others. Communicative exercises between distance groups were difficult to organise since the system was sensitive to noise. Communicative tasks that were carried out in a way that members of different groups co-operated were more efficient since there was a real need to try to communicate as clearly as possible to understand the partner on line. This proves that the desktop conference system enables making interaction seem fairly natural.

In the Kilpisjärvi Project, where videoconferencing was used in classroom-based distance education, it was found that the role of the teacher easily becomes emphasised. The smoothness of lessons is the teacher's responsibility, which makes him or her the central character during the lessons. One of the results of the Kilpisjärvi Project was, however, that the technology as such is not an obstacle for using learner-centred methods. (Rönkä 1997:10.) In the present experiment, the teacher was clearly the centre of the classroom. Teacher-centred face-to-face teaching replicated through desktop conferencing could work if all the pupils were motivated to learn the language. For those who were enthusiastic mainly about the

new technology, there were not enough attractions to keep them motivated. Videoconferencing as an educational tool seemed to demand more from the pupils. They had to be able to concentrate on the screen for 45 minutes. The picture and especially the sound were sometimes far from perfect, which distracted the pupils' attention to the extent that they could not get anything done during the lesson. This is an important justification for finding alternatives to teacher-centred instruction.

7 DISCUSSION

7.1 Desktop conferencing in classroom-focused distance education

Desktop conferencing is a means of distance education since it can build a bridge between teacher and learners who are physically separated. However, all the theories of distance education cannot be applied directly to the kind of learning environment described in this study since it shares characteristics with traditional classroom education as well.

The most important differences between the present project and Keegan's (p.7) five criteria in defining distance education can be found in the separation of the teacher and the learners, and in the existence of a learning group. In distance education, the teacher and the student should be quasi-permanently separated. During the desktop conference lessons described here, the teacher was always physically separated from two groups but present in one. All the groups could follow the lesson by a "live" teacher every three weeks. In other words, the pupils and the teacher were separated during a two-week period (four lessons), which were followed by one week (two lessons) of contact teaching. The desktop conference teaching in question would not be distance education according to Holmberg's (p.7) definition since he emphasises the absence of continuous immediate supervision by tutors who are physically with their pupils in classrooms. In this experiment, the teacher was in immediate presence every three weeks and, moreover, the supervision was continuous.

One feature of distance education was defined as quasi-permanent absence of the learning group apart from occasional face-to-face meetings. At this point, the desktop conference teaching given in the three schools differs somewhat from distance education. The learning group existed all the time, but it was a two-dimensional one. First of all, there was the learning group the members of which were all physically in the same classroom. Additionally, there were the two groups which were present through the videoconference, and which could be seen and heard all the time on the television or computer screen. The three groups also had a

face-to-face lesson three times during the school year.

Characteristics that the desktop conferencing shares with distance education include involvement by an educational organisation, the use of technical media in uniting the teacher and the learners, and the provision of two-way communication. The desktop conference lessons in question took place in primary schools where the French lessons were given during regular school hours, and the materials were mostly ordinary textbooks and workbooks. The teacher and the pupils received technical support especially in the beginning. The technology used to unite the teacher and the learners enabled two-way communication through both written and spoken word. Different groups also had a visual connection all the time.

The fact that desktop conferencing enables creating a classroom-like learning context is important when the openness of the environment is taken into consideration. Although open learning can be applied to both traditional classrooms and distance education, learner-centredness and flexibility of study programmes have traditionally been connected with distance learning among adults. However, videoconferencing is such a recent means of distance education that its position in relation to open learning has not been studied enough.

7.2 Ways to increase communication and co-operation

The first year of desktop conference teaching was characterised by the lack of natural communication in the target language apart from a few occasions. This was completely understandable because changing working methods would have demanded a lot from all the participants, who were just adapting to the use of technology. Teaching language communicatively is difficult enough in an ordinary classroom, where everybody is present at the same time, and even more so in a desktop conference class with three separate groups and technical problems. Another point that added to the difficulties in communication was that the language taught, French, was new to all the pupils.

One possible starting point for developing a more communicative learning environment would be to move from teacher-centredness toward a more learner-centred learning environment that would be based on the principles of co-operative learning. One example of this kind of solution is the LIVE Project (p.33) where the learners engaged in independent information collection from outside their classrooms and exchanged information between distance groups with the help of modern information and communication technologies. The learners planned learning together, gathered information co-operatively from various sources using new technologies and summarised the results together with all the participants. Thus the project combined the principles of positive interdependence and individual accountability, which play a major role in the theories of co-operative learning (p.19).

This kind of learning arrangement would suit the desktop conferencing instruction described in this study as well. Since following a teacher-led lesson for 45 minutes was often too tiring for the pupils, independent work on a meaningful task in the local group could help to keep up their interest. Furthermore, working in small groups or pairs is important for learning to communicate in a foreign language (p.31). Two building blocks of co-operative learning, teambuilding and classbuilding (p.18), would be first things to be looked at in creating such arrangements. The pupils clearly had a feeling of belonging to a team, when the three groups in different schools competed against each other, so teambuilding would not be difficult. However, a sense of belonging to one class with three separate groups inside it is also important as a precondition of successful co-operation and information sharing. The regular face-to-face meetings with a more entertaining programme seemed to have a favourable effect on the class spirit.

In a language classroom, the learning strategies in a particular lesson usually depend on the language content dealt with. However, the task-based learning approach could be combined with co-operative learning and taken as the basis of planning. Tasks with a real outcome as a goal could motivate the pupils to work together more independently than did listening to the teacher and completing traditional exercices from a practice book. Task-based learning has three essential

conditions, which include exposure to the target language, opportunities to use it and motivation to try to communicate using it (p.23). Desktop conferencing provides facilities for using both video and audio sources for the exposure, and the communication situation created through it could feel more real than, for example, pair work in an ordinary classroom. When the learners are not physically in the same place, communication is more difficult and information gap exercices, for instance, seem more authentic. This could increase motivation as well. The learners also have the Internet and e-mail at hand which could also be used for communication. Establishing e-mail connections with a school abroad would be a new source of exposure.

Although classes would be based on a textbook and limited to regular classhours, these examples could give some idea of the direction to which desktop conference classes could be developed. Co-operative teams or groups with their own areas of responsibility would diminish the need for direct instruction, which was found to be more demanding for the pupils in a desktop conference than in an ordinary classroom. Giving more responsibility to the pupils in well-planned tasks would increase their self-directedness as well.

7.3 Development of learner autonomy

The first aim of the project, autonomous management of the equipment by the pupils, was realised only partly. The groups got on by themselves without any technical support after three months, but all the pupils were not equally capable with the computer. In technical questions, the pupils usually were admirably co-operative. If the pupils in charge did not know how to go on, the others gave helpful hints if they could. It is natural that pupils who are not used to managing computers do not feel self-assured with them, but it was a pity that everybody did not seem to get rid of their fears. Some lessons were devoted completely to learning to use the equipment, but some pupils would have needed extra practice with the computer to

feel more comfortable during their turn to be in charge.

The pupils were dependent on the teacher to the extent that when cut off from the direct connection to her, they did not continue with the topic independently. Disturbances and delays caused boredom in pupils which again led to nervousness and disturbing behaviour. The pupils did not necessarily have anything to do when they were out of reach of the teacher. Thus dependency on the video and audio connection with the teacher slowed down the learning process. Keeping in mind that problems with connections may occur fairly often, the pupils should be given a package of extra exercises to which they could turn to in case they have nothing else to do. Those exercises could include crossword puzzles and other kinds of exercises attracting young learners' attention. This could be one possible practical solution to prevent pupils' frustration but it also asks for some degree of self-directedness. Thus the experiment proved that successful desktop conferencing demands pupils to be self-directed, at least to some extent.

However, the period when the pupils' level of autonomy was investigated proved that all of them had not been used to taking responsibility of their own learning. Most of the pupils did not take time to reflect on questions asking about their learning after every lesson. Giving pupils more freedom to choose the exercises they wanted to do was not successful either: the ones who always did their homework did also some extra work, but those who often were negligent with their homework did not bother to do something they were not obliged to. This is likely to be the reality in any kind of classroom but the question here is whether the learning setting could somehow be used to promote a more autonomous approach to learning.

Nunan's (1997) five steps (p.6) for increasing learner autonomy could be applied to the present case as well as to any other classroom. Gradual development begins with learner becoming aware of the learning aims, content and strategies. Learners are given more and more responsibility until they reach the final stage where they start creating their own materials independently. The lessons under study usually began by the teacher telling about the content of the lesson, but the learners were not aware of the goals in the long run. The problem was that the aims of the course were not very clear to any of the participants, because, in the beginning, nobody

knew for sure how well the technology would work. After this initial experimental phase, it should be easier to concentrate on planning the goals of the course, and also on developing learning strategies. In other words, technical framework taken care of, the following step whould be creating the kind of learning context demanded in different definitions for learner autonomy. This would enable the learners to be more active in all the areas concerning their own learning from setting goals to choosing materials and strategies.

The teacher should be aware that the learners have to be given choices of learning content and strategies that have been carefully planned beforehand. This would ensure that all the learners can find the best possible way of learning to learn. The learners should have the freedom of choice, but their experiences with new materials and methods should also be monitored in order to ensure that the experiences are positive. As to the learners creating their own materials, the setting gives various tools for learners to search and process information. They have the Internet, CD-Roms, e-mail and word processors at hand, and they could even contact an outside expert through videoconferencing. At least in this respect, the desktop conference system helps the learner to be more autonomous.

CONCLUSION

The first year of the Telematic French project showed that classroom-focused distance education is a possible option for expanding the educational field of even primary schools. As the teacher and pupils learnt to manage the equipment, and technological improvements were made, it was possible to start thinking of the development of the instructional practices.

The technology used offers tools for both communication and co-operation. The shared whiteboard facility was used frequently and the pupils were enthusiastic about all the groups working together on the same document. However, there was not very much variation in the material used since the text book was the main source and not always suitable for whiteboard use. It would demand material development to make the whiteboard use more varied and efficient. In the field of video connections, the system worked well, whereas most of the technical problems were related to sound reproduction. The video connection enabled monitoring the distance groups, and to some extent, using non-verbal communication. The audio connection, however, caused troubles especially in the beginning and communication did not feel natural because of delays and disruptions in sound reproduction. Thus, although the technology used enabled two-way communication, it was also a hindrance when not working properly.

On the basis of this case, it seems clear that successful distance education through desktop conferencing demands more from the pupils. The fact that the teacher was not in direct presence was a novelty to the pupils, who sometimes took advantage of it. Efficient learning in this kind of situation demands self-directedness from the pupils. It is naturally difficult to guide the pupils to learn how to learn in a situation where there are plenty of other things to learn. The process of developing learner autonomy should be gradual, but a part of a distance education project right from the beginning. It would form a solid basis for developing instructional practices. These practices could consist of co-operative methods and task-based learning, which would enable a more learner-centred organisation of the class. Instruction in the present study was controlled by the teacher, mostly because of the

novelty of the situation. However, developing classroom practices should extend to all subjects at the same time.

This study was based on one case only, which means that the results cannot be generalised. The aim of the study was to give a holistic view of the situation, but, naturally, the pupils' voices would have been needed for a more balanced description of desktop conferencing experience. However, the teacher's views and experiences recorded here were aimed to give an overview of what desktop conferencing demands from a teacher. This having been the original aim, it was difficult to compile the theoretical background around it. New technologies and today's pedagogical approaches are intertwined in many respects, but the whole picture is not clear yet. Thus it was hard to find anything written on the same topic and from the same point of view. The theoretical framework of this study consisted of such vast areas of study that including all of them was problematic in the end. Relating all of them in detail to the interview and observations was not possible in a study as concise as this. This is why the discussion part reviewed the pedagogical framework in order to find possible developments for the situation described in the findings section.

Especially the development of content and materials would require further research to support creating a constructivist learning environment. Desktop conferencing is a means of distance education with its special characteristics, which need to be considered when planning courses. This study does not give any practical ideas for applying co-operative and task-based learning to desktop conferencing. It would be a useful and interesting topic for further study. One way to expand the learning context would be to combine an Internet-based learning environment with desktop conferencing. Since the classroom was organised around a computer, the Internet was at hand all the time, but its potential was not yet exploited. It could offer a means for organising co-operative and task-based learning. Other means of modern information and communication technology could bring more perspectives to instruction, as in the LIVE Project, as long as the need for developing instructional practices that suit the technology used.

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APPENDIX 1

Laitteisto:

· Power Macintosh 8500/180 (180MHz 604e RISC prosessori)

· 32 Mb ram, 4 Mb vram, 2 Gt kovalevy

· 17" AppleMultiplescan monitori

· videokamera Philips VCM7310

· Palca käsimikrofoni

Ohjelmistot:

· käyttöjärjestelmä alussa 7.5.5, myöhemmin 8.0

· Quicktime 2.5, myöhemmin 3.0

· Apple VideoPhone (max. 6 yhteyttä), valkotaulu

· ClarisWorks 4 -monitoimiohjelma, normaalit selaimet

Muuta:

· äänimixeri Vivanco (4 in, stereo out)

· itsetehty videosignaalin vaihtaja (3 in, 1 out)

· itsetehty pöytä, jossa rullat alla

Verkkoratkaisuna oli 10 Base-T, jossa jokaiselle koneelle varattu oma

10 Mb:n dedikoitu linja. Yhteenlaskettu tiedonsiirtomäärä neuvottelun

aikana vaihteli 1 - 8 Mb:in.

APPENDIX 2

OBSERVOINTILOMAKE

Päivämäärä _____   Opettaja paikalla _____

Koulu   _____   Oppilaita _____

TEKNIIKAN TOIMIVUUS

Kuva   Ääni

LUOKKAHUONETILANTEET

Opetettava asia   Työmenetelmät

Oppilaiden kontrollointi   Palautteen antaminen

VUOROVAIKUTUS

Opettaja --> oppilas   Oppilas --> opettaja

OPETTAJAN ROOLI

MUUTA

APPENDIX 3
HAASTATTELUN TEEMA-ALUEET

I Desktop videoneuvotteluteknologia

- Mikä oli vaikeinta/helpointa laitteiston käytön opettelussa ja kauanko sujuvan käytön oppimiseen meni aikaa?
- Miten toimiva luokkahuoneen järjestys oli? Mitä muuttaisit oppilaiden ja laitteiston sijainnin suhteen?
- Mitä mahdollisuuksia desktop videoneuvottelun työkalut kuten dokumenttikamera ja valkotaulu tuovat opetukseen verrattuna tavalliseen luokkahuonetilanteeseen?
- Pystyitkö hyödyntämään opetuksessa laitteiston kaikkia toimintoja tasapuolisesti vai oliko joku toiminnoista erityisen hyödyllinen tai helppo käyttää?
- Mitä toimintoja haluaisit parannettavan tai lisättävän?
- Olisiko muista yhteydenpitokanavista kuten sähköpostista hyötyä opetuksessa?

II Tuntien suunnittelu ja luokkahuonetilanteet

- Miten desktop videoneuvottelun työkalujen käyttö vaikuttaa opettajan työhön ja työmäärään?
- Mitä tuntien suunnittelussa pitää ottaa huomioon verrattuna perinteisen tunnin suunnitteluun?
- Mihin kiinnität suunnittelussa eniten huomiota: oppisisältöön, opetustapahtuman sujuvuuteen vai tavoitteiden asettamiseen?
- Miten tärkeää on joustavuus suunnitelmien suhteen? Onko siinä eroa tavalliseen luokkahuonetilanteeseen?
- Miten paljon aikaa suunnitteluun kuluu tavalliseen tuntiin verrattuna?
- Millaisia ryhmätyötapoja opetuksessa käytettiin ja miten ne toimivat?
- Millä perusteilla jaoit oppilaat pienryhmiin ja mikä jaottelu oli onnistunein?
- Millaisissa tilanteissa syntyi eniten oppilaiden häirintää?
- Millä keinoin kontrollin sai palautettua parhaiten?

III Vuorovaikutus ja kommunikaatio

- Miten opettajan ja oppilaan välinen vuorovaikutus eroaa tavallisesta luokkahuonetilanteesta?
- Miten oppilaiden huomion sai parhaiten käännettyä opettajaan?
- Pystyitkö arvioimaan oppilaiden heikkouksia ja vahvuuksia samoin kuin tavallisessa luokkahuoneessa?
- Oliko oppilailla tasapuolinen mahdollisuus saada opettajan huomio osakseen?
- Millaista palautetta olet mielestäsi pystynyt antamaan oppilaiden työskentelystä?

- Mikä oli mielestäsi paras tapa korjata oppilaiden virheitä? Keskeyttää oppilaan puhe, ilmaista oppilaalle, että jokin meni väärin, odottaa puheen loppuun, kysyä muilta oikeaa vastausta yms.?
- Kummassa tilanteessa on vaikeampi käyttää kohdekieltä?
- Mahdollistaako oppimisympäristö aidon kommunikaatiotilanteen opittavalla kielellä? Jos niin miten sellaisen tilanteen pystyisi parhaiten luomaan?
- Minkä tyyppiset kommunikaatioharjoitukset sopivat parhaiten desktop videoneuvotteluopetukseen?
- Millaiset harjoitukset yleensä toimivat hyvin ja millaiset taas eivät toimineet?
- Mitä sellaisia opetuskeinoja olisit halunnut käyttää, joihin laitteisto ei antanut mahdollisuutta?
- Mitä tekisit toisin?

V Oppijan itseohjautuvuuden ohjaaminen

-Millä keinoin opettaja voi desktop videoneuvottelussa ohjata oppijaa itsenäiseen työskentelyyn ja ottamaan vastuuta omasta opiskelustaan?
- Miten paljon olet pystynyt antamaan mahdollisuuksia oppilaille valita itse mitä haluaisivat oppia?
- Miten itsenäiseen työskentelyyn viidesluokkalaiset ovat mielestäsi pystyneet vuoden aikana?