LUND UNIVERSITY

Dialogues on the Net - Power structures in asynchronous discussions in the context of a web based teacher training course

Johnsson, Annette

2009

DIALOGUES ON THE NET

Malmö Studies in Educational Sciences No. 47
Studies in Science and Technology Education No.29

ANNETTE JOHNSSON
DIALOGUES ON THE NET

Power structures in asynchronous discussions in the context of a web based teacher training course

The publiction will also be available electronically
see www.mah.se/muep

Till Pappa
och
Nils

ACKNOWLEDGEMENTS

I would first of all like to thank the students for letting me use their discussions in the study, without their acceptance there would have been no study, and no thesis. A number of people have been involved in the process of this thesis, both professionally and in my private life. Professionally, I would first like to thank my supervisors; Gunilla Svingby and Marie Carlson. Gunilla has from the start supported me in this long and hard undertaking. Whenever I was lost in a maze of possible directions, Gunilla has by encouragement, frankness and great involvement, especially towards the end, managed to lead me towards a clearer focus and productive paths of enquiry. Marie, who entered the scene mid-time, has been invaluable in guiding me in areas not familiar to a former mathematics and physics teacher like myself. She has supported me through the process with great enthusiasm. I want to thank Harriet Axelsson, who got me into the track to begin with, by advising me to apply to the doctoral programme of FontD. As the head of NMS during my first years, and as a board member of FontD, Harriet offered myself and the other doctoral students of NMS encouragement and support. I would also like to thank my doctoral colleagues at NMS and at other sections of Teacher Education at Malmö University: you have been of great support by reading the texts I have produced along the way, and especially by sharing the woes and joys of being a doctoral student. I want to thank Claes Malmberg for his support and for the honesty during the 50 % seminar that helped to direct the work of the thesis, and Malin Ideland who provided me with tools during the 90 % seminar helping me to fill in the gaps of the theoretical foundations of the thesis.

TABLE OF CONTENTS

INTRODUCTION

When I started to work as a group tutor at the first term of teacher education at Malmö University, it was apparent that quite pronounced differences existed between the groups I was tutoring. There was great variation in how students communicated, negotiated, organized and carried out the collaborative work. The same was true for the manner in which they prepared the group assignments that were required in some tasks. This experience led to an interest in finding out more about group work and factors affecting group work.

Setting the scene

The students I was tutoring had just entered teacher education at the department of Nature, Science and Society (NMS). These students had a common programme during their first term, independently of their degree profiles, which were recreational pedagogue, pre-school, primary, secondary or upper secondary school teachers. They had in common the choice of main subject which was one of the following: mathematics, natural sciences or geography.

The first term of teacher education at the department of NMS has since 2001 contained courses involving collaborative group work on the Net. The Learning Management System ALHE has not only been used to disseminate course information and material, but also as a tool for the students' self assessment, for the assessment of group dynamics, for the simulation of a critical situation, and as a tool for communication and group work. The Learning Management System ALHE was initially developed for the specific pur-

poses of the research project ALHE (Accessibility to Learning in Higher Education), described in the next section.

A research and development programme at Malmö University (ALHE/Xpand)

The research project reported here is part of a larger research programme, ALHE/Xpand, which has been conducted since 2000 in the frame of the first term of Teacher education at Malmö University, unit Nature, Science and Society. The research and development programme is based on collaborative interaction technology.

The aim of the research programme is to study if and how teacher education could prepare students in a better way, using net based group work. In addition to the net based group work, various net based tools for self-assessment, group-assessment and examination were developed (Jönsson, 2008; Malmberg, Johnsson, & Svingby, 2005; Malmberg, 2006). A fundamental hypothesis of the research programme is that working on the Internet involves fewer boundaries regarding time and place compared to courses entirely conducted on campus, and is therefore more accessible to people of different backgrounds and segments of society. Malmö University attracts many students from groups otherwise underrepresented in higher education (regarding age, socio-economic background as well as cultural and linguistic background) and one of the purposes with this project is to make higher education more accessible. The assumption was further that by offering an asynchronous arena, the power relations that are assumed to exist among students may be partly neutralized.

The web platform used is called ALHE and was developed at Malmö University. It is especially adapted to the purposes and needs of the research programme. In 2007, the platform was further developed and improved. Both platform and research platform are now called XPAND; however the purpose and intentions of the programme are the same as before.

The National Graduate School in Science and Technology Education (FontD)

As a doctoral student of the graduate school within the *Programme for the National Graduate School in Science and Technology Education* (the Swedish acronym is FontD), I have been part of a nationwide network of researchers and doctoral students within the field of teacher education in Sweden. The graduate school was set up in 2001 as a network between eight university colleges and universities. The aim of has been to contribute both to the formation of didactic environments at the participating colleges/universities and to act as a national and international arena for didactic research and training of researchers in science and technology. The research profile of Malmö University within the graduate school is in the areas of the didactics of the environment, collaborative learning in science, assessment as a quality in the teaching of science and technology, the teaching of science and technology, and science for citizenship.

The module in focus: Sustainable development and learning

The first term syllabus consisted of a course called Allmänt utbildningsområde (*The general area of education)*[1], divided into two modules; *Utveckling och lärande*[2] (Development and learning) and *Att bli lärare* (To become a teacher), which in turn were divided into two sub-modules each. The sub-module, *Hållbar utveckling och lärande* (Sustainable development and learning) was the second sub-module of the first module of the first module (Development and learning), is focused in the present dissertation.

---

[1] Teacher education in Sweden was reformed 2001 when eight different academic degrees were replaced by a single degree consisting of several degree profiles. An element of the reformed teacher education was the course 'Allmänt utbildningsområde' (General area of education), offering content that was considered to be central and common for all teacher students, irrespective of their degree profile or main subject. The general area of education consists of courses in education and didactics as well as in-service training. In the final year of studies, an essay is written. Teacher colleges in Sweden have organized the 'General area of education' in different ways. In the latest government report 'En hållbar lärarutbildning' (A sustainable teacher education) 2008, a proposal for a new teacher education is put forward. However, this thesis concerns the teacher education of 2001-2006.

[2] Since 2007 the organization of The general area of Education changed in 2007; one of the earlier modules (To become a teacher) still initiates the teacher education and the first term, while the other module (Development and learning) has changed content and now finalizes the teacher education.

The groups of students were kept together throughout the whole term, so students were fairly well acquainted with each other and had completed some tasks together before they started the net based course. The course, Sustainable development and learning, was composed of several individual tasks as well as group tasks. The main aim of the course was to provide opportunities for the students to learn more about the knowledge building processes in a collaborative context. A second aim was to learn more about sustainability in urban life. The primary group task required that the students, through discussion, should decide which of two given alternative sites would be preferable for the location of a central refuse disposal plant, present ideas on how to reduce the environmental effects of the plant, and finally, hand in a group report with arguments for the group's decision. The choice between two alternative locations for the establishment of the plant was intended to highlight conflicts of interest in the use of natural resources. The students were provided with links to information material relevant for the task. To give 'hands on' information on central refuse dposits, the course began with a guided tour to Malmö's biggest central refuse deposit Spillepengen.

A number of other tasks were meant to help the students in analysing their own actions in the group as well as the group's interaction. For example, one group task consisted of analyses referring to Barnes' (1978) theory of exploratory and presentational speech. Focused questions included: What kind of speech was used, did it change in the course of discussion? Did it have any impact on the dialogue whether exploratory or presentational speech was used? Another task consisted of reflections in connection to certain categories of the contributions. A function had been built into the software, with which the students could mark their contributions with the following categories; New, Agree, Questioning, Build, Conclude or Organize.

Figure 1. Description of the first term of teacher education at Malmö University (2001-2006)

Term 1 General area of Education			
Development and learning		To become a teacher	
Learning and development	Sustainable development and learning[3]	Children's environment – School environment	The professional teacher

Organization of the on-line group work

The 179 students were organized in 35 groups[4] of 4-7 students. In order to pass the course, students needed to participate with contributions in the group discussion on the Net. The groups were organized in lots of 2-5 groups per teacher. It was decided that teachers should intervene as little as possible in the group discussions, and only contribute when perceived necessary by the tutor or requested by the students. This strategy was chosen in line with Anderson et al. (2000), who claim that the absence of a tutor is important, since his or her presence may suppress cognitive effort and inhibit self-expression. It also gives the students greater responsibility for their own learning, meaning that 'deep' learning is encouraged. Malmberg (2003) shows in his study of the same course, but a previous year, that involvement in the group discussion by the group tutor hampered the discussion, making students cautious about what to say and what not to say. Bloomfield (2000) found that her own presence and remarks during the chats seemed to stop the discussion.

---

[3] Course module focused in the present thesis.
[4] As described in the chapter *Method*; at the time of the investigation, materials from 6 groups with 32 students had to be omitted from the analysis, due to some misunderstandings by one of the tutors, who edited the online contributions. The total number of students included in the study is thus 147 students in 29 groups.

The problem: Group work on the Net – an opportunity to make group work more equitable?

A central question in the thesis is whether all students (teacher students in their first term) benefit equally from working in net based groups when solving a problem, such as the issue of sustainable waste disposal, or if some students profit more than others. The problem thus deals with questions of group work on the Net as a learning context for male and female students with various backgrounds regarding age, socio-economic background, country of birth and language spoken at home.

Group work is a well established practice at school as well as in higher education, and it is practiced with varying success. Advocates say that working and discussing in groups helps develop students' thinking. It is assumed that the group offers validation for individual ideas and ways of thinking, as well as offering multiple perspectives. The main point here is not the merits of working in groups as an activity in its own right, but the enablement of certain types of learning processes that may be activated through group work. Several researchers believe that these learning processes offer valuable opportunities for group members, including the possibility to share original insights, to explain one's thinking about a phenomenon, to express criticism, to observe the strategies of others, and to listen to explanations and arguments (see Cohen, 1994; McConnell, 2000).

Researchers as well as teachers and students, however, also report dissatisfaction with group work. Groups may, for instance, appear uncritical in their argument practices because they follow a set of social norms rather than the rules of formal logic. These social norms may consist of social rules such as: (a) submission to higher status individuals, (b) acceptance of an expert's opinions as facts, (c) the majority should be allowed to rule, or (d) conflict and confrontation are to be avoided whenever possible (Brashers, Adkins, & Meyers, 1994). Socio-cognitive conflicts have long been recognized as promoting conceptual advance (Anderson et al., 2000). De Vries, Lund & Baker (2002), however, found a tendency for group members not to engage in cognitive conflicts which would risk the

social relationships in the group. Salomon & Globerson (1989) pointed out difficulties with group work and the collaboration that is assumed to take place. Instead of being an arena for collaboration, a group may be a source of aggravation leading to wasted time and feelings of discouragement. Hammar Chiriac (2003) argues that processes emerging in groups can be either constructive or destructive, conscious or unconscious to the group, but that all group processes result in strong collective forces which are difficult for the individual to defend her against.

A research review of conditions for productive small groups made by Cohen (1994) concludes the research findings with the observation that status factors may affect interaction within small groups and, indirectly, their productivity. Cohen suggests that it is necessary to treat problems of status also within small groups. Other, more recent, empiric research indicates that students interacting in face-to-face contexts develop patterns of dominance/subordination when certain individuals dominate the communication space, and specific linguistic expressions are used (see Dawn Blum, 1999; Evans & Carson, 2005; Helweg-Larsen et al., 2004). There are also indications that patterns of power correlate to a person's symbolic capital in Bourdieu's sense[5] (see Bourdieu, 1986; Guiller & Durndell, 2006; Prinsen, Volman, & Terwel, 2007; Sussman & Tyson, 2000) and in group work, the specific composition of the group may thus be of importance. Research on communication suggests that groups with a majority of males or with a majority of females work in distinctly different ways (see de Vries et al., 2002; Kramer, 1977; Lakoff, 1972; Sussman & Tyson, 2000). If group composition regarding sex influences the dialogue, the same may be true for socio-economic, linguistic and cultural backgrounds. The question is if and how such effects appear in dialogues on the Net.

---

[5] See section *Gender and power*, for further description and references to the Bourdieuan concepts of symbolic capital

Like sex[6], socio-economic, linguistic and cultural backgrounds are vital factors in forming a person's capital in Bourdieu's sense. These factors are part of the power formation that informs all parts of society including the recruitment of young people to higher education. In what ways will the circumstance that both men and women are part of social power structures; (involving for instance gender, socio-economic background, linguistic and cultural backgrounds), influence the dialogue they engage in as part of net based group work?

Aim of the thesis

The aim of the thesis has emerged from the encounter between experienced problems in my teaching practice, the theoretical assumptions outlined above, and personal interests. The general aim is to investigate the interaction processes that occur in group dialogues when teacher students work in small groups, using net based asynchronous dialogues to solve a problem in the area of environmental sustainability. More specifically, the interest is to determine whether students' net based dialogues reveal patterns of dominance/subordination similar to those observed in face-to-face situations. This includes an interest in the significance of group composition. Will the interaction processes depend on whether the majority/minority of the group members are male/female, have high/low socio-economic background, have/or have not another linguistic background than Swedish or are born in, or outside of Sweden?

Design of the thesis

The thesis is divided into seven chapters, three appendixes are attached. The first chapter, *Introduction,* describes the context of the study in the present thesis and provides an introduction to the field. The chapter also contains the aim and the design of the thesis.

---

[6] Section *Gender and power*, contains a discussion regarding Bourdieu's concepts of symbolic capital with respect to sex. Some researcher argue that sex is absent in Bourdieu's writings on symbolic capital while others maintain the opposite.

The two following chapters, *Working in groups* and *Group work, power and communication technology,* present the theoretical premises of the thesis, that is, the theory and concepts relevant to the perspective adopted. Previous research of relevance is also presented and discussed. The chapter *Group work, power and communication technology* contains the research questions.

In *Method,* the methods employed for data collection, data construction and data analysis are described as well as the specific context of the study. The chapter also contains a description of the students and the groups.

The method chapter is followed by an *Introduction to the dialogues* which consists of an analysis of the dialogues with respect to their dialogicity[7]. It gives the reader a deepened picture of how the students pursued the discussions and how they interacted with respect to opening up or closing down the discussion.

Results are presented in the sixth section. The empirical results are divided into two parts, a) analysis regarding the cohort as a whole and b) analysis where group composition is introduced as a variable.

In the last chapter, *Overall discussion* the results are discussed in relation to earlier research and theoretical positions. Consequences and suggestions for future research are discussed.

Appendixes
Appendix I: Questionnaire on students' background data
Appendix II: Matrixes of definitions of the verbal expressions used as analytical concepts in the thesis
Appendix III: Statistical tables

---

[7] Dialogicity refers to the definition of the concept by Bakhtin (Bakhtin, 1986; Holquist, 1981), see in chapter *Introduction to the dialogues*

WORKING IN GROUPS

What does research say about group work?

The study of group dialogues is an extensive research field. Such research has been undertaken by researchers from many academic disciplines, including philosophy, education, psychology, cognitive studies, management, and political science, and especially in research on communication (see review in Lemus et al., 2004). In Meyers' research review on group discussion from 1991, two findings emerge; (a) group members are often uncritical of their own dialogue practices; and (b) group dialogue is a social activity, guided by a set of social rules and norms. These social norms may involve submission to higher status individuals, the domination of the majority, or avoidance of conflict and confrontation (Brashers et al., 1994). Without even mentioning the concept of power, the researchers illustrate the effects of power mechanisms in group communication.

Positive effects of using groups as a tool for learning in face-to-face contexts are well established (see Exley & Dennick, 2004; Jaques, 2000; Reynolds, 1994). A central assumption is that by working in groups, students are involved in collaboration which can help them in a number of ways. Empirical research confirms that collaboration can generate strategies and problem solving that are rarely found in individual work (Schwartz, 1995; Shirouzu, Miyake, & Masukawa, 2002). Research on the collaboration of school-children in group shows for example, that group work on the average leads to better problem solving and learning outcomes than individual work (see Barron, 2000; Johnson & Johnson, 1981;

McConnell, 2000; 2005; Stevens & Slavin, 1995; Webb & Palin-scar, 1996). Such results are explained by researchers like McConnell (2000; 2005); since collaboration provides better opportunities for learners to share information and ideas, thus helping to clarify ideas and concepts. The discussion that takes place during group work develops critical thinking and communication skills, thus provides a context where the learner can take control of his/her own learning. The group can offer validation of individual ideas and ways of thinking, as well as it can offer multiple perspectives and arguments.

Research shows, however, that in order to offer an optimal environment for learning, group work has to develop a symmetric or only slightly asymmetric communication pattern that allows all members to contribute and to get responses to their contributions (Malmberg, 2006). To reach such a communication pattern, the group members must be able to create an atmosphere of trust that invites members to present their own ideas and to challenge others' knowledge. It further supposes that the group members can accept and make use of the cognitive conflicts that may arise without transforming them into social conflicts. In theoretical terms this means that the power relations in the group are balanced so that individual members of the group are not allowed to oppress other members, while providing a setting where individual members actually do contribute from the start and do not withhold their opinions.

The question of sex and power in net based collaborative learning contexts has been brought to the fore in a number of studies (see e.g. Guiller & Durndell, 2006; 2007; Herring, 1992; Herring, Johnson, & DiBenedetto, 1995; Herring, 2003; Herring & Paolillo, 2006). Studies on power and cultural, respectively linguistic background, in a computer mediated context are by contrast very scarce which is also concluded in a review by Reeder, Macfadyen, Roche, & Chase (2004), the scarcity of research on such aspects underlines the importance of the study at hand.

Grabbing the floor or giving the floor

The emergence of dialogue in a group builds on the existence of an underlying trust among the group members. It further requires that group members consider the others to possess pertinent knowledge and to bring value to the discussion. It presupposes that group members will not harm or offend a group member for openly expressing her views in the group.

To establish and uphold such trust is difficult. The emergence of power hierarchies in groups is one reason. No-one comes to the group as a blank page, all carry perceptions and pre-assumptions of their own and the others' abilities, and of what may be said or done in the context of the group. All groups start with and/or develop power relations and status hierarchies. The desired condition of trust may thus be disturbed by expressions of power based on sex, socio-economic status, knowledge, linguistic skills and other variables.

In a review by Cohen (1994), it is shown that a group member's status determines the amount of participation and, therefore, affordances for learning of academic content that is embedded within the group tasks. The status was based on academic and social standing and related to majority/minority background and sex.

Saying that a person 'has power' can either mean that she has the capacity to do something, or that she has power over another individual. Within the term 'empowerment' for instance, often used in feminist literature, power is understood in a positive sense, as the capacity to do something. But even if we narrow down our definition of power to 'power over another individual', it is not clear that all relationships in which an individual has power over another are necessarily oppressive (see Wartenberg, 1990, p. 5). The word 'power' is thus, somewhat ambiguous in the context of group work. In this thesis I use the term power both in the sense of having power to *do* something, e.g. taking the floor, and in the sense of an oppressive power-over relation, domination, where certain group members refrain from taking full part in the discussion because of perceived domination of other group members. By per-

ceived domination I mean that power may not be exercised in an explicit manner by a high-powered group member but could merely be the perception by the other group members regarding who has the right to talk and in what way. The present thesis, such perceptions will be studied through the impact they have on students' contributions to the Group Forum.

Foucault examined the structures and meanings of language and symbols (Foucault, 1980; 1982) and argued that power is not exercised in one direction only. The concept of power implies, according to Foucault (1979) "the multiplicity of force relations" (p. 92), a relation between forces in a relation of forces. Power is in society, between people and inside people, but it is not a permanent quality of a specific person (Foucault, 1980; 1982). He further argued that power is always present. It is created in every moment, and in every relationship, and is not a permanent quality of a specific person (Foucault, 1980; 1982). Foucault also contended that all human processes involve the transmission of cultural values and of social meanings and that all social interactions involve displays of power. What may be uttered and the forms for how to say it in a certain context are always closely associated with power (Foucault, 1977; 1987).

Following a similar line of reasoning to Foucault, Giddens (1981) claims that power within social systems can be analysed as relations of autonomy and dependence between actors in which the actors draw upon and reproduce structural properties of domination. These relations are dependent on the status of each member in the group or for Bourdieu (1986) on what he has termed the *symbolic capital* at a person's disposition. Symbolic capital can be explained as values, assets or resources, which are recognized as valuable and ascribed a value by certain social groups. Symbolic capital is thus a relational concept. Different types of symbolic capital are valued differently in different situations, and consequently, the symbolic capital a person possesses is not to be considered as a fixed resource. It is on the contrary exposed to continuous struggle. Societal groups (classes, class fractions, occupational groups, families etc.) develop strategies to preserve or increase the value of their

own assets. Bourdieu exemplifies his theory with an analysis of what was ascribed value in the Kabylean society, which he studied during the 50's and 60's (Bourdieu, 1980). Symbolic capital could in that society, for instance, represent the reputation of a well performed vendetta. By contrast, in a present day school class, symbolic capital may be formed by well founded judgements concerning different types of music.

The theory of Foucault theory of power and Bourdieu's theory of symbolic capital applied to the context of educational group dialogues would mean that (a) signs of power as well as signs of resistance will be present in all moments during the course of the interaction, that patterns of power continuously emerge and develop in such groups and (b) patterns of power continuously emerge and develop in such groups. Depending on the nature of the situation, various forms of capital may act as carriers of power in the group, thus influencing the characteristics of the dialogues.

Since power is an important concept in the present thesis, tracing signs of power in the dialogues will be an important task. The concept of symbolic capital is used in the present thesis as a point of departure for the analysis of power relationships with respect to the students' background characteristics.

Politeness and the concept of 'face'

The concept of 'face' introduced by Goffman in 1967 originates from a different theoretical frame than Bourdieu's concepts of capital, but may be used to deepen the understanding of what takes place in groups. The concept 'face' refers to the social value a person claims for herself in a social context. The concept offers a psychological explanation to an individuals' behaviour. Goffman (1967) argues that a person posing a question in a group discussion, risks her own face at the same time as she threatens the 'face' of the addressee. To pose a question or to come with a suggestion is thus potentially face-threatening both for the person posing the question and for the person the question is posed to. While Goffman highlights the individual's aspiration to present and maintain a positive image of herself, there may also be a desire to save the

face of the other. This has been described as 'politeness' (Morand, 2000, p. 242). In face-to-face communication Morand demonstrated power to have strong effects on the overall expressions of politeness. Speakers low in power relative to their addressee used significantly higher levels of politeness. Halliday (1994) observed that strategies of politeness include different ways of using language, what may be termed the *modality* of an utterance, and which may be used to signal subordination. The modality, that is how the speaker commits herself to the value of the contribution, is an important aspect of politeness, sometimes called 'the toning down technique'. Research literature referring to analyses of social interaction in terms of dominance and subordination often describes subordination as manifested in different types of toning down techniques (Gomard, 2001; Thomson, Murachver, & Green, 2001). Dominance is, on the other hand, signalled by verbosity, assertiveness, and the degree of interactive engagement.

Gender/sex and power
Foucault, Bourdieu and feminism

For more than a decade feminist researchers have been debating the relevance of Bourdieu's theory in relation to feminist theory and practice (see Allen, 1996). Bourdieu is criticized (see McCall, 1992) for being androcentric concerning gender in his theory of the formation of social structural positions (via forms of capital). McCall argues that "Gender as an organizing principle is not given systematic treatment throughout Bourdieu's work because gender division is seen as universal and natural, one of the relations of domination that structures all of social life." (p. 851). She further asserts that although gender characteristics appear in Bourdieu's descriptions of dispositions and capital, gender as an analytical category almost never appears in the construction of concepts, and when it does, tends to be given secondary status. On the other hand, McCall, draws attention to parts of Bourdieu's writings that indicate that his elaboration of a particular form of capital, *embodied cultural capital* (Bourdieu, 1983, pp. 222-225), may include gender.

> Cultural capital can exist in three forms: in the embodied state, i.e., in the form of long-lasting dispositions of the mind and body; in the objectified state, in the form of cultural goods (pictures, books, dictionaries, instruments, machines, etc.) ... and in the institutionalized state, a form of objectification resulting in such things as educational qualifications.
> (Bourdieu, 1983, p. 243)

By contrast, the impact of gender and sex is acknowledged in Foucault's work on power, and the relationships between power, knowledge, and discourse have influenced feminists since the early 1980s, especially in the West (see Sawicki, 1994). For example, Butler, (1996) maintains that to Foucault, sex, whether female or male, operates as a principle of identity that imposes a fiction of coherence and unity on an otherwise random or unrelated set of biological functions, sensations and pleasures. As a fictional imposition of uniformity, sex is 'an imaginary point' and an 'artificial unit' (Foucault, 1979, pp. 155-56). Nevertheless, despite being fictional and artificial, the category wields enormous power (Butler, 1996). Butler further claims that "the category of 'sex' thus establishes a principle of intelligibility for human beings, which is to say that no human being can be taken to be human, can be recognized as human, unless that human being is fully and coherently marked by sex" (p. 67).

Doing gender

In 1987 West and Zimmerman coined the expression 'doing gender' which overthrew the assumption of gender as an innate condition and replaced it with a sense of ongoing process and activity. They contend that femininity and masculinity are created and recreated in a process of negotiation and interaction between individuals in a co and counter acting that takes place in relation to the norms of the culture. One cannot step out of the negotiation of gender, since all individuals can by their co-actors on every separate occasion be interpreted as negotiator of femininity or masculinity. A range of empirical studies have been undertaken, for example, of the ways in which employees in fast food restaurants and insurance sales 'do gender' as they go about their daily jobs

(Leidner, 1991). In a research study of Australian pre-school children by Fernie (1993), it was found that gender behaviours in early childhood are constructed by the child's interaction with her/his social world. A number of other studies have shown that girls and boys learn to act according to cultural gender norms. That means, for instance, that boys tend to direct themselves towards formal power, through strategies including dominance and competition whereas girls' power strategies tend to be vaguer and less visible (see Billing & Alvesson, 2000; Davies & White, 2003; Fernie et al., 1993; Öhrn, 1993). Teachers seem to adjust to this. Spender (1990) estimated that in classrooms teachers normally devote two-thirds of their attention to boys. These studies and many others in a similar vein have expanded the insight into the daily interactions that sustain, and occasionally challenge, dichotomous gender categories.

Harding (1986) argues that the concept of gender applies at different levels. These are: (1) a dimension of personal identity, a psychic process of experiencing self; (2) an element in social order, the foundation of social institutions such as kinship, sexuality, the distribution of work, politics, culture; and (3) a cultural symbol which can be variously interpreted, the basis for normative dichotomies.

The 'talkative woman'

Just as the surrounding society the academic world is not a gender neutral community of praxis, but reproduces and operates according to implicit masculine connotative norms and values (Gomard & Krogstad, 2001; see Gomard, 2001; Gunnarsson, 1995; Reisby, Knudsen, & Sørensen, 1999). In a study on research students' negotiation of research position Gomard (2001) found that more men than women created a profile of themselves as researchers characterized by a competitive style. She also found that female research students instead used safeguarding strategies of politeness that opened up for dialogue and objections thus appearing as unpretentious and modest. Gomard argues that male individuals are in a better situation than females in the negotiation of research position. Women in higher education are expected to be intelligible both for themselves and for others as women and researchers at the

same time. A relevant question is if similar mechanisms are at work when under graduate students work in groups, as in the present study.

Spender (1990) explains the persistence of the myth of the talkative women in the face of evidence of the contrary by suggesting that we interpret male and female speakers differently: while men have the *right to talk*, women are expected to remain silent. All talking may thus be perceived as 'talkativeness' in women. Based on English studies, Spender (1989) claims that women in academic setting normally are allowed no more than 30 per cent of the talking time, which was seen to be the upper limit before the men felt that the women were contributing more than their share. Herring, Johnson and DiBenedetto (1998) found that the same applied to women's speaking roles in commercials on television ten years later.

Power strategies

Several researchers have since the seventies shown that girls in schools both act in accordance with culturally defined power strategies and develop their own reactions to such strategies. The girls used strategies that were in accordance with the cultural prescriptions, but also created their own strategies to gain some power over the social situation (see Anyon, 1983; McLoughlin & Oliver, 1998; McRobbie, 1988). The research review by Holmes (1995) shows that women in some circumstances use more indirect speaking strategies than men. Examples of such strategies are expressions of politeness, a way of behaving less face-threatening to the interlocutor. A given linguistic strategy may perform several functions at the same time. A question can for example both be a disguised order and an invitation to an answer (Nordenstam, 2003). 'Assertiveness', on the other hand, is a rather indistinct description and includes in some research literature value judgements of the fellow group members' utterances such as agreements and disagreements (see Callaway, Marriott, & Esser, 1985). They found that groups containing highly dominant members tended to make more statements of disagreement and agreement, and to report more group influence on the members.

Few studies have, however, analysed the expressions of power in group discussions/group work regarding other aspects than sex, such as class or ethnicity or combinations of these. Chuang (2004) even calls the lack of studies in this area a gap in prior research on cultural diversity and group outcomes. Also, very few existing studies of power structures include a large number of students or follow these students over a longer period of time. This is what I intend to do in this study.

From gender to intersectionality

Following the second wave of feminism during the 60's through the beginning of the 80's, the so-called third wave of feminism levelled sharp criticism against Western hegemony within the feminist discourse. It was objected that power relations between women based on global inequality as well as racial and ethnic differentiation were invisible behind a normative understanding of womanliness. In third wave feminist rhetoric a universal sisterhood was no longer assumed.

De los Reyes (2005) believes that the white heterosexual middle class interpretation preference in sex and women studies has had a decisive impact on construction of womanliness in contemporary discussions in Sweden. Ethnocentricity, discriminating structures and exclusion mechanism within the academy have contributed to the creation and reproduction of knowledge of womanliness, equality and relationships between the sexes within the frame of imagined national and/or cultural boundaries. It is against that background that the perception of a homogenous white and Swedish womanliness has emerged and become a picture with sharper and sharper contours in contrast to the 'culturally distant', 'oppressed' and 'unequal' immigrant women (Carlson, 2002, pp.137-164).

De los Reyes (2005) further argues that the feminists' difficulties in relating to ethnicity (and class) are not only connected to a lack of interest, or a research climate that tends to be discriminating. The issue also involves challenging theoretical problems that originates in a view of power as one-dimensional, structural and unchange-

able. According to this model gender is constructed in analogy with class which has led to endless and futile controversies about gender or class primacy regarding subordination and power. If we assume that power is constructed around a set of relationships and a particular kind of antagonism that is given a higher value of explanation than others, we unavoidably end up in a normative position where we can decide which kind of domination/subordination is most important. Another consequence is that we focus too much on the dichotomous relations between work/capital, women/men, immigrants/Swedes, without regarding the complexity that is behind each of these dichotomous pairs of opposition (Carlson, 2002). Furthermore, a consequence is that we tend to construe these opposites as essential and fundamental categories without critically examining their origin, permanence or varying meaning. The students involved in my study are either men or women, though certainly with diverging ideas of masculinity and femininity. They are either young or old, or in between, either with parents of low or high levels of education, or some mixture of these; they may be born in Sweden or in a wider range of other locations in the world, either speaking Swedish at home or not, or maybe speaking several languages at home, as well as an endless number of combinations of these qualities. It is therefore an essential challenge to take into consideration, not only one, but all the qualities the students carry with them into the group work, as well as examining what effect these have, or with the words of Foucault (1979), we need to take into account 'the multiplicity of force relations' (p. 92).

GROUP WORK, POWER AND COMMUNICATION TECHNOLOGY

Computer mediated communication and computer supported collaborative learning

The advancements in interactive technology have introduced new cultural tools for education thus changing the environment for learning (see Bereiter, 2002; Scardamalia & Bereiter, 2003). In group work on the Net, the computer is an artefact mediating the communication between students (Malmberg, 2006; Paavola, Lipponen, & Hakkarainen, 2004). The research paradigm of *computer supported collaborative learning* (CSCL), has emerged referring to virtual teams of interdependent members collaborating and using communication technology synchronously (students communicate with one another in real time) or asynchronously (students access and contribute whenever convenient (using e-mail or on-line discussion boards) (see Burnett, 2003; Koschmann, 1996).

The use of computers in education was until the eighties focused around the possibilities of individualizing instruction by computers. Computer software was constructed to support students' repetitive practice, in accordance with behaviourist theory, contending that learning was best achieved by individuals practicing an individualized task in a repetitive manner until mastery was achieved (McLoughlin & Oliver, 1998). The computer was regarded as a kind of teacher, with the potential to give immediate feedback. It has been shown that this kind of software can engage students for a while, thus liberating some of the teacher's time for other tasks, but it does not engage students in higher levels of cog-

nitive processes such as comprehension, hypothesis formation and reflection. A second type of computer software developed for pedagogical purposes took the form of 'micro worlds' where social interaction did occur, but the benefits of dialogue and communication were merely regarded as incidental, rather than central to cognitive progress. The use of computers and internet is increasingly entering into schools and higher education for learning purposes, though possibly, not as fast as in the rest of the society. Communication on the Net used for educational purposes can be divided along two lines, depending on the purpose of the communication: *computer mediated communication* (CMC), and *computer supported collaborative learning* (CSCL). CMC and CSCL, have in common that they use the Internet for communication between students but they differ on important aspects. When using CMC, electronic discussion is used as a means of enhancing individual student's exploration and understanding of subject matter, whereas in CSCL, discussion aims at solving problems and building knowledge collaboratively. Specially constructed *Learning Management Systems* (LMS) have been the most commonly used applications for CMC and CSCL. However today, open source applications, such as twitters, blogs and various forum sites take over more and more in schools and higher education. Some of the main differences between the LMS and the new open source applications are that the latter are not limited to involve only the class or study group but open up for communication and discussion globally, its uses and content are neither to the same extent as a LMS controlled by the course administrator/tutor. Discussions on the Net are usually performed as chat or forum discussions. Chat sessions are synchronous discussions, where the participants take part in the discussion in real time, while forum discussions are performed asynchronously, which means that the discussions can last for long periods of time.

There are more studies done on group work and power in CMC contexts than in CSCL contexts. In fact, only a limited number of studies address the issue of sex differences in CSCL environments, whereas it has been a topic for research for quite some time in CMC research. Some of the studies reviewed include aspects of

power, sex and social class in their analyses, whereas most do not include such factors.

A number of claims are put forward by advocates of net based group work, suggesting various positive effects. It is for example assumed that internet based learning environments may increase opportunities for the collaborative learning by offering shared working space on the Net, where students can work together with authentic problems (Kirschner et al., 2004). It has also been assumed that net based environments offer more equitable learning opportunities. Some empirical studies support such assumptions. In a study by King (2001) on teacher students engaged in discussions, both on the Net and in the class room, it was found that though a single student might dominate interaction in the classroom setting, his or her presence on the Web was not as dominant, due to the fact that all had equal 'air-time'. The students further felt that their contributions to discussions on the Web mirrored deeper and more critical thinking, lengthier considerations and better analyses. Additional positive effects were that students got to know each other better. The pre-discussion on the Net had a positive impact on the following discussions in the face-to-face situation. The discussions became livelier, with more students participating. For example, shy students participated more often in class-room interaction after first being part of a net based discussion.

Based on a study of 16 university students in educational and language studies, Lally & Barrett (1999) discuss the social aspects of computer mediated communication. They arrive at the conclusion that the medium supports the building of an on-line learning community, capable of providing social and academic support to students. The researchers found that the messages students posted to their seminar held detailed explications of their ideas, often including examples in order to illustrate a point. The inclusion of more verbally explicit details in their on-line communication may reflect the fact that it is not possible, in an on-line environment, for the 'speaker' to simultaneously monitor the reactions of others (e.g. a questioning glance to indicate the need for further explanation, or the nodding of a head to indicate a point has been grasped). The

effect of this is that, for purposes of clarity, the particular cognitive skill of defining terms verbally is rehearsed in a number of different ways. While such discourse may preclude 'moving on' to deeper processing skills or to meta cognitive skills, the clarity of discussion, and depth with which ideas are explained, may nevertheless offer a valuable learning experience to students, in terms of exploring their own thinking and that of their colleagues. Lally & Barrett (1999) further argue that enabling full and active student participation may depend on critical characteristics of structure and process, such as group-size, the balance between academic and social discourse, and the nature and timing of on-line events.

There are three important aspects of asynchronous net based group work that to a great extent change the conditions for the discussion, compared to discussions in face-to-face groups. Firstly, by not meeting face-to-face, the group members do not have access to the whole range of communication channels, such as gestures, facial expressions, or pitch of voice, typical for the face-to-face situation. Thus, the words produced assume a much greater importance than in other contexts, since they stand for most of the communication, although certain information is still conveyed by the contextual and conversational framing of the utterance – in this case, for instance, the general academic nature of the assignment. Since relational cues between people are normally mediated non-verbally, the absence of nonverbal cues in CMC/CSCL occludes vital parts of interpersonal dynamics. This implies that single words become more significant in net based than in face-to-face communication (Siegel et al., 1986; Walther & Bunz, 2005). Over-explicit expressions may in computer mediated groups mirror the lack of non-verbal clues (e.g. shaking one's head) or paraverbal insinuations (e.g. raising the voice) (Straus, 1996). Several students in my study confirm this line of reasoning, by saying that in order not to be interpreted wrongly, it was necessary to be very clear in the contributions, even to the point of being over-explicit. One student expressed this concern as follows[8]:

---

[8] This and following quotes from students are excerpts from the evaluation described in Table 3. They are translated from Swedish.

A discussion on the Net implies that one has to express oneself in a different way, which sometimes can be difficult. It is important to have clear and distinct contributions; otherwise they can be hard for the group to understand. Therefore, in the course of the work, I have learnt to write short yet subject focused contributions. Despite that, it has sometimes been difficult for the group to understand me. Contributions with points of view that have been obvious for me have been unclear for the others. It is of course also good, because then new thoughts and opinions can be created.

Female student, 19 years old

Secondly, it changes the discussion from oral to written. There are various aspects of spoken language that have no counterpart in writing: rhythm, intonation, degrees of loudness, variation in voice quality ('timbre'), pausing, and phrasing. Differences also include indexical features by which we recognise that it is Mary talking and not Jane, that is, the individual characteristics of a particular person's speech (Halliday, 1994). Some of the interactivity that is possible in oral communication is thus not possible in written forms. Another difference is that the oral form is transitory, while the written form to a much greater extent is constant. The shift from speech to writing involves a shift in 'logic': a shift from the logic of sequences in time to the logic of arrangements in (conceptual, visual and other) space (Carlson, 1994). One student in my study expresses the considerations one had to make in the forum in the following manner:

When I was going to write something on the forum, I was cautious about not expressing myself on 'chat-language'. The language one uses on the Internet can easily be misinterpreted. E.g. if I write something with two exclamation marks after my text, the reader can interpret it as if I'm screaming, though my purpose was to draw some extra attention to my comment. I suppose that the more contributions we read in the forum the more knowledge we get about each other's internet language.

Female student, 26 years old

Thirdly, net based asynchronous communication makes the dialogue proceed on a slower path than the usual rapid-fire mode in an oral situation, which gives students time to formulate their contributions: they have equal 'air-time'. Utterances in oral communication come quickly and are often fragmentary. The responses to utterances in a face-to-face situation must be produced immediately, in order to be valid as responses, whereas it is possible in written communication to read and analyse the utterances long after they are made. A benefit of the net based group work situation is therefore the possibility to afterwards analyse and reflect on what has been uttered in writing. One of the students in my study expresses that he finds the net based discussion easier to follow:

> Some people can feel that one expresses oneself easier in written, and with more substance and more in detail, I'm one of them. When one conducts a discussion orally, it can sometimes be hard to follow. I cannot write and discuss at the same time, it is just not possible. It doesn't stick to my memory. In a forum one has it in black and white.
> *Male student, 19 years old*

The relative slowness of asynchronous on-line discussions may offer opportunities for linguistically challenged students to take part in the discussion on more equal terms. This may be a benefit also for students less familiar with the academic seminar and its style of discussion.

The challenge of socio-emotional relations in net based group communication

As we have seen, several researchers have stressed potential benefits of asynchronous net based learning environments. However, such positive assumptions have been questioned from a theoretical standpoint, as well as based on empirical research. Some researchers believe, for example, that CMC and CSCL may generate texts that differ from 'ordinary' written language, and that computer mediated language is "a hybrid language variety displaying characteristics of both oral and written language" (Ferrara, Brunner, & Whittemore, 1991, p. 10). Wertsch (2002) questions whether the

form of mediation which computer mediated interaction gives rise to really brings about dialogue, or if it maybe even is a new form of monologism. He proposes a more radical angle of approach, suggesting that we ought to look at how the new tool introduces a fundamental change in the communication between human beings; maybe to the extent that we can question whether we are dealing with the same kind of action at all.

Another type of criticism stems from Kreijns, Kirschner, & Jochems (2003) who argue that research and teaching lack interest in the social interactions in computer supported collaborative learning environments. Even if such environments may support communication and collaboration, there are two pitfalls that appear to impede the desired results. The first is that it is taken for granted that social interaction automatically takes place, just because an environment makes it technologically possible. The second is the tendency to restrict social interaction to educational interventions aimed at cognitive processes, while social interventions aimed at socio-emotional processes are ignored, neglected or forgotten.

When students in net based courses do not know each other previously, it may lead to feelings of insecurity on how to behave in this context. In the beginning of all kinds of group work, there is frequently a certain amount of insecurity (Berger & Calabrese, 1975; Berger, Bradac, & Callero, 1982). This is also true in net based groups, where students are physically isolated from each other and lack immediate response and nonverbal signs (Järvelä & Häkkinen, 2002; Pea et al., 1999). Mäkitalo et. al (2005) studied the experiences of university students when working in net based groups. The members reported insecurity as an effect of the fact that the group members did not know each other. Mäktalo et al. claim that the anonymity and insecurity experienced may have affected the level of discourse in negative ways.

The importance of both social and structural aspects - the latter referring to how the group structures its group work, how the group work proceeds and how the group task is carried out - is at focus

in a study by McConnell (2005). He studied students participating in a two-year, part-time Master's course aimed at professional development, and which was delivered on-line. The course focused on collaborative and cooperative group work. The participants were organized in e-learning groups of 7-10 members with a tutor. Using detailed ethnographic methods, McConnell studied the group dynamics of three groups. He could show that two of the groups worked harmoniously, successfully producing a collective end product. The members in the third group exhibited extreme anxiety. As anxiety became the focus of this group, it diverted the group members' attention away from contributing to an efficient collective effort. All three groups split at a certain point of time into sub-groups. Members in the two 'harmonious' groups divided the group openly, and reached an agreement about how the tasks that the sub-groups worked with should relate to the final product. The whole group supported the members in their sub-group work, which was open and available to all members. The disharmonious group split up in a more unplanned way. It seemed as if the members created their own liaisons, to deal with the lack of agreement regarding the focus of their project. The work was performed in an isolated manner in the sub-groups, with little communication between the groups, and sometimes not even with the big group.

Group dynamics were also the main focus of a study by Malmberg (2005; 2006), performed in the frame of Malmö University's research programme ALHE (described in the introductory chapter of the thesis). In the study, 120 teacher students in science, mathematics or geography participated. These students were in their first term in 2001, and took part in a three week net based course as part of their teacher training. The students formed a total of 25 groups. The groups were mixed with respect to sex, main subject and school level the students were training for. A social network analysis (Hanneman, 2000) of the contributions to the group forum showed considerable variation between groups, regarding both pattern of communication and numbers of contribution. Malmberg found that three patterns could be distinguished: *symmetric* with all members of the group contributing and responding equally, and all possible connections between group members ex-

ploited; *asymmetric* which Malmberg describes as involving a nucleus of three persons who upheld an intense communication, thus excluding the other two members of the group; and finally, *extremely asymmetric* group interaction. The communication in the asymmetric groups was characterized by a closed nucleus and a number of solitaires. The students in the nucleus gave many contributions compared to the solitaires, and got many responses. The study further revealed time to be an important factor in forming the communication pattern. In the asymmetric and extremely asymmetric groups, the group members in the nucleus contributed early in the group's work, whereas the solitaires mostly added their contributions late in the process, and thus had few responses. Malmberg draws the conclusion that a student who, for some reason, waits to contribute until late in the group process gets few responses and loses status in the group.

From this brief overview, it appears that the empirical results point to the potentials of net based communication to support group work and learning, but also indicate that such effects are not self evident. In net based education, just as in other forms of education and training, social and emotional experiences are important aspects of group work. Even if power is not explicitly dealt with in most of the research in this field as a critical aspect of net based learning environments, the results in many cases point to the presence of expressions of power and, in particular, domination of the communication space or/and use of power related language. Empirical studies of the new technology thus give rise to the question of power in group communication.

Will net based group work change the power structure?

Initially, most research on CMC argued that CMC has an equalizing effect. These claims were based on the idea that social cues are absent in electronic discussions. The net based groups were thus assumed to be more 'democratic' than face-to face groups, and the power structures were believed to have less impact. Based on student responses after participating in a computer conferencing system at Ontario Institute for Studies in Education Harasim (1987), reported results supporting the hypothesis of the equalizing effects

of CMC. Straus (1996) also found support of the equalizing effects in her study of 162 undergraduate students (74% male) enrolled in introductory courses on organizational behaviour/marketing at Carnegie Mellon University, USA. Measured by the amount of time used by each group member, Straus found that in the net based situation, physical aspects, such as placement or position in the group-meeting, would not have an impact. Status related characteristics that otherwise affected communication in face-to-face groups were less dominant. Such characteristics included sex, age, or position in the communication network. According to Straus, the reason why status characteristics are less important in the establishment of the hierarchy in a group on the Net is that students may never see or hear their fellow group members.

The Net offers possibilities, not only of being anonymous, but also of changing identity. From studies of interactive computer games and virtual worlds Linderoth (2007) reports the possibility of changing gender. When gamers use an 'avatar' instead of their real identity, a woman may choose a male avatar and vice versa. Although in educational contexts it is less likely that participants will change gender, ethnicity, age or similar status-related characteristics, role changes may also appear in a discussion forum and be of huge importance. One of the students in my study found it easier to put forward her ideas and points of view because of the perceived anonymity:

> - ... when I went to school I hardly dared to put up my hand and answer the teacher's questions or come with any contribution in a discussion. I know that other students had the same problem. Our teacher in social sciences said clearly: You girls also have to answer sometimes, you just sit quietly! Had we only had the Internet I could have put forward my knowledge in a completely different way. At home I was always the one discussing most loudly but that was because I felt safe. In the classroom one could get a comment that made one feel stupid in front of the others. The Internet gives me a feeling of being more anonymous although everybody knows who I am. It is easier for me to put forward my point of view. Otherwise, I can

be a bit scared of getting into a conflict. Some students in
school or high school lack confidence and then the Internet can
be a helpful tool.

Female student, 28 years old

Gender/sex is the factor that most often is in focus in research on
power structures in CMC contexts. In contrast to the results re-
ported by Harasim (1987) and Straus (1996) above, the majority
of recent studies come to the conclusion that gender based com-
munication styles found in face-to-face communication carry over
into electronic environments, and that social cues are present also
in written language (see Dawn Blum, 1999; Fabos & Young, 1999;
Guiller & Durndell, 2006; Prinsen et al., 2007; Sussman & Tyson,
2000). Already, in an early study of on-line communication, Selfe
& Meyer (1991) observed that males who enjoyed high status off-
line also dominated the net based interaction, both under normal
conditions and under conditions of anonymity. Herring (1992)
was, together with Selfe & Meyer, one of the first researchers who
discerned patterns of male domination in CMC. She observed that
participation on an e-mail list called *Linguist* was highly asymmet-
rical, with male participants contributing 80 % of the total discus-
sion. In order to test if participation was dependent on content,
Herring, Johnson & DiBenedetto (1995) undertook an investiga-
tion of a smaller, more woman-friendly internet communication
list. The researchers assumed that in a less adversarial environ-
ment, women would be more likely to participate equally. How-
ever, this was not what they found.

During a discussion of 'men's literature' which lasted five weeks, males contributed 70 % of the total words, as is shown in Table 1 below. They also used more words per contribution than the female participants.

Table 1. Contributions made to the 'men's literature' discussion.

Variables	Female speakers	Male speakers
Number of contributors	18 (30.5 %)	41 (69.5%)
Number of contributions	87 (36 %)	155 (64%)
Mean no. of words per contr.	162	211.5
Total words contributed	14,114 (30 %)	32,774 (70%)

Source: Herring, Johnsson and DiBenedetto (1995)

Similar results of male dominance in net based discussions were reported by Sussman & Tyson (2000) in a study on chat-rooms, where 30 topics were selected (10 masculine, 10 feminine, and 10 gender-neutral). The conclusion was drawn that cyberspace is a context where the sex of the communicators is not salient, nevertheless, a male-dominated atmosphere still develops. The power generated differentiation with respect to sex in this arena displays itself in communication in similar ways as in other communication modes.

Other studies also indicate that power differences relating to sex may be present in on-line contexts. In a study of the interaction of 197 introductory psychology students (149 females, 48 males), who participated in asynchronous computer mediated communication, Guiller (2007) showed that males were more likely than females to use authoritative language and respond negatively in interactions. On the other hand, females were more likely than males to explicitly agree and support others, as well as making more personal and emotional contributions.

In the article 'Gender differences in an on-line learning environment', Barrett & Lally (1999) suggest an explanation to such phenomena, arguing that men and women assume distinctively different roles in the on-line learning environment. Their study showed

that the cognitive and meta-cognitive content of on-line seminar contributions by men and women was found to be similar, but the social and interactive behaviour of men and women was significantly different. In particular, it was found that within a formal on-line learning environment: men sent (on average) more messages than women; they wrote messages which were twice as long as those sent by women; and made more socio-emotional contributions than women. Women were found to contribute more 'interactive' messages than men, i.e. their messages included implicit or explicit references to previous contributions.

Findings from the studies discussed above (Barrett & Lally, 1999; Guiller & Durndell, 2007; Herring, 1992; Herring et al., 1995; Selfe & Meyer, 1991; Sussman & Tyson, 2000) further indicate that the power structure in net based communication is characterized by at least two features: domination of the communication space and use of language indicators that signal domination or subordination. Coates (2004) found, for example, that the linguistic features that signal gender in computer-mediated interaction are similar to those that have been previously described for face-to-face interaction, and include verbosity, assertiveness, use of profanity, politeness (and rudeness), typed representations of smiling and laughter, and degree of interactive engagement.

A research review by Prinsen, Volman & Terwel (2007) examined both articles on differences related to sex in computer-mediated communication (CMC) and articles on computer supported collaborative learning (CSCL). Eleven of the twenty articles reviewed came from higher education contexts. In three of the six studies where the participation of male and female students was directly compared the results demonstrated that male students send more messages than female students (Barrett & Lally, 1999; Carr et al., 2004; Selfe & Meyer, 1991). In a fourth study (McConnell, 1997) female students were found to send more messages, although male students still wrote longer contributions. In a fifth study (Adrianson, 2001), the communication was balanced. Finally, in the sixth study (Savicki, Kelley, & Lingenfelter, 1996a) female students were found to send more words. When looking particularly at

communication expressions, five of the studies reported assertiveness, disagreement and the presence of social elements to be typical of the male communication style in the computer mediated environment (Adrianson, 2001; Bernard, Mills, & Friend, 2000; Gay et al., 1999; Savicki, Kelley, & Lingenfelter, 1996a; Savicki, Kelley, & Oesterreich, 1999). Females in these studies appeared to be more attuned to the task and to collaboration; built more on earlier messages; and agreed more with males than males with each other.

To sum up, a number of studies, in particular Dawn Blum (1999), Guiller & Durndell (2007), Herring (1992) and Herring, Johnsson & DiBenedetto (1995) seem to indicate that conclusions put forward by Straus (1996) concerning gendered expressions of power in net based communication may be false. The majority of studies referred to above do not support the hypothesis that net based communication gives rise to less expressions of gendered power than face-to-face communication and instead support the assumption that gendered power structures will survive the communication media.

The meta-analysis by Prinsen, Volman & Terwel (2007) points to an important aspect of gendered domination in group communication: the communication pattern that emerges may be a result of how the groups are composed. A majority of one of the sexes in a group may change the communication pattern. Two empirical studies support this assumption (Savicki, Kelley, & Lingenfelter, 1996a; Savicki et al., 1999). Tension, abusive language, calls for action and sticking to one's opinion seemed to be more prevalent in male-only groups than in mixed or female-only groups. In female-only groups, expression of individual opinion, milder or more intense reactions to other group members, more self-disclosure and more attempts at tension prevention or reduction were found than in male-only groups. Group composition seemed to play a role, resulting in dominance of male communication behaviour in groups where male students outnumber female students. Indicators of the importance of group composition were also found in a study performed by Savicki & Kelley (2000), where women using CMC

with other women in small task groups developed a significantly different style of communication than men using CMC with other men.

An interesting finding was reported in two studies by Herring (1994; 2003). Men were found to be less aggressive in female dominated groups. Herring assumes that in a discussion on-line, the sex with a majority of group members will dominate the discursive norms.

Other factors than gender/sex influencing the communication pattern

The lack of studies regarding other factors than the impact of sex on power structures in group work also applies to group work in the context of CMC/CSCL. Studies concerning factors such as culture and class, for instance, are rare. Intercultural communication as such is a challenge, and as with gender/sex, the question is if the Net makes communication easier. Some researchers claim that it does not, since the tool as such carries culture. Thorne (2003), for example, talks about the medium as a cultural artefact, thus challenging the assumption of culturally neutral e-learning tools. Jordan (2001) claims that the preconditions of cyber culture involve several of the linguistic and communication norms of Western societies, including the aggressive and competitive individual. Problems of negotiating cultures can be observed on the Net, where participants are involved in building learning communities and, Jordan argues, culturally diverse individuals may hold widely different expectations of how to establish credibility, exchange information, motivate others, give and receive feedback, or evaluate information. Reeder et al. (2004) analysed the impact of cultural differences on participation in a culturally diverse group of learners across Canada, where 17 students, 5 course facilitators, and 2 moderators formed a net community. The group included 17 female and 7 male participants ranging from 25 to 55 years of age, and participants appeared to be representative socially of the population normally recruited for the certificate programme. The participants used the following categories to identify their cultural heritages: Canadian, British Columbia First Nations (aboriginal),

Middle Eastern, Southeast Asian, Southern European, German, African, South Asian, Italian, Chinese, and UK South Asian. Nine of the 24 participants were born and educated outside of Canada. The data consisted of 453 on-line contributions over a 6-week online component. The data was analysed using a variant of grounded theory research methodology. Findings indicate that the net based communication space was not a culturally neutral or value-free speaking environment, in which culturally diverse individuals could meet on equal terms. The researchers observed that the cultural values of speed, openness, quick response, debate and informality were embedded in the Web platform used in the course. Another observation made by the researchers was that the greater the cultural gap between on-line participants, the greater was the possibility for miscommunication. Participants from Western cultures had the least difficulty in communicating successfully within the on-line course environment, whereas students from cultures with very different communication strategies were less successful communicators. The average number of postings made by aboriginal Canadians was for example disproportionately low. The conclusions drawn were that the observed variations in participation are a function of both cultural background and the fact that the Internet, like all social productions, carries the cultural values of its producers.

Summary and conclusion of research findings

Two traditions, CMC and CSCL, have dominated this new and expanding research field. Starting with different research interests, they now seem to converge. The research field is characterized by the different research disciplines involved. As a consequence, research questions, theories and methods vary considerably. Many of the CMC studies have been conducted by researchers from the discipline of psychology, and involve laboratory experiments. A few studies were realized in natural settings, analyzing net based interaction of learning communities using the Internet. By contrast, studies on CSCL have mainly been carried out in education. An important group of studies, mostly undertaken in linguistics, focuses the linguistic character of the contributions, with an interest

in type of language use compared to language use occurring in face-to-face situations.

So far, research supports two different conclusions. On the one hand, researchers suggest equalizing effects of net based communication. Status related characteristics, such as sex and age, are shown to be less dominant in net based communication, since the group members are not present in the same room physical aspects, play no part in the discussion. A third factor has by some researchers (King, 2001) been said to contribute to effects of equality: in an asynchronous discussion the group members have equal 'air-time', which means the same room for speech independently of each other.

The assumption that status characteristics observed in face-to-face situations are not present in on-line situations is, however, contradicted by most of the recent research. It is found that even in conditions of anonymity, participants who enjoy high status off-line dominate the interaction on-line. Most communication in groups seems to be characterized by expressions of power – or lack of power.

The divergence in research results might be ascribed to the relatively small amount of studies, and to methodological variations and shortcomings. Most studies, for example, are carried out under a short period of time. Very few studies were sensitive to issues of power, analysed the communication patterns of large numbers of students over longer periods of time (exceptions include Guiller & Durndell, 2007; Reeder et al., 2004; Straus, 1996).

Gender/sex is a factor that is included in several of the studies discussed above, especially in those focusing higher education. Such studies demonstrate that males dominate the discussions both quantitatively and qualitatively. They are more likely than females to use authoritative language and to comment negatively in interactions. Assertiveness and disagreement were typical of male styles. On the other hand, females were more likely than males to explicitly agree or support others, and make more personal or emotional

contributions. Females have also been found to make more references to previous contributions in a discussion.

The main research findings on the difference between male and female expressions in on-line discussions are summarized in Table 2 below.

Table 2. Summary of research review on male/female expressions

Male expressions	Female expressions
Competition	Community/relations preservation
Dominance	Modesty
Aggressiveness	Politeness
Profiling	Non-profiling
Closing	Opening

Even if this is the dominant pattern, and most studies show that sex plays a role in the interaction, a few studies show males to make more socio-emotional contributions than females. In this respect, the assumption put forward (see Callaway et al., 1985; Sussman & Tyson, 2000) that the context as well as the content of the communication, the organization, and the composition of the small discussion groups are all significant. The impacts of sex in net based communication are highly contextual and intertwined with factors such as socio-economic background, ethnicity, and age. Social class and culture are as important as sex in communication on the Net (Reeder et al., 2004). However, very few studies include such factors in their analysis. The situation of students from groups in society that are underrepresented in higher education, has for instance, rarely been in focus.

Another area where research is lacking is the impact of the composition of the small group. Only a few studies take into consideration group composition with respect to sex. In spite of well established research results demonstrating that men and women act and speak differently in only male/female, mixed or male dominated groups, most studies analyse the communication pattern irrespective of the composition of the small group with respect to sex. The

few studies that do focus on the group as such (see Savicki, Kelley, & Lingenfelter, 1996a; Savicki et al., 1999), and on the effects of group composition, indicate that in groups where male students outnumber female students, the males dominate the communication in several ways.

Clearly, power issues in on-line communication involve many factors, and are far from simple. The findings on these issues could be summarized as follows. On the one hand, studies show social benefits of CMC, meaning that building an on-line community may provide both social and academic support, offering an arena for students to get more familiar with each other. CSCL contexts, with tools deliberately conceived to enhance working and learning through collaboration, offer more possibilities of participating in discussions/knowledge building than traditional CMC contexts. Asynchronous communication offers better possibilities to take part without time pressure, thus giving room for deeper thoughts, lengthier considerations, better considered analyses and more critical thinking than synchronic communication (Malmberg, 2006; Paavola et al., 2004).

As a research field, two types of research appear to be lacking: firstly, studies highlighting the impact of other status characteristics than sex, such as ethnicity, social class or age, and secondly, studies focusing on the impact of group composition on the interaction. The thesis will try to add to existing knowledge by focusing on these two aspects. As assumed by theory and to some extent shown by empirical research, a relation appears to exist between the access to cultural, social and symbolic capital and expressions of power. In the analysis, I will therefore try to relate the hierarchy in expressions of power found in the groups' communication to some parameters defining capital.

Research questions

The review discussed above has pointed to certain needs for research. The review has also identified a set of concepts and strategies that have proved to be of value when identifying expressions of power in net based group dialogues. The overall aim of the present thesis is to investigate the interaction processes that occur in the group dialogues when teacher students work collaboratively in small groups using net based asynchronous dialogues to solve a problem of environmental sustainability. The focus is on power structures in the CSCL context in relation to aspects of symbolic capital. In other words, the thesis investigates whether students' dialogues display patterns of dominance/subordination. This includes an interest in the significance of group composition. The overall aim can be broken down into the following research focuses, with corresponding research questions.

    A. *Expressions of power in the discussions with respect to quantitative communication space and verbal expressions*
   What differences (if any) are found in the asynchronous dialogues regarding:
- Dominance of the communication space? Are these differences related to students' sex, age, linguistic background or country of birth?
- Expressions of agreement/support or disagreement with other group members?
- Use of toning down expressions?
- How do students try to involve and relate to other group members, by asking questions, asking for input and views from other group members?

    B. *Relation between expressions of power in relation to symbolic capital*
   Are any of the aspects outlined under A. related to symbolic capital, as defined by student's sex, age, socio-economic background, language spoken at home or country of birth?

C. *Expressions of power in relation to group composition with respect to symbolic capital*

Does the composition of the specific work group with respect to proportion of male/female students, of students born outside Sweden, speaking another language than Swedish at home, and students with diverse socio-economic background, affect the issues outlined under A. and B. above?

METHOD

Research approach

Research methodology in the social sciences has traditionally been divided into two different research traditions: quantitative or qualitative approaches. However, in recent years, this bi-partition into two parts has been questioned. Allwood & Erikson (1999) and Einarsson & Hammar Chiriac (2002) believe that one way of avoiding this dichotomy is to stop using the labels qualitative and quantitative, and instead refer to the complex relationship between scientific philosophic assumptions, different methods and the tangible research that is to be undertaken.

Bryman & Nilsson (2002) represent another standpoint concerning the two research traditions, and argue that it can advantage to combine them. A combination of the two research approaches could lead to a reinforcement of the advantages, while reducing the disadvantages that each tradition presents separately. Criticism has been raised against this standpoint. It has been stressed that the two research methods build on differing epistemologies, and that qualitative and quantitative research are based on different research paradigms. Nevertheless, argues Hammar Chiriac (2003), by connecting to a more technical approach, it is possible to use a multifold strategy. Denzin & Lincoln (2005) argue along the same line; "nor does qualitative research have a distinct set of methods or practices that are entirely its own. Qualitative research, in fact, uses semiotics, narrative, content, discourse, archival and phonemic analyses, even statistics, tables, graphs, and numbers" (p.14). According to these researchers, methods can be seen as autono-

mous in relation to the fundamental ontological assumptions, and thus be used within both traditions or even be combined in a, for the study, profitable way. This is the perspective adopted by the present thesis. The research questions focus primarily on the relationship between communicative interaction patterns and qualities that signify structural power relationships among students. At the same time, the questions involve an interest in generating statistically reliable results. In other words, the focus on patterns of dominance of the communication space in dialogues concerns both quantitative and qualitative aspects. Hence, the data used is derived from both quantitative and qualitative analyses of the material. On the one hand, quantitative measures are needed to relate expressions of quantitative dominance of space to social variables describing symbolic capital. On the other hand, a qualitative analysis is used to describe and understand in which ways domination is verbally expressed.

Design of the empirical study

In order to answer the research questions, the design of the study and the methods for gathering and analysing data must be considered. Before discussing in detail the ways in which the research questions are addressed, I will briefly outline design, data and methods used for the analyses.

Being part of a broader longitudinal study of first term teacher students in net based group work, the study is truly naturalistic: it relies on data that would also otherwise be gathered in the course, and on software and communication rules normally used in this educational context. The setting and the content was decided by the course administrators. The study includes the participation of all students enrolled in the course. The naturalistic design restricts the choice of methods for data gathering.

In the case at hand, the course was based on CSCL (Computer Mediated collaborative Learning)[9], as problem based knowledge building in small and heterogeneous groups. The groups were composed randomly by the course administrators in groups of 4-6 students (although one group ended up having 7 members). As part of the course, students answered two questionnaires at the beginning of the term. One included questions concerning the apprehension of knowledge and learning, teaching as a profession, group work and self efficacy. The other questionnaire contained questions on personal background and on students' experience with computers. The latter (see Appendix I) was used as source of information on students' linguistic background, country of birth and parental educational attainments. The net based dialogues took place on special research software, where every group used its own forum and chat room. The chat room was meant only to hold 'social comments', whereas the group forum was intended to hold the knowledge building contributions. The course included frequent moments of self and peer assessment, among which were assessment of the social dynamics of the group, as well as assessment of the quality of the students' and others' contributions. In the course design, these assessments were primarily intended to function as individual examinations with a formative focus. They were, however, additionally included in the summative examination that besides these assessments that took place periodically during the course, also consisted of a group report that drew conclusions regarding the appropriate location of a new central refuse disposal plant.

Ethical aspects

All students were informed in the beginning of the term that we wanted to use the material for research. We assured the students of their anonymity, and that their identity would never be revealed in any report. There were no students who opposed the use of the

---

[9] As earlier explained in the chapter *Group work, power and communication technology*, CSCL (Computer Mediated Collaborative Learning) refers to virtual teams of interdependent members collaborating using communication technology synchronously (students communicate with one another in real time) or asynchronously (students access and contribute whenever convenient) using e-mail or online discussion boards. Discussion is aimed at solving problems and building knowledge collaboratively.

written dialogues for research, but some students were hesitant to fill in the form about personal information (see Appendix I) which resulted in 29 students (20 %) not filling these forms in.

Discussion of methods for gathering and analysing data

The choice of research methods is closely related to the research questions. Choice of methods involves methods used to gather data, as well as methods to analyse the data. Earlier research has employed a variety of methods to research group interaction. The adopted methods vary depending on research focus, but also with scientific discipline. In the research review on differences relating to sex in CSCL/CMC by Prinsen et al. (2007), descriptive studies in natural settings were used in four out of six studies undertaken in the discipline of education, whereas experimental design was used in seven CMC (Computer Mediated Communication)[10] studies, all based in psychology. The experimental studies used experiment and control group design, and the content and context of the dialogues was specially designed for the experiment. In the naturalistic studies, data was gathered from, for example, internet dialogues in ordinary chat communities, from a common forum, or from a forum specific for each working group. The dialogues in the naturalistic types of studies either consisted of 'natural' discussions on the Net or of dialogues on specific material and/or problems that were given to the students as part of a course.

Analyses of data in the research field of CSCL/CMC also vary depending on the research traditions existing within different disciplines, although there seems to be certain common elements. To study students' participation in the communication, number of messages and number of words are frequently counted. Findings concerning various forms of language based on content analyses are also frequent. Social network analysis was used in one CSCL study in order to study the social dynamics of a group (Malmberg, 2006).

---

[10] Explained earlier in *Group work power and communication technology*. CMC (Computer Mediated Communication) refers to electronic discussion that is used as a means of enhancing individual student's exploration and understanding of subject matter. Subordinate is the collaborative aspect of learning.

Statistical tools and methods of analysis

All data was entered in a data base of the Statistical Package for the Social Sciences programme (SPSS for Windows, version 14.0). SPSS was also used for the statistical analyses.

ANOVA (Analysis of variance) was predominantly used in the first analysis, when group composition was not considered, except for analyses with respect to age, where statistical relationships were analysed by Pearson product-moment correlation. Post hoc analyses were performed in cases where the independent variable consisted of more than two categories. Multivariate analyses were done when the variable sex was added to the analyses of age, language spoken at home, country of birth and parental educational attainments. In the second analysis, with respect to group composition, the statistical relationships were analysed by Pearson product-moment correlation.

The methods chosen for gathering data will be described in the following.

Instruments for data collection

Table 3 below summarizes the instruments used.

Table 3. Data gathering tools

University registration form[11]	Question-naire[12]	Net based communica-tion	Evaluation[13]
Background data: sex and age	Background data: country of birth, language spoken at home, parental educational attainments	All contributions during two weeks (a total of 2077): Number of contributions, number of words per contribution, and in total, use of verbal expressions	Students' analyses of the method of working on a CSCL, regarding personal experience and suitability in schools

---

[11] When students entered the teacher training they were registered by name, sex, age and degree profile.

[12] The questionnaire was disseminated in the beginning of the first term, as a part of the overall ALHE research programme (see Appendix I).

[13] The quotes from the students in the present thesis are drawn from this evaluation

Description of collected data on students' background

The data that was collected on students' background is summarized in Table 4 below.

Table 4. Collected data on students' background

- *Sex, (male or female)*
- *Age (years of age)*
- *Socio-economic background,*
  (parents' highest level of education)[14]
- *Language spoken at home,*
  (Swedish or another language)[15]
- *Country of birth,*
  (born in Sweden/ not born in Sweden)

Sex

Gender is a social construct. Whereas sex is the term used to indicate biological difference, gender is the term used to indicate psychological, social and cultural difference.

> The identification of a person as belonging to one of two gender groups is a fundamental guide to how they are perceived, how their behaviour is interpreted and how they are responded to in every interaction and throughout the course of their lives. (Weatherall, 2002, p. 20)

Performing statistical analyses on gender tends to lead us to divide people in the dichotomy of male and female, although this type of dichotomy implies a very narrow perspective on gender. Nevertheless, research reviews previously referred to (see Guiller & Durndell, 2007; Herring, 1992; Savicki, Kelley, & Lingenfelter, 1996a; Sussman & Tyson, 2000) clearly show that power differences have been observed correlating to the distinction of sex.

---

[14] D*ata was collected on mother's and father's educational attainments and the highest level was derived from that*

[15] Several students commented that they spoke both Swedish and another language at home. These students were included in the category 'speaking another language than Swedish at home'.

Age

The age of the students in my study varies from 19 to 48. The point of departure when entering higher education is very different for students coming directly (or almost) from upper secondary school, compared to students who have already pursued a professional career, or those students who maybe even have completed another programme in higher education.

Socio-economic background

Socio-economic background may be operationalized in different ways. Socio-economic background of students is usually defined on the base of the parents' profession or education. In the *Concept Manual for Follow up of Higher education* (The Swedish National Agency for Higher Education, 2008), it is described as the highest educational level of either parent. The socio-economic background is perceived to have an impact on the students' academic self-confidence and their self-perceptions of their academic abilities. The data should be understood against the background that in Sweden almost all adults have completed nine years of compulsory schooling (Statistics Sweden, 2007), and today the vast majority of all school-leavers enter upper secondary school (The Swedish National Agency for Education, 2009). In Sweden 37 % of young people born 1986 enter higher education before the age of 21 (The Swedish National Agency for Higher Education, 2009). Higher education is free of charge in Sweden. Considering the different ages of the students participating in the study, one may reflect over the impact of the educational attainments of parents on a student 19 years of age who still lives at home with her/his parents, in comparison to a student of more than 35, who has pursued a professional career or completed a university degree. Astin (1977) found that students' perception of themselves regarding academic abilities and academic self-confidence is not static. Students generally increase their academic self-confidence through participation in college. He found that student involvement, particularly involvement with faculty, had a significant effect on students' academic self-confidence at the end of college, even after controlling for background characteristics and their entering level of academic self-confidence.

Language spoken at home and country of birth

Swedish legislation does not allow handling of data revealing ethnicity[16]. 'Foreign background' is in Swedish national surveys defined as persons born abroad and/or persons whose parents are both born abroad[17]. Thus, the variable *country of birth* included in my study does not capture the entire group of students counted as being of foreign background in Swedish statistics, since the parents' country of birth is not included. The variable country of birth is vague, and to use it as a variable describing cultural background is misleading, among other things since there is no distinction made which countries the students are born in. The differences in culture (aspects of culture that could be of relevance in this context) between students coming from various origins but not born in Sweden are probably greater than the difference of these students as a group compared to students born in Sweden. Linguistic background could mean a variety of things. Statistics concerning language[18] in censuses in the ECE region refer to: mother tongue (defined as the first spoken language), the most important language (the language an individual is in best command of) and language spoken at home or at work, or proficiency in different languages. In this study, the variable concerning language refers to language spoken at home. However, the significance of the variable is not entirely clear with respect to the research questions. The main issue of interest for this study is the proficiency in the Swedish language, while the variable *language spoken at home* merely suggests that Swedish is not the mother tongue for those who speak another language than Swedish at home. The variable taken alone gives very little information concerning actual proficiency in Swedish, or how this might affect the communication in various subject domains. In a given social context, however, lower proficiency in Swedish may in fact correlate with the circumstances that other languages are spoken at home. Although the two variables *country of birth* and *language spoken at home* are blurry in certain respects, and only relate indirectly to the aspects they are trying to capture (cultural

---

[16] According §13 in the Swedish personuppgiftslagen (PuL 1998:204) [the Personal Data Act (PDA)] it is forbidden to handle personal details that reveal the ethnic origin.

[17] Concept Manual, Swedish National Agency for Higher Education (2008)

[18] Recommendations for 2000 censuses of population and housing in the ECE region. New York: UN

aspects and Swedish language proficiency), as will be seen in the next chapter, they still produce interesting differences in the statistical analyses of students' patterns of interaction.

Work groups

The work groups were composed randomly by course administrators. The data gathered in the manner described in previous section; *Description of collected data on students' background*, was used to obtain information about the actual composition of each specific group. The reason for including group composition with respect to other parameters in the analysis is found in earlier research. Herring (1994; 2003) found that males dominated in groups where they outnumbered the female students. If group composition regarding sex influences the dialogue in this way, the same may be true of socio-economic, linguistic and cultural background. Thus, to answer the question, *What effect does the composition of the specific work group have on the communication pattern?,* parameters are needed showing the composition of each of the groups regarding number/proportion of males/females, country of birth, language spoken at home and parental educational attainments.

Table 5. Constructed data on group composition

- *Percentage of males/females in group*
- *Percentage of students in group who have at least one parent with university education*
- *Percentage of students in group who speak only Swedish at home*
- *Percentage of students in group who are born in Sweden*

The net based forum communication

Each group of students was assigned two group sites for communication; the Group Chat for social interaction and the Group Forum for task related contributions. The contributions sent to the Group Forum were used as primary data for the analyses of the students' interaction. A total of 2077 contributions were sent by 29 groups

of first term student to the separate group forums. The reason for not including the data from the Group Chat in the analyses of the students' interaction is motivated by the results presented by Malmberg (2006), using data from the same course a previous year. Malmberg shows that, on the whole, the students tend not to include personal and practical comments in the group forum. In most groups, such issues are discussed on the chat forum. Malmberg's study also shows that use of the chat forum varies substantially between groups.

The 2077 forum contributions were coded and counted. The coding was inspired by earlier research results and theoretic assumptions. The concrete coding criteria (see Appendix II), exemplified with excerpts, were developed through a series of revisions, and the process was checked by a senior researcher. Two different coding schemes were used: 1. indications of dominance of the communication space, and 2. verbal expressions that might be coded as expressions of power or the contrary.

Quantitative dominance of the communication space

To answer the question *What differences are found in the asynchronous dialogues regarding the dominance of the communication space?* certain aspects of the contributions have to be quantified. Number of contributions and number of words were the most common indicators of dominance used in earlier studies. In this study, taking the floor in the group discussion is coded by: *Number of contributions, Length of contributions, Total number of words* and *Share of discussion threads initiated in the group.*

Table 6. Collected data on quantitative communication space

- *Number of contributions*
- *Length of contributions*
- *Total number of word*
- *Share of discussion threads initiated in the group* (%)

Verbal expressions of dominance and/or community

The contributions were analysed and coded using linguistic content analysis, and numerical data was constructed to answer the questions: *What differences are found regarding expressions of agreement/support or disagreement? Use of toning down expressions? and Do students try to involve and relate to other group members by asking questions, asking for input and views from other group members?*

The codes used are summarized in Table 7 below.

Table 7. Collected data on verbal expressions

Agreements
- Share of contributions containing agreements (%)

Disagreements
- Share of contributions containing disagreements (%)

Requests for input
- Share of contributions containing requests for input (%)

Toning down words
- Share of contributions containing toning down words (%)

Below follows a description of the verbal expressions that were used in the analyses. To clarify the data gathering method and to give an idea of how these expressions were used in context, examples are given and commented on. The excerpts are translated from Swedish, all names are pseudonyms.

Agreement
Agreement is signified by: a positive value judgement such as 'As Anna said…'; encouragements e.g. 'Good, Patrik…'; or by the stu-

dent in the heading classifying[19] her/his contribution with 'Agree'. Guiller & Durndell (2007) describe an agreement (respectively a disagreement) as a positive versus a negative 'socio-emotional distinction'. The authors define this distinction by the way the contributor reacts to the contributions of others, either in a positive way (agreements), or in a more negative way (disagreements). The analysis of agreements and disagreements was based on the research undertaken by Guiller (2006), who found that females were more likely than males to make attenuated contributions and express agreement, whereas males were more likely than females to make authoritative contributions and express disagreement.

The excerpt below from a discussion in my material (Excerpt 1) illustrates the use of agreements.

Excerpt 1. Female student, 19 years old

Re: All-embracing dialogue – Discussion thread [*Agree*]
2004-10-19 19:58 by Linda Vreeten

That sounds reasonable. If one could decrease the waste with 50 % it would be great! Why do not any more municipalities apply this method? Maybe it's too expensive to distribute warm compost containers to everybody? But as we conclude it is better to think in long-term!

Contributions were classified as agreements in two cases: all contributions labelled by the students with *Agree*, and other contributions containing explicit agreements, even when not labelled *Agree* (see Matrix I, Appendix II).

Disagreements
A disagreement may be regarded as the opposite of an agreement. An agreement remark carries a positive value, whereas an expression that is coded 'disagreement' holds a negative value judgement. The two expressions differ, however, in strength, since a person disagreeing would run the risk of a social conflict. As has been

---

[19] As described in the *Introduction,* a function had been built into the software, with which they could mark their contributions with the following categories; New, Agree, Questioning, Build, Conclude or Organize.

shown in earlier research (de Vries et al., 2002), there is a strong tendency of avoiding cognitive conflicts in groups. The same tendency can be seen in this data: the disagreement remarks are more subtle and expressed in a more complex way than the expressions of agreement. Pomerantz (1984) claims that disagreements are usually wrapped up and not as simply structured as agreements. In line with this, a remark of disagreement was often preceded by an expression of agreement as in Excerpt 2 below.

Excerpt 2. Female student, 22 years old

| Re: the dump [*Questioning*] |
| 2004-10-19 16:41 by Eva Andersson |
| I agree with you partly in what you write **but want to question a few things ….** |

Below follows one of the few cases where a disagreement was expressed directly.

Excerpt 3. Female student, 36 years old

| Re: The dump [*Questioning*] |
| 2004-10-20 10:58 by Angelika Norlin |
| **I must question your contribution about closing down the refuse combustion.** I read an article where they came to the conclusion that it is more environmentally risky to compost domestic refuse than combusting it as bio fuel. Besides if we were going to deposit all waste a lot of more space would be needed? |

Just as with agreements, when the disagreement was not explicitly expressed, it was the students' own labelling of the contribution that decided the categorization of the contribution to disagreement, in this case the label *Questioning* (see Matrix I, Appendix II).

Request for input
To pose a question or to ask for input is quite likely a way to express a wish for interaction with other group members. To do so is, however, a potentially face-threatening action (Goffman, 1967), and to expose oneself in such ways demands a certain measure of

self-confidence. To send many requests may therefore, be seen as a demonstration of a strong attitude including a will to steer the discussion. It is generally not the group member with the least knowledge who asks questions, and certainly not the one who is most insecure. However, alternative interpretations of the use of requests for input are possible: just as frequent questions, to pose few questions or to rarely ask for input from the other students may indicate another variety of assertive style, indicating a strong position of power in the group.

The analytical category *Requests for input* did not have its own categorizing label for the contributions as *Agreement* and *Disagreement* did. Although questions were fairly easy to detect, the material contained a number of different types of questions that needed to be distinguished. Questions that were identified as rhetorical questions like 'That article is very unreliable, isn't it?' were not included in the definition of *request for input*. In cases where it was uncertain whether an expression was a rhetorical question or not, the question was included in the category. Some questions were direct factual questions e.g. 'What is meant by global warming?', while others were questions asking for the others' opinions, for instance, 'What do you think about Mossheden?', both these types of questions were included in the category *request for input* (see Matrix I, Appendix II).

In Excerpt 4 below, the contribution is labelled *Agree,* but it also contains a question. It is therefore consequently categorized as containing both an agreement and a request for input.

Excerpt 4. Female student, 44 years old

| Re: The refuse dump [*Agree*] |
| 2004-10-15 20:38 by Anneli Renström |
| David you are correct about the sea-current, **but how can we get more information?** I know that it was the same arguments when the Sound bridge was built, later it was proved that the bridge pillars didn't have much impact. |

Questions are not only invitations to an answer as Nordenstam (2003) has pointed out, but can also be a disguised order or a proposal, which was seen abundantly in the material, see e.g. Excerpt 5 below.

Excerpt 5. Female student, 19 years old

Re: Report group
2004-10-20 14:52 by Anna Proost
Couldn't we write some points each? Then somebody reads it through and writes about it so it sounds good??

Toning down words

To avoid face-threatening actions, a strategy of politeness is commonly used. Politeness can partly be described by different kinds of toning down strategies (see the chapter *Working in groups* for a more detailed explanation of the concept of politeness). The toning down words included in my study were those words and expressions that were used to play down, either the speaker him/herself, or what he/she was saying. This has been called the 'modality' of an utterance, and explained as "…the speaker's judgements of the probabilities, or the obligations, involved in what he is saying" (Halliday, 1973, p. 75). The modality thus signifies to which extent the speaker in an utterance commits her/himself to what is said. This is an important aspect of toning down techniques, signalling subordination. Toning down words were only used as an indicator of speakers' relative status and power in a limited number of studies.

In an innovative study, Gomard (2001) focused not on domination as in earlier studies, but on expressions of politeness, signifying subordination, investigating how they were used by male and female research students in Denmark. For the analyses of coding expressions representing toning down in my material, I used Gomard's analysis to develop a Swedish coding system. This was done in a pilot study of three groups with a total of fourteen students. In the pilot study, I adapted Gomard's analysis of toning down strategies to a Swedish context. Just like the Danish language, Swedish contains several toning down techniques that enable the

speaker to speak in a tactful manner in connection with comments, requests and giving advice. These techniques include (based on Gomard's analysis and corresponding material found in the pilot study): the interrogative form; negation (inte [Eng. not]); modal auxiliary verbs (kan, bör, lär, ska [Eng. can, ought to, is said, shall]); verbs, past tense; (skulle [Eng. should]) adverbs that play down (nog, lika bra, jo, bara [Eng. probably, just as well, well, just]).

Additionally, this pilot study showed that in the Swedish dialogues, other expressions, that no doubt also expressed toning down were frequent. I included these words as indicators of toning down, in addition to the forms (see above) that directly correspond to Gomard's list. The additional words/expressions are: kanske, jag vet inte, undrar, känns, verkar [Eng. maybe, I don't know, wonder, feel, seem], as well as the expression 'väl' which is difficult to find a single word in English to translate with. In certain contexts, the word 'väl' expresses the speaker's expectation, as in 'you're not … are you?' In other cases, the word is roughly the equivalent of expressions like '… I suppose', or '… I hope'. I also included the word 'lite' [Eng. little] when it was used as an expression to diminish what was said e.g. 'Det är lite så jag menar' [Eng. It is a little bit like that I mean]. Excerpt 6 below gives an example of how toning down words were used in a discussion included in my study.

Excerpt 6. Male student, 23 years old

Re: The dump [*Build*]
2004-10-14 14:01 by Fredrik Lund
can be a solution– but **don't know** for sure – you mean that one should direct the streams so they are not hindered. **I think** that it could be difficult to direct the streams with no consequences. But **I don't know** as said before. It is **maybe** possible to build some kind of system that makes it possible to get that kind of turnover of water that is necessary. Anyway it should be possible to decrease the environmental damage in some way. /fredrik

Data analysis in two steps

Content analysis and analysis of space of all contributions irrespective of group composition.

All contributions were analysed and transformed into numerical codes. The coded items were then used in correlation studies of the relations between content as well as space with respect to parameters of symbolic capital.

Content analysis and analysis of space with respect to group composition.

The composition of the groups was included in the analysis of relations between power expressions and symbolic capital.

Missing data

Two students were not included in the university register when data was collected; they had terminated their studies after one term and personal details were removed from the register so age could not be obtained. Some of the students expressed a feeling of invasion of integrity and expressed that they did not want to respond to questions about their parents' educational attainments. Twenty-nine students did not fill in the questionnaire at all (20 %). All students who filled in the questionnaire replied to the question regarding language spoken at home (therefore missing in total 20 %); one of the students filling in the questionnaire did not reply to the question regarding country of birth (missing in total 20 %); while three of the students who filled in the questionnaire did not respond to the question regarding their parents' level of education (missing in total 22 %).

Of those who did not fill in the questionnaire fourteen were men and fifteen women (48 % respectively 52 %), which does not match the overall gender distribution in the whole study group of 37 % men respectively 63 % women. Thirteen (45 %) of the students who did not reply to the questionnaire were less than 25 years old which is a bit less than the figure for the whole group (57 %).

Description of the students

This study comprises the whole population, that is, all students who entered teacher education, unit NMS in 2004. NMS enrolled about a fifth of the teacher students entering Malmö University that year. A total of 188 students were registered at NMS in either of the two existing programmes (lasting 3.5 or 4.5 years respectively). Of these, nine dropped out after a few weeks. The remaining 179 students were divided into 35 groups, which were put together randomly. At the time of the investigation, materials from 6 groups with 32 students had to be omitted from the analysis, due to some misunderstandings by one of the tutors, who edited the online contributions. The total number of students included in the study is thus 147 students in 29 groups. Neither the students in the six groups that had to be excluded from the analysis, nor the characteristics of these six groups with respect to composition, depart in any noticeable way from the remaining 29 groups included in the study. In the following, students are described according to the parameters: sex, age, parents' level of education, language spoken at home, and country of birth.

Sex

The distribution between male and female students in the groups included in the study is described in Table 8 and compared to other student groups in Table 9.

Table 8. Sex of students, NMS[20], Teacher education, Malmö University, 2004

Sex	Frequency	Percentage
Male	54	37
Female	93	63
Total	147	100

As Table 8 above shows, of the 147 students almost two thirds are female and one third male. This is in line with the composition of the student cohort at Malmö University at large, as can be seen in

---

[20] Department of Nature, Science and Society

Table 9 below, but is a considerably higher share than at Swedish universities in general.

Table 9. Percentage of male students among new entrants to higher education 2004 in Sweden, at Malmö University and at NMS, Teacher education, Malmö University

University/College	Male entrants to higher education 2004 (%)
Sweden	44
Malmö University	36
Teacher education, NMS	37

Source: Swedish National Agency for Higher Education (2005), NU-statistikdatabasen,

Age

The distribution of age is described in Table 10, and is compared to Swedish students at large and to all students at Malmö University in Table 11. For descriptive purposes, age is in the tables coded in age groups, less than 25 and more than 25 years old. The categorisation of students in groups of less than or above 25 years of age is internationally recognized (see for instance the indicator for educational attainment of the population in the International Standard Classification of Education (ISCED) (UNESCO, 1997) where the educational attainment of the population is presented with respect to number of students aged over respectively under 25 years of age). The classification of the students in age groups will later be used in the analyses of communication space with respect to age in combination with sex.

Table 10. Students with respect to age group, NMS, Teacher education, Malmö University, 2004

Age group	Frequency	Percentage
<25	83	57
=>25	62	43
Total	145[21]	100

In the study group, students aged less than 25 years represent more than fifty percent of the student population. The mean age of the group is, as can be seen in Table 11, not substantially different from new students at Malmö University and at Swedish universities at large.

Table 11. Mean age of new entrants to higher education 2004 in Sweden, at Malmö University and at NMS, Teacher education, Malmö University

Universities/Colleges	Mean age, entrants to higher education 2004
Sweden	22
Malmö University	24
Teacher education NMS	23

Source: Swedish National Agency for Higher Education (2005), NU-statistikdatabasen

---

[21] Missing two cases

Parental educational attainments

The parental educational attainments of the students in the present study are described in Table 12 and compared to parental educational attainments of new students at Malmö University and other Swedish universities in Table 13.

Table 12. Parental educational attainments of students, NMS, Teacher education, Malmö University, 2004

Parental educational attainments	Frequency	Percentage
Nine-year compulsory school	10	9
Upper secondary school	38	33
University	67	58
Total	115[22]	100

Of those responding, the majority (58 %) indicated that at least one parent had studied at university level, whereas only 9 % of those answering the question had parents with low levels of education (nine-year compulsory school).

Table 13. Parental educational attainments of new entrants to higher education 2004 in Sweden, at Malmö University and at NMS, Teacher education, Malmö University

Universities/Colleges	Students with parents of university education (%)
Sweden	30
Malmö University	23
Teacher education 1st term NMS	58

Source: Swedish National Agency for Higher Education (2005), NU-statistikdatabasen

As can be seen in Table 13 above, the group of students entering the NMS unit of the teacher training programme departs in a compelling manner, both from the new students at Malmö University and from students in Sweden at large, by coming from back-

---

[22] Missing 32 responses

grounds with higher academic levels of achievement. Since teacher education in Sweden generally tends to recruit students from lower and middle class backgrounds, it would have been easy to assume the contrary. The proportions of academic family backgrounds are all the more noteworthy, since Malmö University recruits more students from parents with lower occupational status and educational attainments than most other universities and university colleges in Sweden. The difference could possibly partly be explained by the 22 % missing responses. However, if all the 32 students not responding to this question were coded as 'nine-year' or 'upper secondary', 46 % would still be classified as having academic family background, which is still significantly higher than students at Malmö University and in Sweden at large.

Linguistic background and country of birth
Similar issues to those discussed above appear concerning questions of linguistic background and country of birth. A substantial number of students did not answer the questions; which may also have led to a certain distortion of the data on the group characteristics.

Table 14. Language spoken at home, NMS, Teacher education, Malmö University, 2004

Language spoken at home	Frequency	Percentage
Swedish	95	81
Another language	23	19
Total	118[23]	100

Of the 117 responding students, 19 % responded that they speak another language than Swedish at home.

---

[23] Missing 29 responses

Table 15. Country of birth, NMS, Teacher education, Malmö University, 2004

Country of birth	Frequency	Percentage
Sweden	102	87
Another country	15	13
Total	117[24]	100

Of 117 respondents, 15 answered that they were born in another country. As 30 students did not answer, we do not know the country of birth of these students. A comparison with data from The Swedish National Agency for Higher education (2005) on students with a foreign background in Sweden and with Malmö University's student data is presented below in Table 16. It must be noted that the data from the two last sources not only represent students born abroad, but additionally include students whose both parents are born abroad. Clear conclusions can therefore not be drawn, since the data from NMS only includes students who are themselves born abroad.

Table 16. New entrants to higher education who are either born abroad or whose parents are both born abroad, 2004

Universities/Colleges	New entrants to higher education who are either born abroad or whose parents are both born abroad (%)
Sweden	16
Malmö University	23

Source: Swedish National Agency for Higher Education (2005), NU-statistikdatabasen

Correlations between independent variables of background

Correlation analysis of the NMS data revealed a significant relationship between sex and language spoken at home: more women than men spoke another language besides Swedish at home. As

---

[24] Missing 30 responses

could be expected, there was also a significant relationship between country of birth and language spoken at home.

Description of the 29 groups
Students were randomly assigned to groups by course administrators, which resulted in great variety with respect to background parameters. In the following, the groups are described on the parameters of sex, age, parental educational attainments, language spoken at home and country of birth.

Group size
A group had four to seven members. Table 17 below shows the number of groups of various sizes.

Table 17. Group size

Number of members in group	Number of groups
4	7
5	14
6	7
7	1

Half of the groups had five members, whereas the rest had four or six. Only one group had seven members.

Group composition with respect to background factors
Sex
Nearly half of the groups had quite an even distribution of male and female students (40-60% of either sex). One group consisted of only females, while in three groups there was a majority of males (two groups with 60 % of males and in one group all but one student were males (80%)). The rest of the groups were to various degrees (>60%) dominated by female students.

Table 18. Group composition with respect to sex

Share of males in group (%)	Number of groups
0-19	2
20-39	11
40-59	13
60-79	2
80-100	1

Age
More than half of the students were less than 25 years old, but almost one fifth of the students were more than 35 years old. The average age was 26 years.

Parental educational attainments
With respect to parents' level of education 25 % of the groups consisted of a majority of students whose parents had not pursued university studies, whereas in close to 50 %, students with university educated parents were in majority.

Students' linguistic background and country of birth
All groups contained a majority of students speaking only Swedish at home. In fifteen groups, all students spoke only Swedish at home. Also regarding country of birth, all groups contained a majority of students who were born in Sweden. Eighteen groups were formed entirely of students born in Sweden.

INTRODUCTION TO THE DIALOGUES

Opening up and/or closing down a discussion

Before presenting the main results of the empirical analyses concerning symbolic capital and expressions of power, I would like to illustrate some of the differences in how the discussions proceeded, using examples from two of the groups. The description and analysis of the discussions presented here are inspired by Wertsch (2002) and his concerns about the dialogic processes in a computer mediated context, more specifically, the issue of whether this new form of media may give rise to a new form of monologism.

Consequently, I decided to take a deeper look into the dialogues with respect to dialogicity and the concerns raised by Wertsch. Two groups were selected based on a social network analysis (SNA), which among other things measured the evenness of participation in the groups. In this context, the analysis considered both number of contributions and who was replied to. The two groups selected for this analysis showed radically different levels of homogeneity with respect to the involvement of the group members; in one of the groups (group B) the participation was fairly evenly distributed among the group members, while in the other group (group A), one or two group members dominated the discussion. See Figures 2 & 3 below.

Figure 2. Social Network Analysis (SNA) Group A
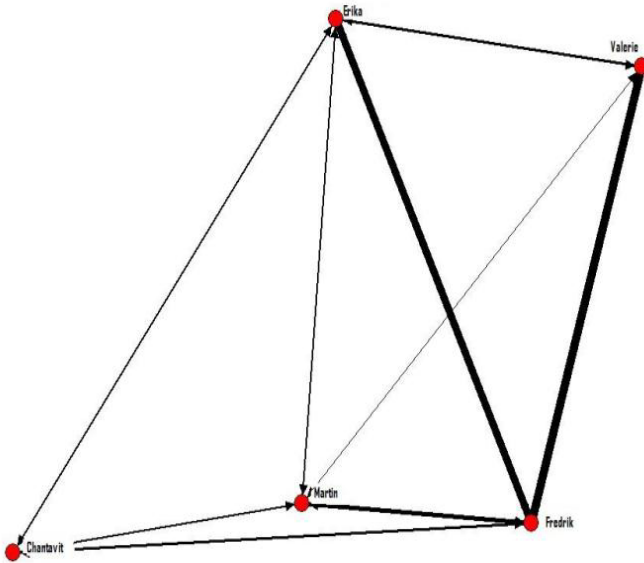
Figure 3. Social Network Analysis (SNA) Group B
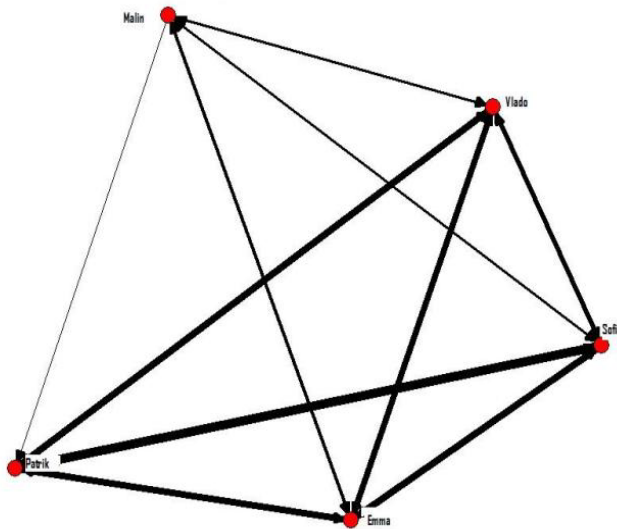
In the analysis below, I describe how the group members in the two groups (A and B) phrase their contributions and how they by using different phrasing invite (or not invite) the other group members to participate in the discussion. To open up or close down a discussion is by Bakhtin (1981) referred to as the 'dialogicity of the voices'.

The instrument used here for analyzing the dialogicity was developed by Fairclough (2003). Fairclough bases his theory and method on the Russian philosopher and semiotician Bakhtin, who wrote influential works of literary and rhetorical theory. Fundamental in Bakhtin's theory of dialogicity are the concepts 'utterance' and 'voice'. He argued that a certain meaning is not imbedded in the isolated utterance, but instead comes to light by studying the relationship between several utterances. According to Bakhtin, the explication of a dialogue should begin with dialogicity: "the utterance is filled with dialogic overtones" (Bakhtin, 1986, p. 92). The concern with dialogicity surfaces everywhere in Bakhtin's writings. Holquist, who has analysed and interpreted the writings of Bakhtin, states with reference to Bakhtin: "a word, discourse, language or culture undergoes 'dialogization' and 'Undialogized language is authoritative or absolute" (Holquist, 1981, p. 427).

The instrument developed by Fairclough (2003) and which is used in this analysis, consists of a scale of dialogicity where the linguistic expressions are listed from 'most dialogical' to 'least dialogical', see Figure 4. The scale of dialogicity can be discussed and developed further in order to provide more thorough information on the dialogicity. In its present format, however, the instrument suits the purpose of this analysis and provides a first look into the dialogues and the issue of dialogicity.

Figure 4. 'Scale of dialogicity'

Attribute, quote	Most dialogical
Modalized assertion	|
Non-modalized assertion	l
Assumption	Least dialogical

Assumptions are considered by Fairclough to be the least dialogical utterances, e.g. just by speaking about the global market you pre-suppose there is a global market. "What is 'said' in a text is 'said' against the background of what is 'unsaid', but taken as given" (Fairclough, 2003 p. 40). To contest an assumption means contesting something considered to be generally accepted. This is not done without risking a conflict, of cognitive or social nature.

Next to assumptions, in the scale of dialogicity, are non-modalized assertions, e.g. 'The dump should be located…', in comparison to the modalized assertion 'I think the dump should be located…', - the latter considered fairly dialogical. Non-modalized assertions do not invite the other group members to participate in the discussion to the same extent as the modalized assertions. Non-modalized assertions present a firm opinion while modalized assertions leave scope for alternative interpretations by clearly indicating that it is a personal interpretation.

Most dialogical according to Fairclough is the direct quote, since it is not connected to the individual who utters it but to a 'neutral' text. This makes it possible for the interlocutors to contest or discuss the contribution, since a quote is non-attached to the sender of the contribution and is not face-threatening for her or the contester.

Two groups and their dialogues

The interest in analyzing the dialogues with respect to dialogicity emanates from Wertsch's critical analysis of what the new web based media bring about in dialogues, but also from a wish to understand more about the dynamics that operate within the dia-

logues. In the following excerpts the contributions are analysed with the instrument developed by Fairclough (2003), see Figure 4 above. The excerpts were translated from Swedish, all names are pseudonyms.

Group A is composed of the following members:
Valerie; female student; 26 years old, no information about parental educational attainments, linguistic background or country of birth. However, in the evaluation she states that Swedish is not her mother tongue

Fredrik; male student, 22 years old, no information about linguistic background, country of birth or parental educational attainments.

Martin; male student, 38 years old, speaking Swedish at home, born in Sweden, parents with university education

Erika; female student, 20 years old, speaking Swedish at home, born in Sweden, parents with upper secondary school education

Chantavit; male student, 23 years old, speaking Swedish at home, not born in Sweden, parents with nine-year compulsory school education

Group B is composed of the following members:
Emma; female student, 19 years old, no information on linguistic background, country of birth or parental educational attainments

Patrik; male student, 22 years old, speaking Swedish at home, born in Sweden, parents with university education

Vlado; male student, 33 years old, speaking another language than Swedish at home, not born in Sweden, parents with upper secondary school education

Sofia; female student, 23 years old, speaking Swedish at home, born in Sweden, parents with university education

Malin; female student, 30 years old, no information on linguistic background, country of birth or parental educational attainments

The initial parts of the two discussions
Group A

In the dialogue below one can see how Valerie opens up for the other group members' points of view with the modalized expressions '*If I understood…*', '*From what it appears…*' and '*I suggest*'. By using such expressions she shows that she recognizes different ways of interpreting the text she refers to. The second part of the contribution, starting with '*First of all…*', is less dialogical. Valerie makes several categorical, non-modalized assertions, e.g. '*it will then be easier…*' and '*Secondly it is cheaper and easier…*' which leave little room for other interpretations. Next to assumptions, such assertions are the least dialogical form of utterance.

Excerpt 7.

The dump [*New*]
2004-10-15 13:20 by Valerie Brehonnet
Ok, I start.
If I understood everything correctly from the articles the alternatives we got are: Mossheden or Ällingviken.
From what it appears from the articles **I suggest** putting the new dump at Ällingviken.
First of all, it is close to the present dump and central refuse. **It will then be easier** for transport and to handle the waste generally. **Secondly it is cheaper and easier** because the municipality already owns the land.
So there will be no new roads to build, no protests will be received from the landowner or the inhabitants. According to MOVAB:s investigation it will be much cheaper (half the price).

The replies that come from Fredrik and Martin are fairly undialogical, with non-modalized assertive statements, like in Fredrik's contribution; '*there is no reason…*' and '*The risk with Mossheden is of course…*', and in Martin's contribution '*I persist…*' and '*Furthermore it is economically advantageous*'. In addition, exclamation marks are used to reinforce the statements. However, I would

like to point to the final part of Martin's contribution, where he in a more dialogical manner opens up for contributions from the other group members, by the use of some modalized expressions, '*Mossheden, I feel, in this situation…*' and '*Furthermore it feels…*'

Excerpt 8.

Re: The dump [*Agree*]
2004-10-15 14:32 by Fredrik Lundgren
I agree that the best alternative would be Ällingviken! **there is no reason** to start 'making a mess' in another place! If the bay is just developed in the right way, so all leak water goes through the water purification plant and does not enter the bay and harms the nature I see no great danger with that!
The risk with Mossheden is of course if the leak water penetrates down to the groundwater and contaminates it. Something similar that happened at the ridge of Halland a couple of years ago!

Excerpt 9.

Re: The dump [*Agree*]
2004-10-15 17:04 by Martin Rask
I agree and at first sight of the material **I persist** that the best alternative for the location of the new central refuse ought to be in Ällingviken.
What speaks in favour of Ällingviken is the existing infrastructure there, roads, the nearness to sewage treatment plant, incineration etc. **Furthermore it is economically advantageous**. A question to sort out is how much the fauna in Ällingviken actually is affected.
Mossheden, I feel, in this situation is a very expensive alternative. **Furthermore it feels** that the issue of the conditions of the ground is a bit unsafe from an environmental aspect.

Group B
Emma starts the discussion, just as Valerie did in group A, by describing the task. She starts with some modalized expressions such as '*is maybe not …*' as well as '*I think…*' and '*… the existing dump does not seem…*' which open up the dialogue by the recognition of other opinions. A few non-modalized assertions then follow, which are less dialogical. However, by ending the contribution with a question, she opens up the dialogue again.

Excerpt 10.

| The handling of waste [*New*] |
| 2004-10-15 10:05 by Emma Ekström |
| The long-term problem **is probably not** only Where to place the dump. **I think** we also have to focus a bit on how to handle the waste in the best possible way. **As it looks today the existing dump does not seem** to utilize all the possibilities there are to reduce the waste. The **remaining cinders on the dump after combustion can be e.g. used** as gravel for, among other things, construction of roads. **By this you have only** two percent left of the cinders at the dump. **This can lead to the dump not needing to be expanded in the future?** |

The reply by Patrik to Emma, see Excerpt 11 below, is supportive of Emma's suggestions, and he continues in a dialogical manner similar to the way she ended her contribution, with assertions imbedded in questions. The last sentence of Patrik's contribution is an assertion, but he opens up for other interpretations by the initial phrase of the sentence; '*Well, one can put it that way…*'

Excerpt 11.

| Re: The handling of waste [*Build*] |
| 2004-10-16 11:19 by Patrik Strand |

| Yes, it's clearly a good idea to do as you suggest. **But what impact does it have on the environment putting dross in road-construction? Or is it better to do that than put it at deposit??** |
| |
| **Well, one can put it that way** and say that the dross is like deposit at road-constructions, but without the leach water going through the purification plant. |

Vlado below continues in a likewise dialogic manner, using modalized expressions and toning down expressions in almost every sentence, such as '*I think…*' and '*I don't know…*'.

Excerpt 12.

| Re: The handling of waste [*Build*] |
| 2004-10-16 18:55 by Vlado Krstevski |

| **I think** that they already now use dross at road-constructions. **What one can do** is to find out more about the risks with putting dross on the roads and to what extent it is used. **I don't know** if it is possible to contact the National Road Administration or if there is a web site to use and find out more about it. **I will see what I can do.** |

The final part of the two discussions

Are the characteristics of the groups with respect to how they invite the other group members to the discussion stable? Is the low respectively high level of dialogicity in the initial stages of group A and B's discussions maintained, and if so, is there any difference between the groups in how they reach a conclusion with respect to the task? Can any such difference be related to the level of dialogicity of each group? In the following we will look at a section that is close to the end of the discussion in the two groups.

Group A
This part of the discussion is initiated in a dialogical manner, with modalized assertions: '*As I have understood it* ', '*But I don't think*' and '*it feels*' by Fredrik. The following contributions are to a much lesser extent dialogical, presenting only non-modalized assertions.

Excerpt 13

Re: The dump
2004-10-18 11:21 by Fredrik Lundgren
As I have understood it we shall choose between the 2 alternatives. **But I don't think** it is much of a choice, rather **it feels** quite evident to place it in Ällingviken.

Valerie starts off her reply to Fredrik with several non-modalized assertions but ends it with a question, and she herself, comes back to the discussion with a conclusion (see Excerpt 14 & 15).

Excerpt 14.

Re: The dump [*Agree*]
2004-10-18 12:32 by Valerie Brehonnet
To answer your question I think the only particular problem with Ällingviken is the leak water. **The rest, gas, metals and so on is a problem** wherever we decide to locate the dump. Thus, pollution of the sea occurs only at Ällingviken, our choice. We have to figure out something safe that states if it's possible to avoid it. **As I wrote before** there is already a similar dump near Landskrona and there they have technical solutions that makes the leak water to not enter into the sea. **Can the sea be polluted by something else than leak water?**

Excerpt 15.

Re: The dump [*Conclude*]
2004-10-18 12:42 by Valerie Brehonnet
Then we have our solution. If you look at the map that we got with the articles, Ällingviken is a bit further away from the birds, they are by the sandbanks in the sea. **Then they will not be harmed in their area…**

Fredrik ends this part of the discussion with non-modalized asser-
tions, which he reinforces with exclamation marks.

Excerpt 16.

Re: The dump [*Build*]
2004-10-18 12:45 by Fredrik Lundgren
But this is exactly the same location as the Spillepeng it is also situated in a bay. **There is no problem with leak water getting into the sea!** There can also be a problem with water at Mossheden if the leak water or other pollution gets down to the ground water, **then all drinking water and all streams and lakes will be polluted!**

Group B
This part of the discussion is started by Patrik. He comes with sev-
eral modalized assertions, and tones down his utterances in a num-
ber of ways: '*I really don't know…*', '*I don't know…*', '*I don't
think…*', and '*maybe…*'. The replies come from both Sofia and
Vlado, who continue in the same dialogical manner, with plenty of
modalized assertions, toning down expressions, but few or no sug-
gestions.

Excerpt 17

Dredging [*New*]
2004-10-20 10:17 by Patrik Strand
I really don't know what to say, don't find anything interesting about this on the Net. **What I mean** is that when you fill the dump in the water some alterations occur (**possibly**) and this **could be** adjusted by digging in the sea bottom. This was done when the Öresund bridge was built with a very good result. **However I don't know if this is costly, but I don't think** one needs to do so much because the dump is not gigantic as the Pepparholm became [an artificial island between Denmark and Sweden (my comments)] + other constructions. And if one has a large recycling plant like the one we seem to focus on **maybe** the area decreases further and it can be an area one can use for a long time as the deposit decreases.

The reply from Sofia is continuously dialogic '*It seems...*', '*I think...*' and '*If you know*'.

Excerpt 18

Re: Dredging [*Agree*]
2004-10-20 21:29 by Sofia Svensson
Then I'm with you. **It seems to be the best suggestion** and the best solution to the problem with the water flow. **I think we should decide on this solution** and try to find out how to accomplish it. **If you know** just about how they did it by the bridge we go for it.

Vlado replies in a likewise dialogic manner with several toning down expressions and modalized expressions; '*I have no knowledge*', '*One issue I thought about...*', '*My suggestion is...*' and ends with a question, '*Or what do you think?*'

Excerpt 19

Re: Dredging [*Organize*]
2004-10-20 22:27 by Vlado Krstevski
I have no knowledge what so ever about dredging but it sound good to me. **One issue I thought about** was that we constantly return to the cost for our different solutions that we have proposed. I mean that none of us has any idea on what a project like this cost, if one is more expensive than another and vice versa. **My suggestion is that we instead concentrate** on what is the best solution from an environmental aspect and go from there when we make our choice of location and construction of our dump. **Or what do you think?**

Sofia replies to Vlado with the same type of modalized assertions, and ends likewise with a question, '*haven't we?*'

Excerpt 20

Re: Dredging [*Agree*]
2004-10-20 22:36 by Sofia Svensson

I totally agree. We have decided on Ällingviken I reckon so that is done. **I think we should** focus on how one can do it as efficient as possible instead of getting stuck on costs. We have agreed that the environment is more important than the economical issues, **haven't we?**

Summary

The two groups start off their respective discussions in a similar manner, by Valerie in group A and by Emma in group B. They both open up with dialogical modalized assertions, but while Emma ends her contribution with a question, Valerie ends hers with some non-modalized assertions. The replies to Emma are likewise dialogical with plenty of questions, modalized assertions and toning down words, while the replies to Valerie are expressed in a similar manner as the final part of her first contribution: non-dialogical, with plenty of non-modalized assertions.

The two groups show different levels of dialogicity throughout the discussions. Group A, with low dialogicity in the main part of the discussion, involves few members of the group. This low level of activity from the rest of the members was already seen in the SNA analysis. Fredrik reflects over this in a mid-sequence of the discussion not shown here, where he exclaims '*we have to get a discussion started here now so that something happens! Everybody has something to contribute!*' On the other hand, already at the start of the discussion the group comes up with suggestions of where to locate the central refuse disposal plant. The group continues the discussion on the Net, and the remaining part of the discussion concerns the report which they collaboratively write on the Net.

The discussion of group B continues in the same manner as in the beginning, a dialogue that invites the group members, with many

modalized assertions, questions and toning down expressions. However, the discussion does not contain many suggestions. The suggestions that do come up are mainly recommendations of links, literature and other resources where they can find more information. Not until after more than five days does the group agree on choosing Ällingviken as the location of the central refuse disposal plant. More group members than in group A participate in the discussion. They decide to not proceed with the discussion on the Net, but to compile the report in a face-to-face meeting.

In conclusion, to return to Wertsch's concern about the dialogicity in computer mediated discussions, we can here see two groups with clearly different levels of dialogicity. Considering the variation which we observed, it follows that general assumptions cannot be made with respect to the dialogicity of discussions on the Net in the frame of the NMS teacher training course. One of the group's discussions was characterized by contributions which invited the other group members to participate in the discussion, while the other discussion's contributions consisted of very few such direct 'invitations' to the other group members.

The group showing a low level of dialogicity (group A) involved few members in the discussion, but on the other hand the group managed to reach a rapid conclusion. The straightforward assertions seemed to correspond to a quicker work pace. The group members also succeeded to compile the report on the Net. In other words, the group's perception of the task seemed above all to be focused on the product.

The group showing a high level of dialogicity (group B) involved more members in the discussion, but it took them several days to reach a decision concerning where to place the central refuse disposal plant. They did not choose to compile the report on the Net, and instead they decided to meet face-to-face to finish the task. In other words, this group's approach seemed above all focused on process and quality of interaction.

It can be debated whether the different characteristics of the discussions above and the final results were consequences of a discourse partly created in the initial phase of the discussion. Would the individual group member have the same tendencies of inviting or not inviting other group members to the discussion in another group setting, or if the opening contributions had taken another form? In any event, it is interesting to observe the striking variation in how the discussions proceed. We can reflect over the impact of the different group members' ways of carrying the dialogue forward on who gets involved, how they present their ideas, and how they refer and reply to each other. This is an area of research where few studies have been undertaken, and I am convinced further research on this topic would add valuable information about communication and interaction. The issue of dialogicity has been taken up here; other qualities of the discussions will be taken up in the following chapter.

RESULTS

Analysis of symbolic capital and expressions of power in CSCL

The messages posted by the teacher students on the Group Forum of the course are analysed according to expressions of power in two steps. In the first analysis, the 2077 messages from all 147 students are analysed irrespective of group, while in the second analysis the messages are analysed with respect to group composition. Both analyses consist of descriptive and statistical analyses. The messages are coded as expressing dominance or subordination using quantitative and qualitative indicators as presented in the chapter on Methods. The coded data is then correlated to the parameters of symbolic capital, in order to illuminate the research questions, (see in chapter *Group work, power and communication technology*).

To answer the question *What patterns of communication expressing power are found in the dialogues and in what ways are these related to students' symbolic capital?,* the presence of expressions of power is investigated by observing features in the material that signify:

- Dominance/subordination with respect to quantitative communication space;
- Dominance/subordination with respect to verbal expressions.

The indicators are specified in Figures 5 & 6.

Figure 5. Indicators of dominance with respect to quantitative communication space

> *Number of contributions*
> - Number of contributions per individual
>
> *Length of contribution*
> - Number of words per contribution per individual
>
> *Total number of words*
> - Total number of words per individual
>
> *Initiated discussion threads*
> - An individual's share of the in-group initiated discussion threads (%)

Figure 6. Indicators of dominance/subordination with respect to style of communication and use of specific verbal expressions

> *Agreement*
> - (Percentage of an individual's contributions containing one or more agreement remarks)
>
> *Disagreement*
> - (Percentage of an individual's contributions containing one or more disagreement remarks)
>
> *Request for input*
> - (Percentage of an individual's contributions containing one or more requests for input)
>
> *Toning down*
> - (Percentage of an individual's contributions containing one or more toning down words/expressions)

Taking the floor; dominance of communication space
Taking the floor through quantity
Number of contributions
The 147 students sent altogether 2077 postings over a period of
two weeks, which gives an average of 14 contributions per person.

Diagram 1. Distribution of *Number of contributions*
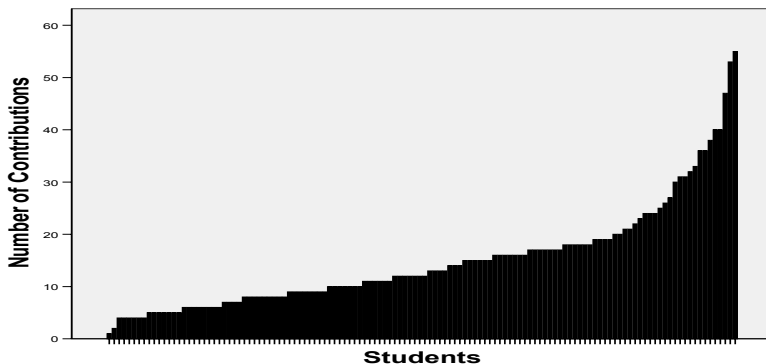
The number of contributions sent by the individual student varied
considerably – from 1 to 55. All students sent at least one contribu-
tion, while some more than 50, which means that such students
sent an average of 5-6 contributions per day.

Words per contribution
The average length per contribution also varied greatly between
students, from 17 to 309 words. A contribution was on average 71
words long, approximately four rows of text, but the great range
of variation is more interesting. A short contribution typically
comprised 1-2 sentences, whereas a long contribution could fill a
whole A4 page.

Diagram 2. Distribution of *Length of contribution*
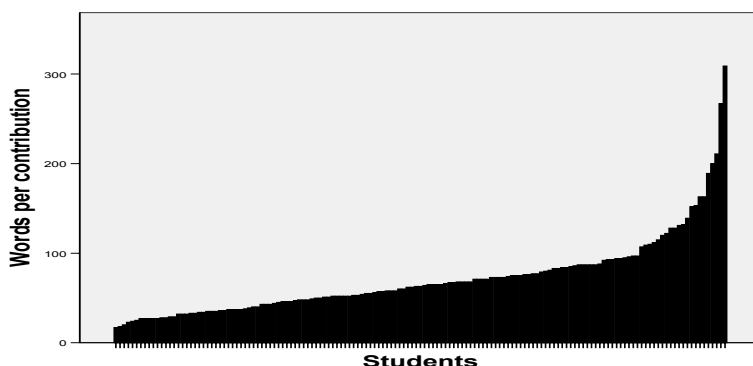
Diagrams 1 & 2 show how differently the students contributed to the discussions with respect to number of contributions and the length of contributions. These diagrams also give an indication of the type of discussions that were going on. The dialogues were characterized both by sequences that resembled oral conversation, with a large number of short fragmentary sentences, as well as by sequences that were long and wordy, and of a monological type. Students sending numerous contributions tended to send on average shorter contributions. The students that sent the shortest contributions, for example, belonged to the absolute top with respect to number of contributions, while the students sending the longest contributions were among the students who sent the fewest messages. This pattern is confirmed by the statistical analyses, which demonstrate a significantly negatively correlated relationship between number of contributions and length of contributions. Excerpt 19 below demonstrates one of many discussions consisting of numerous but short contributions. The group consisted of five members, three females, and two males. The excerpt below, as well as the following excerpts, is translated from Swedish, all names are pseudonyms.

Excerpt 21. An example of a group discussion

Waste out in space	Yksel P
Re: Waste out in space	Angelika R
Re: Waste out in space	Maria B
Re: Waste out in space	Angelika R
Re: Waste out in space	Maria B
Re: Waste out in space	Yksel P

Waste out in space [*New*]
2004-10-18 10:28 by Yksel Petrovski

I would love to send waste out in space but because of the expense I realize that it's impossible in the near future

Re: Waste out in space
2004-10-18 11:00 by Angelika Rosberg

Yes I agree with you about… how far out is space??

Re: Waste out in space [*Build*]
2004-10-18 11:04 by Maria Bergsten

Yeah, and then we can live on Mars!

Re: Waste out in space
2004-10-18 11:17 by Angelika Rosberg

it sounds quite absurd or

Re: Waste out in space [*Agree*]
2004-10-18 11:19 by Maria Bergsten

It probably is yes

Re: Waste out in space [*Build*]
2004-10-18 16:11 by Yksel Petrovski

universe is big so we have a lot of space for our waste. But unfortunately reality doesn't allow us.

Total number of words

As the two variables *Number of contributions* and *Length of contribution* are negatively correlated, there was need for an additional variable that displayed the total quantitative space a student occupied. This variable is *Total number of words* in a student's total number of contributions. In this respect, the number of words the students sent varied from 27 to 3790, meaning that the most talkative student occupied almost 150 times as much space as the least talkative student.

Diagram 3. Distribution of *Total number of words*
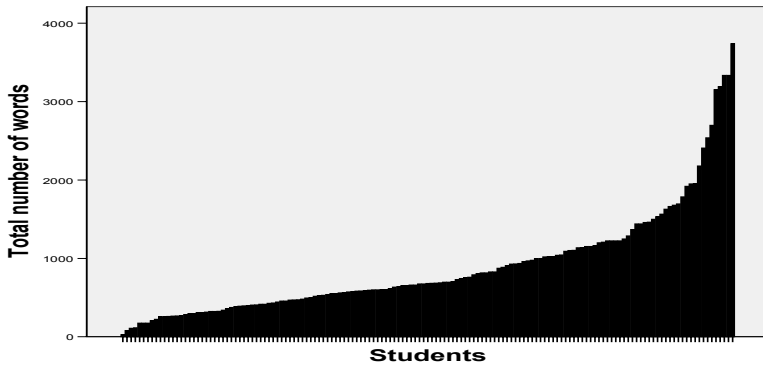
Initiating discussion threads

To take an initiative, that is to start a discussion, may be seen as an indicator of dominance. The student does not wait for others to bring a subject into the discussion but starts it him/herself. The ideas and opinions of such a student will probably be in focus and the student's contributions will thus get responses from other students. The variable *Initiating discussion threads* describes the share of a group's discussion threads an individual student initiates. Almost one fourth of the students (33) did not initiate any discussion threads at all.

Diagram 4. Distribution of *Initiation of discussion thread*
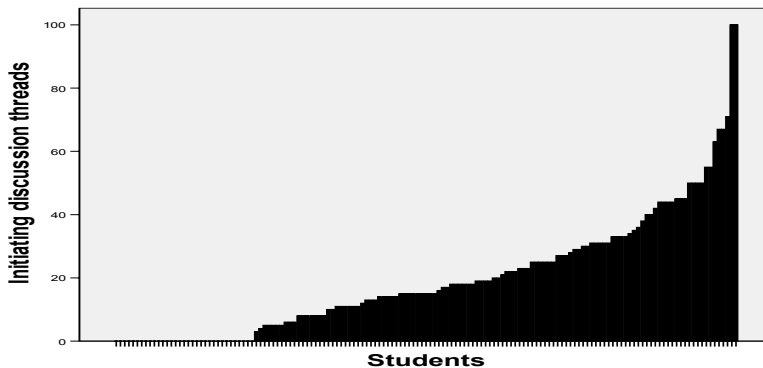
The average number of discussion threads was 14 threads per group. In eight groups, one student initiated more than 50 % percent of the threads. In two of these groups one student initiated 'all' the discussion threads, however, these two groups started only one respectively two discussion threads. Although it does give a rough indication, the number of discussion threads a group starts during a discussion does not give a complete picture of the level of activity. Initiating discussion threads is a way of structuring the discussion, and some groups preferred not to use this tool; instead they proceeded with their discussions in long 'uncut' threads, while other groups used plenty of shorter discussion threads. However, the students who initiated a large share of the discussion threads also tended to be active with respect to number of contributions and the total number of words.

Taking the floor through style of expression

The analysis of how the communication space was used by the students suggests that students demonstrated at least two different communication styles; many and short messages vs. fewer but longer contributions. The analysis further indicates a need to analyse the various verbal expressions used, in order to study the qualities of the contributions in relation to dominance/subordination. Earlier research offers a number of categories for such analysis. The choice of *Agreement, Disagreement, Request for input*, and *Toning down words* as analytical concepts was discussed earlier (for a more thorough description see chapter on *Method*). These analytical concepts can be grouped according to function in the following way: *Expressions of valuation*; agreement and disagreement, and *Expressions of directing the dialogue*; requests for input and toning down words.

Toning down words are an indicator of subordination, on the one hand, but also indicate a willingness to consider the input of other students, and therefore help direct the content, social balance and communication style adopted in the dialogues.

In the following, the occurrence of dominance and subordination is analysed by means of these conversational cues and verbal expressions. The uses of these verbal expressions are illustrated by some excerpts from the discussions in my study.

Agreements

The students used a great number of expressions of agreement. Almost thirty percent of the contributions contained agreements (approx. 600 messages). The variation between individual students was substantial. Thirteen students (nine females and four males) did not offer any agreement remarks at all, whereas one student (male) included such remarks in every message.

Excerpt 22. Examples of expressions of agreement by two students, males, 20 years respectively 24 years old

Re: the dump [*Agree*] 2004-10-18 07:53 by Patrik N Sund
I agree with Tom that a possible placement of the dump should be in Ällingviken. The economical side can be, just as Tom says, devastating. A road construction to Mossheden will surely cost millions and it will take a long time to finish it.
Re: the dump [*Build*] 2004-10-18 18:34 by Christer Ahl
I agree with Tom and Patrik's placement of the dump. Another issue to take into consideration regarding Mossheden, is that an excavation of the moss will be probable which will be time-consuming.

Disagreements

Expressions of disagreement were much less common than expressions of agreement. Disagreement remarks occurred in only twelve percent of the postings. The use of disagreement remarks also varied greatly between individuals, as many as 43 students never made any disagreement remarks at all! At the other extreme is a student, who in 57 percent of his contributions used disagreement remarks towards fellow group members' contributions.

Excerpt 23. An example of expression of disagreement by a student, male, 38 years old

Re: All-embracing dialogue – Discussion thread [*Question*] 2004-10-21 13:18 by Anders Persson
Why this should be better for the environment, I wonder. The only advantage for the environment would probably be that we don't need to see the rubbish.

Requests for input

Every fourth message held some kind of request for other students to contribute to the discussion or to answer a question. Even if such requests were common, the use varied considerably between students. Nineteen students included requests in half or more of their messages, while thirty-one students never asked for input. There was a positive significant correlation between requesting for input and *number of contributions* as well as *total number of words*. Those students frequently requesting for the others' input were also active in the discussions by quantitative measures. Those students rarely requesting for the others' input were less active in the discussions.

Excerpt 24. Examples of requests for input and questions by one female and one male student, both 19 years old

Re: Circulation/recycling [*Agree*] 2004-10-15 14:57 by Jessika Salén
I totally agree with what you're saying. Not all adults have the knowledge they ought to have about this issue. **However, how are we going to solve the problem for the aged and the sick?** Many of them don't manage to go with their card-board boxes and newspapers and sort it. Neither does everyone know someone that can help them. **Should one maybe make the refuse lorry to fetch it at their place?** It is not an enormous amount of sorted waste we are talking about here, the refuse lorry should in that case fetch the waste, and there is no need for any reconstruction of the lorries. **Or, how should we solve this problem? Come up with suggestions!** The more we recycle the lesser space we need for the dump.
Re: Circulation/recycling [*Build*] 2004-10-15 15:03 by Benny Nord Jönsson
In the US, they do exactly what you're talking about, they fetch the waste at home, but they do it for everybody there... It would be the best thing, to fetch it at the house. But then it is important to establish certain rules and standards so that those who actually can bring the waste themselves do not take advantage of it, to put it in other words, being lazy. **I wonder if that wouldn't be the best suggestion, or are there other alternatives?**

Toning down words

Words or expressions used to tone down what is said were used extensively by the students. In my study more than 50 % of the contributions contained this kind of expressions. Eight students used toning down expressions in every contribution, whereas three students never used them. There was a positive significant correlation between use of toning down words and *length of contributions*. Students who used a large number of toning down words/expressions also tended to write long contributions. Part of the explanation to the correlation between numerous toning down words and long contributions is that a politeness word or expres-

sion often implies the adding of words to a phrase that could have been said with fewer words. However, this is probably not the whole explanation.

Excerpt 25. An example of use of toning down words by a student, male, 23 years old

| Re: The dump [*Build*] |
| 2004-10-14 14:01 by Adam Önnerström |

could be a solution – **but don't know for sure** – you mean that one should direct the stream so they are not obstructed. **I think** it is difficult to direct streams without any consequences. But **I don't know,** as I said, for sure. It is **maybe** feasible to build some kind of system that makes it possible to get the kind of circulation of the water that is needed. In any case **it should** be practicable to lessen the harm on the environment in some way./Adam

The present thesis does not further investigate correlations between groups of individuals within the categories described above, or look into the issue whether individuals using a particular type of conversational cue or other indicators of dominance/submission also use any of the verbal expressions investigated here. Such relationships would be interesting to observe, and may be the focus of future research.

Ways of dominating a discussion

As indicated above, there are different ways of dominating a discussion. In the CSCL context, the only communication channel available is mediated through the words (and figures or symbols) produced on the screen. Domination or subordination may be manifested in many ways, both in the ways people express themselves and how they take part in the dialogue. The four variables concerning the occupation of a 'quantitative' space point to the circumstances that the students used various strategies for taking their share of the communication. Some students seem to have waited for others to take the initiative, thus not risking sticking out their nose too far, whereas other students daringly threw themselves out on the Net. Further, the great variation in number of contributions as well as in number of words is remarkable. It seems as if very dif-

ferent strategies or communication styles are present. Are some of these indications of dominance and power structures?

As we have seen above there is a relationship between many and short contributions, on the one hand, and fewer but longer contributions, on the other. What is then the best 'strategy' for dominance? Is it to send many contributions? Or to send many words? A plausible suggestion may be that long contributions are a manifestation of power. It may be seen as adapting a power style of communication (see Barrett & Lally, 1999; McConnell, 1997). On the other hand, possible domination of the communication space may also be reached by a mass of more or less informal talk. The social dynamics of the dialogue may provide a clearer picture. To start a thread in the discussion means to take an initiative, and to point to what the author of the contribution considers of interest. It may be seen as exercising power. Many such initiatives are likely to give the students a central position, with many following contributions referring to the start of the thread. The results presented above show that the initiative is fairly evenly spread among most of the students, but that more than twenty percent never took such initiatives. There was a positive correlation between the share of initiated discussion threads on the one hand, and number of contributions on the other, as well as to total number of words. Those initiating a great share of the discussion threads also showed a greater activity with respect to number of contributions and total number of words, and vice versa.

With respect to verbal expressions, the dialogues on the whole were characterized by students recognizing other students by sending agreements, requesting for input, and by the use of toning down words, while disagreements were much less frequent. Almost thirty percent of the contributions contained agreement remarks, while less than ten percent of the students never expressed any agreements. The opposite is true for disagreement remarks; on average only twelve percent of the contributions contained disagreements of any kind, and almost one third of the students never contested the statements of fellow group members. The students frequently asked for input from fellow students. In almost a quarter

of the contributions, a request for input could be observed, sometimes by simply urging the others to contribute. Nevertheless, as many as one fifth of the students never requested other students to contribute. Considering such variation, how shall we best characterize the dialogues? Might they be described as open and supportive, forming a communication climate, where students acted in order to build knowledge together, and some of them took the responsibility of driving the discussion towards the goal - a joint group report? The frequent use of toning down words would in this interpretation not be seen as a sign of subordination, but rather understood as a culturally founded strategy, like the use of agreements and, as discussed earlier in relation to Goffman's concept of face, as a social lubricant for avoiding conflict and promoting a smooth discussion.

Communication space and students' symbolic capital

After having described this overall picture, the question rises of how the results are related to students' symbolic capital. In this section, the coded verbal expressions are correlated to the parameters defining symbolic capital: sex, age, language spoken at home, country of birth and parental educational attainments. The following statistical analysis seeks to answer the question if dominance is related to these background variables.

Sex

No significant statistical relationships were found between the mean values of males and females and any of the parameters of communication space when the entire group of students was considered, neither between sex and the quantitative variables of communication space nor between sex and any of the verbal expressions examined in the study. The communication space seems to be shared fairly equally between the sexes. Nevertheless, some numerical differences were found between males and females with respect to quantitative communication space.

Female students were found to, on average, send more words than male students (940 respectively 804 words/person). There is also a small tendency visible of different communication styles between

males and females, with females producing on the average more contributions than male students (15 respectively 13 contributions/person), whereas male students produced longer contributions than female students (77 respectively 68 words/contribution). The difference is small and not significantly proven. Nevertheless, male students were overrepresented (46 % compared to the cohort which consists of 37 % males) among those students sending very few contributions (five or less).

Table 19. Sex and quantitative communication space

Sex		No. of contr.	Words per contr.	Tot. no. of words	Init. disc. threads
M	Mean	13	77	804	19
	N	54	54	54	54
F	Mean	15	68	940	20
	N	93	93	93	93
Tot	Mean	14	71	890	20
	N	147	147	147	147

Male students expressed slightly more agreements: 32 % of male postings compared to 28 % of female postings. There was a small tendency visible for females to express more agreements to males than to females (44 % respectively 56 %), which diverges from the overall gender distribution of 37 % males and 63 % females. Males directed their agreements more evenly, and gave 38 % of their agreements to males and 62 % to females, which corresponds to the overall gender distribution of respondents. Generally there is very little difference between females and males regarding disagreements (12 % respectively 14 % of postings), request for input (23 % respectively 20 %), and toning down words (55 % respectively 56 %).

Table 20. Sex and verbal expressions

Sex		Percentage of contributions with			
		Agree	Disagree	Request input	Tone down
M	Mean	32	14	20	56
	N	54	54	54	54
F	Mean	28	12	23	55
	N	93	93	93	93
Total	Mean	30	12	22	55
	N	147	147	147	147

Most of the earlier research, referred to in the chapters *Working in groups* and *Group work, power and communication technology*, showed that male students, students from a linguistic majority background, and students from an academic family background tended to quantitatively dominate net based discussions. But what happens if the male student is from a minority background with respect to mother tongue and the female student is from the majority culture? Which of them then takes up most communication space? In the following analyses of communication space with respect to age, parental educational attainments, language spoken at home, and country of birth the variable sex is added in the second part of the analysis, after the individual background variable has first been tested alone.

Age

A significant relationship was found between age and *Initiating discussion thread*. Older students initiated more discussion threads than younger students. For descriptive purposes, the ages of the students are grouped into age-groups in Tables 21 & 22 below. The age groups are later used in the analysis where age is tested in combination with the variable sex.

Table 21. Quantitative communication space with respect to age

Age		No. of contr.	Words per contr.	Tot. no. of words	Init. disc. threads
<25	Mean	12	76	807	17
	N	83	83	83	83
=>25	Mean	17	66	1022	24
	N	62	62	62	62
Total	Mean	14	72	899	20
	N	145	145	145	145

A significant relationship was also found between age and toning down words. Older students used less toning down words in the discussions.

Table 22. Verbal expressions with respect to age

Age		Percentage of contributions with			
		Agree	Disagree	Request input	Tone down
<25	Mean	31	13	21	60
	N	83	83	83	83
=>25	Mean	29	11	24	50
	N	62	62	62	62
Total	Mean	30	12	22	56
	N	145	145	145	145

Female students 25 years of age and over sent considerably more contributions (18 compared to 15, 13 respectively 11 contributions/person) and more words (1145 compared to 780, 799 respectively 819 words/person) than the other categories of students (see Table 37, Appendix III). However, the relationships are not statistically significant.

With respect to verbal expressions, a significant relationship was found between age in combination with sex and toning down words. Younger males used toning down words in 63 % of their contributions, while older male students used them on average in only 45 % of their contributions (see Table 38, Appendix III).

Parental educational attainments
In a vast majority of earlier research on class, it was shown that socio-economic background plays an important role in formal school situations. Similar relationships were found in studies on working life, where power structures proved to be biased both with respect to sex as well as to class. The data in my study indicates a difference between students with different parental backgrounds regarding how much quantitative communication space they occupy. Students with less-educated parents sent on one hand on average shorter (54 words/contribution) contributions and occupied fewer words (576 words in total/person), in comparison with students with university-educated parents (76 words/contribution respectively 906 words in total/person), on the other hand the initiated the highest share of discussion threads (23 respectively 19 %). However, the observed relationships are not statistically significant. Also, there are few (only ten) students who have parents with the lowest levels of parental educational attainments (nine-year compulsory school). Today, close to 100 % of the school-leavers in Sweden continue to Upper secondary school (The Swedish National Agency for Education, 2009).

Noteworthy is that students whose parents have upper secondary school as their highest level of educational attainments sent on average most number of contributions and most words.

Table 23. Parental educational attainments and variables of quantitative communication space

Parental educational attainments		No. of contr.	Words per contr.	Tot. no. of words	Init. disc. threads (%)
Nine-year comp. school	Mean	12	54	576	23
	N	10	10	10	10
Upper secondary school	Mean	15	73	1109	21
	N	38	38	38	38
University	Mean	14	76	906	19
	N	67	67	67	67
Total	Mean	14	73	944	20
	N	115	115	115	115

No significant relationship was found between the educational attainments of parents and the use of the verbal indicators of domination/subordination that were investigated: agreement remarks, disagreement remarks, requests for input, and toning down words. A certain numerical difference is found between students whose parents have low levels of education, and students whose parents have the highest levels of education with respect to agreement remarks and toning down words. Students with low parental educational attainments gave fewer expressions of agreement in comparison to students with high parental educational attainments (24 % respectively 31 % of their contributions contained agreements). The opposite relationship applies to toning down words, with 59 % respectively 55 % of the contributions containing toning down words.

Table 24. Parental educational attainments and verbal expressions

Parental educational attainments		Percentage of contributions with			
		Agree	Disagree	Request input	Tone down
Nine-year comp. school	Mean	24	10	21	59
	N	10	10	10	10
Upper secondary school	Mean	33	12	24	57
	N	38	38	38	38
University	Mean	31	12	23	55
	N	67	67	67	67
Total	Mean	31	12	23	56
	N	115	115	115	115

When sex is added to the statistical analyses, a statistically significant relationship is found with respect to quantitative communication space between male and female students whose parents have high educational attainments. Female students whose parents had high levels of education sent on average sixteen contributions, while males with the same parental educational attainments sent on average only nine contributions (see Table 39, Appendix III).

The group of students with low parental educational attainments was very small, only ten students, of which three were males and seven females. It is thus difficult to draw any statistical conclusions from such a small group but, as seen in the following, certain numerical differences between these students and those students whose parents had higher educational attainments were observed.

The research literature points out women, students with a foreign background and students with non-academic background as being those generally taking up least communication space in groups. Therefore, a more thorough description has been undertaken of the seven female students[25] with low parental educational attainments. Table 25 below displays that, except for Eva O, all the seven females are below the average regarding quantitative communication space, most noteworthy it appears regarding total number of words. Two of these (shaded in light grey) spoke another language than Swedish at home; they stood out even more with respect to variables of quantitative communication space, both of them played very secluded parts in the discussions.

Table 25. Female students whose parents had low educational attainments with respect to quantitative communication space

Student	Mean Value			%
	No. of contr.	Words per contr.	Tot. no. of words	Init. disc. threads
Sofia N	12	37	444	11
Therese Q	10	47	470	100[26]
Sofia J	4	71	284	0
Anette N	13	25	325	31
Eva O	12	120	1440	50
Chau N[27]	8	32	256	13
Lejla S[25]	11	43	473	0
Total	10	54	527	29 [28]
Mean of entire cohort	14	71	890	20

Regarding the seven female students with low parental educational attainments and their use of verbal expression the picture is a bit

---

[25] All names are pseudonyms
[26] The group had only one discussion thread
[27] Students speaking another language than Swedish at home (no students in this group were born in another country than Sweden).
[28] The results for Therese regarding Initiated discussion threads is an extreme value, when this value is disregarded the mean value is 17.5 %.

different in comparison to the occupancy of quantitative communication space. It is difficult to see any particular trend. Agreements were included in their contributions to various degrees, just as many of them used agreement remarks to similar extents or more often as the average of the whole cohort as there were those of them who used them to a lesser extent. Disagreement remarks were not used at all by four of them, while most of them requested for inputs, however, most of them requested a bit less than the average of the cohort. Tone down words were used excessively by some of them, in two cases in 100 respectively 92 % of their contributions.

Table 26. Female students whose parents had low educational attainments with respect to verbal expressions

Student	Percentage of contributions with			
	Agree	Disagree	Request input	Tone down
Sofia N	42	0	8	50
Therese Q	0	0	20	70
Sofia J	50	0	0	100
Anette N	15	8	15	23
Eva O	25	42	50	92
Chau N	38	13	13	63
Leijla S	9	0	9	27
Total	26	9	16	42
Mean of entire cohort	30	12	22	55

Language spoken at home and country of birth
Results from other research fields suggest correlations between parameters of dominance/subordination and whether the interlocutor belongs to a majority or minority background. My data indicate similar tendencies and display differences between those students who both speak Swedish at home and are born in Sweden on the one hand, and those students who speak another language than Swedish at home and are not born in Sweden, on the other. Six of eight statistically significant relationships that were found in my

study between communication space and background variables were related either to language spoken at home, or country of birth (see the summary tables 35 & 36, Appendix III).

Table 27. Language spoken at home and variables of quantitative communication space

Language spoken at home		No. of contr.	Words per contr.	Tot. no. of words	Init. disc. threads (%)
Swedish	Mean	15	72	999	21
	N	95	95	95	95
Other lang.	Mean	9	72	633	15
	N	23	23	23	23
Total	Mean	14	72	928	20
	N	118	118	118	118

The analysis displays a significant relationship between language spoken at home and *Number of contributions,* alongside with *Total number of words*. Students speaking other languages than Swedish at home sent on average fewer contributions than students speaking only Swedish at home (9 compared to 15 contributions/person). They also produced in total only 63 % of the total amount of words/person, compared the students speaking only Swedish at home. A tendency, however not statistically significantly confirmed, of students speaking another language at home to initiate a lower share of discussion threads was also visible (15 % compared to 21 % for students speaking Swedish at home).

By including sex into the analysis, it appeared that female students speaking another language than Swedish at home were the category who produced a particularly low number of words, with on average only 594 words/person (see Table 41, Appendix III). By contrast, male students speaking another language at home produced on average 894 words/person. Only three students belonged to this category, and these individuals form a very disparate group

which can be seen in Table 28 below[29]. We see a great dispersion regarding all variables of quantitative communication space; the mean value does not mirror the individuals' contribution to the discussion very well. Two of them send considerably longer contributions than the average for the cohort, the same two students that send considerably few contributions.

Table 28. Male students speaking another language than Swedish at home and variables of quantitative communication space

Students	Mean Value			%
	No. of contr.	Words per contr.	Tot. no. of words	Init. disc. threads
Bojan	13	62	806	11
Steve	8	153	1224	0
Vlado	4	163	652	15
Total	8	126	894	9
Mean of entire cohort	*14*	*71*	*890*	*20*

Though not statistically significant, those speaking another language than Swedish at home were shown to less frequently requested the others' input: only 15 % of their contributions contained requests for the other group members' input (compared to 24 % for the students who speak only Swedish at home). A significant relationship was found between the use of toning down words and language spoken at home: 45 % of the contributions by students speaking another language than Swedish at home contained toning down words, in comparison to 58 % of the contributions by students speaking only Swedish at home.

---

[29] All names are pseudonyms

Table 29. Language spoken at home and verbal expressions

Language spoken at home		Percentage of contributions with			
		Agree	Dis-agree	Re-quest input	Tone down
Swedish	Mean (%)	31	12	24	58
	N	95	95	95	95
Other lang.	Mean (%)	29	12	15	45
	N	23	23	23	23
Total	Mean (%)	31	12	23	55
	N	118	118	118	118

An even greater dispersion can be observed when we again take a closer look at the three male students who spoke another language than Swedish at home, now regarding variables of verbal expressions.

Table 30. Male students speaking another language than Swedish at home and verbal expressions

Students	Percentage of contributions with			
	Agree	Disagree	Request input	Tone down
Bojan	23	8	31	69
Steve	62	25	50	88
Vlado	50	0	25	25
Total	45	11	35	61
Mean of entire cohort	*30*	*12*	*22*	*55*

Country of birth

The statistical analyses pointed to a significant relationship between *Country of birth* and *Number of contributions,* as well as with respect to *Total number of words* (see Table 35, Appendix III). Students born in another country than Sweden produced on average only about 54 % of the total number of words/person

compared to students born in Sweden, and only 8 contributions/person compared to 15 contributions/person sent by students born in Sweden. Students born in another country than Sweden were on average (not statistically significant) initiating a lower share of discussion threads (13 % compared to 21 % for students born in Sweden.

Table 31. Country of birth and variables of quantitative communication space

Country of birth		No. of contr	Words per contr	Tot. no. of words	Init. disc. threads (%)
Sweden	Mean	15	73	991	21
	N	102	102	102	102
Other country	Mean	8	71	540	13
	N	15	15	15	15
Total	Mean	14	73	933	20
	N	117	117	117	117

Although the group of male students born in another country than Sweden also here consists of only three students, we are in fact looking at different individuals; only one student also belongs to the category male students speaking another language at home; Vlado, while the two others are not the same individuals discussed above regarding language spoken at home. There is great dispersion between the three males, as we can see in Table 32 below[30], nevertheless, all three male students who were born in another country contributed to a much lesser extent to the discussion, in terms of quantitative measurements. Only in one case is the average of the whole cohort exceeded, regarding Vlado and length of contributions.

---

[30] All names are pseudonyms

Table 32. Male students born in another country than Sweden and variables of quantitative communicative space

Students	Mean value			%
	No. of contr.	Words per contr.	Tot. no. of words	Init. disc. threads
Vlado	4	163	652	15
Anders	4	29	116	0
Chaiyapat	8	57	456	0
Total	5	83	408	5
Mean of entire cohort	*14*	*71*	*890*	*20*

A significant correlation was found between requesting other students to contribute and country of birth (see Table 36, Appendix III). Only 11 % of the contributions made by students born in another country contained requests for other students' input, compared to 24 % for students born in Sweden (see Table 33 below). Though not statistically significant they were also shown to use less toning down words, 47 % of their contributions contained toning down words, in comparison to 57 % of contributions by students speaking only Swedish at home.

Table 33. Country of birth and verbal expressions

Country of birth		Percentage of contributions with			
		Agree	Dis-agree	Request input	Tone down
Sweden	Mean	32	12	24	57
	N	102	102	102	102
Other country	Mean	29	12	11	47
	N	15	15	15	15
Total	Mean	31	12	23	56
	N	117	117	117	117

Regarding the three male students born in another country, the dispersion is even greater with respect to verbal expressions (Table 34 below). It is not possible to see any trend as in the case of variables of quantitative communication space (Table 32 above).

Table 34. Male students born in another country and verbal expressions

Students	Percentage of contributions with			
	Agree	Disagree	Request input	Tone down
Vlado	50	0	25	25
Anders	25	25	0	100
Chaiyapat	25	0	25	88
Total	33	8	17	71
Mean of entire cohort	*30*	*12*	*22*	*55*

Summary and conclusion of analysis; communication space with respect to parameters defining symbolic capital

There are different ways of dominating a discussion. In a net based context most communication channels presented in a face-to-face context are absent, thus the words produced matter more in a virtual context than face-to-face, since they stand for the entire communication. In net based communication contexts, domination can be manifested in different ways; by the way people express themselves, for example, by the kind of words or expressions they use, but also by the quantitative space they occupy. The latter is not only a matter of how many contributions are posted and how long these contributions are, but also concerns the question of when a contribution is posted and whether it elicits responses.

Quantitative dominance or subordination in my analysis concerns number of words, length of contributions, total number of words and the share of initiated discussion threads. The tables previously displayed on quantitative communication space show that the spread in number of contributions, as well as in length of contributions, is striking. Summarizing all variables, we see great variation,

both with respect to the quantitative space students occupy and the type of verbal expressions they use. The students sending most contributions wrote on average about six contributions per day (in a period of ten days), whereas other students did not even post a single contribution per day. Length of contributions also varies a great deal; a contribution could comprise several pages, but also just one line. On the average, a contribution held around seventy words, which corresponds to about six lines. The results indicate that the students use different discussion styles. For some students, it seems, the forum resembles a chat, or even a face-to-face discussion, while for others it is more of an arena for presenting points of view to the others, in a more monological manner. One could even say that there are different perceptions of which genre the computer mediated discussion belongs to.

The assumption is strengthened by the negative correlation between *Number of contributions* and *Length of contribution*: the fewer contributions a person produced the longer they tended to be and vice versa. The question is which approaches could be taken as an expression of power – that is, of dominance and/or subordination? It is obviously possible to dominate the discussion in two ways: to send many short messages, or to send a few massive contributions. In choosing the first communication style, students may demonstrate a willingness to listen to others, or they may just not want to assume the effort of contributing in substance themselves. The variables *Total number of words* sent and *The share of discussion threads initiated* were included*,* which both provide indications of the level of participation, as well as in what manner the students perform their discussion. A closer analysis of the type of contributions was also necessary and the use of certain expressions was analysed.

The assumption is that symbolic capital is an important factor when persons are acting in social situations like communication on the Net. This assumption is based both on theoretical considerations and informed by earlier empirical research (see discussions in *Working in Groups* and *Group work, power and communication technology*). The main findings in most earlier research in the area

have been that power demonstrated in social situations was related to symbolic capital described by factors like sex, socio-economic and linguistic background, affiliation to the dominant culture, and perhaps also to age.

My data indicates a more complicated pattern. In the statistical analyses of quantitative communication space, only a few, statistically significant relationships were found when analysing the entire cohort. A significant relationship was found between the variables of quantitative communication space; *Number of contributions* and *Total number of words* and the background variables *Country of birth* on the one hand, and *Language spoken at home*, on the other hand. Students born outside Sweden or speaking another language than Swedish at home occupied less space regarding number of contributions and total number of words.

Though not statistically significant, a tendency was visible for students speaking another language at home and students born in another country to initiate a lower share of discussion threads than students without foreign background.

Statistically significant relationships were also found between *Request for input* and *Country of birth,* respectively *Toning down words* and *Language spoken at home*. Students born in another country than Sweden requested less frequently the others' input and students speaking another language than Swedish at home used fewer toning down words. However not statistically significantly, students born in another country also used on average considerably less toning down words and students speaking another language than Swedish at home on average requested considerably less for the others' input compared to students born in Sweden respectively speaking Swedish at home.

Toning down words were, on the whole, used plentifully in most of the dialogues, but much less used by students who were not born in Sweden or who spoke another language at home. The statistical analyses indicate that students who did not speak Swedish at home, and/or were born outside Sweden, used less toning down

words, and less often asked for input from others as well as occupied less quantitative space. The meaning of these correlations is not obvious. If not using toning down words is taken as an indication of dominance, the results would suggest that these students felt in power and did not need to signal subordination in the communication. This interpretation is contradicted by the fact that the same students sent fewer contributions and requested less input from the other group members. The act of requesting is in the analysis defined by expressions that require other students to react and to contribute. Such communication acts are generally seen as expressions of dominance. In other words, students who do not speak Swedish at home, or who are not born in Sweden, show a contradictory behaviour with respect to dominance/subordination if we are to maintain the usual interpretation of the significance of the indicators that were used in this study. On the one hand, these students do not use toning down words, thus, presumably expressing dominance. On the other hand, they do not direct their fellow students by requesting them to contribute. An alternative explanation may therefore be tested. The absence of toning down words could instead be interpreted as a lack in knowledge of the specific communication culture or/and the specific words used, whereas the low frequency of dominant expressions to steer the conversation and the other group members may be explained by a feeling of subordination.

Besides the statistically significant relationships found between the variables of quantitative and qualitative communication and students speaking another language at home, respectively students who were born in another country, the other significant correlation observed in the material was between age and *Share of initiated discussion threads* alongside with *Toning down words*. Older students initiated more discussions and used less toning down words than younger students. When adding the variable sex to the analyses, a significant relationship was found between age group with respect to sex and *Toning down words*. Younger male students used toning down words to a higher extent than older male students. Older female students were seen to on average send considerably more contributions and on more words than younger female

and male students respectively older male students, this was however not statistically significantly proven.

No statistically significant relationship was found between parental education attainments and communication space. Nevertheless, when the variable sex was included, it appeared that female students with parents of high educational attainment were found to send on average sixteen contributions, while males with the same parental educational attainments sent on average only nine contributions. When looking closer at the group of students whose parents had low educational attainments, it could be observed that they occupied on average substantially less quantitative space than students whose parents had high educational attainments.

Male dominance of the communication space seems to be the best studied background variable in the context of CSCL and CMC. The results of the present study show a more differentiated picture. If we count the number of words sent to the forum, males and females contributed fairly equally to the discussion, although a small tendency of different patterns of communication was seen, where male students tended to send longer but fewer contributions, whereas female students tended to send more and shorter messages. Both sexes initiated an equal share of the discussion threads. No relation was found between *sex* and the variables relating to qualitative communication space. At a first glance, it would seem that the expected correlations between ways of expression and sex were not observed. The results suggest that an underlying factor might be at play, such as belonging to a specific group or the composition of the groups. In order to qualify the conclusions, group composition, with respect to sex as well as the other background factors, will therefore in the next part be introduced as an explaining variable.

Figure 7. Overview of significant statistical correlations between factors of symbolic capital and variables of communication space

Sex
- No significant relationships

Age
- Initiating discussion threads
- Toning down words

Parental educational attainments
- No significant relationships

Language spoken at home
- Number of contributions
- Total number of words
- Toning down words

Country of birth
- Number of contributions
- Total number of words
- Request for input
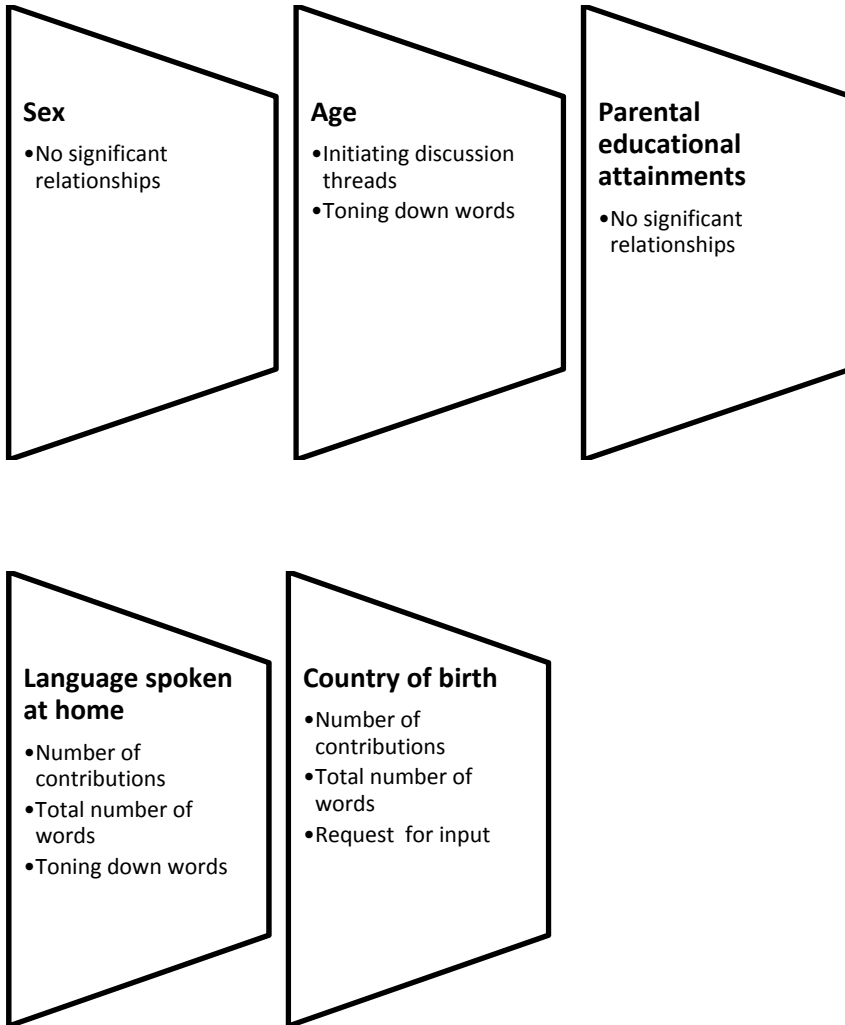
Analysis of dominance/subordination in relation to group composition

Under this heading, I will deal with the question of whether the analysis displays different patterns of dominance when the composition of the groups is taken into consideration. The question was raised by the results of the preceding analysis, as well as previous research showing that group composition does play a role (see Savicki, Kelley, & Lingenfelter, 1996a; Savicki & Kelley, 2000). Will the differences in composition of the small groups with respect to age, sex, language, country of birth and parental educational attainments, create different communication climates and maybe even different communicative discourses in the groups? Will any of the factors that did not show significance when the whole cohort was analysed, become important when examined within the specific contexts offered by the different small groups?

The purpose of the following analysis is to investigate whether the communication pattern in a group is influenced by how the group is composed with respect to the previously considered background characteristics of the students.

Figure 8. Constructed variables of group composition

Group composition with respect to

- Percentage of males in group
- Mean age in group
- Percentage of students whose parents have university education
- Percentage of students who speak only Swedish at home
- Percentage of students who are born in Sweden

The analysis is structured according to the previously used parameters of *dominance* and *subordination*.

Description of the groups with respect to variables of communication space

As described in the chapter *Method,* the groups were randomly put together, which resulted in a fairly diverging mix of students with respect to sex, linguistic background, country of birth and parental educational attainments, participating in each of the groups. In the findings, it appeared that the 29 groups also varied considerably with respect to number of contributions, length of contributions, total number of words and number of discussion threads initiated, as well as in the use of the verbal expressions that were analysed in my study (see also data presented above p. 94 ff). Number of contributions per group varied from 30 to 180 contributions. Eight groups sent less than 50, and seven groups more than 100 contributions. The average length of contributions varied between groups from 35 to 180 words. The four groups with the longest average length of contributions also produced among the fewest contributions. The groups' total number of words varied from 1500 to 12000 words.

The variable *Share of initiated of threads* differs from the other variables in that it is a group related variable. The group variation with respect to this variable showed that the groups varied considerably: some groups' discussions consisted of long uncut threads while other groups used plenty of discussion threads (cf pp. 97-98 above). The average was fourteen threads per group.

The dialogues were generally characterized by agreements, requests for input and toning down words, while disagreements were few. Agreements were used to various extents in the groups; from 5 to 50 % of all contributions posted in the individual group included such remarks, in some groups, the interlocutors frequently expressed agreements (in more than half of their contributions) while in other groups, hardly any agreements were expressed. The variation between the groups was smaller with respect to disagreement remarks, ranging from 1 to 30 % of all contributions posted to a

group, some groups hardly ever expressed disagreements. Concerning requests for input, the variation between the groups ranged from 7 to 50 % of the contributions. Toning down words were in some groups used in almost all the contributions, while in others much less. The variation in use of toning down words between groups was even a bit greater, varying from 30 to 80 % of all contributions in a group.

Analysis of communication space with respect to group composition

Percentage of males in group

In the first analysis of the data, presented above, some numerical differences were found between men's and women's communicative behaviour, but no statistically significant correlations (see Tables 35 & 36, Appendix III). Another picture appears when group composition is included in the analysis. The share of male students in a group does seem to influence the communication pattern. A significant relationship between the share of males in a group and *Number of contributions* was found: the higher the share of males in a group, the fewer contributions were sent. Separating females and males in the statistical analyses displays a difference in behaviour between males and females. The presence of many men in a group seems to influence women's contributions negatively. Female students produced fewer contributions and fewer words in groups with a high share of males in the group, than females in groups with a smaller share of males. For male students no such relationship could be observed. Male students produced on average the same number of contributions and the same total number of words, independently of the share of males in the group.

Regarding the use of verbal expressions, a significant relationship was visible between percentage of males in a group and the use of agreement remarks. The higher the share of males in a group the more contributions with agreements were sent. This is valid for both sexes when analysed separately; both females and males include more agreement remarks in their contributions the higher the percentage of males is in the group.

Mean age of group

The analysis with respect to mean age of the separate groups shows the same pattern as when the whole cohort was analysed as an agglomerated entity with respect to *Toning down words*. In groups with a high mean age less toning down words were used by the students, than in groups with a lower mean age. Another significant relationship appeared that could be partly discerned in the analysis with respect to the whole group; in groups with a high mean age more contributions/person and in total more words/person were sent than in groups with a low mean age. When females and males were analysed separately a difference in behaviour appeared, a statistically significant relationship was found for female students, but not for male students, with respect to number of contributions and total number of words and mean age in group (see Tables 45 & 46, Appendix III).

Share of students whose parents have university education

No significant relationship was found between the share of students in a group who have parents with high levels of education and quantitative communication space occupied, or with respect to the use of verbal expressions. There was neither any significant relationship found when the sexes were analysed separately.

Share of students speaking only Swedish at home or being born in Sweden

All groups contained a majority of students speaking only Swedish at home or who were born in Sweden. In fifteen groups, all students spoke only Swedish at home, and eighteen groups were formed entirely of students born in Sweden. When the analyses were carried out irrespective of group composition significant correlations were found between *Number of contributions* and *Total number of words* both with respect to *Language spoken at home* as well as to *Country of birth*. When the corresponding analyses were performed with respect to group composition, the significant relationship remained with respect to *Number of contributions* but not with respect to *Total number of words*. The relationship that was most pronounced when group composition was regarded was the negative correlation between *Length of contribution* and share of

group members who were born in Sweden and group members who were speaking only Swedish at home. This signifies that in groups with a high share of students that is born in Sweden and in groups with a high share of students speaking Swedish at home shorter contributions are posted than in groups with another composition with respect to these variables (sees Tables 45 & 46, Appendix III). This was not seen in the analysis done irrespectively of group composition. The communication pattern of groups with a very high share of students, who speak only Swedish at home, or with students who were born in Sweden, differed from the pattern of other groups. These groups tended to produce more but shorter contributions.

More requests for input was put forward in groups with the highest share of students born in Sweden compared to groups with the lowest share of students born in Sweden, this was already seen in the first analysis. A further significant relationship was found between percentage of group members speaking only Swedish at home and the use of *disagreement remarks* (see Tables 45 & 46, Appendix III). The higher the percentage of students speaking only Swedish at home was, the fewer contributions containing disagreement remarks were posted. In the three groups with the lowest share of contributions containing disagreement remarks (less than 2 % on average in their contributions), all students were born in Sweden and spoke Swedish at home. In the groups with the highest share of disagreement remarks (more than 20 % on average in their contributions), one third of the students was either born in another country than Sweden or spoke another language at home. This was not seen in the first type of analysis.

Summary and conclusion of analysis; communication space with respect to group composition
The statistically significant relationships between communication space and group composition are summarized in Figure 9 below.

Figure 9. Overview of statistically significant correlations between group composition and variables of communication space

Males (%)
- Number of contributions (neg.)
- Total number of words (neg.)
- Agreements (pos.)

Mean Age
- Number of contributions (pos.)
- Total number of contributions (pos.)
- Toning down words (neg.)

Students with university educated parents (%)
- No significant relationships

Students speaking only Swedish at home (%)
- Number of contributions (pos.)
- Length of contribution (neg.)
- Disagreements (neg.)

Students born in Sweden (%)
- Length of contribution (neg.)
- Request for input (pos.)

A conclusion is that not only have we found different communication patterns depending on composition of the groups with respect to sex, but we have also found differences in communication style in groups depending on the share of students speaking Swedish at home (or not speaking Swedish at home) and the share of students born in Sweden (or not being born in Sweden). These differences are to some extent masked when the data is analysed without taking account of group composition, but are visible when the group component is included.

The results in the first analysis irrespective of group composition revealed no difference between male and female students in how they communicated in this particular CSCL context. However, when taken group composition into account, important effects of the group composition with respect to sex were found. The higher the share of males in groups, the fewer contributions and words in total were sent. In the analyses where sexes were analysed separately, it appeared that female students sent fewer contributions and also less words in total, the higher the share of males there was in the group. By contrast, male students sent the same number of contributions and the same total number of words, regardless of the share of males in the group. Another relationship that was not visible in the first analysis irrespective of group composition concerns the use of agreements. The higher the share of males in the group, the more agreements were given; this was valid for both sexes when analysed separately. The results indicate that including group composition in the analysis contributes to the understanding of what gender/sex means in net based communication.

The importance of group composition was also established in the second analysis between number of contribution and length of contributions with respect to the share of students in a group speaking only Swedish at home or the share of student who were born in Sweden. When larger proportions of students in the group spoke Swedish at home or were born in Sweden, more contributions were sent, but these tended to be shorter. In groups containing a larger share of students born in Sweden, more requests for input were

posed, and in groups with a higher percentage of students speaking only Swedish at home, fewer disagreement remarks were given.

The relationships between length of contributions and the use of disagreement remarks and how the groups were composed with respect to students speaking only Swedish at home or students who were born in Sweden were not seen when the analysis irrespective of group composition was made, but became palpable in the analysis when group composition was considered.

Thus, we have discovered relationships between patterns of communication and background characteristics, especially regarding sex, language spoken at home and country of birth, that were not seen when the discussions were analysed irrespective of group composition but were visible when group composition was included in the analysis.

OVERALL DISCUSSION

Summary and discussion of the results

The essence of my research questions can be described as examining whether quantitative and qualitative differences in how students 'take the floor' in a web based forum can be related to the differences in the symbolic capital they carry with them. I will in the following discuss and interpret the results which indicate that power relating to symbolic capital characterizes the interaction that takes place in the web based forum.

The asynchronous web based discussion differs from the face-to-face situation, particularly with respect to the absence of several of the communication channels that are typical for a face-to-face situation; in the asynchronous web based discussion the written word stands for the entire communication. There is also a slower path of interaction in the asynchronous discussion, which offers opportunities for longer contemplation and formulation of contributions. Another circumstance that distinguishes it from the face-to-face discussion is that the interlocutors have access to equal 'airtime', whereas in a face-to-face discussion only one person can talk at a time. Nevertheless, in an asynchronous web based forum, just as in a face-to-face discussion, and all other occasions where people interact, the interlocutors are socially dependent on each other. Although it has been assumed that here, like elsewhere in society, links exist between power and symbolic capital, very few studies have been undertaken to investigate the interaction in computer mediated communication or computer supported collaborative

learning in relation to background characteristics of the student, other than sex, and even fewer studies exist with respect to the impact of group composition on patterns of interaction. This is why the focus of the present investigation has been the impact of background factors and, in particular, the impact group composition with respect to these background factors has on the interaction in computer mediated interaction.

'Taking the floor' in a quantitative way

As described in the result chapter, considerable variation between the students could be observed with respect to how many contributions were posted, how long these contributions were, and what type of verbal expressions the students used in the discussions.

In the study, it was found that the variables *Number of contributions* and *Length of contribution* were negatively correlated to each other; the students who wrote many contributions also tended to write shorter contributions and vice versa. The number of contributions and length of contributions an individual sends are thus not only dependent of activity or dominance, but also on communication style (although choice of a particular communication style may in some cases in itself be an indicator of dominance or subordination). The students may have different perceptions of which genre communication on the forum belongs to, i.e. whether the forum is similar to a face-to-face dialogue, with short rapid contributions, or more of an arena for presenting points of view. Involvement cannot thus be judged merely on the basis of number of contributions or length of contributions, therefore the variable *Total number of words* was included to gain a more complete picture. *Total number of words* is a combination of the two variables *Number of contribution* and *Length of contributions*.

The fourth variable with respect to quantitative communication space that was considered in this thesis, *Share of initiated discussion threads,* differed from the other three in that it related to the small group and not to the whole cohort. To initiate many discussion threads within the small group may be seen as an indicator of dominance, a wish to try to steer the discussion. The groups used

this option offered by the interface very differently. Some groups had long uncut discussions, while others organized their discussions by frequently initiating new discussion threads.

In educational contexts, visible and measurable activity is usually advocated, and as part of regular course requirements, students in this study had to participate in the discussion by sending contributions to the discussion forum. However, it is important to bear in mind that simply counting contributions does not form a true and complete picture of the level of activity and involvement by the group members. An aspect of interactivity that has been previously studied within the research project ALHE/Xpand, but which is not focused in the present thesis, is the question of which students receive responses to their contribution, and thus have more interactive connections with the other group members (Malmberg, 2006). Another interesting aspect is to what extent students 'listen' to each other, that is, if they read each others' contributions. McKendree et al. (1998) argue that the voyeur, just like the outwardly active participant, may in fact be actively engaged in the construction of ideas and thoughts, while checking them against those of the other participants. The participant considered to be 'active' with respect to number of contributions etc., may be merely engaged in fact consumption, rather than focusing reflection or structuring of information. In this study the use of certain verbal expressions was analysed in order to widen the picture of the interaction in the dialogues.

'Taking the floor' by means of verbal expressions

The verbal expressions (*Agreements*, *Disagreements*, *Requests for input* and *Toning down words*) constituted the qualitative descriptors of the interaction; they were all used abundantly, except for disagreement remarks. Agreement remarks have in the literature been considered to perform several different functions; they can be used as acts of social bonding (and indirect exclusion of those not expressing agreements), or as social lubricants in order to create a socially pleasant environment in which disagreements are to be avoided. In other cases, 'you're correct' or 'well said' can be used

as a way for the contributor to make a judgement of a statement, and to indicate that she is in a position to do so.

A disagreement statement can be considered in some sense to be the opposite of an agreement. It may however, not only be seen as an opposing statement, but also as an expression of interest and engagement. By questioning a statement, the dialogue may expand and deepen. Disagreement remarks may thus be seen as legitimate contributions, for example in an academic seminar discussion; 'the doubting game', as pointed to by Belenky (1997). De Vries et al. (2002) found a general tendency to avoid engaging in a cognitive conflict, which would risk the social relationships in the group. Pomerantz (1984), referring to a face-to-face context, showed that in ordinary friendly talk, participants tend to be oriented toward interpersonal coordination, and thus toward consensus; agreements were usually preferred responses and disagreements dispreferred.

In terms of power, there is no straightforward answer to what a given person's tendency to ask questions or request for input actually indicates in a particular context. To pose a question is a potentially face-threatening action (Goffman, 1967); the questioner risks her own face at the same time as she is threatening the 'face' of the addressee. However, in a computer mediated context, where the interlocutors do not physically meet each other during the discussion, it is probably not as face-threatening to pose a question as in a face-to-face situation, since the question or request is usually not directed towards an individual.

To pose a question can be a sign of not being in control, but also the opposite. It may be an exposure of ignorance of the issue discussed, but at the same time self-confidence is required for this exposure. Most probably it is not always the interlocutor with the least knowledge who asks the most questions, and certainly not the individuals who are the most insecure. Phrasing something as a question can in some cases be a way of avoiding the assertiveness of a direct statement, thus signalling subordination. In other cases, it may be a way of inviting other members into the discussion, and simply represent a desire for more interaction.

Summary of results in relation to background characteristics of the students

Several studies, notably Herring (1995), Sussman (2000) and Barrett (1999), found palpable evidence of male dominance in discussions and group work performed on the Net. These studies showed that power structures relating to sex are carried over into the on-line environment, and that men tend to dominate the discussion, with respect to quantity, as well as to other modes of expression. However, a number of other more recent studies (Bostock & Lizhi, 2005; Caspi, Chajut, & Saporta, 2008) show an opposite trend to the studies mentioned above. Bostock & Lizhi (2005) found females to post more messages. Caspi, Chajut & Saporta (2008), who compared activities in face-to-face contexts to on-line contexts, found women to be more active with respect to number of postings, while men were more active in face-to-face contexts.

When the discussions were analysed in the present study without taking group composition into account, no pattern of male dominance was found. Could the fact that the studies not pointing to a male dominance are more recent than the studies where male dominance was obvious, be part of the explanation of the contradicting results? It has, among other things, been observed that the gender gap between men and women in their use of the Internet is decreasing. In Sweden, the share of women who use the Internet several times a week has increased from 22 to 49 % from 2000 to 2005, while the same figures for men have shifted from 40 to 65 % (Statistics Sweden, 2007). The rise in women's use of the Internet is more dramatic, and may have an impact on behaviour in an educational on-line context, since obstacles with respect to skills and familiarity with using the computer and the Internet have decreased. This may provide us with part of the explanation to the diverging results in certain later research studies compared to the earlier studies mentioned above.

When analysing the group discussions with respect to the distribution of the sexes in individual groups, it was shown that female students fell silent when the group contained a relatively higher share of male students. Female students contributed less, both with

respect to number of contributions and total number of words, in groups with a high share of males, compared to female students in groups with a low share of males. By contrast, the distribution of the sexes in the individual groups did not seem to have any effect on male behaviour.

This result underlines the importance of not only looking at the aggregated data for the cohort as a whole. The analysis on the cohort as a whole showed no statistically significant difference between men and women, whereas when group composition was included, a significant difference was found between men and women with respect to occupancy of quantitative communication space. By introducing group composition as a variable, the dominance of males became visible in the analysis. The observed tendencies confirm the results in earlier studies where group composition was taken into consideration (discussed in the chapter on *Group work, power and communication technology*). These studies showed that group composition with respect to sex played an important role for the interactional patterns (Prinsen et al., 2007; Savicki, Kelley, & Lingenfelter, 1996a; Savicki, Kelley, & Lingenfelter, 1996b; Savicki & Kelley, 2000).

Another impact of sex that did not appear until the material was analysed with respect to group composition was the use of agreement remarks. Considerably more agreements were given when the share of males in the group was higher; this applied to both women and men. When comparing leader identities of men and women in New Zealand, Marra, Vine, & Holmes (2008) found that socially accepted leadership roles for men were typically the role of the hero, the father and the 'good mate'. They argue that individuals in leadership positions are vulnerable to criticism for acting in ways which indicate that they consider themselves a cut above others. In response, leaders often seek ways of reducing status differences, and emphasizing equality with their colleagues. The authors argue that for men, one option is to adopt behaviours which indicate they are 'just one of the boys': in other words, to do masculinity in the form of mateship. The groups included in the present study had no proclaimed leader; nevertheless, it may well be that agreements

and supportive comments were employed to form alliances, a typically male behaviour as found by Marra, Vine & Holmes. For instance, in one of the small groups in my study that contained 80 % males (four out of five group members), there was a very obvious 'matey' activity going on: male students referred to each other directly by names more frequently than in other groups (and in most cases even by surname, which is unusual in Sweden, except in the army). The amount of agreements for this group was far above the average; 56 % of contributions contained agreements compared to an average of 29 % for the other groups. This is an area of research where few studies exist.

No relationships were found between sex and the other verbal expressions, that is, regarding disagreements, requests for input or toning down words. In a study by Holmes & Stubbe (1992), based on data from 100 public meetings or seminars that involved a presentation followed by a discussion, it was found that men dominated the discussions by asking most of the questions. One explanation to why a similar pattern was not found in my own analysis could be that posing a question on the Net may not be as face-threatening as in a face-to-face context; thereby the obstacles are not perceived as great for the interlocutors low in power to expose their ignorance, challenge other members of the group, or to make general requests for input from the others.

The students were between 19 and 48 years of age. More than half were between 19 and 25. The older students were more engaged in the discussion; seniority seemed to bring security and authority. It might also be that they were more engaged because they had invested more on a personal level, economically and socially, in attending higher education. Older students also used less toning down words compared to younger students, which may support the suggestion that security comes with seniority. When considering age and sex, the greatest difference was found between older male students and younger male students, younger male students used significantly more toning down words than the older male students.

The students whose parents had the lowest educational attainments (nine-year compulsory education) consisted of a small group; only ten in number, hence statistically significant relationships were difficult to find. Numerically, this group of students was seen to occupy much less of the quantitative communication space than the others, both regarding number of contributions and total number of words. They also initiated fewer discussion threads, but the difference was not as great as regarding the other parameters of quantitative communication space. Students with the lowest parental educational attainments also posted fewer contributions containing expressions of agreement, in comparison to students with high parental educational attainments. In addition, they used toning down words a bit more frequently than those with better-educated parents.

How may this be understood? I will bring up two possible explanations. Firstly, researchers like Bernstein (1975), Willis (1993), and Belenky et. al. (1997) show parental educational attainments to be a strong parameter of educational success or failure. Bernstein argued that adults of different social classes tended to adopt characteristically different ways of using language. These differences would then carry over to the manner in which they talked with their children, thereby differently preparing the children for the ways in which they would be expected to use language in the context of formal education. This theory was tested empirically by Hasan (2002), who compared the ways in which Australian middle- and working-class mothers talked with their preschool-aged children in the course of their everyday activities. As Bernstein had predicted, Hasan found systematic differences, which, she suggested, would be consequential in the context of the children's subsequent formal education. Secondly, Thorpe et al. (2007) found in a sample of 127 new UK undergraduates, that students drawn from lower social class backgrounds consistently underestimated their abilities vis-à-vis the overall cohort. However, students' perception of themselves regarding academic abilities and academic self-confidence is not static. Astin (1977) found that students generally increase their academic self-confidence through participation in college, and that measures of student involvement have a signifi-

cant effect on students' academic self-confidence at the end of college.

In my study there was a statistically significant difference between female students who had parents with high levels of education, and male students with the same parental educational attainments. The female students in this category sent on average almost 70 % more contributions than corresponding males. In the latest Swedish governmental report on Teacher education, a chapter is devoted to the low status of the teacher profession (SOU, 2008). It is possible that an explanation to the remarkable difference between female and male students whose parents have high educational attainments may be found in the unattractiveness of the teacher profession. One hypothesis for this relationship may be that the teacher profession is not the first choice for male students whose parents have high educational attainments, thus explaining the low involvement in the group work. However, this is only a hypothesis and needs to be further researched, by including, for instance, the students' grades of admission.

My analyses showed that students speaking other languages than Swedish at home or those who were not born in Sweden sent fewer but not shorter messages compared to students with a Swedish background[31]; the difference in communication space was rather remarkable. The first-mentioned categories of students occupied only about two thirds of the word space occupied by Swedish born students speaking only Swedish at home (with respect to the variable *Total number of words*). This indicates that students born outside Sweden and speaking another language than Swedish at home played a more secluded part in the discussion than students with a Swedish background. When including the variable sex in the analysis, it was found that female students speaking another language at home or born abroad occupied significantly less space than the others. There were proportionally more female students speaking other languages than Swedish at home (20) or who were not born in Sweden (12), compared to male students with corresponding

---

[31]Swedish background refers to those students who spoke only Swedish at home or were born in Sweden.

characteristics (3 in number in both cases). However, the number of students who either spoke another language than Swedish at home was low, and the disproportion regarding sex in this category of students will not have had a great impact on the composition of the groups with respect to sex.

Groups with a high proportion of students speaking other languages than Swedish at home made more disagreement remarks than those groups which consisted only of students with a Swedish background. The Swedish culture is in many contexts proclaimed to be 'consensus seeking', which this result to some extent confirms. When she examined 12 dyadic discussions between German and Anglo-American students and lecturers that were framed as 'disputes' rather than as ordinary conversation, Kotthoff (1993) found that the use of agreement and disagreement also depends on other matters than the prior turn, such as genre, institutional situation, and culture. In a study by Ho-ying Fu et al. (2007), it was found that Chinese, in comparison to Americans, were found to have a greater preference for relationship-preserving modes of conflict resolution. Most of the research which finds interaction in groups consensus seeking and conflict avoiding has been conducted in a European or North American context. I think it is pertinent to question whether the results pointing to the always consensus seeking interlocutor also apply to non-Western contexts.

Students speaking another language than Swedish at home or who were not born in Sweden used toning down words to a lesser extent than those students speaking Swedish at home or who were born in Sweden. An abundant use of toning down words has been defined as a sign of subordination in my study, and the opposite as a sign of dominance. Results concerning toning down words therefore appear to contradict the findings in the analysis with respect to occupancy of quantitative space, where students speaking another language than Swedish at home and/or born abroad occupied less space, interpreted as indicating subordination. To elucidate these apparently contradictory results, I want to bring up two alternative explanations a) cultural differences in the use of polite-

ness and toning down strategies and b) the impact of level of proficiency in the majority language.

Regarding cultural differences, Lakoff (1972), a linguist who has studied the 'phenomena' of politeness for more than thirty years, has found that politeness manifests itself very dissimilarly in different cultures. Kallia (2005) found in an empirical study of British English, German and Greek, that structures usually misunderstood are questions without auxiliaries or imperatives accompanied by politeness markers, which are evaluated as impolite by English speakers and as polite by Greeks. Márquez-Reiter (2000) made a contrastive study of politeness strategies in Britain and Uruguay. She found differences in the use and understanding of direct and indirect speech in Britain and Uruguay. Indirect speech is an important component of politeness strategy.

Regarding the issue of language competence, I would like to relate to the specific condition the computer mediated context constitutes. Several channels of communication are absent, leaving the written words and symbols the sole vehicle for communication. Inabilities in expressing oneself in Swedish can thus not be compensated by other means (gestures etc), and may cause an additional obstacle for students who do not have the same 'feel' for the language as native speakers of the majority language. On the other hand, the asynchronous computer mediated discussion offers a slower pace of interaction, and thus increases the opportunities to make use of external resources. This may be an advantage for participants with insufficient knowledge of the majority language (or with other linguistic impediments in expressing themselves), by offering more time to formulate contributions, check spelling, consult external texts in order to formulate complex utterances etc. But the difference between being polite or not is very subtle, and is obviously affected by the language competence. Although the questions on the questionnaire regarding language spoken at home and country of birth did not provide direct information on the level of proficiency in Swedish, they gave an indication of the number of students who had another linguistic and cultural background than the majority language and culture.

Issues of culturally based norms for communication and linguistic proficiency may provide elements to explain the apparently conflicting results, showing a reduced occupancy of communication space (sign of subordination) combined with a limited use of toning down words (otherwise usually interpreted as dominance). The restricted use of toning down words by students with a foreign background may depend on a) a different approach to what marks politeness and/or b) a less pronounced tendency of avoiding conflict and/or c) the effect of insufficient knowledge of the Swedish language.

All new students have to master the tricky issues of learning academic registers and genres. Highly developed institutions like universities develop linguistic tools in order to handle the specialization of knowledge. These linguistic tools presuppose knowledge, and thus carry with them barriers and difficulties for the uninitiated, in this case new students (Säljö & Mäkitalo, 2002). Leung and Safford (2005) argue that students with another mother tongue than the majority also have to deal with other equally urgent and complex 'problems', which are specifically associated with their ethno-linguistic backgrounds. These include learning a foreign language, making sense of different pedagogic and curriculum practices, learning to live with the marginalizing effects of not being seen as a fully paid-up member of the local society, and coping with the loss of cultural and linguistic capital encoded in their other languages (and consequences of this loss in terms of academic performance).

Conclusion and suggestions for future research

The general aim of the thesis was to investigate the interaction processes and patterns that occur in group dialogues when teacher students work in small groups using net based asynchronous dialogues to collaboratively solve a problem of sustainability. More specifically, the interest was to find out whether students' dialogues give rise to similar patterns of dominance/subordination to those that have been observed in face-to-face situations, which included an interest in the significance of group composition.

To answer the overall aim, the research objective was broken down into the following two areas of research focus with related questions.

Expressions of power in relation to sex, age, linguistic background, country of birth and parents' educational attainments

and further

Expressions of power in relation to the group composition with respect to factors of symbolic capital

A research strategy that involved both quantitative and qualitative data gathering methods was used. In the following, the conclusion of the results of my thesis will be related to the research questions (discussed in chapter *Group work, power and communication technology*).

Concerning the initial question: *Can we find expressions of power structure in the dialogues?,* the answer is yes, expressions of power structure are definitely visible in the dialogues; there is a great variation in amount of communication space occupied and in the use of the verbal expressions. The variation seems to follow certain patterns with respect to the background variables relating to symbolic capital, which leads to a positive answer concerning the next question as well; *Are expressions of power correlated to students' symbolic capital?* A conclusion so far is that students with Swedish background (speaking only Swedish at home and born in Sweden), students who have parents with high educational attainments, and older students, all occupy more communication space than: students not born in Sweden, students speaking another language than Swedish at home, students who have parents with low educational attainments, and young students. It was also found that students speaking Swedish at home or were born in Sweden used more verbal expressions that signal dominance than students who spoke another language than Swedish at home or were not born in Sweden.

The only variable that clashed with this pattern was the use of toning down words, which was defined as signalling subordination. Students speaking Swedish at home or being born in Sweden used more toning down words than students born in another country or speaking another language at home, possible causes for this discrepancy have been discussed.

The thesis also brings an affirmative answer to the question; *Are expressions of power structure correlated to how the groups are composed with respect to the symbolic capital the students carry with them?* With the introduction of the variable group composition (with respect to the background factors), a deepened insight was afforded into the interaction of the groups, especially with respect to the impact of sex. The composition of the groups with respect to sex, linguistic background, and country of birth affects both the quantitative communication space and the use of verbal expressions. The higher the share of males in the group, the fewer contributions were sent, but the more agreements were given. In groups with a higher share of students speaking Swedish at home or being born in Sweden, more but also shorter contributions were sent. Furthermore, the share of students speaking a Swedish background in the group affected the style of communication: the more students speaking Swedish at home or being born in Sweden the group contained, the fewer disagreement remarks were used.

Students with a non-academic family background, as well as students from linguistic and cultural minorities, are generally underrepresented in higher education in Sweden. In this study these categories of students were observed to take a secluded part in the discussion. Programmes aiming to widen the recruitment-base to higher education often focus predominantly on the recruitment process. In certain cases, it is attempted to provide students from non-academic family backgrounds or from cultural minorities access to the rules and norms of the university. Lea and Street (1998) refer to this as the 'academic socialization model': the assumption that students will succeed if they learn a set of rules and norms for studies, interaction and writing. After recruitment, the students are left to themselves and to manage as best as they can in the aca-

demic context, with codes and situated meanings of concepts they are unaccustomed to. Woodrow and Yorke (2002) argue that there is a need for greater understanding of the pedagogic practices that can facilitate for those students for whom higher education is a particular challenge. In this respect, the net based learning situation may cause an even greater feeling of abandonment, but it may also help these groups of students in their formulation of contributions, for instance by increasing the possibilities to draw upon external resources.

The results of my thesis suggest further research on several different topics. Some students showed particular behaviour regarding some of the verbal expressions; some of them sent a large number of agreements, disagreements or requests for input, or used an abundant amount of toning down words, or the opposite, some students sparsely used these verbal expressions. An interesting area of research would be to look closer into these individuals and the context they act in, e.g. how the rest of the group members respond to such interactional patterns. The results on groups composition with respect to males and the used of agreements causes many further questions to be posed, e.g. the impact this pattern has on the interaction and whether this is a pattern that can be seen in other contexts than in the computer mediated discussion.

Another result in my thesis, which would be interesting to look closer into, concerned the difference in activity level between female and male students with equal parental educational attainments. The female students were remarkably more active. Is this, as I suggested, related to the low status of the teacher profession in Sweden, or are there other reasons? The issue of dialogicity that I briefly looked into in the chapter *Introduction to the dialogue w*ould be another interesting topic to look further into.

This thesis is addressed to researchers within the field of computer mediated communication and collaborative learning (CMC & CSCL), as well as to teachers/practitioners involved with group work, on the Net or in face-to-face situations. The results relate to net based group work in a particular learning context, but I hope

they will contribute to create a greater awareness of the power structures present in group work more generally, and the effects they have on the interaction. Hopefully, the results and conclusions presented here will help teachers and group tutors when organizing, facilitating and supervising group work, to enable all participants in the group to fully benefit from the learning opportunities this context provides.

REFERENCES

Adrianson, Lillemor. (2001). Gender and computer-mediated communication: Group processes in problem solving. *Computers in Human Behavior,* 17, 71–94.

Allen, Amy. (1996). Foucault on power: A theory for feminists. In S. J. Hekman (Ed.), *Feminist interpretations of Michel Foucault* (p. 265-281). University Park, PA: Pennsylvania State Univ. Press.

Allwood, Carl M.; & Erikson, Martin G. (1999). *Vetenskapsteori för psykologi och andra samhällsvetenskaper.* Lund: Studentlitteratur.

Anderson, Anthony; Cheyne, William; Foot, Hugh; Howe, Christine; Low, J.; & Tolmie, Andrew. (2000). Computer support for peer-based methodology tutorials.16, 41-53.

Anyon, Jean. (1983). Intersections of gender and class: Accommodation and resistance by working-class and affluent females to contradictory sex-role ideologies. In S. Walker, & L. Barton (Eds.), *Gender, class & education.* Barcombe: Falmer.

Astin, Alexander W. (1977). *Four critical years: Effects of college on beliefs, attitudes and knowledge.* San Fransisco: Jossey-Bass.

Bakhtin, Michail M. (1986). In Holquist M., Emerson C. (Eds.), *Speech genres & other late essays.* Austin: University Texas Press.

Barnes, Douglas. (1978). *Kommunikation och inlärning.* Stockholm: Wahlström & Widstrand.

Barrett, Elizabeth; & Lally, Vic. (1999). Gender differences in an on-line learning environment.15(1), 48-60.

Barron, Brigid. (2000). Problem solving in video-based micro worlds: Collaborative and individual outcomes of high-achieving sixth-grade students. *Journal of Educational Psychology,* 92(2), 391-398.

Belenky, Mary, Field. (1997). *Women's ways of knowing: The development of self, voice, and mind.* New York: BasicBooks.

Bereiter, Carl. (2002). *Education and mind in the knowledge age.* Mahwah: Lawrence Erlbaum Associates.

Berger, Charles R.; Bradac, James J.; & Callero, Peter L. (1982). *Language and social knowledge: Uncertainty in interpersonal relations.* London: Arnold.

Berger, Charles R.; & Calabrese, Richard J. (1975). Some explorations in initial interaction and beyond: Toward a developmental theory of interpersonal communication. *Human Communication Research,* 1(1), 99-112.

Bernard, Michael; Mills, Melissa; & Friend, Cindy. (2000). Male and female attitudes towards Computer–Mediated group interactions. *Internet Publication for Usability News,* 2(2)

Bernstein, Basil. (1975). *Class, codes and control.* London: Routledge.

Billing, Yvonne D.; & Alvesson, Mats. (2000). Questioning the notion of feminine leadership: A critical perspective on the gender labelling of leadership. *Gender, Work and Organization,* 7(3), 144-157.

Bloomfield, Dianne. (2000). Voices on the web: Student teachers negotiating identity. *Asia-pacific journal of teacher education* (p. 199-212) London: Carfax Publishing Company.

Bostock, Stephen J.; & Lizhi, Wu. (2005). Gender in student online discussions. *Innovations in Education & Teaching International,* 42(1), 73-85.

Bourdieu, Pierre. (1980). *Le sens pratique.* Paris: Éd. du Minuit.

Bourdieu, Pierre. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (p. 241-258). New York: Greenwood.

Brashers, Dale E.; Adkins, Mark; & Meyers, Renée A. (1994). Argumentation and computer-mediated group decision making. In L. R. Frey (Ed.), *Group communication in context: Studies of natural groups.* Hillsdale, N.J.: L. Erlbaum.

Bryman, Alan; & Nilsson, Björn. (2002). *Samhällsvetenskapliga metoder* Malmö: Liber ekonomi.

Burnett, Cathy. (2003). Learning to chat: Tutor participation in synchronous online chat. *Teaching in higher education* (p. 247) London: Carfax Publishing Company.

Butler, Judith. (1996). Sexual inversions. In S. J. Hekman (Ed.), *Feminist interpretations of Michel Foucault* Pennsylvania State Univ. Press.

Callaway, Michael R.; Marriott, Richard G.; & Esser, James K. (1985). Effects of dominance on group decision making: Toward a stress-reduction explanation of groupthink. *Journal of Personality and Social Psychology,* 49(46), 949-952.

Carlson, Marie. (1994). *Om kunskap och "litteralitet" i ett tvärkulturellt perspektiv.* University of Gothenburg

Carlson, Marie. (2002). *Svenska för invandrare - brygga eller gräns?: Syn på kunskap och lärande inom sfi-undervisningen.* Göteborg: Dept. of Sociology, Univ. of Gothenburg

Carr, Tony; Cox, Lenda; Eden, Andrea; & Hanslo, Monique. (2004). From peripheral to full participation in a blended trade bargaining simulation. *British Journal of Educational Technology,* 35, 197–211.

Caspi, Avner; Chajut, Eran; & Saporta, Kelly. (2008). Participation in class and in online discussions: Gender differences. *Computers & Education,* 50(3), 718-724.

Chuang, You-Ta; Church, Robin; & Zikic, Jelena. (2004). Organizational culture, group diversity and intra-group conflict. *Team Performance Management,* 10(1), 26-34.

Coates, Jennifer. (2004). *Women, men and language: A sociolinguistic account of gender differences in language* Harlow: Longman.

Cohen, Elizabeth, G. (1994). Restructuring the classroom: Conditions for productive small groups. *Review of Educational Research,* 64(1),1.

Davies, A.; & White, Fiona. (2003). The effect of communication medium and task type on group polarisation and persuasive argumentation. *Australian Journal of Psychology,* 55, 40.

Dawn Blum, Kimberly. (1999). Gender differences in CMC-based distance education. *Feminista!,* 2(5)

De los Reyes, Paulina; Molina, Irene; & Mulinari, Diana. (2005). *Maktens olika förklädnader* Stockholm: Atlas KB.

de Vries, Erica; Lund, Kristine; & Baker, Michael. (2002). Computer-mediated epistemic dialogue: Explanation and argumentation as vehicles for understanding scientific notions. *Journal of the Learning Sciences,* 11(1), 63-103.

Denzin, Norman K.; & Lincoln, Yvonna S. (2005). *The Sage handbook of qualitative research* Thousand Oaks, Calif.: Sage.

Einarsson, Charlotta; & Hammar Chiriac, Eva. (2002). *Gruppobservationer: Teori och praktik* Lund: Studentlitteratur.

Evans, Randy W.; & Carson, Charles M. (2005). A social capital explanation of the relationship between functional diversity and group performance. *Team Performance Management,* 11(7-855), 302-315.

Exley, Kate; & Dennick, Reg. (2004). *Small group teaching: Tutorials, seminars and beyond* London: RoutledgeFalmer.

Fabos, Bettina; & Young, Michelle D. (1999). Telecommunication in the classroom: Rhetoric versus reality. *Review of Educational Research,* 69(3), 217.

Fairclough, Norman. (2003). *Analysing discourse: Textual analysis for social research*. New York: Routledge.

Fernie, David E.; Davies, Bronwyn; Kantor, Rebecca; & McMurray, Paula. (1993). Becoming a person in the preschool: Creating integrated gender, school culture, and peer culture positionings. *International Journal of Qualitative Studies in Education,* 6(2), 95.

Ferrara, Kathleen; Brunner, Hans; & Whittemore, Greg. (1991). Interactive written discourse as an emergent register. *Written Communication,* 8(1), 8-34.

Foucault, Michel. (1977). In Bouchard D. F. (Ed.), *Language, counter-memory, practice: Selected essays and interviews*. Oxford: Blackwell Publishing.

Foucault, Michel. (1979). *The history of sexuality*. London: Allen Lane.

Foucault, Michel. (1980). In Gordon C. (Ed.), *Power/knowledge: Selected interviews and other writings 1972-1977*. Brighton: Harvester P.

Foucault, Michel. (1982). *The archaeology of knowledge and the discourse on language*. New York: Pantheon books.

Foucault, Michel. (1987). *Sexualitetens historia*. Stockholm: Gidlund.

Gay, Geri; Sturgill, Amanda; Martin, Wendy; & Huttenlocher, Daniel. (1999). Document-centered peer collaborations: An exploration of the educational uses of networked communication technologies. *Journal of Computer-Mediated Communication,* 4(3)

Giddens, Anthony. (1981). *A contemporary critique of historical materialism*. London: Macmillan.

Goffman, Erving. (1967). *Interaction ritual: Essays on face-to-face behavior*. Garden City, N.Y.: Doubleday.

Gomard, Kirsten. (2001). Akademisk takt og tone på et humanistisk forskerkursus. In K. Nordenstam, & K. Norén (Eds.), *Språk, kön och kultur: Rapport från fjärde nordiska konferensen om språk och kön, Göteborg den 6-7 oktober 2000*. Gothenburg: Göteborgs universitet. Institutionen för svenska språket.

Gomard, Kirsten; & Krogstad, Anne (Eds.). (2001). *Instead of the ideal debate: Doing politics and doing gender in nordic political campaign discourse*. Århus: Aarhus University Press.

Guiller, Jane; & Durndell, Alan. (2006). "I totally agree with you": Gender interactions in educational online discussion groups. *Journal of Computer Assisted Learning, 22*(5), 368-381.

Guiller, Jane; & Durndell, Alan. (2007). Students' linguistic behaviour in online discussion groups: Does gender matter? *Computers in Human Behavior,* 23(5), 2240-2255.

Gunnarsson, Britt-Louise. (1995). *Interaction and gender: A study of postgraduate seminars at a Swedish university*. Uppsala: Uppsala universitet.

Halliday, Michael A. K. (1973). *Explorations in the functions of language*. London: Arnold.

Halliday, Michael A. K. (1994). *Spoken and written language*. Geelong, Vict.: Deakin Univ. Press.

Hammar Chiriac, Eva. (2003). Grupprocesser i utbildning: En studie av gruppers dynamik vid problembaserat lärande. Linköping: Institutionen för beteendevetenskap, Linköpings Univ.

Hanneman, Robert E. (2000). *Introduction to social network methods.* Riverside, CA: University of California.

Harasim, Linda. (1987). Teaching and learning on-line: Issues in computer-mediated graduate courses. *Canadian Journal of Educational Communication,* 16(2), 117.

Harding, Sandra G. (1986). *The science question in feminism.* Milton Keynes: Open University Press.

Hasan, Ruqaiya. (2002). Ways of meaning, ways of learning: Code as an explanatory concept. *British Journal of Sociology of Education,* 23(4), 537-548.

Helweg-Larsen, Marie; Cunningham, Stephanie, J.; Carrico, Amanda; & Pergram, Alison M. (2004). To nod or not to nod: An observational study of nonverbal communication and status in female and male college students. *Psychology of Women Quarterly,* 28(4), 358-361.

Herring, Susan C. (1992). Gender and participation in computer-mediated linguistic discourse. Paper presented at the *Paper Presented at the Annual Meeting of the Linguistic Society of America, January 9-12, 1992,* Philadelphia, PA.

Herring, Susan C. (1994). Politeness in computer culture: Why women than and men flame. In M. Bucholtz, A. Liang & L. Sutton (Eds.), *Cultural performances: Proceedings of the third berkeley women and language conference: April 8, 9, and 10, 1994* Berkeley Women and Language Group Univ. of California.

Herring, Susan C. (2003). Gender and power in on-line communication. In M. Meyerhoff, & J. Holmes (Eds.), *The handbook of language and gender.* Oxford: Blackwell.

Herring, Susan C.; Johnson, Deborah; & DiBenedetto, Tamra. (1995). "This disussion is going too far!" male resistance to female participation on the internet. In M. Bucholtz, & K. Hall (Eds.), *Gender articulated: Language and the socially constructed self.* New York: Routledge.

Herring, Susan C.; & Paolillo, John C. (2006). Gender and genre variation in weblogs. *Journal of Sociolinguistics,* 10(428), 439-460.

Holmes, Janet. (1995). *Women, men and politeness.* London: Longman.

Holmes, Janet; & Stubbe, Maria. (1992). Women and men talking; gender-based patterns of interaction. In S. Olsson (Ed.), *The gender factor: Women in new Zeeland organizations* (p. 149-163). Palmerston North: Dunmore Press.

Holquist, Michael (Ed.). (1981). *The dialogic imagination: Four essays by M.M Bakhtin*. Austin: University of Texas Press.

Ho-ying Fu, Jeanne; Morris, Michael; Sau-lai, Lee; Chat, Melody; Chi-yue, Chiu; & Ying-yi, Hong. (2007). Epistemic motives and cultural conformity: Need for closure, culture, and context as determinants of conflict judgements. *Journal of Personality & Social Psychology,* 92(2), 191-197.

Jaques, David. (2000). *Learning in groups: A handbook for improving group work*. London: Kogan Page.

Järvelä, Sanna; & Häkkinen, Päivi. (2002). Web-based cases in teaching and learning - the quality of discussions and a stage of perspective taking in asynchronous communication. *Interactive Learning Environments,* 10(1), 1-22.

Johnson, Roger T.; & Johnson, David W. (1981). Effects of cooperative, competitive, and individualistic goal structures on achievement: A meta-analysis. *Psychological Bulletin,* 89(1), 47-62.

Jönsson, Anders. (2008). Educative assessment for/of teacher competency: A study of assessment and learning in the "interactive examination" for student teachers. Malmö: School of Teacher Education, Malmö University.

Jordan, Tim. (2001). Language and libertarianism: The politics of cyberculture and the culture of cyberpolitics. *The Sociological Review,* 49(10), 1-17.

Kallia, Alexandra. (2005). Directness as a source of misunderstanding, the case of requests and suggestions. In R. T. Lakoff, & S. Ide (Eds.), *Broadening the horizon of linguistic politeness*. Philadelphia: John Benjamins' Publishing Company.

King, Kathleen P. (2001). Educators revitalize the classroom 'bulletin board': A case study of the influence of online dialogue on face-to-face classes from an adult learning perspective. *Journal of research on computing in education* (p. 337) International Society for Technology in Education.

Kirschner, Paul; Strijbos, Jan-Willem; Kreijns, Karel; & Beers, Pieter J. (2004). Designing electronic collaborative learning environments. *Educational Technology Research & Development,* 52(3), 47-66.

Koschmann, Timothy D. (1996). *CSCL: Theory and practice of an emerging paradigm*. Mahwah, N.J.: Erlbaum.

Kotthoff, Helga. (1993). *Language in Society,* 22(1), 193-216.

Kramer, Cheris. (1977). Perceptions of female and male speech. *Language and Speech,* 20(2), 151-161.

Kreijns, Karel; Kirschner, Paul A.; & Jochems, Wim. (2003). Identifying the pitfalls for social interaction in computer-supported collaborative learning environments: A review of the research. *Computers in Human Behavior,* 19(3), 335-354.

Lakoff, Robin. (1972). Language in context. *Language,* 48(4), 907-927.

Lally, Vic; & Barrett, Elizabeth. (1999). Building a learning community on-line: Towards socio-academic interaction. *Research Papers in Education,* 14(2), 147.

Lea, Mary R.; & Street, Brian V. (1998). Student writing in higher education: An academic literacies approach. *Studies in Higher Education,* 23(2), 157-173.

Leidner, R. (1991). Serving hamburgers and selling insurance: Gender, work, and identity in interactive service jobs. *Gender and Society,* 5(2), 154-177.

Lemus, Daisy R.; Seibold, David R.; Flanagin, Andrew J.; & Metzger, Miriam J. (2004). Argument and decision making in computer-mediated groups. *Journal of Communication,* 54(2), 302-320.

Leung, Constant; & Safford, Kimberly. (2005). Nontraditional students in higher education: English as an additional language and literacies. In B. V. Street (Ed.), *Literacies across educational contexts: Mediating learning and teaching*. Philadelphia: Caslon.

Linderoth, Jonas. (2007). *Datorspelandets dynamik: Lekar och roller i en digital kultur*. Lund: Studentlitteratur.

Mäkitalo, Kati; Weinberger, Armin; Häkkinen, Päivi; Järvelä, Sanna; & Fischer, Frank. (2005). Epistemic cooperation scripts in online learning environments: Fostering learning by reducing

uncertainty in discourse? *Computers in Human Behavior,* 21(4), 603-622.

Malmberg, Claes. (2003). Students' communication and learning in computer supported dialogues. *Learning by Dialogues,* Malmö, Sweden.

Malmberg, Claes. (2006). Kunskapsbygge på nätet: En studie av studenter i dialog. Lärarutbildningen, Malmö högskola.

Malmberg, Claes; Johnsson, Annette; & Svingby, Gunilla. (2005). Patterns of interaction in computer supported collaborative learning environments. Paper presented at the *European Association for Research on Learning and Instruction - 11th Biennial Conference,* 939-940.

Márquez-Reiter, Rosina. (2000). *Linguistic politeness in britain and uruguay a contrastive study of requests and apologies.* Amsterdam: John Benjamins Pub. Co.

Marra, Meredith; Vine, Bernadette; & Holmes, Janet. (2008). Heroes, fathers and good mates: Leadership styles of men at work. Paper presented at the *ANZCA08 Conference,*

McCall, Leslie. (1992). Does gender fit? Bourdieu, feminism, and conceptions of social order. *Theory and Society,* 21(6), 837-867.

McConnell, David. (1997). Interaction patterns of mixed sex groups in educational computer conferences. *Gender and Education,* 9, 345–363.

McConnell, David. (2000). Implementing computer supported co-operative learning. Paper presented at the *Proceedings of the International Conference (2nd, Lancaster, England, April 17-19).*

McConnell, David. (2005). Examining the dynamics of networked e-learning groups and communities. *Studies in Higher Education,* 30(1), 25-42.

McKendree, Jean; Stenning, Keith; Mayes, Terry; Lee, John; & Cox, Richard. (1998). Why observing a dialogue may benefit learning. *Journal of Computer Assisted Learning,* 14(2), 110-119.

McLoughlin, Catherine; & Oliver, Ron. (1998). Maximising the language and learning link in computer learning environments. *British Journal of Educational Technology,* 29(2), 125-136.

McRobbie, Angela. (1988). Keep the girls from the boys. *New Statesman & Society,* 1(10), 13-14.

Meyers, Renee A. (1991). Argument and group decision making research: Implications and applications. Paper presented at the *Speech Communication Association, Atlanta,*

Morand, David A. (2000). Language and power: An empirical analysis of linguistic strategies used in superior-subordinate communication. *Journal of Organizational Behavior,* 21(308), 235-248.

Nordenstam, Kerstin. (2003). *Genusperspektiv på språk.* Stockholm: Högskoleverket i samarbete med Nationella sekretariatet för genusforskning.

Öhrn, Elisabet. (1993). Gender, influence and resistance in school. *British Journal of Sociology of Education,* 14(2), 147-158.

Paavola, Sami; Lipponen, Lasse; & Hakkarainen, Kai. (2004). Models of innovative knowledge communities and three metaphors of learning. *Review of Educational Research,* 74(4), 557-576.

Pea, Roy D.; Tinker, Robert; Linn, Marcia; Means, Barbara; Bransford, John; Roschelle, Jeremy; Hsi, Sherry; Brophy, Sean; & Songer, Nancy. (1999). Towards a learning technologies knowledge network. *Educational Technology Research and Development,* 47(2), 19-38.

Pomerantz, Anita. (1984). Agreeing and disagreeing with assessments: Some features of preferred/dispreferred turn shapes action. In J. Heritage, & J. M. Atkinson (Eds.), *Structures of social action: Studies in conversation analysis* (p. 57-101). Cambridge: Cambridge Univ. Press.

Prinsen, Fleur R.; Volman, Monique L.; & Terwel, Jan. (2007). Gender-related differences in computer-mediated communication and computer-supported collaborative learning. *Journal of Computer Assisted Learning,* 23(59), 393-409.

Reeder, Kenneth; Macfadyen, Leah P.; Roche, Joerg; & Chase, Mackie. (2004). Negotiating cultures in cyberspace: Participation patterns and problematics. *Language Learning & Technology,* 8(2), 88-105.

Reisby, Kirsten; Knudsen, Susanne V.; & Sørensen, Helene. (1999). *Kønsblik-på forskerrekruttering i universitetsuddannelser.* Copenhagen: Danmarks laererhøjskole.

Reynolds, Michael. (1994). *Groupwork in education and training: Ideas in practice.* London: Kogan Page.

Säljö, Roger; & Mäkitalo, Åsa. (2002). Att lära sig underförstå: Om kommunikativ socialisation i det komplexa samhället. In *Jagen och rösterna: Goffman, Viveka och samtalet: Texter till Viveka Adelswärd den 17 mars 2002 [Selves and voices: Goffman, Viveka and dialogue]* (p. 207-217). Linköping: Tema Kommunikation, Linköpings Univ.

Salomon, Gavriel; & Globerson, Tamar. (1989). When teams do not function the way they ought to. *International Journal of Educational Research,* 13, 89-99.

Savicki, Victor; & Kelley, Merle. (2000). Computer mediated communication: Gender and group composition. *Cyber Psychology & Behavior,* 3(5), 817-826.

Savicki, Victor; Kelley, Merle; & Lingenfelter, Dawn. (1996a). Gender and group composition in small task groups using computer mediated communication. *Computers in Human Behavior,* 12, 209–224.

Savicki, Victor; Kelley, Merle; & Lingenfelter, Dawn. (1996b). Gender, group composition, and task type in small task groups using computer-mediated communication. *Computers in Human Behavior,* 12, 549–565.

Savicki, Victor; Kelley, Merle; & Oesterreich, E. (1999). Judgements of gender in computer-mediated communication. *Computers in Human Behaviour,* 15, 185–194.

Sawicki, Jana. (1994). Foucault, feminism and questions of identity. In G. Gutting (Ed.), *The Cambridge companion to Foucault* (p. 286-313). Cambridge: Cambridge Univ. Press.

Scardamalia, Marlene; & Bereiter, Carl. (2003). Knowledge building environments: Extending the limits of the possible in education and knowledge work. In A. DiStefano, K. E. Rudestam & R. Silverman (Eds.), *Encyclopedia of distributed learning.* Thousand Oaks, CA: Sage Publications.

Schwartz, Daniel L. (1995). The emergence of abstract representations in dyad problem solving. *Journal of the Learning Sciences,* 4(3), 321-354.

Selfe, Cynthia L.; & Meyer, Paul R. (1991). Testing claims for on-line conferences. *Written Communication,* 8(2), 163-192.

Shirouzu, Hajime; Miyake, Naomi; & Masukawa, Hiroyuki. (2002). Cognitively active externalization for situated reflection. *Cognitive Science,* 26(4), 469-501.

Siegel, Jane; Dubrovsky, Vitaly; Kiesler, Sara; & McGuire, Timothy W. (1986). Group processes in computer-mediated communication. *Organizational Behavior and Human Decision Processes,* 37(2), 157-187.

SOU. (2008). *En hållbar lärarutbildning. utredningen om en ny lärarutbildning* No. 109). Stockholm: Fritze.

Spender, Dale. (1989). *Invisible women: The schooling scandal.* London: Women's Press.

Spender, Dale. (1990). *Man made language.* London: Pandora.

Statistics Sweden. (2007). *[Statistiska centralbyrån (SCB)] statistical yearbook of Sweden 2008.* Stockholm: Statistiska centralbyrån.

Stevens, Robert J.; & Slavin, Robert E. (1995). The cooperative elementary school: Effects on students' achievement, attitudes, and social relations. *American Educational Research Journal,* 32, 321-351.

Straus, Susan G. (1996). Getting a clue. *Small Group Research,* 27(1), 115-143.

Sussman, Nan M.; & Tyson, D. H. (2000). Sex and power: Gender differences in computer-mediated interactions. *Computers in Human Behavior,* 16(4), 381-394.

The Swedish National Agency for Education. (2009). *[Skolverket] Barn, elever, personal, kostnader och utbildningsresultat - kommunal nivå.*

The Swedish National Agency for Higher Education. (2005). *[Högskoleverket] NU - statistikdatabasen* .http://www.hsv.se/statistik/statistikomhogskolan.4.539a94911 0f3d5914ec800057797.html

The Swedish National Agency for Higher Education. (2008). *Concept manual.*
http://www.hsv.se/statistik/statistikomhogskolan/error/u.4.539a949110f3d5914ec800060467.html

The Swedish National Agency for Higher Education. (2009). *[Högskoleverket] Statistisk analys; andelen ungdomar som börjar studera i högskolan - stora regionala och könsmässiga variationer* Analysis no. 2009/3) Stockholm: Högskoleverket

Thomson, Rob; Murachver, Tamar; & Green, James. (2001). Where is the gender in gendered language? *Psychological Science,* 12(2), 171-175.

Thorne, Steven L. (2003). Artifact and cultures-of-use in intercultural communication. *Language Learning & Technology,* 7(2), 38-67.

Thorpe, Andy; Snell, Martin; Hoskins, Sherria; & Bryant, Janet. (2007). False uniqueness: The self-perception of new entrants to higher education in the UK and its implications for access - a pilot study. *Higher Education Quarterly,* 61(1), 3-22.

UNESCO. (1997). *International standard classification of education: ISCED 1997.* Paris: UNESCO.

Walther, Joseph B.; & Bunz, Ulla. (2005). The rules of virtual groups: Trust, liking, and performance in computer-mediated communication. *Journal of Communication, 55*(496), 828-846.

Wartenberg, Thomas E. (1990). *The forms of power: From domination to transformation.* Philadelphia: Temple University Press.

Weatherall, Ann. (2002). *Gender, language and discourse.* New York: Routledge.

Webb, Noreen M.; & Palinscar, Annemarie S. (1996). Group processes in the classroom. In D. C. Berliner, & R. C. Calfee (Eds.), *Handbook of educational psychology.* London: Prentice Hall International.

Wertsch, James V. (2002). Computer mediation, PBL, and dialogicality. *Distance Education,* 23(1555), 105-108.

West, Candace; & Zimmerman, Don H. (1987). Doing gender. *Gender and Society,* 1(23), 125-151.

Willis, Paul E. (1993). *Learning to labour: How working class kids get working class jobs.* Hampshire: Ashgate.

Woodrow, Maggie; & Yorke, Mantz. (2002). *Social class and participation; good practice in widening access to higher education; the following-up report to "from elitism to inclusion" (1998)*. London: Universities UK.

APPENDIX I

Questionnaire

1 Kön (1 man, 2 kvinna. Skriv namn och födelseår vid kommentarer.)
[Sex (1 man, 2 woman) Write name and year of birth at the space for comments]
Ange:
[State:]

Kommentarer:
[Comments:]

2 Datorvana. Hur ofta har du använt datorn innan du började på den här kursen? (1 aldrig, 2 sällan, 3 i genomsnitt en gång i veckan, 4 i genomsnitt en gång om dagen)
[Computer experience. How often did you use the computer before you started this course? (1 never, 2 seldom, 3 on average once a week, 4 on average once a day)]
Ange:
[State:]

Kommentarer:
[Comments:]

3 Datorvana. Hur ofta har du varit inne på Internet innan du började på den här kursen? (1 aldrig, 2 sällan, 3 i genomsnitt en gång i veckan, 4 i genomsnitt en gång om dagen)
[Computer experience. How often did you use the Internet before you started in this course? (1 never, 2 seldom, 3 on average once a week, 4 on average once a day)]

Ange:
[State:]

Kommentarer:
[Comments:]

4 Datorvana. Hur ofta har du chattat innan du började på den här kursen? (1 aldrig, 2 sällan, 3 i genomsnitt en gång i veckan, 4 i genomsnitt en gång om dagen)
[Computer experience. How often did you use any chat function before you started in this course? (1 never, 2 seldom, 3 on average once a week, 4 on average once a day)]

Ange:
[State:]

Kommentarer:
[Comments:]

5 Har du internetansluten dator hemma? (1 ja, 2 nej)
[Do you have a computer with Internet connection at home? (1 yes, 2 no)]

Ange:
[State:]

Kommentarer:
[Comments:]

6 Vilket huvudämne har du på Lärarutbildningen? (1 Matematik och lärande, 2 Naturvetenskap och lärande, 3 Geografi, miljö och lärande)
[What is your major subject at the Teacher education? (1 Mathematics and learning, 2 Science and learning, 3 Geography, environment and learning)]
Ange:
[State:]

Kommentarer:
[Comments:]

7 Vilken examensprofil har du? (1 förskola, 2 fritidspedagog, 3 grundskolans tidigare år, 4 grundskolans senare år, 5 gymnasiet)
[Which is your degree profile? (1 pre-school, 2 recreational pedagogue, 3 nine-year compulsory school early years, 4 nine-year compulsory school later years, 5 upper secondary school)]
Ange:
[State:]

Kommentarer:
[Comments:]

8 Har du gått hela din skolgång i Sverige? (1 ja, 2 nej. Skriv i textrutan hur gammal du var när du började i svensk skola)
[Have you done your whole schooling in Sweden? (1 yes, 2 no. Write in the text box how old you when you started in Swedish school]
Ange:
 [State:]

Kommentarer:
[Comments:]

9 Vad har din mamma för skolbakgrund? (1 motsvarande grund-skola, 2 motsvarande gymnasium, 3 motsvarande högsko-la/universitet)

[What is the educational attainment of you mother? (1 equivalent to nine-year compulsory school, 2 equivalent to upper secondary school, 3 equivalent to university)

Ange:

 [State:]

Kommentarer:

[Comments:]

10 Vad har din pappa för skolbakgrund? (1 motsvarande grund-skola, 2 motsvarande gymnasium, 3 motsvarande högsko-la/universitet)

[What is the educational attainment of you father? (1 equivalent to nine-year compulsory school, 2 equivalent to upper secondary school, 3 equivalent to university)

Ange:

 [State:]

Kommentarer:

[Comments:]

11 I vilket land är du född? (1 Sverige, 2 annat. Skriv vilket i text-rutan)

In which country are you born? (1 Sweden, 2 other. Write which in the text box)

Ange:

 [State:]

Kommentarer:

[Comments:]

12 Vilket språk talar du hemma? (1 svenska, 2 annat. Skriv vilket i textrutan)
Which language do you speak at home? (1 Swedish, 2 other. Write which in the text box)
Ange:
 [State:]

Kommentarer:
[Comments:]

APPENDIX II

Matrix 1. Definitions of agreement, disagreement and request for input

Variable	Definition
Agreement, agreements or support of contributions	Obvious agreements like e.g. 'as Anna said', encouragements and those contributions marked with *Agree*
Disagreement, questioning of points of view	Distinct 'I do not agree', and contributions marked with 'Questioning'.
Request for input, request for the others' points of view, or input or answers on direct questions	With or without question marks. Also requests to the others to contribute. Try to avoid retorical questions, but categorize as request in uncertain cases.

Matrix 2. Definition of toning down words

Variable	Definition
kanske [Eng. maybe, perhaps], 'kanske' can be used in different manners, it plays a down toning role when it is used as a sign of doubt of the made statement, but not so in correlation with guesses of probabilities in the future of which the speaker cannot have a precise opinion of.	*Example of when used as toning town word/expression* 'Man kanske inte vill vara en miljöskurk' [Eng. Maybe one doesn't want to be an environmental villain]
	Example of when not used as toning town word/expression 'Kanske kan sopor transporteras via tåg, på så sätt påverkas inte miljön så mycket' [Eng. Garbage can maybe be transported by train, by that the environment won't be affected that much]
nog [maybe, probably, enough], 'nog' has similar meanings as 'kanske', it has also as in the case with 'kanske' been defined as down toning only when it is used as a sign of doubt of the made statement, and not in correlation with guesses of for example the future. When nog was used in the sense of 'enough' it was not considered as toning down.	*Example of when used as toning town word/expression* 'vi får nog koncentrera oss på hur vår sammanfattning ska se ut' [Eng. we will probably have to concentrate on what our summary should look like]
	Example of when not used as toning town word/expression 'den utbyggnaden var mot havssidan och den påverkade inte själv viken, vilket Ällingviken nog kommer att göra' [Eng. that expansion was towards the sea and itself didn't affect the bay, which Ällingviken probably will]

bara [only, merely, just] 'bara' can be used both in a context where the purpose is to tone down what is just said, but also in connection to e.g. quantity, 'I have just two pair of shoes', where it is not considered a down toning word.	*Example of when used as toning town word/expression* 'jag ville bara klargöra' [Eng. I just wanted to clearify] 'jag menade bara' [Eng. I just meant]
	Example of when not used as toning town word/expression 'men jag får bara en massa felmeddelande' [Eng. but I just get a lot of error messages]
Jag vet inte [Eng. I don't know].	'Jag *vet inte* vad ni andra anser' [Eng. I don't know what all you others think]
Undra [Eng. wonder (at something)] 'undrar' could be considered to just express an uncertainty of something, but in comparison with posing a direct question 'How big is the risk...' and instead phrasing it 'I wonder how big is the risk' it presents the person posing it in a different manner, more down toned.	'Man kan undra hur mycket de lutat informationen åt det hållet de själva tyckte verkade bäst.' [Eng. One can wonder how much they directed the information towards the direction they thought were best]
väl [Eng. rather, maybe, only, well] there is no precise equivalent word in English to 'väl'. It has several meanings where one can be compared to the phrases 'isn't it', 'doesn't he' and sometimes the word 'maybe', the speaker expect some kind of assur-	*Example of when used as toning town word/expression* 'Vi lägger fram våra förslag och sen kan väl någon sammanställa det utifrån diskussionen.' [Eng. We put forward our suggestions and then maybe someone can put it together on the basis of the discussion]

ance or acknowledgement of what is said from the addressees. Nevertheless, it can also be used as an adverb, 'han gjorde det väl' [Eng. he did it well].	*Example of when not used as toning town word/expression* 'för att säkerställa att soporna är väl källsorterade' [Eng. to ensure that the garbage is well sorted]
skulle [Eng. should, would] 'skulle' is subjunctive and using 'skulle' instead of shall is indicating how it could be and not how it has to be or how it is. Sometimes it is not obvious that should signify down toning, but by exchanging the should to a more assertive form like 'shall' or 'will' it is possible to notice that there is sense f toning down in the use of 'should'	'Detta skulle resultera i att lakvattnet tränger ner igenom leran och förorenar grundvattnet vid ett eventuellt läckage.' [Eng. This would result in leach water penetratingdown through the clay and contaminated the groundwater at a possible leakage] 'Detta skulle vara en riskfaktor för djurlivet.' [Eng. This would be a risk factor for the animal life]
känns [Eng. feels] Using the word 'känns' puts the validity of the expression in connection with the feelings of the author and not to something objective or generally applicable.	'Även om kommunala och statliga företag ofta har vinstkrav på sig så känns de mer trovärdiga än privata företag' [Eng. Although companies owned by the municipal or government often are demanded to be profitable they feel more trustworthy than private companies]
verkar [Eng. seem] When used the author is not completely sure of the utterance and wants to give room for other opinions.	'Det verkar som om Blackarpsån inverkan är stor.' [Eng. It *seems* as if the influence of the Blackarp stream is great]

lite [Eng. little, a bit, some]'lite' can be used either to describe an amount of something or in the purpose of toning down what is said. 'Lite' was here regarded as an expression of toning down when it was used 'unnecessarily', i.e. that the sentence would have the same basic meaning but where 'lite' was used to reduce the strength of the statement.	*Example of when used as toning town word/expression* 'Efter att ha läst igenom det lite snabbt verkar det bra, Malin.' [Eng. After having read through it a bit fast it seems good, Malin]
	Example of when not used as toning town word/expression 'Hur kan det sen stå att deponering är bättre ur miljösynpunkt när sysav vill ha så lite deponering som möjligt.' [Eng. How can it then be written that deposition is better out of the environmental view point when we want as *little* deposition as possible]
tänka [Eng. think, consider, believe] 'tänka' can be used in a number of ways, usually it is used in the context 'I thought of you' and it is then not regarded as a toning down word, when used in the context of 'I think' in connection with a statement it usually means I believe/think a possible scenario will occur, the word 'tänka' then act as a modal word. It is also commonly used like 'I was thinking' followed by any kind of phrase, it then indicates there being alternatives to what is said.	*Example of when used as toning town word/expression* 'Tänkte man kunde gå in på deras sida och se de olika soptipp-förbränningsanläggningar' [Eng. Thought one could visit their web-site and see the different refuse plants]
	Example of when not used as toning town word/expression 'det var bättre att sätta den ute i mossheden där man inte tänker på den då den inte ligger nära staden' [Eng. it was better to put it out in the moss where you don't think of as it is not close to the city]

Other expressions defined as toning down
'Om jag förstod det rätt' [Eng. if I understood it correctly] 'har jag fattat det som' [Eng. that's how I've understood it] 'men jag kan ju ha fel' [Eng. but I can be mistaken]'jag är inte helt säker' [Eng. I'm not completely sure] 'Jag fick en knasig idé' [Eng. I got a crazy idea] and many more

APPENDIX III

Summary tables of correlations irrespective of groups

Table 35. Quantitative communication space with respect to background variables (ANOVA analyses with Eta Square)

Background variables	No. of contr.	Words per contr.	Tot. no. of words	Init. disc. threads
Sex	.009	.010	.009	.000
Lang. at home	.057**	.000	.041*	.018
Country of birth	.058**	.000	.044*	.016
Parents' educ.	.010	.020	.042	.004
Age[32]	*.108*	*-.116*	*.049*	*.205**

* p< .05   **p< .01

Table 36. Verbal expressions with respect to background variables (ANOVA analyses with Eta Square)

Background variables	Agree	Disagree	Request input	Tone down
Sex	.011	.005	.005	.000
Lang. at home	.002	.000	.034	.051*
Country of birth	.001	.000	.055*	.023
Parents' educ.	.016	.003	.002	.004
Age[33]	*.029*	*-.067*	*.110*	*-.282***

* p< .05   **p< .01

[32] Pearson correlation
[33] Pearson correlation

Communication space with respect to background factors, mean values

Table 37. Quantitative communication space with respect to age group in combination with sex

Age Group	Sex		No. of contr.	Words per contr.	Tot. no. of words	Init. disc. thread (%)
<25 years	M	Mean	11	84	819	16
		N	33	33	33	33
	F	Mean	13	71	799	17
		N	50	50	50	50
	Tot	Mean	12	76	807	17
		N	83	83	83	83
=>25 years	M	Mean	15	67	780	24
		N	21	21	21	21
	F	Mean	18	66	1145	24
		N	41	41	41	41
	Tot	Mean	17	66	1022	24
		N	62	62	62	62
Total	M	Mean	13	77	804	19
		N	54	54	54	54
	F	Mean	15	68	955	20
		N	91	91	91	91
	Tot	Mean	13	69	811	19
		N	142	143	140	143

Table 38. Verbal expressions with respect to age group in combination with sex

Age Group	Sex		Percentage of contributions with			
			Agree	Dis-agree	Re-quest input	Tone down
<25 years	M	Mean	34	15	19	63
		N	33	33	33	33
	F	Mean	30	11	22	58
		N	50	50	50	50
	Tot	Mean	31	13	21	60
		N	83	83	83	83
=>25 years	M	Mean	30	11	23	45
		N	21	21	21	21
	F	Mean	28	12	24	52
		N	41	41	41	41
	Tot	Mean	29	11	24	50
		N	62	62	62	62
Total	M	Mean	32	14	20	56
		N	54	54	54	54
	F	Mean	29	12	23	55
		N	91	91	91	91
	Tot	Mean	30	12	22	56
		N	145	145	145	145

Table 39. Quantitative communication space with respect to parental educational attainments in combination with sex

Parental educational attainments	Sex		No. of contr	Words per contr	Tot. no. of words	Init. disc. thread (%)
Nine-year	M	Mean	16	56	688	9
		N	3	3	3	3
	F	Mean	10	54	527	29
		N	7	7	7	7
	Tot	Mean	12	54	576	23
		N	10	10	10	10
Upper second.	M	Mean	15	71	1018	23
		N	11	11	11	11
	F	Mean	15	74	1146	20
		N	27	27	27	27
	Tot	Mean	15	73	1109	21
		N	38	38	38	38
University	M	Mean	9	98	820	19
		N	25	25	25	25
	F	Mean	16	63	956	19
		N	42	42	42	42
	Tot	Mean	14	76	906	19
		N	67	67	67	67
Total	M	Mean	11	87	866	20
		N	39	39	39	39
	F	Mean	15	66	984	20
		N	76	76	76	76
	Tot	Mean	14	73	944	20
		N	115	115	115	115

Table 40. Verbal expressions with respect to parental educational attainments in combination with sex

Parental educational attainments	Sex		Percentage of contributions with			
			Agree	Dis-agree	Re-quest input	Tone down
Nine-year	M	Mean	21	12	30	55
		N	3	3	3	3
	F	Mean	26	9	16	61
		N	7	7	7	7
	Tot	Mean	24	10	21	59
		N	10	10	10	10
Upper second.	M	Mean	32	8	23	48
		N	11	11	11	11
	F	Mean	34	14	24	61
		N	27	27	27	27
	Tot	Mean	33	12	24	57
		N	38	38	38	38
University	M	Mean	36	16	19	66
		N	25	25	25	25
	F	Mean	28	10	25	49
		N	42	42	42	42
	Tot	Mean	31	12	23	55
		N	67	67	67	67
Total	M	Mean	34	13	21	60
		N	39	39	39	39
	F	Mean	30	12	24	54
		N	76	76	76	76
	Tot	Mean	31	12	23	56
		N	115	115	115	115

Table 41. Quantitative communication space with respect to language spoken at home in combination with sex

Language spoken at home	Sex		No. of contr.	Words per contr.	Tot. no. of words	Init. disc. thread (%)
Swedish	M	Mean	12	83	850	21
		N	37	37	37	37
	F	Mean	17	66	1094	21
		N	58	58	58	58
	Tot	Mean	15	72	999	21
		N	95	95	95	95
Other lang.	M	Mean	8	126	894	9
		N	3	3	3	3
	F	Mean	10	64	594	15
		N	20	20	20	20
	Tot	Mean	9	72	633	15
		N	23	23	23	23
Total	M	Mean	11	86	853	20
		N	40	40	40	40
	F	Mean	15	65	966	20
		N	78	78	78	78
	Tot	Mean	14	72	928	20
		N	118	118	118	118

Table 42. Verbal expression with respect to language spoken at home in combination with sex

Language spoken at home	Sex		Percentage of contributions with			
			Agree	Dis-agree	Re-quest input	Tone down
Swedish	M	Mean	32	14	20	59
		N	37	37	37	37
	F	Mean	31	11	27	57
		N	58	58	58	58
	Tot	Mean	31	12	24	58
		N	95	95	95	95
Other lang.	M	Mean	45	11	35	61
		N	3	3	3	3
	F	Mean	27	12	12	43
		N	20	20	20	20
	Tot	Mean	29	12	15	45
		N	23	23	23	23
Total	M	Mean	33	13	21	59
		N	40	40	40	40
	F	Mean	30	11	24	54
		N	78	78	78	78
	Tot	Mean	31	12	23	55
		N	118	118	118	118

Table 43. Quantitative communication space with respect to country of birth in combination with sex

Country of birth	Sex		No. of contr	Words per contr	Tot. no. of words	Initiate disc. thread (%)
Sweden	M	Mean	12	86	889	21
		N	37	37	37	37
	F	Mean	17	65	1049	21
		N	65	65	65	65
	Tot	Mean	15	73	991	21
		N	102	102	102	102
Other country	M	Mean	5	83	408	5
		N	3	3	3	3
	F	Mean	9	68	573	16
		N	12	12	12	12
	Tot	Mean	8	71	540	13
		N	15	15	15	15
Total	M	Mean	11	86	853	20
		N	40	40	40	40
	F	Mean	15	66	975	20
		N	77	77	77	77
	Tot.	Mean	14	73	933	20
		N	117	117	117	117

Table 44. Verbal expressions with respect to country of birth in combination with sex

Country of birth	Sex		Percentage of contributions with			
			Agree	Dis-agree	Re-quest input	Tone down
Sweden	M	Mean	33	14	21	58
		N	37	37	37	37
	F	Mean	30	11	26	56
		N	65	65	65	65
	Tot.	Mean	32	12	24	57
		N	102	102	102	102
Other country	M	Mean	33	8	17	71
		N	3	3	3	3
	F	Mean	28	13	9	41
		N	12	12	12	12
	Tot.	Mean	29	12	11	47
		N	15	15	15	15
Total	M	Mean	33	13	21	59
		N	40	40	40	40
	F	Mean	30	11	24	54
		N	77	77	77	77
	Tot.	Mean	31	12	23	56
		N	117	117	117	117

Summary tables of communication space with respect to group composition

Table 45. Quantitative communication space with respect to group composition, Pearson correlated, (*= p< .05, **= p< .01)

Group composition		Pearson Correlation			
		No. of contr.	Words per contr.	Tot. no. of words	Init. disc. threads
Males in group (%)	*No selection*	-.184*	.068	-.244**	.009
	F selected	-.238*	-.035	-.321**	-.027
	M selected	-.039	.138	-.004	.097
Mean age of group	*No selection*	.258**	.005	.229**	-.007
	F selected	.299**	.050	.283**	-.068
	M selected	.189	-.062	.101	.133
Students speaking only Swedish at home (%)	*No selection*	.286**	-.243**	.045	.044
	F selected	.270**	-.132	-074	.013
	M selected	.326*	-.418**	-.020	.118
Students who are born in Sweden (%)	*No selection*	.155	-.288**	.015	.017
	F selected	.159	-.192	-.003	.024
	M selected	.148	-.423**	-.050	.004
Students whose parents have uni-versity education	*No Selection*	-.095	.077	-.030	-.012
	F selected	-.067	.020	-.022	-063
	M selected	-.55	.169	-.072	-.175

Table 46. Use of verbal expression with respect to group co-position, Pearson correlated, (*= p<.05, **= p< .01)

Group composition		Pearson Correlation			
		Agree	Dis-agree	Request input	Tone down
Males in group (%)	No selection	.357**	-.012	-.062	.002
	F selected	.356**	.059	-.062	-.026
	M selected	.325*	-.190	.002	.029
Mean age of group	No selection	.006	-.136	-.075	-.196*
	F selected	.003	-.105	-.107	-.069
	M selected	.010	-.192	.004	-.414**
Students speaking only Swedish at home (%)	No selection	.036	-.195*	-.014	-.084
	F selected	.025	-.138	.036	.002
	M selected	.48	-.299*	-.128	-.232
Students who are born in Sweden (%)	No selection	.064	-.004	.231*	-.007
	F selected	.074	-.054	.300**	.090
	M selected	.050	.078	.079	-.163
Students whose parents have university education (%)	No selection	-.070	-.036	.093	-.001
	F selected	-.006	-.124	-.125	-.012
	M selected	-.152	.112	.011	.019

Doctoral Dissertations in Education
published by the Malmö School of Education

17. Löfgren, Horst: The Measurement of Language Proficiency. 1972.
18. Bierschenk, Bernhard: Självkonfrontation via intern television i lärarutbildningen. 1972.
19. Gestrelius, Kurt: Job Analysis and Determination of Training Needs. 1972.
21. Larsson, Inger: Individualized Mathematics Teaching. 1973.
22. Fredriksson, Lennart: The Use of Self-Observation and Questionnaires in Job Analysis.1974.
23. Idman, Pekka: Equality and Democracy: Studies of Teacher Training. 1974.
26. Holmberg, Ingrid: Effects of Some Trials to Improve Mathematics Teaching. 1975.
27. Lindsten, Carin: Hembygdskunskap i årskurs 3. 1975.
29. Nordén, Kerstin: Psychological Studies of Deaf Adolescents. 1975.
31. Jernryd, Elisabeth: ”Optimal auktoritets- och propagandaresistens”. 1976.
33. Wiechel, Lennart: Roller och rollspel. 1976.
34. Hedlund, Carl: Commissioned Army Officers. 1976.
37. Wetterström, Magnhild: Medinflytande i skolan. 1977.
42. Eneskär, Barbro: Children's Language at Four and Six. 1978.
45. Leonardsson, Sigurd: Den franska grammatikens historia i Sverige. I. 1978.
46. Leonardsson, Sigurd: Histoire de la Grammaire Française en Suède. II. 1978.
48. Lindholm, Lena-Pia: Pupils' Attitudes to Equality between the Sexes. 1980.
50. Carlström, Inge: Law and Justice Education. 1980.
53. Fritzell, Christer: Teaching, Science and Ideology. 1981.
56. Wiechel, Anita: Olika personalgruppers åsikter om barn i förskola och på lågstadium. 1981.
59. Gran, Birgitta: Från förskola till grundskola: Villkor för barns utveckling i åldrarna kring skolstarten. 1982.
65. Annerblom, Marie-Louise: Att förändra könsroller. 1983.
66. Holmberg, Lena: Om en speciallärares vardag: Analys av en dagbok. 1983.
67. Skov, Poul: Værdinormer om skolen: Analyse af konfliktmuligheder og mulige udviklings-linjer. 1983.
69. Carlsson, Gunborg: Teater för barn: Tre åldersgruppers upplevelser av professionell teater. 1984.
70. Welwert, Claes: Läsa eller lyssna? 1984.
71. Klasson, Maj: Högskolebibliotek i förändring. 1984.
76. Jönsson, Annelis: TV – ett hot eller en resurs for barn? 1985.
77. Berglund, Lars: Decentraliserat högstadium. 1985.
79. Hellström, Leif: Undervisningsmetodisk förändring i matematik: Villkor och möjligheter. 1985.
84. Bjurwill, Christer: Framtidsföreställningar. 1986.
85. Åkerberg, Hans: Livet som utmaning: Existentiell ångest hos svenska gymnasieelever. 1987.
87. Berglund, Brigitte: Pedagogiska dagböcker i lärarutbildningen. 1988.

88. Svensson, Bengt E.: Mot samlad skoldag. 1988.

89. Rosenqvist, Jerry: Särskolan i ett arbetsmarknadsperspektiv. 1988.

91. Varming, Ole: Holdninger til børn. 1988.

93. Löfqvist, Gert: The IEA Study of Written Composition in Sweden. 1990.

94. Digerfeldt, Gunvor: Utvecklingspsykologiska och estetiska aspekter på danslek. 1990.

95. Ekstrand, Gudrun: Kulturens barn: Kontrastiva analyser av kulturmönster avseende förhållandet till barn och ungdom i Sverige och Orissa, Indien. 1990.

96. Rooke, Liselotte: Omvårdnad och omvårdnadsteoretiska strukturer. 1990.

99. Tallberg Broman, Ingegerd: När arbetet var lönen. 1991.

100. Derbring, Lena & Stölten, Charlotte: Sjuksköterskeutbildningens forskningsanknytning – vision och verklighet. 1992.

101. Nissen, Poul: Om børn og unge med fastlåst identitetsudvikling. 1992.

102. Helldén, Gustav: Grundskoleelevers förståelse av ekologiska processer. 1992.

103. Tvingstedt, Anna-Lena: Sociala betingelser för hörselskadade elever i vanliga klasser. 1993.

104. Kühne, Brigitte: Biblioteket – skolans hjärna? Skolbiblioteket som resurs i det undersökande arbetssättet på grundskolan. 1993.

105. Svensson, Ann-Katrin: Tidig språkstimulering av barn. 1993.

106. Rubinstein Reich, Lena: Samling i förskolan. 1993.

108. Heiling, Kerstin: Döva barns utveckling i ett tidsperspektiv. 1993.

111. Henrysson, Lennart: Syo-kulturer i skolan. 1994.

113. Persson, Sven: Föräldrars föreställningar om barn och barnomsorg. 1994.

114. Klason, Satya Mehndiratta: The Quality of Social Relations and Some Aspects of Self-Conception of a Group of Elderly People. 1994.

115. Persson, Bodil: När kvinnorna kom in i männens värld. Framväxten av ett kvinnligt tekniskt yrke – Laboratorieassistent under perioden 1880–1941. 1994.

116. Morsing Berglund, Barbro: Förskolans program för sexåringar. 1994.

117. Gunnarsson, Bernt: En annorlunda skolverklighet. 1995.

119. Persson, Ann-Elise: Ungdomars åsikter om orsaker till, effekter av och åtgärder mot vardagsvåldet. 1995.

122. Ursberg, Maria: Det möjliga mötet: En studie av fritidspedagogers förhållningssätt i samspel med barngrupper inom skolbarnsomsorgen. 1996.

123. Willman, Ania: Hälsa är att leva: En teoretisk och empirisk analys av begreppet hälsa med exempel från geriatrisk omvårdnad. 1996.

124. Hjorth, Marie-Louise: Barns tankar om lek: En undersökning av hur barn uppfattar leken i förskolan. 1996.

128. Engström, Arne: Reflektivt tänkande i matematik: Om elevers konstruktioner av bråk. 1997.

130. Elmeroth, Elisabeth: Alla lika – alla olika: Skolsituationen för elever med båda föräldrarna födda utomlands. 1997.

133. Lepp, Margret: Pedagogiskt drama med fokus på personlig utveckling och yrkesmässig växt: En studie inom sjuksköterske- och vårdlärarutbildningen. 1998.

134. Viggósson, Haukur: I fjärran blir fjällen blå: En komparativ studie av isländska och svenska grundskolor samt sex fallstudier om närhet som en förutsättning för pedagogiskt ledarskap. 1998.

136. Vallberg Roth, Ann-Christine: Könsdidaktiska mönster i förskolepedagogiska texter. 1998.

138. Folkesson, Anne-Mari: Muntlig framställning i årskurs 5. 1998.

140. Olofsson, Sten-Sture: Kvinnliga rektorers ledarstil i svensk grundskola. 1998.

142. Karlsudd, Peter: Särskolebarn i integrerad skolbarnsomsorg. 1999.

143. Eriksson, Keijo: På spaning efter livets mening: Om livsfrågor och livsåskådning hos äldre grundskoleelever i en undervisningsmiljö som befrämjar kunskapande. 1999.

144. Utas Carlsson, Karin: Violence Prevention and Conflict Resolution: A Study of Peace Education in Grades 4-6. 1999.

145. Havung, Margareta: Anpassning till rådande ordning: En studie av manliga förskollärare i förskoleverksamhet. 2000.

146. Hamilton, Ingela: Leva med stroke - lära av erfarenheter. 2000.

147. Månsson, Annika: Möten som formar: Interaktionsmönster på förskola mellan pedagoger och de yngsta barnen i ett genusperspektiv. 2000.

148. Albinsson, Gunilla & Arnesson, Kerstin: Maktutövning ur ett organisations- och genusperspektiv: En studie vid tre vårdavdelningar. 2000.

149. Campart, Martina: Schooling Emotional Intelligence through Narrative and Dialogue: Implications for the Education of Children and Adolescents. 2000.

150. Arvidsson, Barbro: Group Supervision in Nursing Care: A Longitudinal Study of Psychiatric Nurses' Experiences and Conceptions. 2000.

151. Sandén, Ingrid: Skoldaghem: Ett alternativ för elever i behov av särskilt stöd. 2000.

152. Lovén, Anders: Kvalet inför valet: Om elevers förväntningar och möten med vägledare i grundskolan. 2000.

153. Ivarsson, Heléne: Hälsopedagogik i sjuksköterskeutbildningen. 2000.

154. Möller, Tore: Undervisa mot våld: Attityder, läromedel, arbetssätt. 2001.

155. Hartsmar, Nanny: Historiemedvetande: Elevers tidsförståelse i en skolkontext. 2001.

156. Jakobsson, Anders: Elevers interaktiva lärande vid problemlösning i grupp: En process-studie. 2001.

157. Möllehed, Ebbe: Problemlösning i matematik: En studie av påverkansfaktorer i årskurserna 4-9. 2001.

158. Wetterholm, Hans: En bildpedagogisk studie: Lärare undervisar och elever gör bilder. 2001.

160. El-Zraigat, Ibrahim: Hearing-impaired Students in Jordan. 2002.

161. Nelson, Anders & Nilsson, Mattias: Det massiva barnrummet. 2002.

162. Damgren, Jan: Föräldrars val av fristående skolor. 2002.

163. Lindahl, Ingrid: Att lära i mötet mellan estetik och rationalitet: Pedagogers vägledning och barns problemlösning genom bild och form. 2002.

164. Nordänger, Ulla Karin: Lärares raster: Innehåll i mellanrum. 2002.

165. Lindqvist, Per: Lärares förtroendearbetstid. 2002.

166. Lin, Hai Chun: Pedagogy of Heuristic Contexturalisation: Intercultural Transmission through Cross-cultural Encounters. 2002.

167. Permer, Karin & Permer, Lars Göran: Klassrummets moraliska ordning: Iscensättningen av lärare och elever som subjekt för ansvarsdiskursen i klassrummet. 2002.

168. Anderson, Lotta: Interpersonell kommunikation: En studie av elever med hörselnedsättning i särskolan. 2002.

169. Lundgren, Ulla: Interkulturell förståelse i engelskundervisning - en möjlighet. 2002.

Malmö Studies in Educational Sciences

Doctoral Dissertations in Education
Editor: Jerry Rosenqvist
&
Doctoral Dissertations in the Theory and Practice of Teaching and Learning Swedish
Editor: Bengt Linnér

3. Nilsson, Nils-Erik: Skriv med egna ord. En studie av läroprocesser när elever i grundskolans senare år skriver "forskningsrapporter". 2002.

4. Adelman, Kent: Att lyssna till röster. Ett vidgat lyssnandebegrepp i ett didaktiskt perspektiv. 2002.

5. Malm, Birgitte: Understanding what it means to be a Montessori teacher. Teachers' reflections on their lives and work. 2003.

6. Ericsson, Ingegerd: Motorik, koncentrationsförmåga och skolprestationer. En interventionsstudie i skolår 1-3. 2003.

7. Foisack, Elsa: Döva barns begreppsbildning i matematik. 2003.

8. Olander, Ewy: Hälsovägledning i barnhälsovården. Syntetisering av två uppdrag. 2003.

9. Lang, Lena: Och den ljusnande framtid är vår. Några ungdomars bild av sin gymnasietid. 2004.

10. Tullgren, Charlotte: Den välreglerade friheten: Att konstruera det lekande barnet. 2004.

11. Hägerfelth, Gun: Språkpraktiker i naturkunskap i två mångkulturella gymnasieklassrum: En studie av läroprocesser bland elever med olika förstaspråk. 2004.

12. Ljung-Djärf, Agneta: Spelet runt datorn: Datoranvändande som meningsskapande praktik i förskolan. 2004.

13. Tannous, Adel: Childhood depression: Teachers' and children's perceptions of the symptoms and causes of depression in Jordan. 2004.

14. Karlsson, Leif: Folkhälsopedagogen söker legitimitet: Ett möte mellan pedagogik och verksamhetsförlagd utbildning. 2004.

15. Selghed, Bengt: Ännu icke godkänt: Lärares sätt att erfara betygssystemet och dess tillämpning i yrkesutövningen. 2004.

17. Göransson, Anna-Lena: Brandvägg: Ord och handling i en yrkesutbildning. 2004.

18. Olsson, Rose-Marie: Utbildningskontextens betydelse för lärandeprocesser: Datorstödd flexibel utbildningsmiljö för gymnasiestuderande. 2005.

19. Enö, Mariann: Att våga flyga: Ett deltagarorienterat projekt om samtalets potential och förskolepersonals konstruktion av det professionella subjektet. 2005.

20. Bergöö, Kerstin: Vilket svenskämne? Grundskolans svenskämnen i ett lärarutbildningsperspektiv. 2005.

21. Hallstedt, Pelle & Högström, Mats: The Recontextualisation of Social Pedagogy. A study of three curricula in the Netherlands, Norway and Ireland. 2005.

22. Cederberg, Meta: Utifrån sett – inifrån upplevt. Några unga kvinnor som kom till Sveige i tonåren och deras möte med den svenska skolan. 2006.

23. Malmberg, Claes: Kunskapsbygge på nätet – En studie av studenter i dialog. 2006.

24. Korp, Helena: Lika chanser på gymnasiet? – En studie om betyg, nationella prov och social reproduktion. 2006.

25. Bommarco, Birgitta: Texter i dialog – En studie i gymnasieelevers litteraturläsning. 2006.

Malmö Studies in Educational Sciences

Doctoral Dissertations in Education
Editor: Lena Holmberg (until April 4, 2007)
Editor: Feiwel Kupferberg (from April 5, 2007)
&
Doctoral Dissertations in the Theory and Practice of Teaching and Learning Swedish
Editor: Bengt Linnér (until June 30, 2008)
Editor: Johan Elmfeldt (from July 1, 2008)

26. Petersson, Eva: Non-formal Learning through Ludic Engagement within Interactive Environments 2006.

27. Cederwald, Elisabeth: Reflektion och självinsikt i "Den kommunikativa pedagogiken" 2006.

28. Assarsson, Inger: Talet om en skola för alla. Pedagogers meningskonstruktion i ett politiskt uppdrag. 2007.

29. Ewald, Annette: Läskulturer. Lärare, elever och litteraturläsning i grundskolans mellanår. 2007.

30. Bouakaz, Laid: Parental involvement in school. What hinders and what promotes parental involvement in an urban school. 2007.

31. Sandell, Anna: Utbildningssegregation och självsortering. Om gymnasieval, genus och lokala praktiker. 2007.

32. Al-Sa´d, Ahmed: Evaluation of students´attitudes towards vocational education in Jordan. 2007.

33. Jönsson, Karin: Litteraturarbetets möjligheter. En studie av barns läsning i årskurs F-3. 2007.

34. Lilja Andersson, Petra: Vägar genom sjuksköterskeutbildningen. Studenters berättelser. 2007.

35. Jonsdottir, Fanny: Barns kamratrelationer i förskolan. Samhörighet tillhörighet vänskap utanförskap. 2007.

36. Bergman, Lotta: Gymnasieskolans svenskämnen. En studie av svenskundervisningen i fyra gymnasieklasser. 2007.

37. Schyberg, Solbritt: Högskolelärares personliga teorier om sin pedagogiska praktik. 2007.

38. Eilard, Angerd: Modern, svensk och jämställd. Om barn, familj och omvärld i grund-skolans läseböcker 1962 – 2007. 2008.

39. Davidsson, Eva: Different images of science. A study of how science is constituted in exhibitions. 2008.

40. Vincenti Malmgren, Therese: Motiverande grundskolemiljö med fokus på klassrummet. En analys utifrån det obligatoriska skolväsendets läroplansmålsättningar. 2008.

41. Jönsson, Anders: Educative assessment for/of teacher competency. A study of assessment and learning in the "Interactive examination" for student teachers. 2008.

42. Parmenius Swärd, Suzanne: Skrivande som handling och möte. Gymnasieelever om skriv-uppgifter, tidsvillkor och bedömning i svenskämnet. 2008.

43. Brante, Göran. Lärare av idag. Om konstitueringen av identitet och roll. 2008.

44. Lutz, Kristian. Kategoriseringar av barn i förskoleåldern. Styrning & administrativa processer. 2009.

45. Löfgren, Lena. Everything has its processes, one could say. A longitudinal study following students' ideas about transformations of matter from age 7 to 16. 2009.

46. Ekberg, Jan-Eric. Mellan fysisk bildning och aktivering. En studie av ämnet idrott och hälsa i skolår 9. 2009.

47. Johnsson, Annette. Dialouges on the Net. Power structures in asynchronous discussions in the context of a web based teacher training course. 2009.

Doctoral Dissertations published elsewhere

Ullström, Sten-Olof: Likt och olikt. Strindbergsbildens förvandlingar i gymnasiet. Stockholm/Stehag: Brutus Östlings Bokförlag Symposium. 2002. (Nr 1 i avhandlingsserien.)

Ulfgard, Maria: För att bli kvinna – och av lust. En studie i tonårsflickors läsning (Skrifter utgivna av Svenska barnboksinstitutet nr 78). Stockholm: B. Wahlströms. 2002. (Nr 2 i avhandlingsserien.)

Ursing, Anna-Maria: Fantastiska fröknar. Studier av lärarinnegestalter i svensk skönlitteratur. Eslöv: Östlings Bokförlag Symposium. 2004. (Nr 16 i avhandlingsserien.)

Studies in Science and Technology Education
ISSN 1652-5051

FontD

1. Margareta Enghag (2004): MINIPROJECTS AND CONTEXT RICH PROBLEMS – Case studies with qualitative analysis of motivation, learner ownership and competence in small group work in physics. (licentiate thesis) Linköping University

2. Carl-Johan Rundgren (2006): Meaning-Making in Molecular Life Science Education – upper secondary school students' interpretation of visualizations of proteins. (licentiate thesis) Linköping University

3. Michal Drechsler (2005): Textbooks', teachers', and students´ understanding of models used to explain acid-base reactions. ISSN: 1403-8099, ISBN: 91-85335-40-1. (licentiate thesis) Karlstad University

4. Margareta Enghag (2007): Two dimensions of Student Ownership of Learning during Small-Group Work with Miniprojects and context rich Problems in Physics. ISSN: 1651-4238, ISBN: 91-85485-31-4. (Doctoral Dissertation) Mälardalen University

5. Maria Åström (2007): Integrated and Subject-specific. An empirical exploration of Science education in Swedish compulsory schools. (Licentiate thesis) Linköping university

6. Ola Magntorn (2007): Reading Nature: developing ecological literacy through teaching. (Doctoral Dissertation) Linköping University

7. Maria Andreé (2007): Den levda läroplanen. En studie av naturorienterande undervisningspraktiker i grundskolan. ISSN: 1400-478X, HLS Förlag: ISBN 978-91-7656-632-9 (Doctoral Dissertation, LHS)

8. Mattias Lundin (2007): Students' participation in the realization of school science activities.(Doctoral Dissertation) Linköping University

9. Michal Drechsler (2007): Models in chemistry education. A study of teaching and learning acids and bases in Swedish upper secondary schools ISBN 978-91-7063-112-2 (Doctoral Dissertation) Karlstad University

10. Proceedings from FontD Vadstena-meeting, April 2006.

11. Eva Blomdahl (2007): Teknik i skolan. En studie av teknikundervisning för yngre skolbarn. ISSN: 1400-478X, HLS Förlag: ISBN 978-91-7656-635-0 (Doctoral Dissertation, LHS)

12. Iann Lundegård (2007): På väg mot pluralism. Elever i situerade samtal kring hållbar utveckling. ISSN:1400-478X, HLS Förlag: ISBN 978-91-7656-642-8 (Doctoral Dissertation, LHS)

13. Lena Hansson (2007): "Enligt fysiken eller enligt mig själv?" – Gymnasieelever, fysiken och grundantaganden om världen. (Doctoral Dissertation) Linköping University.

fontD

14. Christel Persson (2008): Sfärernas symfoni i förändring? Lärande i miljö för hållbar utveckling med naturvetenskaplig utgångspunkt. En longitudinell studie i grundskolans tidigare årskurser. (Doctoral Dissertation) Linköping University

15. Eva Davidsson (2008): Different Images of Science – a study of how science is constituted in exhibitions. ISBN: 978-91-977100-1-5 (Doctoral Dissertation) Malmö University

16. Magnus Hultén (2008): Naturens kanon. Formering och förändring av innehållet i folkskolans och grundskolans naturvetenskap 1842-2007. ISBN: 978-91-7155-612-7 (Doctoral Dissertation) Stockholm University

17. Lars-Erik Björklund (2008): Från Novis till Expert: Förtrogenhetskunskap i kognitiv och didaktisk belysning. (Doctoral Dissertation) Linköping University.

18. Anders Jönsson (2008): Educative assessment for/of teacher competency. A study of assessment and learning in the "Interactive examination" for student teachers. ISBN: 978-91-977100-3-9 (Doctoral Dissertation) Malmö University

19. Pernilla Nilsson (2008): Learning to teach and teaching to learn - primary science student teachers' complex journey from learners to teachers. (Doctoral Dissertation) Linköping University

20. Carl-Johan Rundgren (2008): VISUAL THINKING, VISUAL SPEECH - a Semiotic Perspective on Meaning-Making in Molecular Life Science. (Doctoral Dissertation) Linköping University

21. Per Sund (2008): Att urskilja selektiva traditioner i miljöundervisningens socialisationsinnehåll – implikationer för undervisning för hållbar utveckling. ISBN: 978-91-85485-88-8 (Doctoral Dissertation) Mälardalen University

22. Susanne Engström (2008): Fysiken spelar roll! I undervisning om hållbara energisystem - fokus på gymnasiekursen Fysik A. ISBN: 978-91-85485-96-3 (Licentiate thesis) Mälardalen University

23. Britt Jakobsson (2008): Learning science through aesthetic experience in elementary school science. Aesthetic judgement, metaphor and art. ISBN: 978-91-7155-654-7. (Doctoral Dissertation) Stockholm university

24. Gunilla Gunnarsson (2008): Den laborativa klassrumsverksamhetens interaktioner - En studie om vilket meningsskapande år 7-elever kan erbjudas i möten med den laborativa verksamhetens instruktioner, artefakter och språk inom elementär ellära, samt om lärares didaktiska handlingsmönster i dessa möten. (Doctoral Dissertation) Linköping University

25. Pernilla Granklint Enochson (2008): Elevernas föreställningar om kroppens organ och kroppens hälsa utifrån ett skolsammanhang. (Licentiate thesis) Linköping University

26. Maria Åström (2008): Defining Integrated Science Education and putting it to test (Doctoral Dissertation) Linköping University

27. Niklas Gericke (2009): Science versus School-science. Multiple models in genetics – The depiction of gene function in upper secondary textbooks and its influence on students' understanding. ISBN 978-91-7063-205-1 (Doctoral Dissertation) Karlstad University

28. Per Högström (2009): Laborativt arbete i grundskolans senare år - lärares mål och hur de implementeras. ISBN 978-91-7264-755-8 (Doctoral Dissertation) Umeå University

fontD

29. Annette Johnsson (2009): Dialogues on the Net. Power structures in asynchronous discussions in the context of a web based teacher training course. ISBN 978-91-977100-9-1 (Doctoral Dissertation) Malmö University