

Psychologisches Institut der Universität Heidelberg

**"Doing and Viewing Gender": A lens-model approach to the communicative
construction of gender in task-oriented groups**

SABINE C. KOCH
HEIDELBERG

INAUGURALDISSERTATION
ZUR ERLANGUNG DES GRADES EINES DR. PHIL.
AN DER FAKULTÄT FÜR VERHALTENS- UND EMPIRISCHE KULTURWISSENSCHAFTEN DER
RUPRECHT-KARLS UNIVERSITÄT ZU HEIDELBERG

BETREUT DURCH

PROF. DR. LENELIS KRUSE
PROF. DR. KLAUS FIEDLER

*To Florence Geis
who died too early.*

Acknowledgements

I would like to thank my “doctor mother“ Lenelis Kruse and my “doctor father” Klaus Fiedler for their helpful “mothering” and “fathering” during the process of planning and conducting the studies, reflecting about the common framework, and writing up the results. Joseph E. MacGrath in a very generous mentoring process read all of my manuscripts and Robyn Cruz and Claire Moore-Schmeil proofread the English in an insightful manner bringing all of my German-English expressions into readable English. Thanks to the German Science Foundation (DFG, grant Kr 505/11) and the interdisciplinary Schwerpunktprogramm “Professionalisierung - Organisation – Geschlecht” for providing funding of my position, as well as to the University of Heidelberg for providing office and resources.

I would like to thank all participants of my studies (n=391), who participated without monetary rewards, just for a small present. I would like to thank the many helpers in those studies, first of all the confederates, who role played in the group discussions over several weeks, then the observers who rated many hours of videotaped material under different perspectives, then the actors of my last experiment and Barbara Mueller, who did her diploma thesis on parts of the chat experiment. Special thanks go to Rebecca Luft and Phoebe Ballmann who worked for free for many hours just driven by the desire to learn and practice. Names of helpers in alphabetical order: Phoebe Ballmann, Christina Bähne, Silke Bischoff, Imke Figura, Peter Freytag, Sofia Grigoriadis, Thomas Haar, Annette Hillers, Marc Hörster, Lisa Irmen, Roland Käser, Antje Kubat, Katrin Linser, Rebecca Luft, Andrea Müller, Andreas Rapp, Bernd Reuschenbach, Peter Spraul, Almut Stromberger, Johannes Szylvássi, Yue Zhang und Joerg Zumbach. And thanks to my colleague Antje Kubat (now Antje Schroerer) for keeping many things off my back. Thank you colleagues, friends and professionals, who made all of this possible!

Finally, I would like to thank my family: my parents and my parents-in-law who have been as supportive as one can possibly imagine during this time. Most of all Joerg Zumbach, soon-to-be-dad, who found the time to support this writing process whenever it was necessary next to writing up his own opus magnum.

I am taking responsibility for this work and hope that the readers will address me with any type of questions, comments and feedback: Sabine C. Koch, Department of Psychology, University of Heidelberg, Hauptstr. 47-51, Germany; sabine.koch@urz.uni-heidelberg.de.

"Doing and viewing gender": A lens-model approach to the communicative construction of gender in task-oriented groups

Abstract.....	7
Introduction	10
1 The communicative construction of gender in professional settings: Questions and approaches to gender research.....	14
1.1 Central questions in empirical gender research.....	14
1.2 Central approaches to gender research in social psychology. What is gender?.....	19
1.2.1 <i>Current models: Social constructionism and the gender-in-context model</i>	20
1.2.2 <i>Stereotype research and gender-schema models</i>	26
1.2.3 <i>Communication research</i>	31
1.2.4 <i>Social role and norm-oriented approaches</i>	34
1.2.5 <i>Evolutionary approaches</i>	36
1.2.6 <i>Developmental approaches</i>	37
1.2.7 <i>Resulting definition</i>	38
1.3 A lens-model approach to gender communication.....	39
1.3.1 <i>Brunswik's lens model</i>	39
1.3.2 <i>Applying the lens-model to communication research</i>	41
1.3.3 <i>The role of context</i>	43
1.3.4 <i>Limitations of the lens-model</i>	45
1.4 Interrelatedness of approaches	46
1.5 A brief review of relevant literature	50
1.5.1 <i>A review of reviews</i>	50
1.5.2 <i>A review of relevant meta-analyses</i>	62
2 Verbal construction of gender: "Doing gender" in chat communication.....	71
2.1 Introduction: Gender and computer-mediated communication (CMC) in groups.....	71
2.1.1 <i>A joint constructionist and gender-in-context perspective</i>	72
2.1.2 <i>Electronically mediated groups</i>	73
2.1.3 <i>Putting gender into CMC-Context</i>	74
2.2 Method: Applying the performance and perception approach (Study 1).....	76

2.3 Results: Cue analysis and constructive processes	80
2.3.1 <i>Gender construction in CMC</i>	80
2.3.2 <i>Follow-up study: Who-said-what?</i>	89
2.4 Discussion: Evidence for constructive processes in verbal group conversation	92
2.4.1 <i>Results of hypothesis testing</i>	92
2.4.2 <i>Methodological considerations</i>	94
3 Nonverbal construction of gender and competence in leadership: Evaluative affect display (EAD) toward male and female authorities and its transmission in small groups	96
3.1 Introduction: Evidence for differential treatment and self-perception of men and women starting a professional career	96
3.1.1 <i>Self-efficacy in young authorities</i>	96
3.1.2 <i>Gender, leadership and competence</i>	98
3.1.3 <i>Reactions toward women and men in positions of authority</i>	98
3.1.4 <i>Central concepts: Evaluative affect, attitude and bipolarity of affective reaction</i>	101
3.1.5 <i>Attitude transmission in groups: The potential role of emotional contagion</i>	103
3.1.6 <i>Reactions of leaders</i>	104
3.2 Experiments and main hypotheses: Attempting to trace discriminatory processes	105
3.2.1 <i>Study 2: Nonverbal affective reactions toward men and women in leadership positions. A replication study</i>	107
3.2.1.1 <i>Methods</i>	107
3.2.1.2 <i>Results</i>	110
3.2.2 <i>Study 3: The transmission of evaluative affect</i>	113
3.2.2.1 <i>Methods</i>	113
3.2.2.2 <i>Results</i>	117
3.2.3 <i>Study 4: Reactions of leaders to negative consensual affect display: awareness, attributions, cognitive and behavioral implications</i>	121
3.2.3.1 <i>Method</i>	123
3.2.3.2 <i>Results</i>	126
3.2.4 <i>Study 5: Evaluative affect in team meetings at the workplace. A field study</i>	132
3.2.4.1 <i>Method</i>	132
3.2.4.2 <i>Results</i>	136
3.3 General discussion: Mixed evidence	140

3.3.1 Power and self-fulfilling prophecies	143
3.3.2 Nonverbal sensitivity and awareness effects	144
3.3.3 How do we know that effects are gender related?	145
3.3.4 Affect in the workplace: Shared affect and judgment effects in groups	146
3.3.5 Methodological considerations and where to go from here	147
3.3.6 Conclusions	148
4 Verbal and nonverbal construction of gender and leadership: "Viewing gender" in observing leaders of a team meeting	150
4.1 Introduction: Evidence for gendered leadership perception	150
4.1.1 The Goldberg-paradigm: Gendered perceptions of identical leadership performance	151
4.1.2 What is so special about motion?	153
4.1.3 Designing a study with increased internal and external validity.....	154
4.2 Method: "Goldberg goes nonverbal": Construction of gender from audio-visual material (Study 6).....	155
4.3 Results: Similarities and differences in gender perception	159
4.4 Discussion: Leader acceptance by gender-hypothesis. She is competent, but cold....	170
4.4.1 The use of dynamic material	170
4.4.2 Counter-stereotypical and unexpected findings	171
4.4.3 Implications of the cue analysis	172
5 General discussion.....	176
5.1 "Gendered" evaluation of leaders	177
5.1.1 Perceived competence	177
5.1.2 Perceived agency and communality	178
5.2 Context dependency of affect display and contagion.....	180
5.3 Application of the lens-model: potential and limitations	182
5.4 Critique of gender studies	185
5.5 Conclusions: Where can we go from here?.....	186
6 References	189
7 Erklärung.....	222

Abstract

Within the framework of the current gender research this dissertation focuses on applying a joint model and a corresponding method suited for integrating the many dispersed empirical studies on *doing* and *viewing* aspects of gender. An application of Brunswik's lens-model (Brunswik, 1956) to communication research provides the basis for the development of a "performance and perception"-method that allows for an assessment of gender construction on a concrete and observation-based cue level.

Additionally, this research contributes to the investigation of one of the most important applied questions of high societal relevance in gender research: why are there such few women in organizational leadership positions despite their high amount of professional qualification? A communication perspective to approach this question was chosen, focusing on verbal and nonverbal communication in task-oriented small groups. The research provides an overview of theoretical approaches within social psychology, a review of empirical literature, and a description of a series of six studies ($N=391$), conducted to approach the applied question and to test the new method of assessing gender construction processes.

Study 1 focuses on general processes of verbal gender construction in conversational behavior of chat groups that discussed a topic under gender anonymous and non-anonymous conditions. Chat groups are suited to investigate gender construction processes as they allow to effectively manipulate gender-hypotheses. Participants rated their chat mates on a number of gender-related traits after the chat and then guessed their gender. Results suggest that 2/3 of the gender guesses were correct in natural conversations, and that trait-ratings depend more on the gender hypothesis of the participant than on the actual gender of the chat mate. Studies 2-5 encompass a series of three *social influence in small group* experiments and a field study addressing the applied research question: are there mechanisms of communicating prejudice toward women in the first professional years that contribute to lower self-efficacy beliefs early in their profession, slower career advances and higher drop-out rates? I focus on the nonverbal side of communication first replicating the results of a study by Butler & Geis (1990) who showed that female leaders received more negative affect displays than male leaders, despite being rated as similarly competent on a cognitive measure. Study 2 replicates these findings. Study 3 tries to account for emotional contagion processes within small groups that contribute to a group consensus of either negative or positive affect display toward authorities. Study 4 investigates the reactions of the group leaders to negative consensual

affect displays introduced by confederates of the experimenter looking at their behaviors, cognitions and attributions. Study 5 is a field study that looks at evaluative affect display as part of conversational behavior in team meetings of real work groups from diverse fields. Results suggest a high context dependency of evaluative affect display, with the highest amount of negative affect bias toward women when authorities were out of the room, less bias, but more contagion, in face-to-face-situations, and negligible effects under higher cognitive load. Female leaders were more aware of the negative affect from the group and more frequently attributed potential causes internally. Overall, more affect display was observed toward women in leading positions in the natural context of real team meetings and almost no evaluative affect display was shown in non-communicative situations, while participants watched a video-tape of a leadership situation. Finally, Study 6, designed to account for more internal validity in the investigation of constructive processes, uses the Goldberg-paradigm (Goldberg, 1968). The Goldberg-paradigm study assesses whether participants, having to judge identical leadership performance from video-material, show systematic gender-bias in judging the leaders of a team meeting under male vs. female gender-hypothesis. Using dynamic material within a Goldberg-paradigm study also increases the social relevance and, thus, the external validity of the experiment. This is because, in the real world, we are usually rather confronted with dynamic behavior cues than merely with written texts or static impressions.

Results suggest that when gender was not known or assumed to be known, perceptions of participants depended more on the gender-hypotheses, than on the real gender of the person. The research, thus, demonstrates the power of expectations over behavioral evidence of identical performance information. Results depended on the gender hypothesis and on real gender but also on the sex of the participant, sympathy, and other factors. In fact, gender hypothesis explained but a small amount of the variance of the overall findings and the magnitude of gender effects was generally small (all Cohen's *ds* or *Eta-squares* below .50). Results of verbal and nonverbal cue analyses indicated that participants used semiotic cues differently, depending on their own gender, their gender-hypothesis and the concept in question. For example, in Study 1 women used more syntactic cues and men more pragmatic cues, while both used the same amount of semantic cues to infer gender of their chat mates. However, syntactic cues had the highest predictive value, followed by pragmatic cues, whereas semantic cues left participants at chance level of guessing gender correctly. In sum, cue analysis shed more light on communicative processes than the mere use of rating scales.

Taken together this research provides a useful framework and theory-based methodology for current empirical work, applying Brunswik's lens model to gender communication research. The novelty of the empirical work lies in (a) the application of the performance and perception method in a CMC context, (b) the outline of and investigation into the new concept of "evaluative affect display" as a general indicator of approval or disapproval, and a specific indicator of prejudice toward female leaders, in small task-oriented groups, and (c) the use of dynamic interactional material within the Goldberg-paradigm, making the perceptual situation more realistic than by just using the previously employed written text materials.

Both, gender-hypothesis and real gender of leaders had cognitive, expectational, and behavioral implications, but were not the only factors influencing performance and perception processes. Thus, gender construction processes are a highly context-sensitive phenomenon (with a high situated flexibility), dependent on attributes of the perceiver, the target, and the respective degree of gender salience in a given situation.

Introduction

Although the status of women has improved substantially in Western societies during the last fifty years, there is still a noticeable difference between the improved status and women's access to positions of power. This is the starting point for the presented research, which is the dissertation project of the author at the University of Heidelberg, Germany.

Nowadays, women and men start into their careers side by side, with comparable qualifications and professional skills. Yet, more men than women attain secure positions and top jobs. Is this only due to the fact that women take a child-break and are more responsible for domestic tasks than men? Or do other reasons exist that prevent women from advancing in their jobs as fast as their male colleagues? To investigate this phenomenon, we set out to assess the contribution of everyday communication in organizations. Are there any discriminatory practices in organizations that we might not be aware of? Do women stagnate in their jobs, because they give up sooner than men? Do they lack commitment, persistence, stamina or leadership qualities? Are there dynamics in group communication that we have been missing so far? Are there interaction patterns that might help us to explain different actions and reactions of male and female professionals? And more fundamentally: Are women and men still viewed differently in the working world? Which processes are responsible for differential perceptions of professional men and women? Which processes are responsible for differential hiring and promotion mechanisms and for the differential acceptance of men/women in leadership positions? How do employers make decisions, and what influence does the importance of the decision have? What influence does a specific gender hypothesis have on the perception of a person in different contexts?

Factually, social roles and social expectations allow women greater choices in the working domain and the domestic domain. When having a family, it is easier for a woman than for a man to decide on having a daytime job or to decide on staying at home. She also can combine both options more easily (more half-time positions for women). Social role requirements are generally still stricter for men in this respect. In her dual-impact model of gender and career-related processes, Abele-Brehm (2000a) talks about "multiple sufficient conditions" that need to be given for women to continue in their careers in the face of other attractive and socially accepted options, whereas "multiple necessary conditions" need to be given for men. Women usually have more flexible careers, whereas men usually follow relatively uniform life-plans of continuous participation in the workforce, independent of their private situation. Men may thus follow a career "in any case", whereas women may only follow the career, if there is a

certain "fit". Women who then decide for a career may, therefore, tend to be better in their work than men for whom it may often not be question of choice (Abele-Brehm, 2000a). On the other hand, there are also many women who do not have a choice but work fulltime to contribute to or to entirely earn the family income. And, even if they have a choice, multiple roles and multiple foci are not only to the advantage of women's professional development. They often are the very reasons for women's slow advancement.

Even though career aspirations of women and the factual number of women in higher positions have increased over the past several decades (Eagly & Karau, 2002; Phillips & Imhoff, 1997), we have to keep in mind that women often have two or more entries into the working world: one after graduation and one after (each) family-break. As long as the child-break continues to be taken by women in the majority of cases, female careers are not as linear as male careers (cf. Hoff, Grothe, Hohner, & Dettmer, 2000) and should not be measured by the same 'linearity' criteria. As a consequence of the traditional view on gender roles and the implicit "male-model as a standard model" assumption in work contexts of Western societies, the economic communities at the dawn of the 21st century loose valuable economic resources by not supporting the flexible employment of women. A few "avant-garde" corporations have recognized this loss of human potential and are introducing more flexible models. Taking this societal frame as a background, our research aims to find explanations for what additionally happens in the careers of women that prevents them from advancing in the same way as their male colleagues. Particularly communicative patterns at the beginning of a job with responsibility over other persons may be decisive.

Apart from this applied research question of societal relevance, I aim to address a more basic research question with theoretical and methodological aspects: In the present constructionist paradigm there are many theoretical considerations about gender construction and de-construction (Gildemeister & Wetterer, 1992; Hirschauer, 1995, 2001; Kraus, 2000; Lorber, 1994; Lorber & Farrell, 1991; Pasero & Braun, 1995, 1999; Wetterer, 1995). However, there is little empirical work on these issues directly because of a lack of concrete methodologies and techniques that might fit into such a paradigm. The work that is done is not very well integrated into an overall perspective, model or plan suitable for gender research. Therefore, in this research, a Brunswikian lens-model perspective on gender communication will be developed that integrates well into current gender research within the constructionist paradigm and other recent empirical approaches in social sciences research. This perspective takes into account the performance and perception aspect of gender construction in theory and methodology. It

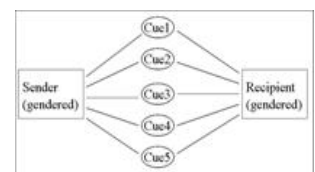
provides an account for disentangling processes of "doing gender" and "viewing gender", for formulating more concrete predictions and for the empirical testing of gender construction processes. Thus, the basic research aim is to offer an explicit model and method for gender research which, implicitly, is already being applied on quite a large scale in scholarly research (Pasero & Braun, 1999). Further methodological needs in gender research are the inclusion of more realistic dynamic stimulus material and the development of an economic coding method for assessing meaningful nonverbal reactions in task-oriented groups.

In the course of the chapters, I will proceed from theoretical and definitional issues to a review of major empirical review literature, and from there to my own experiments. Experiments are ordered from the more integrative and ecologically valid contexts to the more experimental investigations of higher internal validity, and main results are summed up in the final discussion part.

In **Chapter 1**, I will first present *current questions* in gender research to then introduce the main theoretical *approaches* within social psychology, focusing on gender definitions from the different research perspectives. This will be followed by an introduction to the *lens-model perspective* and its potential contribution in shedding more light onto processes of gender performance and perception, and a subsequent description of the *interrelatedness of the presented approaches*. Finally, I will give a brief overview of the most important reviews and meta-analytic literature concerning all subsequent chapters. However, as the studies are heterogeneous in theoretical background, there will be additional specific literature reviews at the beginning of each subsequent chapter providing background to the conducted studies (Chapters 2, 3 and 4).

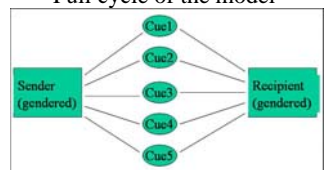
Chapter 2 introduces the first experiment that was conducted following the lens-model approach: a pilot study about "doing gender in chat groups". In this study on the influence of gender-hypotheses on small-group online communication the *performance and perception method* was applied for the first time in a computer mediated communication context. The *cue analysis* of the data provided useful information about cue utilization and the predictive value of cues. A follow-up *who-said-what-study* provided additional information about basic gender categorization processes among participants. In the *observational part* of the

Introduction of the lens-model



Brunswick, 1956; Wallbott, 1990

Full cycle of the model



Doing-viewing-doing gender in verbal conversation

study conversational behaviors such as the amount of talk and nonverbal communication of dominance were in the center of the investigation.

In **Chapter 3**, I focus on some of the main applied gender research questions. In a series of four experiments I investigated differential *nonverbal reactions toward male and female leaders* of small task-oriented groups. I varied contextual factors as I proceeded with this series of studies. My focus was the investigation of *evaluative reactions* of approval and disapproval toward men and women in positions of authority, the *transmission of these reactions* in small groups, the *influence of negative consensual reactions on leaders' perceptions and behavior* and the *differences in competence ratings* for male and female leaders. Context variations included audiotaped and videotaped leaders vs. face-to-face interactions with them (degree of direct contact), leaders in mere authority roles (experimenter) vs. moderator of the group-role, and laboratory vs. field study. Employing a new and resource-demanding observational methodology, this series of studies is an attempt to shed more light on unconscious nonverbal processes in the communication of professional competence.

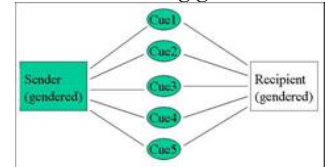
Chapter 4 introduces a Goldberg-paradigm study assessing perceptions ("viewing gender") of *identical performances* of male-to-be-believed vs. female-to-be-believed leaders of a team meeting on video-clips. I applied nonverbal dynamic material to test the effect that so far had only been found, using written descriptions of scenarios. The novelty of the contribution lies in the use of more realistic stimulus material in this study that increases external validity. A *verbal cue analysis* was performed on the cues participants used to infer competence, dominance, support and emotionality of male vs. female leaders. A *nonverbal cue analysis* was performed on the movement cues of the main actor and their perception by participants.

Chapter 5 sums up the results and discusses them in the light of the newly gained insights.

Heidelberg, February 2005

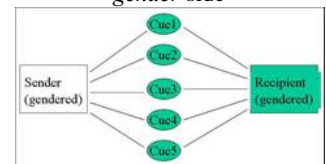
Sabine C. Koch

Nonverbal *doing gender* side



Focus on the sender (ecological side), yet including interaction dynamics

Verbal and nonverbal *viewing gender* side



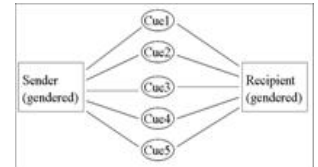
Focus on the recipient (organismic side)

1 The communicative construction of gender in professional settings:

Questions and approaches to gender research

In the course of this chapter, I will introduce important applied research questions in the field of gender research, provide an overview on the main scientific perspectives related to social psychology, suggest a new perspective – an application of Brunswik’s lens model to gender communication - and review some major sources of empirical literature in the field.

Introduction of the lens-model



1.1 Central questions in empirical gender research

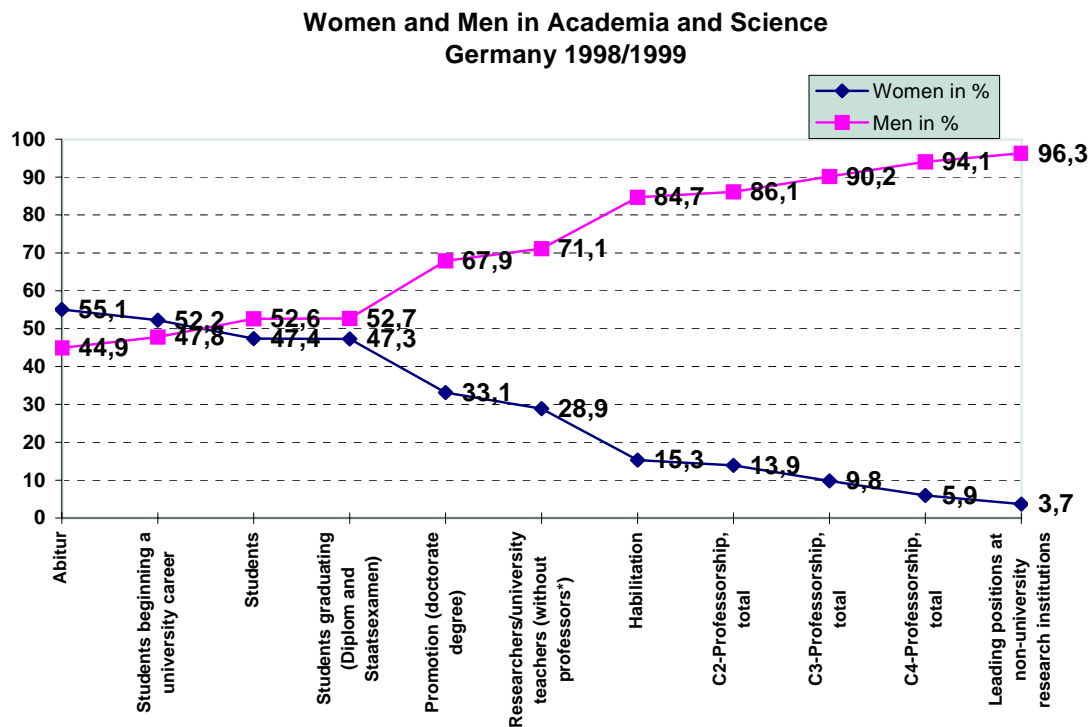
In this research, I will mostly refer to women and men in the working world and in public discourse situations. An increasing number of women in the Western world is working out of home. An increasing number has professional and managerial training, starting their careers with excellent graduation grades. Despite all this training, few women advance into high-level positions. Despite their qualifications, there is still an income gap of comparable work between men and women (e.g., Jacobs, 1995; Jacobsen, 1998; Reskin & Ross, 1995, for the US; Bett-Report, 1999, for Great Britain; Wimbauer, 1999; for Germany). Despite identical qualifications and professional behaviors, women and men are still judged differently. Despite our aspiration and objective of egalitarian treatment, women still have to be better than their male colleagues in qualification or performance to obtain or maintain comparable positions. Hence, the main questions of applied gender research that result from these facts are:

- Why are women not advancing in their jobs according to their qualifications?
- Why are there still inequities in salaries?
- Why is there perceptual gender bias, and what does it mean?
- Why are there different expectations for men and women, and what do they consist of?
- In which contexts and under which circumstances are such expectations more equal?

Gender research has been trying to describe these hard to pin down processes with a number of metaphors that are useful for thinking about the problems and possible solutions. Research and national studies over the last twenty years describe the invisible *glass ceiling* women will hit at a certain altitude of the career ladder (this metaphor had been introduced by the *Wall*

Street Journal, 1986; cited after Carli & Eagly, 2001), or the *leaky pipeline* causing the loss of more and more women in the course of the career paths (ETAN-Report, 2001; for an example from academia see Figure 1).

Figure 1: "The leaky pipeline" or "the scissors effect": Male and female academics in Germany 1998/99, as a typical example. More and more women drop out as the positions get higher¹



In research, a number of effects for typical gender² phenomena have been described, such as the *double standards effect* forcing women to prove their qualifications for higher positions to a higher degree than their male colleagues (cf. Foddy & Smithson, 1999; Foschi, 1992; 2000), and the *shifting standards effect* setting the threshold of minimal requirements for women lower and of ability-based requirements for women higher than those for men (Biernat &

¹ Habilitation is the qualifying written scientific work for the access to a university professorship. There are three levels of professorship in Germany: C2 is the lowest level, C3 a higher level, and C4 the top level. Altogether, there are not even 10% women professors at German universities across levels in 1998 (9.5%). At the highly recognized non-university research institutes in Germany – like the Max-Planck or the Frauehofer Institutes - the percentage of women in leading positions is even lower (3.7%). For an overview on women and research grant applications and approvals see ETAN-Report (2001) as well as Allmendinger (2001).

² The term *gender* is used to emphasize the socially and psychologically constructed aspect of our dichotomous conception of men and women (gender as a social and behavioral category). The term *sex* is used when I clearly refer to biological and anatomical differences (or to the variables in the data sets in the studies); within a constructivist framework sex is also understood as a socially constructed category; in consequence, the distinction between sex and gender in the constructivist perspective becomes arbitrary at a certain point (for further definition and discussion see Chapter 1.2).

Fuegen, 2001; Biernat & Kobrynowicz, 1997). The *double-bind effect* or "*damned if you do, damned if you don't*"-effect (Haslett, Geis, & Carter, 1996), describing the dilemma that women in leading positions are expected to be *agentic* (i.e., to possess traits or display behavior in the service of the self associated with strength, e.g., assertive, aggressive, self-confident) and *communal* at the same time (i.e., traits or behaviors in the service of others, e.g., pleasant, sensitive, warm). If they miss the small grade of this balance devaluation either in the agentic or in the communal dimension will take place. In fact, no matter what they do, it will always be at the expense of one of the two dimensions. The "*women are wonderful (but incompetent)*"-effect (Eagly & Karau, 2002) depicts attributional phenomena in the socio-emotional or expressive domain (communal attribution) vs. the dominance or instrumental domain (agentic attribution). Women are frequently ascribed many more positive traits than men are, yet only in the socio-emotional domain (cf. Holmes, 1992). When it comes to agentic traits and qualities that count in the professional world (assertiveness, risk taking, competence, leadership, etc.), men are often preferred over women. The ascription of agentic traits to men versus communal traits to women is one of the main replicated findings in gender research (Bakan, 1966). All of these effects describe different gender-related phenomena and are connected to different approaches for looking at and solving the questions stated above.

Professional requirements in the working world have changed in favor of communal attributes: Job descriptions of managerial positions nowadays usually include "masculine" and "feminine" traits. Besides assertiveness and rationality, social and communication skills are increasingly pronounced as important managerial attributes (e.g., Haslett, Geis, & Carter, 1996). In addition, within the entire work force requirements of professional and service-oriented skills have increased so pronouncedly that society just cannot afford to have a major part of potential work force participants at home or in jobs that do not fit their qualifications. The problem remains: Although the status of women has improved substantially in Western societies in the last fifty years, there is still a marked difference between this improved status and women's access to positions of power.

Gender can generally be seen from three broad perspectives: a macropolitical or structural perspective, a micropolitical or social-interactional perspective and an individual perspective. All three approaches can be found in social psychological literature; there is, however, an emphasis on the social-interactional level. Within our communication approach, I will focus mainly on the interactional perspective. Structural perspectives, frequently originating from

sociological or politological theorists, deliver persuasive arguments, but most of their theories are difficult to operationalize, a common discovery for researchers that are mainly engaged in empirical investigations. Moreover, they often lack *"the thick quality of research that takes full and open-ended account of daily life and interaction"* (Thorne, 2001, p.12). However, structural perspectives offer important background information for this research. Pioneer work in the field of *gender in organization (GIO)* has been done by Rosabeth Moss Kanter with her book *Men and Women of the Corporation* (Kanter, 1977), followed by Barbara Reskin in the 80s (Reskin & Hartmann, 1986) and by Joan Acker (1991, 1999), and Judith Lorber and colleagues in the 90s (Lorber, 1994; Lorber & Farrell, 1991; see also Ferree, Lorber, & Hess, 1999.). These authors have contributed important perspectives on the structural macro-level of gender construction in organization. The individual perspective includes trait-based differences approaches and psychoanalytical approaches. The shortcomings of differences approaches will be addressed in the course of Chapter 1.2. Psychodynamic approaches will not be treated here, but see Chodorow (1999) for a recent account to "individual" gender.

In order to contribute to answering some of those main gender research questions, I have chosen a communication approach to gender construction. Much of the work in organizations is done in small, task-oriented groups (e.g., Guzzo & Dickson, 1996), mainly through communication. Communication, just as gender itself, is part of "the air that we breathe", the culture that we are enmeshed in. Yet, as we know from the saying *"the fish are the last ones to detect the water"*, there certainly is a danger to miss the subtle influence of both phenomena, because of our high degree of involvement. In other words, it is hard, if not impossible, to take an objective perspective on gender construction in everyday communication, as we constantly participate in it, while most of its processes lie on the unconscious level. Nevertheless, I will try to disentangle some of these processes on a scientific level, attempting not to take away too much of the natural complexity of the interactions. Employing observational techniques with many raters provides to a certain degree intersubjectively valid results.

In our present research project³, we analyze verbal and nonverbal communication on the micro-level of interaction, focusing on power-related and support-related behavior in small

³ WorkComm – Project (DFG, KR505/11-3): „The communicative construction of gender in professional settings” (Kruse/Thimm/Koch/Kubat) as part of the larger scale interdisciplinary German national project „Professionalization - Organization – Gender”. Thanks to the German Science Foundation (DFG) for grant support.

task-oriented groups. We compare interaction patterns in same-sex groups versus mixed-sex groups under male and female leadership. In this national, interdisciplinary project, we mainly work with qualitative methods from language and social psychology as well as socio-linguistics, e.g., discourse analysis, content analysis, pattern analysis, movement analysis. Since these qualitative analyses are tedious and extremely time-consuming, first results can only be expected in 2003. I have, thus, decided to extract a subset of research questions and to do some experimental work on applied questions that resulted from our field data. I decided to work more *leadership focused* (to account for the covariance of status and gender) and to look particularly at the *nonverbal side* of gender communication (to account for the more unconscious part of communication). I started out, however, with an integrative pilot study on chat communication. In order to investigate gender construction, the rationale was to search a setting in which gender-hypotheses of participants can be experimentally manipulated and gender needs to be inferred from conversational behavioral cues. While we usually recognize the gender of persons immediately when we talk to them, online communication has the methodological advantage that we can test what happens when gender is not known and group members have to form a gender hypothesis. With such a method verbal processes of gender construction and perception can be directly assessed. After this first pilot study, and in all further studies reported here, the focus was clearly on nonverbal communication related to leadership and authority in groups. In the field of communication studies, we usually encounter verbal and nonverbal research as two separate lines, often parallel to each other and with not much intersection. In the past, this was mainly due to different methodological problems, but thanks to new technologies the basis for an integration within the next few years is now provided. Main representatives of verbal gender approaches on an international as well a national level are Lakoff, Aries, Carli, Holmes, Crawford, Tannen, Gottburgsen, Kotthoff, and Trömmel-Plötz. Main representatives of nonverbal approaches are J. Hall, Henley, Geis, LaFrance, Ridgeway, DePaulo, Burgoon, Grammer, Mühlen-Achs, and Krämer. In our project, we attempt to integrate verbal and nonverbal approaches drawing from Bavelas and Chovil, Birdwhistell, Goffman, Knapp and Miller, Watzlawick and Lewin theoretically and from Rosenthal, Cappella, Brunswik, Scherer and Wallbott methodologically.

Other researchers have chosen different approaches to possible causes of the gender phenomena mentioned above. Yet, they are all related by focusing on the behavioral and perceptual level of gender conceptualizations. For an overview, I subsequently describe the most important ones.

1.2 Central approaches to gender research in social psychology. What is gender?

There are two theoretical approaches at the core of present psychological gender research from an interactional perspective: the *gender-in-context model* (Deaux & LaFrance, 1998; Deaux & Major, 1987) and *social constructionist approaches* (Lorber, 1994; Lorber & Farrell, 1991; Pasero & Braun, 1995, 1999). Both approaches focus on social and psychological gender and its construction in everyday moment-to-moment interaction (emphasizing the socialization aspect, and the more "proximal" aspects of performance and perception of gender). There are other approaches that are older or more on the periphery, such as the classical sex-differences research emphasizing differences between the sexes – still used, e.g., in differential psychology, but also in neuropsychology and brain research (in medicine and clinical psychology) -- and the evolutionary psychology approaches emphasizing adaptivity and genetic basis of behavior. More specialized models are the recent *role congruity theory* (Eagly & Karau, 2002), focusing on leadership evaluations, and the older, yet still important *expectation states theory* (Berger, Connor, & Fisek, 1974), specializing on social expectations dependent on gender and task. However, before providing more detailed information about the single approaches, I will briefly treat a more fundamental question that relates to the presentation of the approaches further on.

What is so special about gender?

The question what gender is is answered differently by each one of the research perspectives. As the single approaches are introduced in the course of this chapter, I will provide a definition from my own understanding of each perspective in the framed fields. So, what is so special about gender? And why should we investigate it at all? While Allport (1954) was convinced that all stereotypes are similar in structure no matter whether the object of prejudice is of a certain religion, race, social class or any other social group, recent research has elaborated considerably on arguments why and in which respect gender is a special social category (cf. Heilmann, 2001), its special characteristics being:

- a) *Primacy of the category.* For the small infant, gender is the first organizing cognitive category to distinguish social groups (Markus & Oyserman, 1989). The authors emphasize the role of the gender category within early schema acquisition as the first cognition in response to individuals.
- b) *High contact between groups.* In contrast to many other stereotyped social groups, the contact between men and women is extraordinarily high (cf. Allport, 1954) in private as

well as in public contexts. From early on, we usually deal with persons of both genders in our families, as well as later in romantic and close relationships (cf. Noller & Fitzpatrick, 1988) with a partner and with our own children and grandchildren.

- c) *High motivation and interest.* Furthermore, the other gender is often of high interest to us, and we are extremely motivated to understand motives and cognitions from individuals of the other gender. In cognitive psychology, dual processing models predict that the social relevance of the contact to the other gender will lead to deeper processing (cf. continuum model, Fiske & Neuberg, 1990; Fiske, Lin, & Neuberg, 1999), whereas evolutionary psychology emphasizes the mating and reproduction interest to explain the higher contact motivation (cf. Buss & Kenrick, 1998).

1.2.1 Current models: Social constructionism and the gender-in-context model

As mentioned above, I shall now elaborate on the main approaches in the sequence of their importance for this research. These will be current models, stereotype research, communication research, sociological and norm-oriented approaches, evolutionary approaches, developmental approaches and finally my own approach. For an overview, I will provide a gender definition from each perspective.

1.2.1.1 Social constructionist approaches

Contemporary social constructionist approaches start from the observation that gender cannot be captured in an essential way, and conceptualize gender as a context dependent social construction manifesting itself predominantly in everyday interaction (Lorber, 1994, Lorber & Farrell, 1991; Pasero & Braun, 1995, 1999). Gender is not something we *have* but something we *construct*. This construction takes place by *doing gender* (West & Zimmermann, 1987, 1991), that is by enactment or behavioral processes and by *viewing gender*, that is by perceptual processes. Current *constructionist approaches* emphasize similarities and reduce gender differences to phenomena that lie mainly or merely in the eye of the beholder ("viewing gender"). These lead to expectancy guided perceptual and behavioral differences in everyday interaction ("doing gender"), originating from what we think there *is* or *ought to be* (descriptive and prescriptive aspect) in terms of sex differences (Eagly & Karau, 2002; Geis, 1993). The constructionist perspective is thus *not* about sex differences per se but about perceptual and behavioral ("viewing" and "doing") implications of gender.

In the constructionist view there is a more radical and a more moderate gender definition. More radical constructionist or *poststructuralist, feminist philosophic* perspectives (Butler, 1990, 1991; Hirschauer, 1995, 2001, a representative of an ethno-methodological perspective) might propose a definition such as the following:

Biological sex – as apparent in secondary sex characteristics -- is a continuum with no clear-cut criteria for dichotomization. Sex and gender are social constructions, assignments of two (in our culture) different categories, following our need for simplification and the rules of accentuation (see below). The assignment has fundamental implications for socialization and identity development. Gender exists by its very practice and consists of all ways to be treated and to behave as if belonging to one of the two socially constructed categories.

In her *performative theory* of gender Butler (1990, 1991) emphasizes the verbal, nonverbal and social practices creating gender. She states that, "*because there is neither an 'essence' that gender expresses or externalizes nor an objective ideal to which gender aspires, and because gender is not a fact, the various acts of gender create the idea of gender, and without those acts, there would be no gender*" (Butler, 1990, p. 140). Hirschauer (1995) underlines that the concept of sex as a physical dichotomy has lately lost ground through scientific research. Sex and gender can thus no longer be looked at as independent from each other, but sex must be understood as an underlying *deep structure* of gender, related to it on multiple levels.

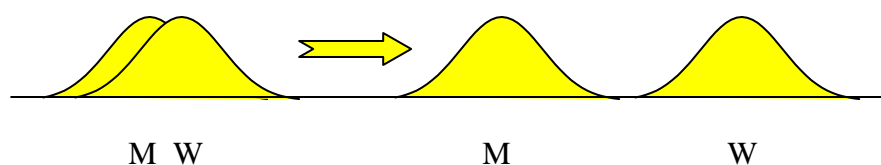
The radical constructionist perspective probably seems most uncommon when first encountered. Yet, it has long been established in feminist research approaches and is now entering into main stream gender research as well (Christiansen, 1995). The idea of a gender continuum or at least of a near continuum is actually not as new as it may seem. For example, in 1972, anthropologist and communication researcher Ray Birdwhistell pointed out that:

"Biologists have long been aware that the clear demarcation between the production of ova and spermatozoa in organisms of a bisexual species is not necessarily accompanied by any comparable bifurcation in the distribution of secondary sexual characteristics. In some species there is such extreme gender-linked dimorphism that only the specialist in the particular species can recognize that males and females are conspecific. At the other extreme, some species are so unimorphic that near surgical techniques are required to determine the gender of isolated individuals. [...] by establishing an ideal gamut with a

*unimorphic species at one end and an extreme of dimorphy at the other it has been tentatively possible to locate **Homo sapiens** on that scale. [...] When [...] the secondary sexual characteristics themselves are stressed (whether visibly, audibly or olfactory perceptible), man seems far closer to the unimorphic end of the spectrum than he might like to believe."* (Birdwhistell, 1972, pp. 50-51).

Birdwhistell (1972) was also the first researcher to distinguish primary, secondary and tertiary sexual characteristics, a distinction which I find useful and would thus like to introduce at this early point. *Primary sexual characteristics* are the functional characteristics relating to the production of ova or spermatozoa, *secondary sexual characteristics* are the anatomical or physical sex characteristics, and *tertiary sexual characteristics* are patterned social behaviors (such as gait, gestures, habits, etc.), which are learned and situationally produced. The latter two features come close to Goffman's definition of *gender as display* (Goffman, 1976, 1994). Radical social constructionism would place the latter two on a continuum with no clear-cut criteria for a dichotomization or categorization into necessarily two gender groups. A more moderate constructionist perspective (Koch, Müller, Kruse, & Zumbach, 2002; Pasero & Braun, 1995, 1999) assumes two strongly overlapping distributions of men and women on the basis of biological characteristics and traits. It stresses the similarity between the gender groups rather than the differences and describes the accentuation effect that takes place even when there is no evidence of different performance of men and women. Again, I would like to refer to Birdwhistell (1972), who describes that the secondary sexual characteristics are distributed in the human population like two strongly overlapping bell curves instead of a bimodal curve despite our common beliefs -- a phenomenon known as *accentuation* in social psychology (e.g. Eiser & Stroebe, 1972; Graumann, 1972; Graumann & Wintermantel, 1989):

Figure 2: The accentuation effect: While there is evidence for considerable overlap in male and female anatomy and behavior, we tend to dichotomize and accentuate the differences (radical approaches assume only one gender distribution, i.e., a continuum, on the left side)



Note: W=women, M= men; left of arrow: ecological side; right of arrow: perception side

The accentuation effect is a classical and prototypical constructive effect. Gender is not inherent in the person or in the traits of the person, but it is the effect of social and inter-personal processes in the course of which a person is ascribed that gender and becomes that gender. Gender is seen as an ongoing activity or practice, an *"ongoing interactional accomplishment"* (West & Zimmermann, 1987, 1991) constructed in the course of interaction (cf. Hagemann-White, 1993).

Gender is a social construction based on sex differences, which are, to large parts, socially constructed. Men and women have many more similarities than differences. However, we dichotomize gender in our need for simplification, following the rules of accentuation.

Lorber (1994) within the moderate constructionist view emphasizes the structural aspects to a greater degree and specifies them in a more sociological perspective:

Gender is a social institution, manifesting itself in everyday interaction. Gender and sex are socially constructed categories.

From a constructionist perspective gender is omnirelevant (Garfinkel, 1967), but its meaning and salience vary from situation to situation. The more radical perspective doubts the omnirelevance (Hirschauer, 2001). West and Zimmerman (1991) also doubt the *ongoing character* of gender construction arguing that if we come from this premise, we might lose sight of the special situation where gender becomes in fact relevant and *salient*. They distinguish symbolic systems (normative conceptions) from situated interaction, the practices by which actors hold one another accountable for these normative conceptions. Thorne (2001) helps to relate the two forms of constructionist accounts to philosophical backgrounds by stating: *"Butler's performative theory of doing gender, which emphasizes the constitutive nature of discourses, is rooted in conceptions of power and knowledge drawn from the work of Michael Foucault. West and Zimmerman use a more Weberian conception of power as coercion."* (Thorne, 2001, p. 10).

Again the constructionist perspective is not as new as one may assume. In 1976, Goffman stated: *"If gender be defined as the culturally established correlates of sex (whether in consequence of biology or learning), then gender display refers to conventionalized portrayals of these correlates"* (Goffman, 1976, p. 69). In 1977, he added: *"The **functioning** of sex-differentiated organs is involved, but there is nothing in this functioning that*

biologically recommends segregation; that arrangement is a totally cultural matter" (Goffman, 1977, p. 316).

As a result the distinction between sex and gender is not of much use for social constructionists⁴, as both are socially constructed. In the end, what really matters is the cultural gender concept we grew up in and our learning histories in our specific communities-of-practice (Eckert & McConnell-Ginet, 1998). Community-of-practice approaches, built on Vygotsky's ideas (Vygotsky, 1962), are of growing importance in research on situated learning (Lave, 1993; Lave & Wenger, 1991; cf. Eckert & McConnell-Ginet, 1998, for a gender application). Thus, in most cases, social constructionists employ the two terms of *sex* and *gender* like synonyms, whereby the term *gender* is preferred because it more clearly underlines the socially constructed character of the concept. For a useful distinction between *gender*, *sex* and *sex category* in line with the constructionist approach, see West and Zimmermann (1991).

From the constructionist perspective, even the nature vs. nurture debate is not a useful debate anymore. In the end it does not matter, if gendered behavior is an ontogenetic or a phylogenetic adaptation reaction (or a more proximal spontaneous one). In our culture it always follows the laws of dichotomous social construction, and what we draw from our individual knowledge structures (gender schemata). Social constructionism may thus be a good paradigm to reconcile evolutionary, sociological, and developmental approaches. Furthermore, its main assumptions are in line with many other social psychological approaches (cf. Abele, 2000a; Biernat, 1995; Carli, 1999; Deaux, 1998; Eagly & Karau, 2002; Geis, 1993; and Glick & Fiske, 1996). Social constructionists like social psychologists focus more on perceived differences and peoples' explanations for them, using real differences mainly as a criterion for comparison purposes in order to then assess cognitive constructive mechanisms.

1.2.1.2 The gender-in-context model

The *gender-in-context model* (Deaux & LaFrance, 1998; Deaux & Major, 1987) emphasizes the situation specific implications of gender, e.g., the degree of gender salience in a given situation. It focuses on proximal gender processes, i.e., the spontaneous behavioral gender (re-)actions, emphasizing the central role of sender, recipient and situational factors. The basic

⁴ The German language only knows one word for sex and gender („Geschlecht“) and all gender research concepts can well be communicated with one instead of two words (I disagree with Inge Stephan (2000) here, who thinks that it is an advantage to have two words instead of one). From a constructionist perspective it is far less confusing to have one word and for the usual distinction one can easily use „socio-cultural“ vs. „biological *Geschlecht*“.

assumptions, however, are drawn from distal gender processes: gender consists of socialized behavioral and perceptual differences between men and women.

Deaux and Major (1987) propose a model of gender and social interaction that encompasses the belief system of the perceiver, the activation of the perceiver's schemata, the self-system of the target, the activation of gender-related self-schemata, the actions of the self, the interpretations of the perceiver's actions, and the perceiver's interpretation of the target's actions. It considers self-presentational and self-verification concerns, as well as expectancy and self-fulfilling prophecy processes (and thus constructive processes). For a more detailed description see Chapter 2. Their gender definition puts a clear emphasis on contextual factors. Deaux and LaFrance (1998) extend the model to a multidimensional "*gender-in-situated-action model*" that takes into account social structures, social roles, power, status and culture. Gender is viewed as a social psychological phenomenon, a dynamic construct with implications at the individual, interactional, group, institutional and cultural level.

Gender is a fleeting and highly context dependent phenomenon that is communicated in everyday interaction on a moment-to moment basis. Mediated via expectations and perceptual and behavioral confirmation mechanisms, it often underlies the rules of self-fulfilling prophecy and expectancy effects in the dynamic interaction of actor and target. Each situation has a different degree of gender salience. Gender is a function of actor, target and situation.

The two perspectives described in Chapter 1.2.1 provide a sound theory basis with the general possibility to make predictions and test them in empirical studies. In emphasizing the proximal effects of a distal learning history, they can both be related to the communities-of-practice approaches presently discussed in educational psychology and educational science (Eckert & McConnell-Ginet, 1998; Lave, 1993). Yet, they both have their drawbacks as well. The constructionist approach is underdetermined (i.e., too general for a useful theory) in the sense that – like the entire constructionist paradigm - it allows too much freedom and arbitrariness in the interpretation of results. The final argument can always be that "there is no objective social reality, that everything is constructed and that, therefore, anything can be explained from a subjective perspective". The gender-in-context model on the other hand, is oversituational (i.e., not general enough for a useful theory). It makes predictions only for specific contexts. It includes and differentiates too many details and situational factors for it to be a potent means for the inference of behavior. Moreover, it is limited to the explanation of proximal gender-related processes.

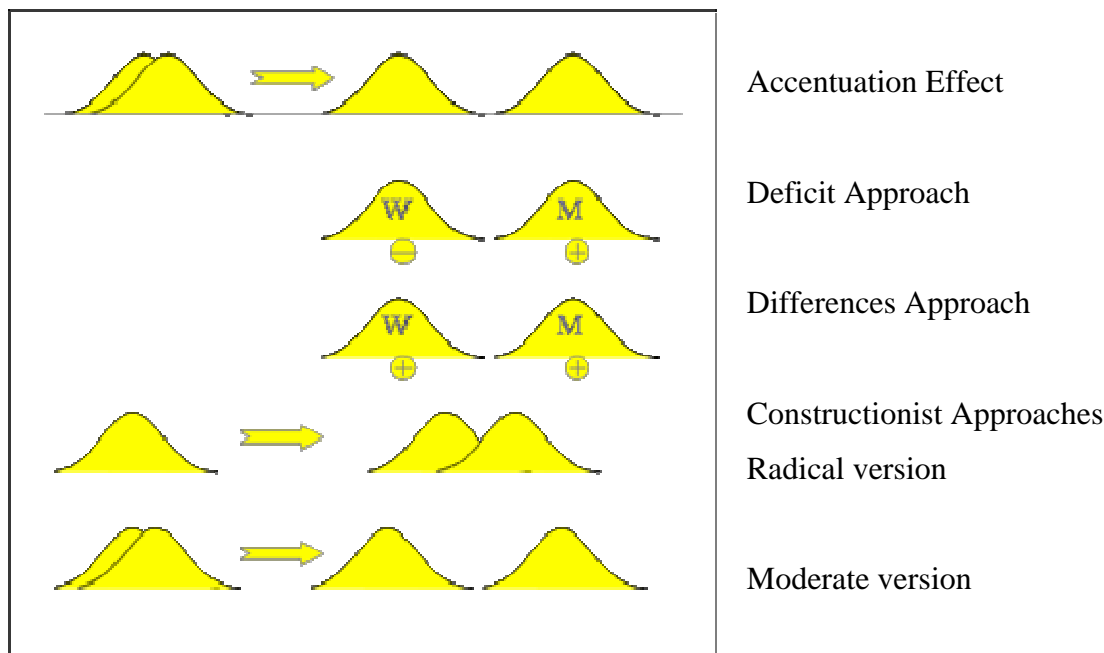
This research will try to provide a specification of the constructionist approach and a more general frame for the high situativity of the gender-in-context model, integrating all three main sources of variance using Brunswik's lens-model (see Chapter 1.3). Its aim is to take the general theoretical assumptions of the constructionists down to concrete observable behaviors, and the many scattered situational assumptions of the contextualist models up to a more inclusive perspective, so that, in both cases, hypotheses and predictions can be more easily extracted (see Chapter 1.4).

1.2.2 Stereotype research and gender-schema models

Gender stereotypes essentially serve the purpose of cognitive short-cuts, they help to economically select the most important information for impression formation (Abele-Brehm, 2000a, 2000b; Alfermann, 1995; Ashmore & DelBoca, 1979, 1986; Eckes, 1997; Heilman, 1995). More precisely they are expected correlations of certain traits and group membership (Fiedler, 1996). If stereotypic expectations overwrite existing real correlations, we talk about illusory correlations (Hamilton & Rose, 1980). Our social processing is usually biased in the direction of expectation congruent material. As Geis (1993) puts it, we are more likely to see what we expect to see, sometimes even if it is not actually there, and not see or reinterpret what we do not expect, sometimes even if it is there. Gender schemata will make us fill in missing pieces of information (Markus & Oyserman, 1989). Many gender schema approaches for their part draw from social identity theory (Tajfel & Turner, 1979; Abrams & Hogg, 1990) and a social representation perspective (Moskovič, 1988).

One of the most basic social psychological processes in viewing gender stereotypically is the *accentuation effect* as described above. It has been highlighted by Eiser and Stroebe (1972) as a fundamental phenomenon in social perception in general, by Birdwhistell (1972) as applying to anatomical gender differences as well, and by Eagly and Karau (2002) for trait-related gender differences in attribution. This basic psychological mechanism features our need for simplification when thinking about two social groups. It describes our tendency to create two separate distributions from two distributions with considerable overlap. Even though, overall, there are many more similarities between men and women, we, generally, have the tendency to focus on the differences and to separate the two distributions in our minds by accentuating them. Eiser and Stroebe (1972, p. 145) describe the accentuation of interclass differences as "*a bilateral shift resulting in increased polarization of judgement*".

Figure 3: Basic stereotyping processes in the light of different historical approaches



Note: M = Man; W = Woman; + = positive valence, - = negative valence;

Undoubtedly, accentuation is of functional value and economizes our decision processes. Going beyond the basic process of accentuation, the process of *polarization* means domain specific distancing and labeling, i.e., content assignment. As, for example, the previously mentioned stereotype that women are more *expressive or communal* (*trying to achieve maximum results for the own community*), whereas men are more *instrumental or agentic* (*trying to achieve maximum results for oneself*, cf. Bakan, 1966; Eagly & Karau, 2002). Communal and expressive traits (e.g., friendly, empathic, supportive, sensitive, emotional) are more functional in the domestic domain, agentic and instrumental traits (e.g., assertive, self-confident, dominant, strong, likes to take risks) are more functional in the working world and in warfare. A *hierarchization* in these two domains favors women in the domestic and men in the working world, following a "better fit" idea. Value labels are put to certain masculine or feminine traits and differential expectations are associated with these gender stereotypes. Skill and ability are now expected from both genders in their "fit-domain" and deficit or effort-based achievement in the other domain. From what has been described so far, it becomes increasingly obvious what barriers and possibilities women who go into the professional domain may meet, facing an often still prevailing attitude of *female-deficit-in-the-working-world* belief. Much more research needs to be done about men going into the domestic world. How is the support of their own gender group and of the other gender group? Which reinforcement and barriers do they meet? etc.

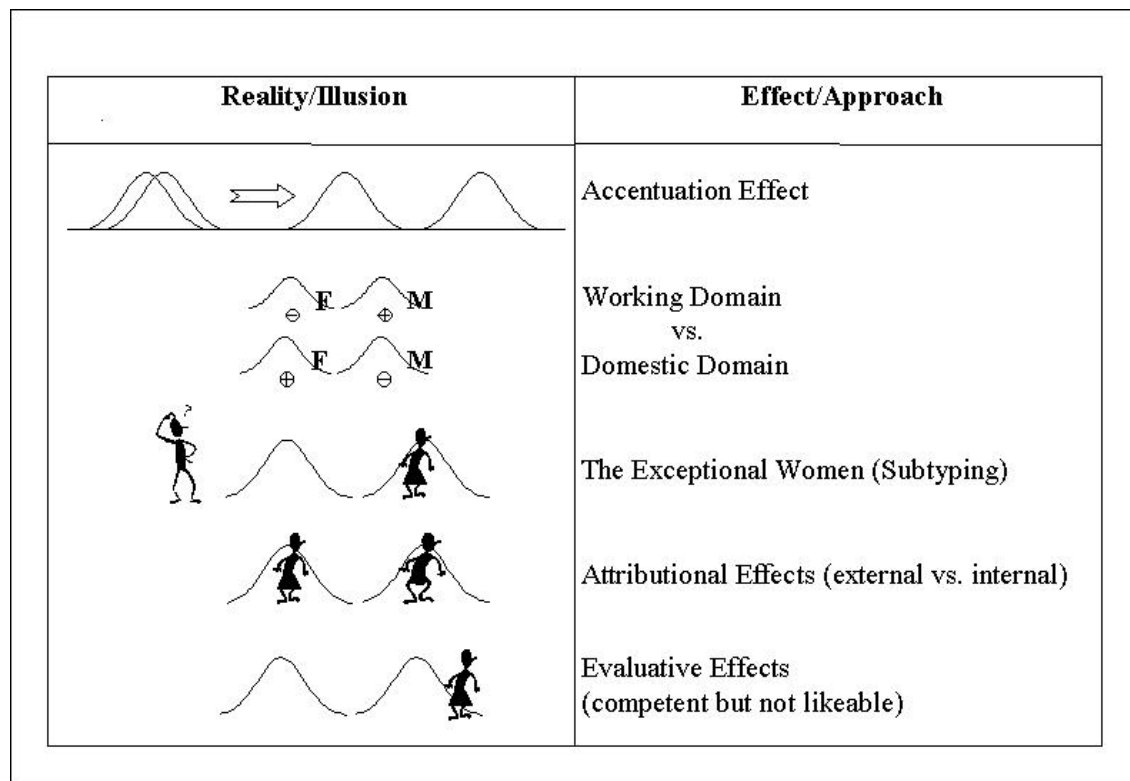
Gender paradigms have changed over the last fifty years (cf. Deaux, 1998; Gottburgsen, 2000) from the *deficit approach*, viewing women in comparison to men as "the second gender" (cf. DeBeauvoir, 1949) defined by the lack of certain qualities, to the *difference approach*, emphasizing gender differences, but no longer implying value statements (e.g., Gilligan, 1982), to the *constructionist approach* viewing differences as a phenomenon mainly created by the observer (e.g., Deaux, 1998; Gottburgsen, 2000). Historically, the *deficit approach* in gender research has a long tradition in science. In the 19th and at the beginning of the 20th century anthropologists argued, for example, that because of their smaller skull sizes, women are less intelligent than men ("phrenology"). The deficit approach was the first approach to look at gender differences "scientifically". This took place in times when only men had access to university careers. Some *feminist approaches* can be viewed as a counter-movement to this mainstream scientific thinking that still prevailed until the 60s of the 20th century. Yet, until today the tendency to do research on women alone is frequently a remainder of this "women as the exception to the male norm"-thinking. In any case, the discussion was replaced by the more rational *differences approach*, aiming to acknowledge the differences without putting value labels to them. However, this approach still was based on two separate distributions, overemphasizing differences, and not sufficiently accounting for similarities. The *constructionist approach* then acknowledged similarities, emphasizing constructive perceptual processes. The radical version even assumes that there may not be any dichotomizable differences at all, but that they may exist exclusively in the mind of the observer⁵. The moderate version assumes that there may be the major sex differences that we find in cognitive psychology and neuroscience, that there is, however, a strong constructive accentuation effect, which we can observe in experimental settings.

In the working domain we find a polarization and hierarchization favoring men, in the domestic domain we find a polarization and hierarchization favoring women. If an exception occurs with an opposite gender-person excelling in the other domain, it can most easily be explained by *Subtyping*: he is the exceptional man who stays home and manages his family, or she is the exceptional woman who has her career as a university professor and manages all clerical, educational and research tasks. They are no longer typical exemplars of their categories. A subcategory is opened for them and thus prevents conceptual cognitive conflicts (see Figure 4). In an interview study, we found that while describing men and women in the

⁵ Of course, historical developments have been much more complex than it is explained in this brief overview; for thorough historical perspectives see, e.g., Christina von Braun (2000) or Lorraine Daston (1992).

working world interviewees frequently opened the categories "the successful woman" or "women in leadership positions" for professional women, while there was no need for participants to open such extra-categories when describing professional men (cf. Koch, Kruse, Schey, & Thimm, 1999).

Figure 4: Gender stereotyping processes: explaining rules and exceptions



Success in counter-stereotypical domains will often cause differential attributions for men and women. The successful woman in a masculine domain will rather be subject to *external attribution*, emphasizing effort, luck or the goodwill of powerful others as causes for her raise on the career ladder, whereas a man in the same position will more likely be subject to *internal attributions*, emphasizing ability, skill and personal achievement (see Figure 4). When the professional woman is clearly higher in ability and skill (leaving no way around internal attribution of causes) and, therefore, overtakes part of her male colleagues on the career ladder there will be increasing ambivalence toward her (cf. Heilman, 2001). To the degree that she displays agentic qualities, her competence attributions will be high, but her likeability attributions will decrease and devaluation will take place (see Figure 4).

This usually does not happen to men in the same situation and provides clear evidence for gender-based double standards and double binds in the working world (cf. Foschi, 1992, 2000; furthermore Biernat, 1995; Carli & Eagly, 1999; Foddy & Smithson, 1999; Haslett,

Geis, & Carter, 1996). Of course, we all know exceptions to these basic patterns: But, where there is an exception there is a norm and a norm-based expectation. For more about double standards and double binds as well as possible solutions to such differential expectancies and treatment, see Eagly and Karau (2002), Foschi (1992), Heilman (2001), Haslett, Geis and Carter (1996) or Rudman and Glick (2001). A gender definition resulting from a social stereotypes or a schema perspective would be:

Gender is a social category that helps us structure our social environment in perception and action. Furthermore, it is a schema, a bundle of expectations and information linked to affect. It is socially acquired and enacted and it underlies certain perceptual biases and contextual influences.

I would like to explicitly distinguish this definition from Sandra Bem's androgyny and gender-schema approach (1974, 1981). To Bem, gender is more identity and trait-related (psychological gender), and her definition has become "common ground" in the social sciences. However, in current gender research, it is viewed as outdated because it perpetuates the sex differences approach in a rather rigid way (see Chapter 1.4).

Gender is a psychological construct consisting of a bundle of identity-related masculine and feminine traits as part of the self. It is not necessarily related to biological sex.

I am not using the term *gender* in the "psychological differences" sense in which Sandra Bem uses it. Whenever I refer to those differences in traits I call them gender-stereotypic traits or masculine/feminine traits. When I refer to her distinction in masculine, feminine, androgynous and undifferentiated type, I call them gender-typicality or gender-types.

Two more specific recent models of gender stereotypes come from Glick and Fiske (1996) and Heilman (1983, 2001). Building upon traditional ideas about prejudice toward women, Glick and Fiske (1996) developed their *theory of ambivalent sexism* that explains both positivity and negativity bias toward women. They maintain that prejudice toward women encompasses approval of women in traditional roles, labeled *benevolent sexism*, and hostility toward women in non-traditional roles, labeled *hostile sexism*. Thus, women occupying incongruent or non-traditional roles receive relatively more negative reactions, whereas women occupying congruent or traditional roles receive more positive reactions. Glick and Fiske consider both types of reactions as sexist. Their theory highlights the prescriptive aspect of gender stereotypes (cf. Eagly & Karau, 2002).

In her *lack-of-fit model* of bias in work settings, Heilman (1983) proposed that, to the extent a workplace role is inconsistent with the attributes ascribed to individuals, they would suffer from perceived lack of fit to the workplace role, causing decreased performance expectations, increased expectation of failure, and decreased expectations of success. These effects would negatively influence self-evaluation and evaluation by others. Furthermore, Heilman argued that gender stereotypes would affect the perception of individuals' attributes and produce lack of fit with workplace roles that are perceived to require attributes stereotypic of the other sex. Heilman's theory emphasizes the descriptive content of gender roles (cf. Eagly & Karau, 2002). In a recent publication (Heilman, 2001), she added a recognition of the importance of the prescriptive content of gender stereotypes.

1.2.3 Communication research

Why have we chosen a communication approach to gender construction? The central role of communication and everyday interaction for constructive processes of "doing gender" or perceiving gender is emphasized by all other approaches presented here. Yet, there has been little research on gender-related communicative processes in organizations. It has taken organizational and social psychology a long time to develop a field of *gender in organization* (GIO; Powell, 1999; Stokes, Riger, & Sullivan, 1995; for first fruitful accounts in Germany see Friedel-Howe, 1990 a, b; Domsch and Regnet, 1990; and Mohr, 2002). Still there is a general theoretical vacuum in the area of verbal and nonverbal gender communication in organizations leading us to the conclusion that it is time for a "gender in organizational communication" approach.

Presently, there is a focus back to the active role of the recipient in social psychological communication research (Bavelas & Chovil, 2000; Bavelas, Coats, & Johnson, 2000). Communication is ambiguous and redundant (Hörmann, 1978), two characteristics that will be important in our Brunswikian approach. Other central features of communication and their special importance are described by Burgoon (1994; in Knapp & Miller, 1994):

(a) Communication is *context dependent* (focus on context): dependent on the persons involved and the situation there will be different self-presentational concerns, norms for appropriate behavior and demands of managing the conversation.

(b) Communication is *dynamic* (focus on dynamics): in comparison to static factors (e.g., physical attractiveness) motion and exchange between dynamic systems become prevalent. As an example, attractiveness estimations from static to dynamic material may change completely due to attitude, movement characteristics or sense of humor of the target person

(Burgoon, 1994). Situations become physical, the body, all senses are engaged. Touch, smell, audition and kinesthetic criteria gain importance. Temporal features need to be considered methodologically (McGrath, 1991; Watt & Van Lear, 1996; Werner & Baxter, 1994), e.g., in longitudinal designs, the collection of continuous data, and the application of time-series or spectral analysis (cf. Cappella, 1996; Gilden, 2001).

(c) Communication is *relational* (focus on relationship): it has implications not only for the individual, but for the interdependence between individuals. Sender and recipient factors are systematically linked and need to be assessed as such (e.g., with pattern analysis, Magnusson, 2000). Instead of the individual, dyads or groups will often become the unit of analysis. A shift will take place from individual level variables, e.g., personality, to relationship variables such as power, liking, attraction, gender composition. Cognitions and expectancies become powerful co-actors in the process. The prospect of future and the memory of past interactions will influence the persons' behavior.

(d) Communication is *behavioral* (focus on behavior): there is a shift of focus away from mere perception (Ingenhoff, 1998; Wallbott, 1990). Verbal and nonverbal interactions are active skills. Numerous scales measure communicative competences on self-report measures, less frequently we also find scales for (important) others. The method of choice, however, in the assessment of communication is observation of behavior.

Gender is a dynamic and context-dependent phenomenon, acquired, performed and perceived in processes of social communication and interaction.

1.2.3.1 Language and socio-linguistic approaches

Sociolinguist research has long been assessing male and female speech characteristics (*Lakoff, 1973, 1975; Holmes, 1992, 1998; Tannen, 1993; more psychologically oriented: Carli, 1990; Crawford, 1995; Unger, 1978; German literature: Baron & Kotthoff, 2001; Gottburgsen, 2000; Pasero & Braun, 1995, 1999; language psychology: Kruse & Thimm, 1994; Thimm & Kruse, 1993*), and has developed a number of labels under the differences approach (Lakoff, 1973, 1975), such as "genderlect" and "female register". Under these labels differences in gendered speech have been described, such as the "powerless female style", characterized e.g., by the more frequent use of softeners, hedges and intensifiers by women. Yet, the broader the database of gender-related speech data has grown, the smaller the discovered gender-related differences have got. Nowadays, many linguists work within a gender construction paradigm, emphasizing the perceived rather than the factual gender differences and

describing the circumstances under which perceptual bias occurs (e.g., Pasero & Braun, 1995, 1999). Thus, there is a traditional and a more recent definition.

Gender is a socially acquired characteristic (traditional view) / a bundle of socially acquired behaviors and perceptions (recent view), being enacted and perceived in verbal communication in everyday interaction.

Baron and Kotthoff (2001) come from a gender concept of stability and change that has been formed in life-long socialization processes in diverse communities of practice (Eckert & McConnell-Ginet, 1998). For them, "*gender is based on typification as a social process, not just personally performed, but recognizably performed in order to match intersubjective typification*" (Baron & Kotthoff, 2001, p. XI). "Doing gender" is related to power processes in society (cf. Kotthoff, 1991; Kotthoff & Günthner, 1992).

The differences approach in socio-linguistics has been mainly substituted by the similarities-oriented constructionist approach. However, in popular socio-linguistic writings, there is still more use of the sex differences approach accentuating and polarizing gender differences in communication beyond scientific evidence (cf. Trömel-Plötz, 1996; Tannen, 1990, 1995; but see Tannen, 1993, and Kendall & Tannen, 1996). New scientific approaches at the interface of a social identity and language perspective (Giora, 2001) are, for example, based on Giles (1984) and Tajfel and Turner (1979).

1.2.3.2 Nonverbal communication approaches

During the 1970s and 80s there has been much research on gender related differences in nonverbal communication (Hall, 1984; Henley, 1977; Henley & Mayo, 1981; but also Birdwhistell, 1972; Mehrabian, 1971; Schefflen, 1976; Scherer & Wallbott, 1979). In extensive meta-analytic studies, Hall (1984) found that women are generally better at en- and decoding nonverbal messages than men – a small but consistent effect. Dovidio, Ellyson, Keating, Heltman, and Brown (1988) found that men display more visual dominance than women. Further evidence showed that women smile more, are approached more closely, give way to others more frequently and take up less space than men. They generally talk less, listen more and are interrupted more often than men. They give and receive more touch than men. They accommodate more to the interaction pattern of their partner, whereas men accommodate less (Burgoon, 1994; Giles & Street, 1994; Noller & Fitzpatrick, 1988). However, the differences approach has often neglected the context, which is now being increasingly investigated (Burgoon, 1994; DePaulo, 1992; DePaulo & Friedman, 1998; Grammer, Honda,

Juette, & Schmitt, 1999; Krämer, 2001; LaFrance & Henley, 1994; Ridgeway, Berger, & Smith, 1985). In this research, I will use a social-constructionist and contextual approach to nonverbal communication of gender (see also Biemans, 1999; Strand, 1999).

Gender is a socially acquired characteristic (traditional view) / a bundle of socially acquired behaviors and perceptions (recent view), being performed and perceived in nonverbal communication in everyday interaction.

Much of nonverbal communication lies on the automatic side of cognitive processing. Processes of learning the cultural meanings of nonverbal signal systems date back to the beginnings of our ontological histories, long before language acquisition. The according procedural knowledge has been learned without our conscious notice, or we have forgotten that it has been learned, and is now employed implicitly without our conscious knowledge. Wittgenstein (1922/1986), in his *Tractatus Logico-Philosophicus*, describes these implicit learning processes with a vivid metaphor: after we have climbed a step we drop the ladder and then forget how we even got there.

1.2.4 Social role and norm-oriented approaches

The two approaches described below are some of the clearest formulations in gender research. Based on just a few theoretical assumptions they are very economic and from there allow to make clear predictions for empirical studies. Therefore, we also use them in our project. However, they each encompass just a limited area of validity: *Leadership in social role theory* (SRT) or *role congruity theory* (RCT) respectively, and *task-oriented discussions in expectation states theory* (EST) or *status characteristics theory* (SCT) respectively.

1.2.4.1 Expectation states theory (EST) or status characteristics theory (SCT)

An important aspect of leadership is the perception of performance and competence. There is substantial evidence and agreement in the research literature that men are generally perceived as more competent than women (Biernat & Fuegen, 2001; Eagly & Karau, 2002; Heilman, 2001; Ridgeway, 2001). *Expectation states theory* or *status characteristics theory* (Berger, Connor, & Fisek, 1974; Berger, Fisek, Norman, & Zeldich, 1977; Berger, Webster, Ridgeway, & Rosenholtz, 1986; Ridgeway & Berger, 1986; Ridgeway, Berger, & Smith, 1985) assume that gender functions as a diffuse status cue and that men will be perceived as more competent in situations of uncertainty or under the absence of other diagnostic cues,

particularly in the context of a masculine or a gender-neutral task (cf. Ridgeway, 2001; Ridgeway & Diekema, 1992). Women will be perceived as more competent in the context of a feminine task only. According to Ridgeway (1997, p. 231), gender always provides an "*implicit, background identity*" in the workplace (cf. Eagly & Karau, 2002).

Gender is a status characteristic and implies the expectation of a social status role. It is norm-oriented and functions as a diffuse status cue ascribing higher performance expectation and more competence to men when the situation is underdetermined and the task masculine or neutral.

1.2.4.2 Role congruity theory (RCT) and social role theory (SRT)

Social role theory (Eagly, 1987) makes the assumption that we constantly observe men and women in typical social and professional roles. This creates an expectation about the distribution of men and women into those roles and corresponding traits to be found in women and men. From there, the typical processes of perceptual and behavioral confirmation and self-fulfilling prophecies operate.

Role congruity theory of prejudice toward female leaders (Eagly & Karau, 2002) is an expanded formulation of *social role theory* (Eagly, 1987):

"Role congruity theory of prejudice toward female leaders proposes that perceived incongruity between the female gender role and leadership roles leads to two forms of prejudice toward female leaders: (a) perceiving women less favorably than men as potential occupants of leadership roles and (b) evaluating behavior that fulfills the prescriptions of a leader role less favorably when it is enacted by a woman compared with a man. One consequence of these two forms of prejudice is that attitudes are less positive toward female than male leaders and potential leaders. Other consequences are that it is more difficult for women to become leaders and to achieve success in leadership roles, especially in situations that heighten perceptions of incongruity between the female gender role and leadership roles" (Eagly & Karau, 2002, p. 573).

The theory joins and systematizes social cognitive research on stereotyping and prejudice, and organization research on management and leadership. It accounts for a wide range of moderating conditions in terms of common underlying mechanisms of gender stereotypes.

Gender is a social role and a social role expectation observed, experienced and enacted in everyday life. It has a descriptive and a prescriptive aspect. There are typical biases and paradoxes when it comes to female leadership.

1.2.5 Evolutionary approaches

Quite contrary to the social and sociological approaches to gender research, evolutionary approaches emphasize the biologically givens and the genetically determined of our behavioral dispositions (Bischoff-Köhler, 2002; Browne, 1998; Buss, 1995; Buss & Kendrick, 1998). In fact, there is an ongoing argument between sociologically-oriented psychologists and evolutionary psychologists that, by example, can be followed in the 1995 issue of the *American psychologist* (Buss, 1995; Eagly, 1995; Eagly & Wood, 1999). Evolutionary psychologists argue in the following way:

Behavioral dispositions develop as a product of evolution. The ultimate goal of evolution is reproduction. Successful reproduction has time and energy expenses and bears risks (→ parental costs). There is a gender asymmetry in parental costs in virtually all mammals: because the female hosts the ova, she has to invest more time, while the male can continue to reproduce. These two reproduction strategies have selectively brought forth different behavioral dispositions in males and females. There is an evolutionary advantage for males who manage to find as many reproduction partners as they can. Quality of the partner is secondary. For the female there is an evolutionary advantage of being a good caretaker and of paying attention to the quality of the partner. Thus the female remains with the children and the responsibility, while the male re-enters into competition for the next female. Males have to compete, whereas females have the luxury to select an appropriate male. This furthers differential dispositions: males will learn not to give up easily after failure, they form groups in which they rehearse fights and built rank orders, whereas females usually do not do this (but see Schmid-Mast, 2001, 2002, for recent articles on feminine dominance hierarchies).

In humans, monogamy is a relatively late cultural development; even today of all known cultures only 20% are monogamous (Daly & Wilson, 1983, cited after Bischoff-Köhler, 2002). Labor division into hunters and gatherers has supported the additional development of differential traits between genders. For hunting, traits such as risk-taking and other agentic skills, patience, but also cooperative skills were advantageous. For gathering, caution, responsibility and communal traits were more important. Public and domestic domains were increasingly gender-differentiated. Today, women have the opportunities to enter into the public sphere ever since technology has taken over major parts of the domestic tasks. Competition between men and women was not something that evolution had a plan for. According to evolutionary gender researchers, this is a major reason why today's problems between men and women in the working world exist in the form they exist.

Gender is (biological) sex, and a major part of what we do and are is genetically determined.

Evolutionary approaches have the general problem that their claimed causal explanations can neither be verified nor falsified and will thus always be scientifically problematic. Despite this fact, however, they have always been influential and are regaining influence lately.

1.2.6 Developmental approaches

Developmental approaches come from the stance that socialization is the origin of gender differences (Maccoby, 1998; Maccoby & Jacklin, 1974; Maltz & Borker, 1982; but also Eckes & Trautner, 2000; Gilligan, 1982). They thus explicitly emphasize the learned aspects of gendered behavior. Developmental approaches usually operate from a sex differences approach, assuming that men and women belong to two equally valid, but different socialization cultures (Maltz & Borker, 1982; Maccoby, 1998). Maccoby (1998) describes how boys and girls grow up in two different worlds, with different values, friendships and relationships. Gender as a social construction is entering into developmental approaches as well. However, Maccoby (1998) argues that ascribed and adopted gender identity is identical with the biological sex in the vast majority of the cases, and that she thus focuses on the development of gender identity in persons that undoubtedly belong to one sex group. A major part of the social gender role behavior depends on the group context.

Gender is a socially learned accumulation of cognitions and behaviors, with many important implications for the individual and social development of a person throughout the lifespan.

In addition, Gilligan (1982) focuses on gender differences in moral development. Her influential theory shifted the focus from the traditional, principle-guided "masculine" theory of moral development (Kohlberg, 1966) to a more relational oriented "feminine" moral of social justice. Lately, however, her theory has been criticized for being too culturally biased (see Goodwin, 1990; Thorne, 1993).

I am not further addressing *psychoanalytic approaches* here as they usually remain on the individual level (cf. Chodorow, 1978, 1990; see also Chasseguet-Smirgel, 1974; Kestenberg, 1988; Wolf, 2002). Following Sturmfels (2002), many of these approaches currently use a constructionist framework as a meta-theory, too. Main assumptions are that gender is not only influenced by conscious behavioral and attitudinal processes but also by unconscious

processes. During the life-span gender is continuously constructed and repeatedly produced (Sturmfels, 2002).

1.2.7 Resulting definition

I put together a resulting working definition of the terms *gender* and *sex* that I am employing in this research, trying to make more explicit what was implicitly used before:

Gender is the male-female distinction on the *behavioral level* - following tertiary sexual characteristics - and on the *social level* - following stereotypes and socialization experiences in diverse communities of practice. Sex is the male-female distinction on the *phenomenological level* - following evidence from secondary sexual characteristics - and on the *functional level* - following evidence from primary sexual characteristics. Both, sex and gender are socially constructed and culturally conceptualized as dichotomous categories. Membership in one gender category is assigned on the basis of apparent sex characteristics at birth and established in a subsequent complex socialization process in one's gender group.

This use of the term gender needs to be distinguished from the individual psychological gender definition referring to internal self-related schemata constituting parts of our identities and from S. Bem's typology of psychological gender vs. biological sex (gender as a *psychological category*; manifested in a prevalent bundle of identity-related stereotypic traits measured in self-ratings). Gender in Bem's sense is not related to gender in the sense that I use it. Bem's definition has greatly influenced social scientists' awareness, but it is outdated in the view of current gender researchers (see Chapter 1.4).

Both sex and gender differences are socially constructed, assuming dichotomy where the actual *phenomena have much more variation*. Phenomenological aspects in fact provide no clear cut criteria for a dichotomization into necessarily exactly two gender types. Nevertheless, researching communication differences, we do not have another option but dichotomize, because our language (with its limited communicability of concepts) does not allow for anything else but dichotomization in the gender realm. Nevertheless, by using the term *gender* in the majority of the cases I would like to remind myself and the reader that this dichotomization results from our need for simplification and is only one possibility out of many *culturally diverse* options (cf. Thomas, Jacob, & Lang, 1997).

This definition integrates constructionist with other more central social psychological perspectives. Yet, there is a missing link between programmatic formulations and pragmatic

research approaches: a gap in the practical application and operationalization of concepts. To fill this gap that consists mainly of a methodological vacuum, I suggest an application of Brunswik's lens model to a communication perspective⁶.

Methodologically, recent constructionist and social psychological research tries to link the performance and perception aspect of gender either by directly relating predictor and criterion (Swim, 1994) or by investigating important mediating cues, that are observable (Pasero & Braun, 1999). However, so far they have not been doing this under a unified approach. This approach can be provided by the lens-model approach to gender communication.

1.3 A lens-model approach to gender communication

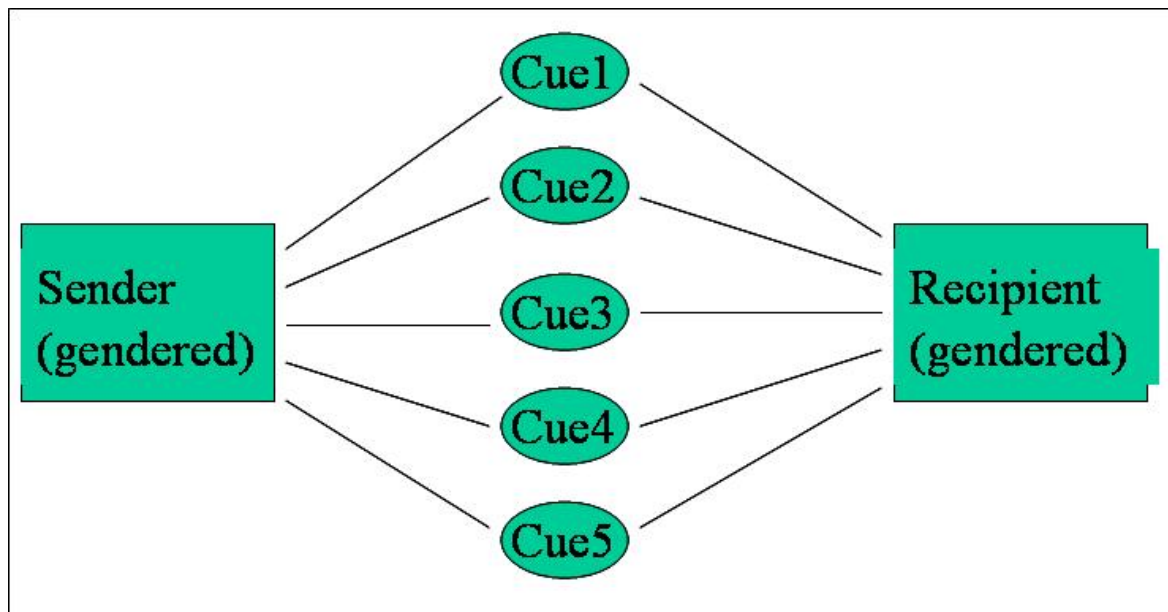
1.3.1 Brunswik's lens model

In 1956, Egon Brunswik showed that even in the most basic perceptual processes we cannot assume that what we perceive (our percept) is a mere reflection of "objective" reality. Constructive processes of the recipient are the rule rather than the exception. In his original experiment Brunswik (1940) demonstrated that even the perception of size constancy is subject to change influenced by complex cognitive processes rather than to be understood as a trivial perceptual one-to-one reflection (for a replication see Kurz & Hertwig, 2001). In his model, Brunswik talks about the *distal cue*, the object of our perception, and the *proximal cues*, the actual behavioral indicators we have and use to a greater or lesser degree in order to make inferences about the object (see Figure 5). On the ecological side of the model (left side), the proximal cues are more or less valid indicators of the distal cue, expressed in correlation coefficients. He calls this relationship the *ecological validity*. It can be measured in objective terms. On the organismic side of the model, we have the observer trying to make a judgment, using certain proximal cues to a different degree in order to make inferences (cue utilization). The relationship, which Brunswik termed *organismic validity*, again is determined by correlation coefficients. The perceiver only uses a part of the array of cues provided by the environment and, in addition, gives them differential weight. But when is a judgment sufficiently reliable? In Brunswik's definition we can talk about a well-adjusted organism if

⁶ To the same end, Helga Kelle (2001) suggested to combine constructivist „doing gender“ approaches with Goffman's „frame analysis“ - another possibility to conduct investigations about gender construction methodologically effectively and successfully on a more concrete level.

the rank order of cue utilization is the same as the order of the cues' ecological validity. This is sufficient because intuitive perception remains *uncertainty-gearred*, as he calls it. As the perceptual process forces us to select part of the information from the overwhelming amount of possible - partially redundant - information in the environment, we must depend on relatively superficial and stereotyped cues of limited ecological validity for making our inferences in the perceptual process. Thus, each perception implies a judgment. Each observer has her blind spots.

Figure 5: A lens-model inspired gender communication model (cf. Brunswik, 1956; Wallbott, 1990)



Note: Ecological side: sender's encoding; organismic side: recipient's decoding; middle: observable verbal and nonverbal communication cues; lines: cue use with different strength of correlations

Thus, the model implies that *seeing* an object does not result in a direct perception of it, but rather results in the perception of a series of more or less valid proximal cues, which will be integrated or used in a more or less valid way by the observer in an inferential process resulting in a judgment (Brunswik, 1956; Wallbott, 1990).

As early as 1958, Heider proposed Brunswik's model as the basic scheme for interpersonal perception, linking the perceptual object, the percept and the person perceiving. Yet, it took a long time for the model to enter into psychological theory building and empirical practice. In Germany – Brunswik's country of origin – it took at least 20 more years, before the model was seriously accepted (see Beal, Gillis, & Steward, 1978; Kruse, 1978; Scherer & Scherer, 1979). It was not before 2001 that a comprehensive book was internationally published (Hammond & Steward, 2001), covering a collection of Brunswik's most important papers

together with comments of scholars and diverse examples of the application of Brunswick's ideas to modern psychology.

1.3.2 Applying the lens-model to communication research

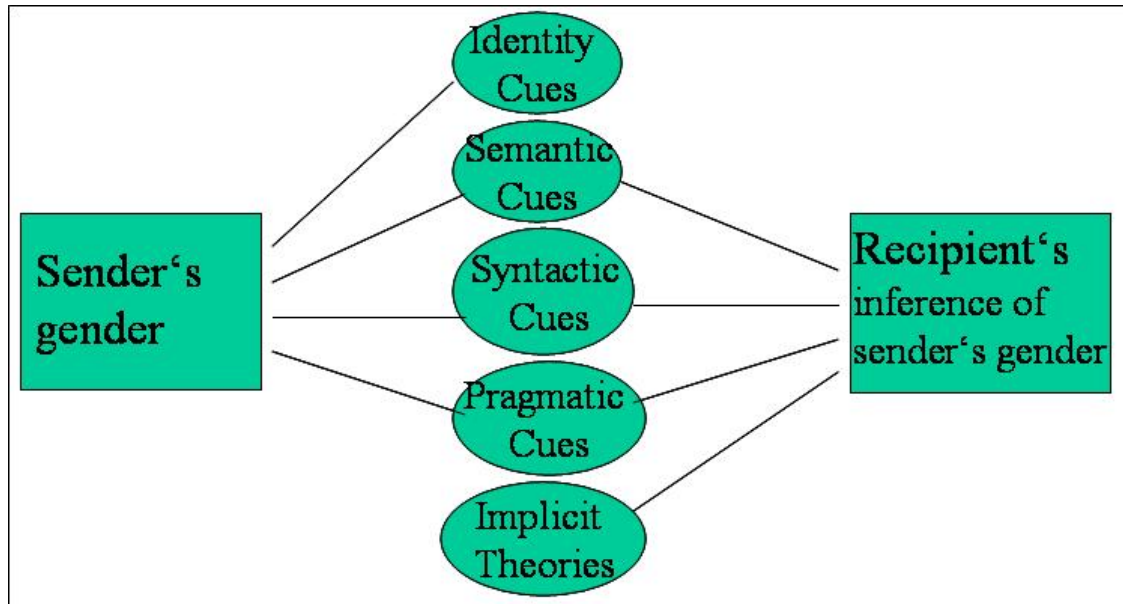
Harald Wallbott (1990) then extended the lens-model approach to a general approach to person perception, including the context as an important mediating variable. I am using his input to adapt the lens-model to gender communication processes. The processes of "doing gender" and "viewing gender" can be described in terms of the lens-model approach. In the case of our first study, gender is the distal cue and can be inferred from a number of proximal cues, i.e., verbal cues. In our second study, gender is a proximal cue or a cue filter for the nonverbal cues. These cues are valid to a certain degree, observably communicated by a sender ("doing gender"), and on the other side they are used to a certain degree by an observer ("viewing gender"; see Figure 6 for a model for the use of verbal cues in inferring gender). The "doing gender" side can also be termed the expression side or the encoding side, whereas the "viewing gender" side can be called the impression side or the decoding side of the model. The ecological side of the model becomes more subjective in a communication approach than in the original model, as we cannot measure the relationship between the proximal cues and gender entirely objectively. Furthermore, in most cases, we are dependent on the judgment of more or less well trained observers or on meta-analytic results, provided there are any meta-analysis for the concepts under question (cf. Swim, 1994, "*assessing the accuracy of gender stereotypes stems from the difficulty of accurately assessing the size of actual gender differences*", p. 23). Yet, in recent years, there have been many hints to verbal and nonverbal gender cues that *are* indeed objectively measurable, e.g., by Grammer, Fidova, and Fieder, 1997 (motion analysis), by Keki, 2000 (gait analysis), by Mulac, 1998, 1999 (gender-linked-language effect), by Strand, 1999 or Biemans, 1999 (vocal and auditory analysis), and that can, in fact, be used for the prediction of gender from communicative behavior. Still the question remains whether we tend to over- or underestimate height of correlations and effect sizes. Swim (1994) assessed the accuracy of peoples' stereotypes about gender differences. Contrary to previous assertions about peoples' gender stereotypes findings indicate that people do not uniformly overestimate gender differences. Instead there was a high inter-correlation of people's estimates and the meta-analytic findings ($r = .79$). Swim's results suggested that subjects are more likely to be accurate or to underestimate gender differences than overestimate them, and that perceptions of the size of gender differences are correlated with meta-analytic effect sizes. Furthermore, degree of accuracy is influenced by biases

favoring women, in-group favoritism, and the method used to measure perceptions. Methodologically, Swim related the predictor directly to the criterion, e.g., in her second study she had participants directly estimate the size of the effects and then correlated them with the meta-analytic findings. In effect, her idea is similar to the lens-model approach, yet she does not make use of specific cues and cue analysis. In any case, her contributions regarding the *selection of criteria* (for determining the factual height of correlations of proximal cues with the distal concept) in order to assess estimation accuracy are crucial. Pointing out how difficult it is to select appropriate criteria for the comparison with perceptions, Swim used meta-analytical data, e.g., of nonverbal gender differences from Hall (1984) or of the emergence of leaders from Eagly and Karau (1991) as criteria. For sensitivity correlations, i.e., the correlations between subjects' perception and the accuracy criterion she used Judd and Park's (1993) method. Furthermore, Swim emphasized that the motivation to be accurate is crucial for the actual accuracy of the judgment (compare Fiske & Neuberg, 1990).

A further look into the research literature reveals that the criterion for assessing the rank order on the ecological side needs not rely exclusively on the objectively measurable, but can also stem from systematic, analytic behavior observation (cf. Bernieri & Gillis, 2001; Scherer & Scherer, 1979) and can thus rely on an inter-subjectively reliable agreement.

Scherer and Scherer (1979), one of the first research teams that employed Brunswik's model in empirical research, mentioned the possibility of using computer-based analysis of the basic voice pitch, next to the coding of hand gestures with a coding scheme. Bernieri and Gillis (2001) trained their raters to use a 17 category rapport coding scheme from which they took the ecological correlations. In this approach, I work with rank orders of cue use only. As Brunswik emphasized, differences in rank order between the organismic and the ecological system are of particular interest, because they indicate a good or a poor adjustment of the organism to the ecological evidences in the environment: *"In a perceptually well-adjusted organism or species, however, the rank-order of utilization [...] should be the same as the order of their ecological validity"* (Brunswik, 1956, p.50).

Figure 6: Example for the use of verbal cues in the communication of gender (Experiment 1). From a lens-model perspective the sender's gender is the distal cue with differing degrees of correlation with the proximal cues (ecological validity) and differing cues used by the recipient (organismic validity). Judgment accuracy is a function of the entire process.



Note: "Identity cues" stands for a series of other cues by which the sender usually communicates gender, e.g. hair style, clothing, gait, gestures, mannerisms. In the case of chat communication it would be rather other verbal idiosyncrasies. Implicit theories are cognitions and beliefs of the sender, e.g., about general correlations among traits or behaviors of individuals.

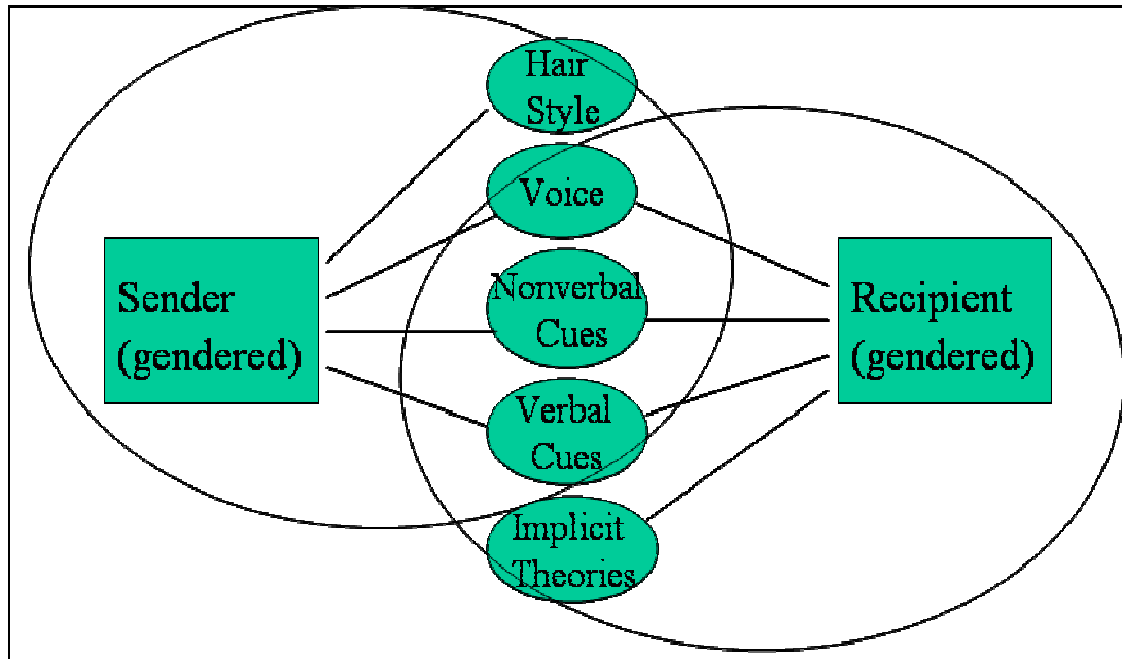
1.3.3 The role of context

Contextual implications need to be considered threefold, for there will be different context perceptions of the recipient (observer), the target (actor) and a common context of both agents within the lens-model approach. Dependent on the context and their previous experiences with similar situations, there will be a higher or lower degree of gender salience for the individuals involved, influencing their awareness of the "genderedness" of the situation and their behavior.

Epstein (1988) pointed out the relevance of situational influences stating that many of our everyday and scientific misinterpretations result from the underestimation of contextual influences (fundamental attribution error, Ross, 1977). Gender is highly context dependent, playing either a prevalent role or none at all. For example, Moskowicz, Suh, and Desaulnier (1994) showed that their participants' dominant or submissive behavior was not due to their gender but rather to the social roles they fulfilled. They were dominant in supervisor roles and

submissive in supervisee roles. As Haslett, Geis and Carter (1996) note: "*The personality traits traditionally labeled as masculine and feminine may simply be the result of high-versus low status role demands*" (p.47).

Figure 7: Influence of context on gender-salience: context of sender, recipient and overall context.



Wallbott (1990) distinguishes static and dynamic context. Cues can occur simultaneously and sequentially. This distinction dates back to Kant who had already noted that every epistemological insight is related to the forms of the objects in time and space: in time-related one-after-another (here: dynamic context; quality) and spacial next-to-one-another (here: static context; form). So far, I have emphasized the importance of context, but not yet defined what I understand by it. Context means all factors that are relevant in a given setting, and includes actor(s), target(s) and situation. Space-time conditions, given task, leadership style, group-type and gender composition of a group can all function as contextual factors. Situation on the other hand does not include actor and target or distal concept involved, it is the total of all environmental factors that can function as proximal cues. There is a more objective and a more subjective understanding of situation. Situation is a rather subjective cognitive phenomenon, if we follow the definition from Lewin's field theory (1951). Situation in Lewin's understanding is a *meaningful part of the life-space* (Lewin, 1951) and thus always the situation of the person that is in it (the person's definition and an outside observer's definition of the situation will be discrepant, not necessarily corresponding). Therefore, there is no objective, general and - from the sum of all data - computable situation or context. The

ecological "objective" interpretation of situation, which describes the environmental givens without taking into account the subjective representations, will be referred to here as "setting". The distinction between the "objective" and the "subjective situation" is useful because it can be directly related to the lens-model's ecological and organismic sides.

1.3.4 Limitations of the lens-model

Generally, Brunswik's model is very broadly applicable in the social sciences (Hammond & Steward, 2001), yet, there are also a number of theoretical, methodological and practical limitations that need to be considered when working with it (cf. Bernieri & Gillis, 2001):

- (a) Because the model is linear, difficulties in interpretation of multivariate cases can occur as the cues become more inter-correlated.
- (b) More fundamentally, the model does not solve the problem of criterion definition or cue operationalization. It is at the discretion of the researcher how the interpersonal constructs of interest and the perceiver's personality should be defined (this part will remain subject to interpretation and criticism). Thus, Brunswik does not solve the philosophical problem of the definition of concepts such as competence, emotionality, or consciousness. He "merely" provides the tools to connect psychological construct and social judgment.
- (c) In Brunswik's approach it remains unclear how any given social event should be defined and sampled (cf. Bernieri & Gillis, 2001). Yet, as stated above, we can overcome this by using the thin slices-method, on which there is much current ongoing research (for an overview, see Ambady, LaPlante, & Johnson, 2001).
- (d) There is another more fundamental dilemma: Distinguishing "real" (produced) gender differences from "perceived" ones, we still do not know how much of the produced gender differences are due to partner-hypotheses that sender's hold about the expectations of recipients in the particular interaction situation. Their particular actions of "doing gender" could very well depend on the particular recipient and their relationship with them. They could be behavior confirmations of perceived expectancies that might not necessarily be real ones but reactions to the particular interactional situation or recipient. Thus, being spontaneous adaptive reactions, for example, Sue knows that her boss likes stereotypic feminine women; in a situation, where she wants something important from him she presents herself pronouncedly feminine (consciously or unconsciously), using pronounced feminine voice pitch, tag-questions and softeners, smiles, head-tilts, self-touch and feminine gaze patterns, which she usually does not use in her behavioral repertoire toward either men or women. Those actions of "doing gender" could on the other hand also be a more general compliance to

a social role thought to be appropriate in this particular situation by the sender. So we can never be sure how much of the "doing gender" side is (a) a confirmation of societal expectancies and a complying to social roles (and, therefore, a result of socialization processes, i.e., an ontogenetic adaptation reaction, and, thus, what we have defined as *gender*) maybe even a phylogenetic adaptation reaction or (b) a reaction to a proximal interaction situation (and, thus, a spontaneous adaptation reaction). Overall, however, the lens model is extremely useful to the study of gender communication processes, as the present research will show.

1.4 Interrelatedness of approaches

This subchapter will serve to provide an account for the interrelatedness of the approaches discussed here. The reader will find an overview of all approaches in Table 1. While *moderate constructionist* approaches emphasize the omnirelevance and continuous practice of gender, *more radical accounts* emphasize gender-relevance and salience in specific situations. Both approaches emphasize the situated meaning and the context specificity of the category, but usually without any subsequent systematization of context into concrete categories. This systematization can be found in the *gender-in-context* model Deaux and Major (1987) and Deaux and LaFrance (1998), distinguishing actor-related, target-related and situation-related variables as sources of variance of gender-related behavior. The gender-in-context model provides a differentiation of the lens-model regarding its validity in different contexts. Additionally, the continuum model of impression formation (Fiske & Neuberg, 1990; Fiske, Lin, & Neuberg, 1999) provides necessary criteria for operationalization with its specification of motivational and attentional processes. Besides the *gender-in-context* model, which is the central and most current social psychological approach, other important accounts in social psychology are *gender stereotype* and *gender-schema* approaches. Bem's androgyny and gender schema approach (1974, 1981) had such a widespread influence that, today Bem's gender definition is the most frequently used in the social sciences. Yet, her approach, after a fruitful blossoming, has led gender research into a dead-end. As Lott (1985) emphasized, Bem's model highlights differences and, therefore, reinforces accentuation processes. Kay Deaux (1998) noted that, from the start, Janet Spence cautiously and sagely considered the limitations of Bem's conceptualization and has promoted a more successful "track record" in establishing connections between personality and behavior following an agency versus communion approach (e.g., Spence & Helmreich, 1981). Almost the entire international scientific community of gender researchers has recognized this and is no longer using Bem's gender definition. Yet, there has been no spill-over in consciousness to other non-gender

researchers regarding this development. In fact, there seem to be three stages of consciousness in the reception and production of gender literature. While many gender researchers try to contextualize gender processes under recent constructionist approaches, many social scientists still rely on differences approaches. And, on a third level, the majority of lay-people still prefers to read differences or even deficit literature (cf. Bierach, 2002, "*Das dämliche Geschlecht*" (The silly gender); Pease & Pease, 2000, "*Why men don't listen and women can't read maps*"), the change has been that value labels now mostly go both directions. Within a scientific context, sex differences approaches remain too focused on the differentiation, not taking into account constructive effects. Some researchers have argued to reformulate important sex differences approaches into the gender-as-a-social-construct perspectives (e.g., Baron & Kotthoff, 2001; Gilbert & Hixson, 1991; Phillips & Imhoff, 1997). Yet, I believe that we need the results of the sex differences research in order to get clues about criteria on the ecological side of the lens-model. We need to know what the evidence from the environment is in order to be able to say anything about constructive processes. Criteria for ecological evidences ought to be taken from sex differences research (e.g., from behavior observations or questionnaire results). By doing this, new approaches can be built upon the body of knowledge of former research paradigms.

Our research comes from a communication approach and has started to work with the gender-in-context model. Its aim is to assess proximal social interaction on a moment-to-moment basis, emphasizing the fleeting and dynamic nature of gender-related processes. It focuses on the description of actually observable sex differences and the interactional gender construction, taking into account expectancy-related processes (cf. Blanck, 1993; Snyder, 1984). However, in many cases it is not sufficient to limit oneself to a model (the gender-in-context model) that only explains proximal processes of doing and viewing gender with a high context dependency of predictions (being its strength and its weakness)⁷. I suggest the social constructionist approach as a broader perspective suited to reconcile all other approaches that have been described here. This reconciliation seems especially necessary between the *evolutionary approach* and the *sociologically* oriented as well as the *developmental* approaches. Constructionist gender approaches do not care how distal the source of gender-related processes is (spontaneous, onto- or phylogenetic), but about the practical implications they have on the structural, social-interactional and individual level. This makes them well suited for an interdisciplinary meta-perspective. Constructionist approaches fit well

⁷ The dissatisfaction with exclusively proximal approaches may partially result from work in an interdisciplinary project of sociologists, psychologists, pedagogues, linguists and economists that brought many new perspectives to conscious awareness.

with stereotype and gender-schema research, and gain empirical pragmaticity by the joint application with contextual perspectives, such as the gender-in-context model, the continuum model or the communities of practice perspective, each providing necessary operationalization criteria.

Constructivist "doing gender" approaches have been the most important theoretical push for gender research in the last two decades. They have been followed by a debate of how gender is to be defined, and how it is constructed and de-constructed in daily practice. Yet, constructionist perspectives in many cases remain programmatic and do not answer the question how we can investigate those processes of "doing gender" in the concrete empirical practice. The situated approaches (among them the gender-in-context model) with their high degree of differentiation, on the other hand, often remain overly situational and single-case-based. In search of a model X, between those two poles (ideally integrating them), suited to deliver a more pragmatic account for empirical research, I came across Brunswik who provides theoretical and methodological perspectives in one. Brunswik's model is suited for including constructionist and sex differences ideas. The organismic side of differential perception and rank ordering of cue utilization can best be understood using a constructionist approach: the perceiver picks the cues that best correspond to her or his world view, experiences, beliefs, implicit theories about the person or concept to be inferred. Whereas the criteria, the ecological side of the lens-model, can best be understood by taking into account the results of sex differences research, i.e., what we factually and quantifiably know about sex differences. As a new theoretical and methodological research paradigm for interdisciplinary communication approaches, and social psychological stereotyping perspectives, I would, therefore, like to suggest the lens-model approach to gender communication. Employing a corresponding performance and perception method, this research program provides a first example of its application.

Table 1

Gender approaches in social psychology

Approach	Subcategory	Main Contributors (international and national literature)	Area of Validity (Space)	Area of Validity (Time)	Place in Lens-Model: Performance or Percept.	Experimental Paradigm	Gender and Sex Definition
Social Constructionist	Radical Moderate	Butler / Hirschauer Lorber / Pasero & Braun	All	All	Both, performance and perception	Implicitly: performance and perception	Sex (biol) and Gender (soc) Both socially constructed
Gender-in-Context		Deaux & Major, Deaux & LaFrance	Individual Social	Prox.	Both	Self-fulfilling prophecies, and others	Only Gender (nd)
Stereotype and Gender-Schema Approaches	Ambiv. Sexism Gender-schema Gender-schema	Glick & Fiske/ Eckes Biernat, Markus, Bem	Social, Ind/Social Individual	Prox., Distal, Distal	Mainly Perception	Goldberg-paradigm Seman. Differential Scales, Question.	Sex = biological category Gender = social category Sex ~ = Gender (ind/psych)
Communication Ling./Language	Nonverbal Verbal	Hall / Schmid-Mast Lakoff, Tannen/ Kotthoff	Social, Social	Distal, Distal	Both, mainly performance	Meta Analysis	Sex Differences (nd) Sex Differences (nd)
Sociologically oriented	EST, SCT SRT, RCT	Berger, Ridgeway Eagly, Eagly & Karau	All	All, more distal	Mainly perception	Expect. States Task Meta-Analysis	Sex Differences (S=G) (nd) Sex Differences (nd)
Evolutionary		Buss / Bischoff-Köhler	Structural	Distal+	Mainly performance		Only Sex (nd) (=Gender)
Developmental		Maccoby / Trautner (Gilligan: moral)	Individual Social	Distal	Both	Scales, Questionnaires, longitudinal	Sex: biological; ~ = Gender: learned
Psychoanalytic (not treated here)		Chodorow, Kestenberg Chasseguet-Smirgel	Individual Structural	Distal			Sex = biological; ~ = Gender = psychological

Note: nd = difference between sex and gender not debated; ~ = not equal to; a.o. = and others. The columns delineate name of approach and subapproach (if there are subapproaches, lines are sorted accordingly), followed by main representative of the approach in Germany and internationally, then the macro-micro-level called “space” here (structural, social or individual), the proximity level called “time” here (proximal or distal, see Figure 6), the relationship to the lens-model as a communication model, the experimental paradigm connected to the approach and the understanding of gender, sex and their inter-relatedness.

1.5 A brief review of relevant literature

Overall, relevant empirical literature is reviewed in the single chapters before the experiments are described. However, there are a number of reviews and meta analyses in the area of gender and leadership, gender communication and gender in organization that I would like to review up front as a general orientation to empirical findings. The reviews presented in this subchapter, together, make up a large portion of the empirical foundation in the field of organizational gender communication. Sources are presented in chronological order. The informed reader can of course immediately proceed to Chapter 2.

1.5.1 A review of reviews

Women in management

Two excellent early reviews have been published by Terborg in 1977 and by Unger in 1978. Both encompassed literature of mid 60s to mid 70s. Terborg (1977) focused on *women in management* and included many important topics that are still discussed in modern gender research. The existence of a "male managerial model" (Schein, 1975) suggests increased role-conflict for women aspiring to leading positions. Terborg (1977) pointed out that during the period of starting a job women are especially vulnerable to having their competence questioned and yielding to the stereotypic attitudes others hold toward them. He describes gender specific phenomena such as "the queen bee syndrome" (once a women has made it to the top and is respected and liked by her co-workers, she might not tolerate other women around her getting into similar positions, Staines, Tavis, & Jayaratne, 1973) and lists research to important topics such as subtyping, attribution and coping strategies. He particularly focuses on the *fundamental attribution bias* – our tendency to attribute too much of the behavioral variance to the person and to underestimate the influence of the environment or the specific situation ("*women once in those positions (of power) have needs, motives and values that are similar to men, who also are in those positions.*" Terborg, 1977, p. 658). Terborg describes three coping strategies of women in leadership positions: a. changing the demands of the role (*structural role redefinition*), b. setting priorities and learning to live with the remaining role conflicts (*personal role redefinition*), and c. attempting to meet the demands of the multiple roles (*reactive role behavior*, Terborg, 1977, p. 658). He, thus, already followed a contextual approach. He was also one of the first researchers who pointed out that more

field studies and more longitudinal studies are needed, because our scientific knowledge about those phenomena mostly results from (t=1) laboratory studies.

Women and power

Unger (1978) was among the first psychologists to systematically relate gender differences to *power differences*. In her review, she lists studies describing the application of different criteria and implications of evaluations, suggesting bias and double standards in the attitudes toward women in positions of power ("*Assertion of competence by women is regarded as deviant*", Unger, 1978, p. 507). She describes how gender differences are maintained by verbal and nonverbal communication patterns and cites studies relating these differences back to female dependency on male power. She was also one of the first researchers who pointed out the confounding of gender and power differences. In fact, she came to conclude that sex differences are to the most part power differences, i.e., that much of the behavioral variance between men and women is due to status differences linked to sex differences. Thus, she also emphasized the impact of context (in terms of differential social status).

Gender and inequality in evaluation

Nieva and Gutek (1980) reviewed a decade's research on *sex discrimination in evaluation* and found that the amount of promale bias depends on three factors. a.) It increases when the situation is more ambiguous. These are situations that require more interpretation by the observer, such as, for example, hiring or promotion situations, where future performance must be inferred from sparse knowledge about or mere impression of past performance. Due to the missing information these situations also lend themselves to differential attribution: internal ability attribution in men and external effort or luck attributions in women. b.) Promale bias also increases, if there is a gender-role mismatch of the behavior required from a professional and female gender. As most professional and managerial jobs are still stereotypically masculine, women's performance will likely be evaluated as poorer or less indicative of ability. c.) Evaluations are also influenced by the level of competence of the professional. Competent men are rated higher than equally competent women, whereas incompetent women are rated higher than equally incompetent men (allowing conclusions on our expectations). At the time Nieva and Gutek did their review, *competence* in the working world was clearly seen as a stereotypic masculine attribute and, therefore, expected and seen more in men. Incompetence was more likely expected and accepted in women.

Gender and task-effectiveness

Staley (1984) reviewed the literature on female membership in mixed groups, noting that mixed findings regarding female effectiveness are often reported. Individual studies of male/female leadership styles either a.) report no difference, b.) show a strong preference for male leadership characteristics, or c.) find a complex interaction of variables when male/female styles are compared. It is suggested that implications of the findings could be used as a framework to develop management training curricula for women.

Women and communication

Aries (1987) summarized the large literature on sex differences in verbal and nonverbal communication. Besides presenting many interesting findings, she reveals that no single or simple explanation is likely to work for all situations, e.g., some of the sex differences seem related to men's tendency to dominate groups, for example, but others are not. Or, some of women's distinctive behaviors in domestic conversations with men seem to be due to the difficulty women have in capturing men's undivided attention. Other differences fail to fit explanations based on assumptions about cross-sex communication

Gender and stereotyping

Heilman (1995) reviewed literature on the effects of female sex stereotypes in work settings. Sex stereotypes result from the cognitive process of categorizing social groups. Due to the visibility and immediacy of sex as an attribute, sex stereotypes tend to be prominent elements in organizational decision making. Selective perception, interpretation, memory, and inference result from sex stereotypes, and reinforce stereotypic expectations, despite disconfirming evidence. Sex stereotypes influence selection decisions and performance evaluation, and result in self-limiting behavior. They are either en- or discouraged by contextual salience, ambiguity of evaluative criteria, quality of available information, male/female groupings, and perceivers' motivation.

Gender and supportive working environment

Based on theory and a review of empirical "gender in organization" literature, Stokes, Riger, and Sullivan (1995) developed a scale to measure individual workplace perceptions that contribute to a supportive or a hostile *working environment for women*. Based on the analysis

of survey data from 398 respondents in corporate settings, a scale with five dimensions was developed: dual standards and opportunities, sexist attitudes and comments, informal socializing, balancing work and personal obligations, and remediation policies and practices. Compared to men, women perceived their work environment as significantly more hostile on all five dimensions. Scale scores were related to intent to stay with the organization. Both, men and women, intended to stay longer with the company, if they perceived the work environment for women to be friendly.

Women in organizations

Haslett, Geis, and Carter (1996) reviewed women and leadership literature of the mid 70s to mid 80s. They focus on professional and leading women in organizations, communication, small groups, and individual factors, such as self-confidence. Although women generally report as much self-esteem as men, they report lower confidence of succeeding in specific stereotypic male professional tasks. The problem is that lower self-confidence actually decreases performance quality by activating self-fulfilling prophecies (Merton, 1948). In addition, attributional patterns contribute to a potential decrease in self-confidence (Taynor & Deaux, 1973; compare Swim & Sanna, 1996). In many cases, women themselves attribute their success to luck or an easy task and their failures to a lack of ability. However, the authors warn the readers not to overinterpret these results as they mostly stem from laboratory studies of students' reactions. There is evidence that professional women and female managers in similar positions do the same things in the same ways with the same results as their male colleagues (Instone, Major, & Bunker, 1983; Pyke & Kahil, 1983). Again, available research points to the influence of situational factors and our tendency to underestimate this influence (cf. Ross, 1977, "fundamental attribution error").

Martins-Crane, Beyerlein, and Johnson (1995) discuss the need to reconsider existing models of gender-related work behavior in the light of the changing nature of work, and review H. S. Astin's model of the mid 80s as an alternative. The gender model postulates that male/female work behavior and career choices are determined by sex-role socialization, without taking into account the structure of opportunity. The job model emphasizes job involvement as an important predictor of working conditions, regardless of job participation or socialization. Astin proposed an interactive and integrated approach, which highlights social/environmental and contextual-sociological variables, and interaction of the two in shaping human behavior. The model's strength lies in the recognition of the interactive quality of the process, and the

potential this has for individual change and growth. Self-managed work teams illustrate how the nature of work can be redesigned to meet women's needs.

Gender and status at work

Ridgeway (1997) in "Interaction and the conservation of gender inequality -- considering employment" discusses the roles status processes, biased referential processes and interactional gender mechanisms play in mediating the persistence of gender inequality in employment. The author believes that the problems of interacting cause actors to automatically sex-categorize others and, thus, to cue gender stereotypes that have various effects on interactional outcomes, usually by modifying the performance of other more salient identities. Ridgeway also discusses the creation of gender inequalities in new structural forms. Operating in workplace relations, these processes conserve inequality by driving the gender-labeling of jobs, constructing people as gender-interested actors, contributing to employers' discriminatory preferences, and mediating men's and women's perceptions of alternatives and their willingness to settle for given job outcomes.

Gender and career development

Phillips and Imhoff (1997) reviewed literature of the mid 80s to mid 90s focusing on *career development*. They review the vocational experiences of women as they have been revealed in the literature during the decade. Their review considers primarily empirical literature and makes suggestions regarding the next generation of research on women and career development. Empirical studies on self-concept development, professional choices, work-force entry and experiences of women and men at work including retirement issues from a gender perspective are included. Their main conclusions are that the entry into the work-force seems to be more complex for women than for men, given gender stereotyping and the demands of multiple roles, and that the slow advancement of women can not solely be explained by their intermittent work-force participation: women also face more barriers to career advancement, e.g., by encountering less role-models, less mentoring, and worse professional networks.

Gender and economy

Jacobsen (1998), in her book "The economics of gender", asks the question of how and why men and women are different. These questions are of broad interest and many scientists have devoted parts of their careers to attempt answering them. The goal of the book is to explain how gender differences lead to different economic outcomes for the sexes, measured in terms of earnings, income, poverty rates, hours of work, and other standards used by economists to determine economic well-being. The field in economics known as the "economics of gender" encompasses this study. The book first introduces the field, then contrasts the ways in which different academic disciplines have addressed the area of gender differences. The how and why questions are answered as the different disciplines' approaches to gender differences are reviewed. The basic debates over the nature and influence of gender differences have not been resolved within the boundaries of particular academic disciplines. Consensus has not yet been achieved among the natural and social sciences.

Gender and communication

Canary and Dindia (1998) examine sex differences and similarities in communication. This collection does not presume that sex and gender differences occur in all communication between people. Rather, it investigates sex differences in the way that men and women communicate within the context of sex similarities. Included are chapters that deal exclusively with expanding understanding of sex differences in communication, along with others that investigate timely issues in reports of original research. The editors assembled this edition in part as a response to the vast amount of recent literature emphasizing sex differences. The chapters included here present a balanced scientific approach to the topic, and the volume as a whole advances the idea that, with respect to communicative behavior, men and women are similar in some domains and different in others.

Gender and power

Carli (1999) reviews research on gender differences in power and their effect on social influence. Evidence indicates that men generally possess higher levels of expert and legitimate power than women, and that women possess higher levels of referent power than men. These differences are reflected, to some extent, in the influence strategies used by men and women and, more clearly, in gender differences in social influence. Women generally

have greater difficulty exerting influence than men do, particularly when they use influence that conveys competence and authority. Carli's findings indicate that gender differences in influence are mediated by gender differences in power.

Gender and leadership

Valian (1999) in her book "Why so slow?" treats the question of why so few women occupy positions of power and prestige. She uses concepts and data from psychology, sociology, economics, and biology to explain the disparity in the professional advancement of men and women. Although most men and women in the professions sincerely hold egalitarian beliefs, those beliefs alone cannot guarantee impartial evaluation and treatment of others. Only by understanding how perceptions are skewed by gender schemas can we begin to perceive ourselves and others accurately. Valian's goal is to make the invisible factors that retard women's progress visible so that fair treatment of men and women will be possible. The book presents experimental and observational data from laboratory and field studies of children and adults, and with statistical documentation on men and women in the professions.

Gender and work: Mentoring relationships

The next two sources appeared in Powell's "Handbook of Gender and Work" in 1999. In her chapter "Gender and the Mentoring Relationships: A Review and Research Agenda for the Next Decade", Ragins (1999) examines the *mentoring relationship* as the most important developmental relationship that individuals may experience in organizations. Protégées experience greater career success in objective terms and greater commitment than those without mentors. They are especially important for women, as they protect women from discrimination and help them to build networks to overcome barriers to career success. Effects of protégée gender, mentor gender and the interaction of both (dyade composition) on mentorship functions and outcomes are examined (cf. Struthers, 1995).

Gender and work: Leadership style and evaluation

Under the title "Reviewing Gender, Leadership, and Managerial Behavior: Do Three Decades of Research Tell Us Anything?", Butterfield and Grinnell (1999) review research on male and female *leaders' style and evaluation*, behavior and effectiveness; the impact of leaders' style on subordinate satisfaction and leader stereotypes as compared to gender stereotypes. They

emphasize that results often bring mixed evidence and suggest that the context in which leadership takes place influences the extent to which gender differences in leadership may be observed. Specific results in the area of gendered leadership suggest that there are little differences in leadership styles between male and female leaders. There is, however, bias in evaluation, favoring male leaders. In a study by Korabik, Baril, and Watson (1993), for example, women using dominating styles were evaluated less favorably than men using the same style. Women were evaluated more favorably when using an obliging style. Overall, male and female supervisors were evaluated less favorably when they used a style that was not congruent with their respective sex role (prescriptive norms).

Gender, leadership and evaluation

The most extensive and most recent literature review was presented by Eagly and Karau (2002) covering the last 30 years up to the present (70s to 21st century). They include literature on gender roles and leadership roles, on prejudice and attitudes toward men and women in leader roles, on access to leadership, on agentic behavior of both sexes, on Goldberg-Paradigm studies, on studies of the emergence of leaders, on barriers to success, on leader effectiveness, leader evaluations, and suggestions for change.

Regarding attitudes toward female leaders Eagly and Karau (2002) state that a woman fulfilling a leader role may elicit negative reactions, while at the same time also receiving some positive evaluation for this fulfillment. Empirical evidence of this ambivalence emerged in the findings of Heilman, Block, and Martell (1995) suggesting that, participants regarded successful female managers as more hostile (e.g., devious, quarrelsome, selfish) and less rational (logical, objective, able to separate feelings from ideas) than successful male managers. Attitude researchers have shown that to the extent that a female leader elicits an ambivalent reaction, less consistency in expressions of an attitude across time and situations can be produced and a propensity for reactions to polarize can arise (cf. Eagly & Chaiken, 1993; Eagly & Karau, 2002).

Besides studies on wage inequalities (e.g., Jacobs, 1995), the authors list evidence for discriminatory hiring and promotion practice. Women at higher levels of management were generally less likely to be promoted (Lyness & Judiesch, 1999, cited after Eagly & Karau, 2002), and the accelerated promotion of men into leadership positions was prevalent even in female dominated fields (e.g., Williams, 1995). Eagly and Karau report that the wage gap is generally smaller in the public sector than the private sector (cf. Robinson, 1998). They

emphasize that it is difficult for researchers to evaluate the impact of female choice (e.g., priority setting to achieve greater balance between work and family (but see recent longitudinal studies of Hoff, Grothe, Hohner, & Dettmer, 2000, and Abele-Brehm, 2000 a, 2000 b, for fruitful attempts to do so).

Eagly and Karau (2002) provide several examples for context effects, e.g., the case of token status (e.g., Yoder, 1991), feminine clothing (e.g., Forsythe, 1985) or physical attractiveness (e.g., Heilman & Saruwatari, 1979). When applying for managerial positions, attractive women were evaluated less favorably than their unattractive counterparts, although they were evaluated more favorably when applying for non-managerial jobs (Heilman & Saruwatari, 1979). All three variables may disadvantage women because they cause perceivers to weight the female gender role more heavily when judging women leaders.

The authors further review studies of the emergence of leaders, research on access to leadership roles, studies of leader effectiveness, and studies on leader evaluations. They conclude that the two forms of prejudice toward female leaders produce the consequences demonstrated by many empirical findings they reviewed: a.) less favourable attitudes toward female than male leaders, b.) greater difficulties for women to attain leadership roles, and c.) greater difficulties in being recognized as effective in these roles.

German Literature

German literature of woman in organizations is by far not as vast as the international literature. Yet, there are a number of "avant-garde" studies and reports, particularly in the area of gender and leadership.

One of the first German "gender in organization" researchers was Heidrun Friedel-Howe (1990a, 1990b). Given the increasing numbers of *women in leadership positions*, she asks how the cooperation of professional women and men is proceeding. She expects two phases: first problems will manifest because of the change and the new situation, then, positive effects will appear with a fruitful male/female cooperation in the center of the development. As, according to her analysis, in 1990 German society was still in the transition phase, her review deals primarily with the problems that prevail in cooperation and communication between men and women of the organization. Only by knowing these problems, are we able to work constructively on the cooperative gains to be expected. One of the crucial steps toward this second phase will be the motivation of professionals as reviewed by von Rosenstiel in 1995.

Kruse, Niederfranke, and Hartmann (1991) in a report for the German parliament provide statistics, literature review and theoretical considerations from a social psychological perspective, to explain the under-representation of *women in leadership positions* in Germany (for the time period of the 70s to the 90s). The aim of the report is to describe the effects of gender stereotypes on how men and women in leadership positions are perceived and evaluated. How do stereotypes contribute to reproduce gendered work and leadership roles? In a study in 1986, Kruse and Wintermantel showed that the close association between leadership and male gender-role not only is a feature of male identity, but also determines much of the fate of women aspiring to or actually in leadership positions. In the course of the review, stereotypes are defined as collectively available socio-cultural constructs, and solutions are offered to reduce their effects.

Hahne (1997) provides an overview of the research field of *organizational communication* based upon a general social-theoretical model from a system-theoretic perspective. He focuses on direct face-to-face communication within the organization. Results suggest that the analysis of communication is complete from a social-theoretical perspective, if it includes: a.) the verbal-cognitive level, b.) the nonverbal-body level, c.) the level of power relations, and d.) the level of norms and rules. All levels are clearly gender-related and have gender-role implications (cf. Spieß & Winterstein, 1999).

Gmür (1997) starts from staff selection inventories and states that there is always an informational gap in hiring procedures. This informational gap tends to be closed by stereotypic ascriptions to applicants or positions. Many stereotypes correspond to male and female gender-roles which are the focus of the present study. Results suggest a correspondence of male gender-role and *leadership role*. Effects were independent of gender of participants (raters). Yet, the degree of stereotype preference depended on participants belonging to a student vs. a professional population. Conclusions are drawn regarding the still prevailing under-representation of women in leadership positions. Gmür's article includes a review of gender and leadership literature of the 80s and 90s, comparing foremost preferences in male and female leadership attributes.

Goos and Hansen (1999) present empirical research about specific competences and career opportunities of *women in leadership positions*. They conducted computer-supported telephone surveys with 300 professionals in organizations, interviewed 40 managers,

administered questionnaires to them, 21 of their subordinates, and their responsible superiors, and conducted a group discussion with parts of the interviewed female managers as well as experts from equal opportunity programs. The authors assessed a.) the leadership situation of the managers within the organization, b.) the leadership behavior of male and female leaders, c.) their professional and private situation, d.) the possibilities and barriers in their professional development, and e.) the successful strategies of female managers.

Results suggest that differences between male and female managers were smaller than expected. Women only report the expected acceptance problems in the context of their career start, i.e., their entry into the professional world (if at all). They state that they overcame these problems by the broadening of behavioral possibilities and the collection of professional experiences. From the side of the organizations, it seems that given sufficient work experience and professional competence women do get their chance to take over leading positions.

Longitudinal studies have long been suggested as one of the most important methods to advance gender studies. At present there are two major long term studies by Hoff, Grothe, Hohner, and Dettmer, 2000 (PROFIL-Project, Berlin), and Abele-Brehm, 2000 a, 2000 b (BELA-E, Erlangen), Andrä-Welker (1999). Major questions they try to answer are whether the gender role attitude changes with the start of a professional career in academia, how men and women organize the balance between work and family time, and how flexible career paths in different professions really are.

Lately, a number of *dissertations* have been published contributing to clarify causes for the under-representation of women in leading positions. Ursula Müller (1999) reviews the feminist debates in the field of gender and organization, the shift to the "cultural level/perspective" and its legitimacy and discursive strategies in feminist reactions. This sociological research includes a review of the latest discussion contributions in "gender in organization". Stefanie Ernst (1999) assesses the topic of *gender and leadership* from a historical point of view. Kristin Bergmann (1999) treats the *gender equality regulations* within the countries of the European Union. She compares wages, politics, economics, etc., on the basis of the equal opportunity laws that exist in these countries. Christine Wimbauer (1999) contributes *case studies* within a research institute from a sociological perspective. Susanne Poro (1999) provides an excellent analysis of *team communication in organizations* from a linguist point of view, and Anja Gottburgsen (2000) assesses the present *gender*

stereotypes in verbal and nonverbal communication in Germany providing a solid basis for further research in stereotype-related issues.

Many specific empirical studies have been conducted, yet meta-analyses are missing (but see Sonnentag, 1996, below). Rustemeyer and Thrien (1989), for example, examined the current status in West Germany of the US *stereotype of "good manager"* in business (one who has so-called masculine and lacks so-called feminine character traits). Using an abbreviated German version of the Bem Sex-Role Inventory, 109 business administration college students and 54 large-business male executives evaluated themselves and a "good manager." No differences occurred between male and female students on their self evaluations, but both students and the business executives ascribed masculine traits to a "good manager." These data do not support the hypothesis that masculine-oriented stereotypes of business managers have disappeared.

Schultz-Gambard and Altschuh (1993) studied *differences in the leadership styles* of managers from the old (West) and new (East) German federal states. 179 East German and 179 West German managers participated. The two samples were matched for age, gender, education, and management level. Intergroup differences in questionnaire data on cognitive and leadership styles were analyzed. He used a German version of the Level I Life Styles Inventory.

Krumpholz (1996) investigated the correspondence of *female gender stereotype, physical appearance and leadership qualities*. She points out that physical appearance of women is more similar to physical appearance of children than physical appearance of men and that this difference is emphasized by cultural norms. As a consequence this may have implications for women in leadership position such as increased role ambivalence and role conflict. On the other hand, these cultural givens also bear possibilities and resources for the personal development and advancement of women in leadership positions. Lately, studies with an optimistic tenor are frequent. For example, Assig and Beck (1998), comparing a French and a German sample, show statistics of fields in which *female leaders* outperform male leaders (similarly, Wender, 2000).

1.5.2 A review of relevant meta-analyses

Gender and nonverbal communication

Hall (1984) reviews 64 studies from major journals and finds that women are better at decoding nonverbal cues, at recognizing faces, at expressing emotions via nonverbal communication. They have more expressive faces, smile more (socialization influence), gaze more, receive more gaze, use smaller approach distances to others and are approached closer by others. Body movements of men are more restless, more expansive, less involved, less expressive and less selfconscious than those of women. Women make fewer speech errors and display less filled pauses. Effect sizes range from small ($r=.10$) to large ($r=.50$; cf. Cohen, 1969, 1992). Effect sizes in nonverbal behavior are about as large as the effect sizes research gets in sex differences (especially for expansiveness, distance, restlessness, expressiveness, smiling, filled pauses, decoding skills (except for in lie detection), cf. Hall, 1984). For more recent reviews on nonverbal gender differences see also LaFrance and Hecht (2000) who conducted a meta-analysis on gender and smiling.

In a recent study about "Gender-stereotype accuracy as an individual difference", Hall and Carter (1999) assessed the accuracy of participants' ratings of gender differences on 77 behaviors and traits by correlating participants' ratings with actual gender differences based on meta-analyses (compare Swim, 1994). Accuracy at the group level was impressively high in 5 samples of participants. Accuracy of individuals showed wide variability, suggesting that the ability to accurately describe gender differences is an individual difference. Analysis of correlations between individual accuracy and a battery of psychological measures indicated that accuracy was negatively related to a tendency to accept and use stereotypes, negatively related to a rigid cognitive style, and positively related to measures of interpersonal sensitivity.

Gender and status

In Driskell and Mullen (1990) "Status, expectations and behavior: A meta-analytic review and test of the theory" (employing expectation states theory) the relationship among status, expectations, and behavior is studied in a meta-analysis, involving 7 studies published from 1973-1986. Status was a strong predictor of expectations and a moderate predictor of behavior; expectations were a strong predictor of behavior. When the effects of status were partialled out, the expectation-behavior effect was still of moderate magnitude. Results lend support to the core assumptions of status characteristics and expectation theory.

A number of important studies have been supporting expectation states / status characteristics theory. Meeker and Weitzel-O'Neill (1977) stated that before their analysis social scientists had proposed that men and women approach situations in which they have to work with other people differently. Men are "task" or "instrumental" specialists, while women are "social" or "expressive" specialists. Subsequent advances in research on the social psychology of small groups, families, and personality has largely removed the theoretical and empirical supports for this proposition. On the other hand, researchers continue to observe sex differences in behavior in a variety of task-oriented situations. The present paper suggests that sex roles may be seen as the result of status processes. Since men have higher status than women, men are expected to be more competent than women, and it is expected that competitive or dominating behavior is legitimate for men but not for women. Empirical studies of sex roles as related to task appropriateness, group problem solving, conflict, dominating behavior, and role expectations are reviewed in support of this theory.

Wagner, Ford, and Ford (1986) explored by which means inequalities in the behavior of men and women in mixed-sex task groups can be reduced, and found that by disconfirming established gender-based expectations this can be effectively accomplished. The results of two experiments involving 60 women and 63 men (aged 18-29 yrs) show that disconfirmation reduced task inequality for both women and men. The results also support predictions based on the combining and attenuation principles of status characteristics theory. Findings demonstrate that sex-role socialization is a manifestation of a more general status organizing process and is more situationally specific than has previously been assumed.

Gender and leadership style

Eagly and Johnson (1990) in a meta-analysis of 162 studies, comparing the leadership styles of women and men found a tendency for women to lead in a more democratic and participative style than men. In addition, a meta-analytic investigation into leadership behavior by Eagly and Johannesen-Schmidt (2001) found a tendency for women to focus on the development and mentoring of followers and attending to followers' individual needs. In a study using an experience-sampling method in work settings, both men and women reported behaving more agentically in relation to their subordinates than their bosses, but women reported a more agreeable, communal style, regardless of their own organizational status in relation to their interaction partners (Moskowitz, Suh, & Desaulniers, 1994). Role congruity theory of prejudice toward female leaders suggests that women receive more disapproving and uncooperative reactions than men do when they proceed in an assertive and directive manner

(Eagly & Karau, 2002). However, these unfavorable reactions may disappear at least partially when women complement their agentic repertoire with communal behaviors that are consistent with the female gender role, as long as these behaviors do not violate the relevant leadership role. Organizational scholars have offered a host of new perspectives on leadership construing management in terms that are more congenial to the female gender role than traditional views. New perspectives in management emphasize democratic relationships, participatory decision-making, delegation, and team-based leadership skills that are consistent with the democratic leadership styles actually adopted by many female managers (Eagly & Johnson, 1990). For example, proponents of learning organizations and quality improvement researchers emphasize effective communication, supportiveness, participation, and team-based learning as central elements of organizational effectiveness. These new perspectives fit well with the communal characteristics typically ascribed to women (Eagly & Karau, 2002).

Gender and socialization influences

Lytton and Romney (1991) conducted a meta-analysis of 172 studies about the differential socialisation of boys and girls. They attempted to resolve the conflict between previous narrative reviews on whether parents make systematic differences in the rearing of boys and girls. Most effect sizes were found to be nonsignificant and small. In North American studies, the only socialization area of 19 to display a significant effect for both parents is encouragement of sex-typed activities. In other Western countries, physical punishment is applied significantly more to boys. Fathers tend to differentiate more than mothers between boys and girls (cf. Maccoby & Jacklin, 1974). Over all socialization areas, effect size is not related to sample size or year of publication. Effect size decreases with child's age and increases with higher quality. No grouping by any of these variables changes a nonsignificant effect to a significant effect. As little differential socialization for social behavior or abilities can be found, other factors that may explain the genesis of documented sex differences are discussed.

Block (1983) considers the sex-differentiated socialization influence of parents and other representatives of societal institutions as they shape the personality development and behavioral orientations of men and women. Specifically, the nature of the "meta messages" conveyed to boys and girls during their early, formative years are assessed. These messages are assumed to differentially influence the evolving self-concepts, personal goals, and the cognitive-adaptational heuristics of boys and girls. Differences in the socialization environments experienced by men/women can be seen as related to gender differences in

personality characteristics. To integrate the empirical findings surrounding gender differences in personality and socialization experience, some conjectures are offered regarding the different self- and world views current culture may be creating in men and in women. The potential and the influence of biological factors conjoined with the bidirectional effects of child and parent interaction are recognized as confounded with an interpretation in terms of differential socialization. Finally, it is noted that until the effects of differential socialization are specifically evaluated by cultural, subcultural, or individual family changes, the role of biological and bidirectional factors cannot truly be assessed.

Gender and the emergence of leaders

Eagly and Karau (1991) reviewed research on the emergence of male and female leaders in initially leaderless groups. In these laboratory and field studies, men emerged as leaders to a greater extent than women. Male leadership was particularly likely in short-term groups and in groups carrying out tasks that did not require complex social interaction. In contrast, women emerged as social leaders slightly more than men. These and other findings were interpreted in terms of gender role theory, which maintains that societal gender roles influence group behavior. According to this theory, sex differences in emergent leadership are primarily due to role-induced tendencies. That is, men specialize more than women in behaviors strictly oriented to their group's task, and women specialize more than men in socially facilitative behaviors.

Gender and social behavior

Eagly and Wood (1991) analyzed and explained sex differences in social behaviors. Meta-analytic reviews have documented that the sexes differ in a variety of social behaviors, including aggression, helping, nonverbal behavior, and aspects of interaction in task-oriented groups. This is consistent with a social-role theory of sex differences, which emphasizes the causal impact of gender roles (of people's beliefs about behavior appropriate for each sex). To move beyond the demonstration of consistency between role expectations and social behavior, meta-analyses have examined the moderators and mediators specified by this theoretical model. Outcomes of these moderator and mediator analyses are illustrated from several meta-analyses of gender and social behavior, which show that quantitative reviewing is not limited only to the summarizing of research findings; the technique also allows reviewers to examine the plausibility of theories.

Gender and leadership evaluation

Eagly, Makhijani, and Klonsky (1992) provided a meta-analysis of 61 Goldberg-paradigm experiments in which the stimuli presented to participants were leadership behaviors ascribed to women or men. Results suggested that the devaluation of female leaders was greater, relative to their male colleagues, for male-dominated leadership roles. This regularity is of theoretical relevance because expectations for male-dominated leadership roles should be more agentic. Consistent with this finding prejudice against female leaders was especially strong in the subgroup of these Goldberg experiments that introduced men and women as basketball coaches. Additionally, the devaluation of female leaders was greater when men served as evaluators (cf. Eagly & Karau, 2002).

One of the most important findings of this meta-analysis is that women in leadership positions were devaluated more strongly, relative to their male colleagues, when leadership was carried out in stereotypically masculine styles, particularly when this style was autocratic or directive (mean $d = 0.30$ for autocratic styles)⁸. Thus, prejudice was more likely when female leaders violate their gender role by fulfilling leadership roles in an especially agentic style. Subsequent research has continued to confirm that autocratic or dominating leadership style is less well received from female than male leaders (e.g., Korabik, Baril, & Watson, 1993).

The overall tendency to be more prejudiced toward one sex than the other is not very pronounced in this meta-analysis. However, we must take into account that very few of the studies in this literature portrayed leadership at a level beyond middle management, and the majority employed *supervision*, i.e., first-level management. Given the assumptions of the authors that prejudice against female leaders is more likely beyond middle-management, it is not surprising that the meta-analysis showed only a small (yet significant) overall tendency for participants to evaluate female leaders less favorably than male leaders (mean $d = 0.05$).

The small size of the overall effect in this meta-analysis and the one on leader effectiveness raise the question of whether under some conditions women are more successful than men as leaders. This possibility is consistent with the observation that some leader roles have a definition that is more feminine than masculine. The Eagly, Karau, and Makhijani (1995) meta-analysis confirmed this possibility by finding women more effective than men as leaders of educational organizations, government and social service organizations. Yet, evidence of advantage for female leaders was absent in the 1992 meta-analysis of Goldberg-paradigm experiments, in which more feminine leadership styles and less male-dominated roles did not

⁸ Effect size statistic $d = \text{mean of sex group1} - \text{mean of sex group2} / \text{pooled within-sex standard deviation}$; cf. Cohen, 1969).

yield significant tendencies for women to be evaluated more positively than men. However, Davison and Burke's (2000) meta-analysis of experiments involving job résumés or applications obtained clear evidence of such a reversal. Here women were evaluated more favorably than men for female-typed jobs, although only some of these jobs were leadership roles. A general problem is the lack of field studies. In natural settings judges often have much more information available to them than presented in the scenarios used in Goldberg-paradigm experiments. Although the extensiveness of the information researchers presented did not relate to the amount of bias in Eagly, Makhijani, and Klonsky (1992) meta-analysis, we can assume that a greater amount of information can wipe out the gender effect (Eagly & Karau, 2002).

Gender and leadership effectiveness

Eagly, Karau, and Makhijani (1995) conducted a meta-analysis of 96 studies that compared the effectiveness of male and female leaders. Most of these studies were conducted in organizational settings, although a minority examined laboratory groups. The male and female leaders held the same role, however, this role was broadly defined in some cases and narrow in others. Most of the studies assessed effectiveness by direct subjective ratings of performance or effectiveness, and only a minority included more objective measures of performance. The literature, thus, encompassed studies of performance appraisals of male and female managers (cf. Eagly & Karau, 2002).

The heterogeneous findings of these studies were successfully predicted by moderating variables: a.) women were less effective than men to the extent that leadership positions were male-dominated, b.) female leaders became less effective relative to male leaders as the proportion of male subordinates increased, perhaps reflecting male (vs. female) subordinates' conceptions of leadership in more masculine terms and greater approval of traditional gender roles, c.) the greater the proportion of men among the raters, the less was the effectiveness of women relative to men (cf. Bowen, Swim, & Jacobs, 2000), d.) women were less effective than men in military organizations, a traditionally masculine environment, but modestly more effective than men in educational, governmental and social organizations, e.) women were particularly more effective, relative to men, in middle-level leadership positions, as opposed to supervisory positions. This finding is consistent with the definition of middle management as requiring interpersonal skills from the communal repertoire.

Eagly, Karau, and Makhijani (1995) empirically tested the principle that the masculinity of leader roles affects whether men or women are more effective. This test included having a

group of respondents rate each of the leadership roles in the meta-analytic sample of effectiveness studies and correlating these ratings with the studies' effect sizes, which represented the comparison between male and female leaders' effectiveness. The respondents thus rated how competent they thought they would be in each role and how interested they would be in performing each role. Using these multiple measures, Eagly, Karau, and Makhijani (1995) found that the relative effectiveness of female leaders compared to male leaders decreased substantially for the roles rated as more congruent with the male gender role and increased for the roles rated as more congruent with the female gender role. For example, military roles, which strongly favored men's effectiveness, were especially congruent with the male gender role. Middle management roles, which favored women's effectiveness, were congruent with the female gender role, particularly in terms of interpersonal requirements.

The overall sex difference in effectiveness in the Eagly Karau, and Makhijani (1995) meta-analysis is an arbitrary statistic, because its magnitude and direction depends on the balance of more masculine or more feminine leadership roles than represented in the sample of studies. Overall, there was no difference in the relative effectiveness of male and female leaders (mean $d = -0.02$, indicating nonsignificantly greater female effectiveness). This finding is not surprising, given the competing predictions and the fact that only one study in the sample examined leadership at a level higher than middle management. Nevertheless, this finding is important in applied terms, because it suggests that women who actually serve as leaders and managers are generally performing *as well* as their male colleagues.

In sum, leaders performed more effectively when the leader role that they occupied was congruent with their gender role. Although overall men and women were equally effective as leaders, women suffered diminished outcomes in roles given especially masculine definitions, and men suffered somewhat poor outcomes in roles given more feminine definitions (Eagly & Karau, 2002). Variables such as seniority, education, and age were controlled and did not moderate the sex differences in effectiveness.

Gender and personality

Feingold (1994) conducted four meta-analyses to examine *gender differences in personality* in the literature (1958-1992) and in normative data for well-known personality inventories (1940-1992). Men were found to be more assertive and had slightly higher self-esteem than women. Women were higher than men in extroversion, anxiety, trust, and, in particular, tender-mindedness (e.g., nurturance). There were no noteworthy sex differences in social anxiety, impulsiveness, activity, ideas (e.g., reflectiveness), locus of control, and orderliness.

Gender differences in personality traits were generally constant across ages, years of data collection, educational levels, and nations.

Gender and work-related stress

Sonnentag (1996) provided a meta-analysis on work conditions and physical health of women (German only). She discusses the job-model, the life-situational model and the gender model as they pertain to the relationship between work characteristics and well-being in men and women. Results of a meta-analysis of 41 studies are presented (cf. Korabik & VanKampen, 1995).

Gender and attributional style

Swim and Sanna (1996) reviewed evidence concerning attributions for success and failure on masculine and feminine tasks, which can be interpreted as a measure of prejudice. Swim and Sanna's (1996) meta-analysis showed that people attributed men's successes on masculine tasks to the stable cause of ability, and women's successes to the unstable cause of effort, whereas the logic reversed for failures, with people attributing women's failures to the stable cause of lack of ability and men's failures to the unstable causes of low effort and bad luck.

Gender and negotiator competitiveness

Walters, Stuhlmacher, and Meyer (1998) focus on male/female competitive and agentic behavior in negotiations. Although there have been numerous investigations into the relationship between gender and bargaining competitiveness over the past several decades, few conclusions have been reached. The results of 62 research reports on the relationship between gender and competitive behavior in dyadic bargaining interactions were examined by meta-analytic review. The average weighted effect size indicated that women appear to behave more cooperatively in negotiations than men, but this difference is slight. Results suggest that constraints on negotiators (imposed by abstract bargaining paradigms and restrictions on communication) lessen gender differences in negotiation behavior. Women were significantly more competitive than men when competing against an opponent who pursued a "tit-for-tat" bargaining strategy.

Gender and self-esteem

Major, Barr, Zubek, and Babey (1998) reviewed empirical findings on gender and global self-esteem. A meta-analysis of more than 200 samples in 10 years of research (82.000 participants) suggests mixed results. Focusing on the significance of the overall effect size leads to the conclusion that men, on average, have higher self-esteem than women. Focusing on the magnitude of the overall effect size leads to different conclusions. According to Cohen's criteria the overall effect size of $d = .14$ is so small that it is hardly of any practical significance (Cohen, 1969, 1992), leading to the conclusion that there is no appreciable difference in the global self-esteem between women and men (congruent with the results of Maccoby & Jacklin, 1974, and Feingold, 1994).

Yet, there were a number of important moderators of self-esteem. First, age was found to be a significant moderator. Children before puberty showed no differences in self-esteem, but with the beginning of early adolescence (ages 11-13) reliable gender differences emerged in the direction of boys having higher self-esteem than girls. The authors offer several explanations for this phenomenon. Ethnicity/cultural background was found to be another significant moderator. Across studies male and female members of ethnic minority groups did not reliably differ in self-esteem ($d = .03$). Caucasian women in contrast had reliably lower self-esteem than caucasian men ($d = .20$). Caucasian women, however, consent to the US-american cultural belief system that the outcomes they obtain result from a fair and legitimate societal system not recognizing or defining themselves as a part of a disadvantaged group. A third important moderator was socio-economic status (SES). Gender differences in self-esteem were found to be larger between lower SES and middle-class SES women and men than among upper class SES persons or professional men and women. In sum, results suggest that the lack of a definite answer to gender differences in global self-esteem results from the dependency on a number of moderators that are usually not controlled or reported in single empirical studies.

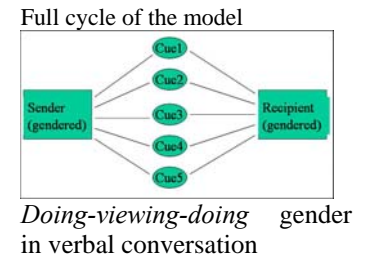
To sum up, there are three methodological points that are repeatedly emphasized in these studies:

- there is a variety of laboratory data, more field data and longitudinal data is needed
- effect sizes in gender research are generally small to very small and
- gender is usually confounded with a variety of other variables, such as status, age, sympathy, etc., and methodologically cannot easily be separated from them

In the subsequent chapters I will address parts of these problems.

2 Verbal construction of gender: "Doing gender" in chat communication

Experiment 2⁹ -- a pilot study, employing the full model -- provides an insight into gender construction processes, in situations in which gender is not known and needs to be inferred from written language cues. An ideal medium to investigate these processes is synchronous online communication in small groups. A number of gender construction processes did emerge in this setting.



2.1 Introduction: Gender and computer-mediated communication (CMC) in groups

A major part of how we construct and re-construct gender usually happens in face-to-face communication in our daily interaction (Deaux & Major, 1987; Deaux & LaFrance, 1998; Fiske & Neuberg, 1990; Fiske, Lin, & Neuberg, 1999; Lorber, 1994, Müller, 2002; West & Zimmermann, 1987), by verbal communication (e.g., *power-related talk*, Thimm, Rademacher, & Kruse, 1995) or nonverbal communication (i.e., *visible acts of meaning*, Bavelas & Chovil, 2000). Presently, however, an increasing part of personal and professional interaction takes place via computer mediated communication (CMC; Döring, 1999; McGrath & Hollingshead, 1993, 1994; Zumbach & Reimann, 2001). In Study 1 I thus have made use of one of the central CMC characteristic, namely the fact that gender - like other identity-related cues - is not immediately visible and, if not communicated verbally, needs to be inferred. This allows us to directly investigate construction processes while gender is produced and perceived. Moreover, our method provides evidence on how the new media affect communicative gender construction processes under different degrees of gender salience (cf. Lott, 1995). This study focuses on proximal and immediate gender construction which does not mean, however, that structural gender-related differences are neglected (as described by Butler, 1991; Eagly, 1987; Eagly & Karau, 2002; Kanter, 1977; Ridgeway, 2001).

⁹ I would like to thank Barbara Müller for conducting part of the study and the analyses in the context of her Diploma Thesis (Müller, 2002).

2.1.1 A joint constructionist and gender-in-context perspective

Starting from the observation that gender cannot be captured in an essential way (Lorber, 1994), contemporary approaches conceptualize gender as a context dependent social construction manifesting itself predominantly in everyday interaction (Lorber, 1994; Lorber & Farrell, 1991; Pasero & Braun, 1995, 1999). Gender in this perspective is not something we *have*, but something we *construct* by *doing gender* (West & Zimmermann, 1987, 1991; that is, by enactment or behavioral processes) and by *viewing gender* (that is, by perceptual processes). The current *constructionist approaches* emphasize similarities (Canary & Dindia, 1998; Gottburgsen, 2000) and reduce gender differences to phenomena that lie mainly in the eye of the beholder ("viewing gender"). These lead to expectancy guided perceptual and behavioral differences in everyday interaction ("doing gender") (Blanck, 1993; Geis, 1993). The everyday processes of "viewing" and "doing" gender are perceptual and behavioral phenomena that normally take place under conditions in which gender is immediately visible and known. In order to investigate gender construction processes we have created a situation in which initially gender was not visible and, thus, existed mainly as a gender-hypothesis in the mind of our participants. Gender differences are not socially meaningful unless social perceptions and social interaction turns them into social facts (Lorber, 1994).

The three key elements of the gender-in-context model (Deaux & Major, 1987) are: The specific situation, the target person and the actor, where the latter two are understood as two interchangeable roles that either person can take at any given moment (see also the model's further development in Deaux & LaFrance, 1998). The model assumes that different situations make gender-related aspects more or less salient. It attempts to identify interrelated processes that can occur between two interacting persons. Each person brings their personal interaction goals, their general convictions and gender-related belief systems, and their personal and learned gender-related self-concepts with them. As a consequence, there is a tendency to (self-) confirm gender-related (and other) expectations regarding the other person. The perception of the behavior becomes biased by the expectations one holds ("cognitive bolstering", cf. Snyder, Tanke, & Berscheid, 1977; "cognitive confirmation", Darley & Gross, 1983). Additionally, the expectation-guided behavior of each person induces certain reactions of the other person, and can thus easily lead to "self-fulfilling prophecies" (Merton, 1948), "behavior confirmation" (Snyder, Tanke, & Berscheid, 1977) or the completion of partner-hypotheses (Kruse & Schwarz, 1992; Kruse & Wagner, 1995). Moreover, actors try to keep their gender-related self-concept as stable as possible by displaying (self-) consistent behavior ("self-verification", e.g., Swann, 1983) and by interpreting information from outside in

accordance with that gender-related self-concept. At the same time, each interaction creates a certain social reality, in the context of which subsequent behavior is guided by potential reinforcement by the other person (e.g., Baumeister, 1982; Goffman, 1994).

2.1.2 Electronically mediated groups

The first studies of electronically mediated groups were done about two decades ago, and in recent years the pace of research on the topic has accelerated. This can be attributed to many factors, one of them being the decreasing expense of the technology needed for CMC research. Continually developed new technologies (e.g., videoconferences or support software for groups) continually create opportunities to conduct new research. There is no doubt that electronically mediated groups will become an increasingly common feature in the network of organizational communication. Guzzo and Dickson (1996) therefore suggest that research on electronically mediated groups should break free from the tradition of comparing those groups to face-to-face groups. Instead, they demand that future research accept such groups on their own terms and focus on contrasting technologies and on team effectiveness (cf. Guzzo & Dickson, 1996). Kiesler and Sproull (1992) see electronic communication as having great potential to enhance organizational work. According to them, CMC adds new information, makes effective communication of groups of people working in different places possible and allows asynchronous forms of interaction. Yet, they also see the drawbacks of CMC. Electronic systems remove substantial social information and eliminate much feedback, such as nonverbal or paraverbal cues (e.g., the ones we will later label as "evaluative affect display", see Chapter 3). This characteristic can have both positive and negative consequences on the interaction, the task outcome, and the motivation and participation of group members.

Following McGrath and Hollingshead (1994) three motives can be identified that have driven efforts in the working world to support electronically mediated groups: the wish to improve group task performance, the wish to overcome time and space constraints in group collaborative efforts, and the wish to increase range and speed of access to information. For chat groups, sharing features of public and private group contexts, one additional motive can be anonymity, not the least of which might be gender anonymity (cf. Jaffe, Lee, Huang, & Oshagan, 1995). Anonymity is an obvious difference between communication via the computer and face-to-face communication (FTF): with the computer we do not immediately see with whom we are dealing. Unlike the FTF communication situation, if we do not know the person already, we depend entirely on the information transmitted via text. With computer

communication, we lack certain essential information that is normally self-evident in FTF communication: perceptions of age, gender, race, personal style, and signs of status or attractiveness. In online chats all we see on the computer is text. Experiment 1 makes use of this special characteristic of chat communication.

2.1.3 Putting gender into CMC-Context

The described set of circumstances in online communication raises several issues in the context of gender-related interaction. Some researchers have expressed strong expectations about the internet as a potentially liberating force aiding in the fight for equality vis a vis sex, race, and social class (cf. Danet, 1998; Turkle, 1998). For example, there apparently is an astounding number of people who experiment with their gender identity on the Internet or in other CMC contexts with different motivations and success (Turkle, 1998; Danet, 1998; Döring, 1999). However, increasingly we also find critical voices such as, Selfe and Meyer (1991, cited from Crowston & Kammerer, 1998), who investigated amount of participation in CMC-group discussions in a work context. Their results suggest that men and high status persons would contribute significantly more to the discussion than other participants - even when they were allowed to use pseudonyms. Yet, in the pseudonym condition, they also found that persons who usually would not say anything participated as well. Other authors describe the very same gender-stereotypic processes for internet communication as in face-to-face communication (Herring, 1996, 1997; Thomson & Murachver, 2001). However, participants in Savicki, Kelley, and Oesterreich (1999) and Mulac's (1998) investigations were not able to predict any better than chance the gender of the author of a certain descriptive text (but see Mulac, 1998, for measurement issues).

In the light of these seemingly contradictory results, it seems worthwhile to take a closer look at the factors that might be relevant to gender-related aspects of communication in different situations, and at the potential explanatory contribution and context specificity of different theories about gender. Moreover, the empirical study of computer-supported communication would seem to offer a good forum for studying the usually unquestioned aspects and structures of our everyday knowledge and actions in face-to-face communication, in particular, the processes by which gender is constructed. The present study is an attempt to do just that.

What differences do we expect for the special situation of gender anonymous vs. gender non-anonymous group discussion in a chat or CMC situation? What differences do we

expect depending on the degree of gender-salience for gender anonymous groups? Does the postulated "omnirelevance of the gender category" (Garfinkel, 1967) manifest itself in the gender anonymous interactions? Some researchers have argued that, independent of the consequences of gender anonymity, CMC conditions generally reduce the degree of social control experienced (Jessup, Connolly & Tansik, 1990). In their "theory of anonymous interactions" Jessup, Connolly, and Tansik's (1990) reasoning would lead us to expect that in CMC some individuals will adapt less to the social norms of interaction (including gender-related norms). As far as their gender-related self-concept is concerned, however, we can assume that all participants will stick to some of their usual (gender typical) behaviors, in order to display identity-related coherence or self consistency. Moreover, the specific situational context will be relevant. For many people the use of the internet in private contexts is often seen as an "experimental field", allowing them to play with their own gender-identity (cf. Turkle, 1998; Danet 1998; Döring, 1999). In public or professional contexts other tasks and interaction goals are likely to be more prevalent.

In Experiment 1, for the gender anonymous conditions, we would expect no perceptual biases regarding the gender of the target as long as there are no hints from behavior or content that point in one or the other direction. Likewise, we would not expect the behavior of either the actor or the observer to be expectancy-guided in the beginning. Self-fulfilling prophecies and behavior confirmation effects of gender-specific behavior are unlikely in this early phase. The actor would probably notice that it would not be possible for group mates to judge his or her self-presentational strategies from a gender-perspective and, thus, experience more relative freedom. Within the gender anonymous conditions, dependent on the degree of gender salience, participants are expected to form expectations *earlier* when gender-salience is higher. It remains to be determined whether in groups where gender is not salient there would be participants to whom gender would not be a relevant category at all (cf. Hall & Carter, 1999; Koch, Schey, Kruse, & Thimm, 1999). The follow-up "who-said-what" study (Chapter 2.3.2) was designed to answer this question.

In the area of verbal processing which was the focus of Experiment 1, I was mostly interested in the question of constructive inferences based on participants' gender-hypotheses. The analysis of computer-supported communicative situations is well suited to learn about the usually unquestioned aspects and structures of our everyday knowledge and actions in face-to-face communication, such as the construction processes of gender. Gender, usually immediately salient in everyday interaction, is here subject to uncertainty. In this Brunswikian approach, I distinguish the "objective" criterion (sex) from the subjective criterion (gender-

hypothesis) of perception in order to get an idea of the entire perceptual process and its accuracy (hits vs. false alarms). Experiment 1 consisted of a main study (chat and evaluation) and a follow-up study (who-said-what post test). The follow-up study was particularly designed to test, whether gender in fact was a basic relevant category for participants.

2.2 Method: Applying the performance and perception approach (Study 1)

Participants and Design

Sixty-four participants (twenty men and forty-four women, mean age 23.8, $SD = 5.3$) mostly first year students from the University of Heidelberg participated in small groups of four persons who had not known or seen each other before entering into a split-screen ICQ-chat. They were given partial credit toward a course requirement or a small present. Students were randomly assigned to one of three conditions: a non-anonymous group where gender was known and two gender-anonymous groups chatting under color labels.

Procedure

The four participants in each group met a research assistant at four different meeting points around the campus and were then guided to their computers. They participated in a split-screen ICQ-chat, where the computer screen is partitioned in four quadrants leaving each participant a field to write into. In this chat format, letters appear immediately as they are typed, making it unnecessary to press the return button to send off a discussion contribution like in other chat formats.

Figure 7: Appearance of the computer screen in ICQ-chats: Participants see their own and their group mates' contributions in the partitioned fields as there are typed in



Participants chatted in three conditions: two gender anonymous conditions and a non-anonymous control condition. In the two *gender anonymous conditions* they did not know each others names and used color labels (red, white, green, and yellow) to address each other. Participants in one condition knew that they had to guess the gender of their chat mates in the end (gender salient condition), participants in the other condition did not know that the study was gender-related (gender non-salient condition). The *non-anonymous control groups* talked to each other using their middle names which in all cases were clearly identifiable as either masculine or feminine.

Their task was to discuss the topic "*Do students study psychology to cure their own problems?*" Our aim was to select a gender neutral topic¹⁰ of high relevance to beginning first year students in order to have a lively discussion. Indeed, participants were all motivated, however, the topic proved not to be 100% gender neutral as women were later correctly expected to take the discussion more seriously and empathically, whereas men were correctly expected to take it more from a humorous vein and joke more about it. The topic was not supposed to activate gender as a concept in the first place which worked out well. After the chat, participants completed a questionnaire indicating age, typing skills, chat experience and interest in topic (control variables), trait-ratings for each participant (dependent variables), gender guesses (second independent variable) and subjective confidence in guesses. Their chat texts, this time in sequential order, were then re-distributed to them. They were asked to indicate in the texts which cues they had used to make their inferences, which gender the cue points to and why (text task).

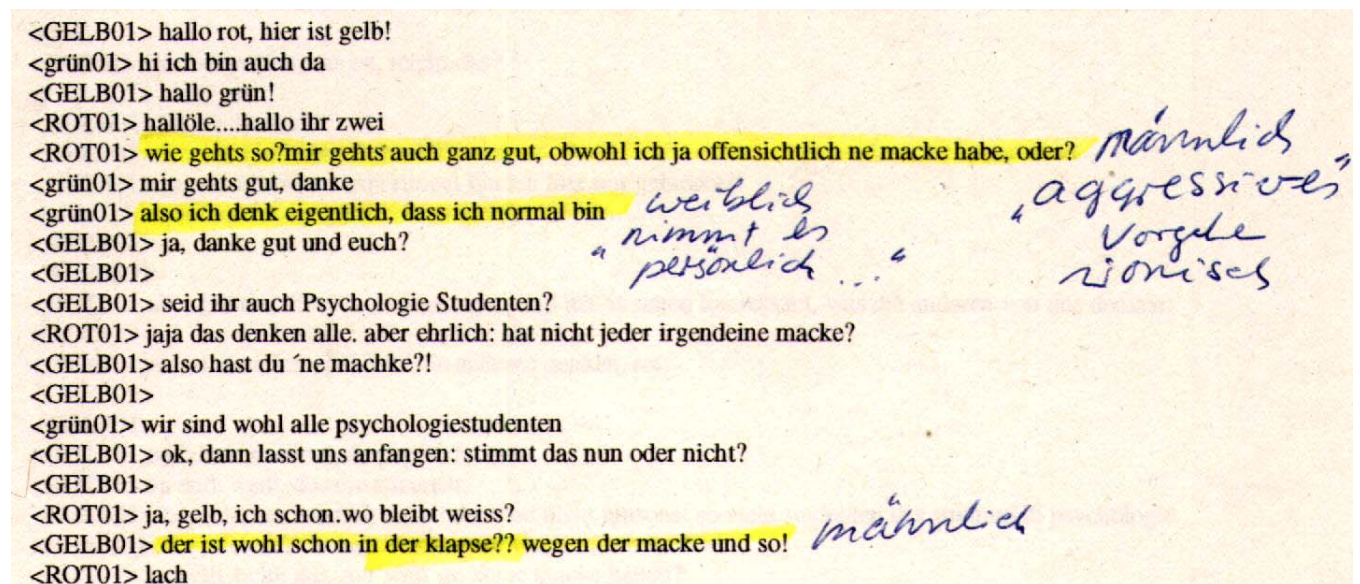
Finally, they were brought together in face-to-face groups where they had the opportunity to discuss their chat experience for ten minutes. After this discussion they completed the trait-ratings for a second time, were then debriefed and had the opportunity to pose remaining questions.

¹⁰ According to *expectation states theory* (Berger, Connor & Fisek, 1974; Berger, Fisek, Norman, & Zeldich, 1977; Berger, Webster, Ridgeway, & Rosenholtz, 1986) men are expected to talk more and have a higher competence in masculine tasks, women are expected to talk more and have a higher competence in feminine tasks. Furthermore, there should be a higher competence expectation for men in neutral tasks in the absence of other diagnostic cues, as under these circumstances gender functions as a diffuse status characteristic with higher performance expectations toward the higher status group. *Social role theory* (Eagly, 1987) and *role congruity theory* (Eagly & Karau, 2002) make the same predictions, arguing, however, more experience-based: as we constantly observe more men in higher positions, we would expect them to be more competent in gender neutral tasks as well.

Research Questions and Hypotheses

The following questions were of special investigational interest: Were participants in the chat experiment rated differently on the trait variables dependent on their real sex or rather on the gender-hypotheses the other group members held about them? And, dependent on the gender-hypotheses did the proximal cues group members used differ in type and content?

Figure 8: Example of a chat text (anonymous non-salient group). Groups on average produced about 3-4 pages of text in their chats, which were then re-provided to them to indicate the cues they had used to form their gender hypotheses



Note: "Hi red, this is yellow – hi I am also there – hi green – hi the two of you – how are you guys? I am feeling fine despite I obviously study psychology to cure myself, don't I?" (this last utterance was highlighted by a group mate as a cue indicating a man → proceeds aggressively, ironic), etc.

Were the same cues interpreted differently? How does the postulated "omnirelevance" of the gender category (Garfinkel, 1967) manifest itself in a gender anonymous interaction? Do participants implicitly or explicitly refer to gender? Do they form hypotheses about the gender of the co-participants on the basis of language and communicative behavior? If so, which proximal cues do they use to infer gender and why? Are their hypotheses correct? How does gender anonymity influence the communication? What is their mutual perception?

Four hypotheses were formulated:

H1: In the gender anonymous conditions men and women will be evaluated more similar than in the non-anonymous control condition. In the latter men will be identified by stereotypic traits such as dominant or analytic, women by traits such as cooperative or emotional.

H2: In the gender anonymous conditions evaluations will more likely depend on the gender-hypothesis than on the real gender of the target person (expectancy guided effect).

H3: Men will talk more than women in the non-anonymous control condition (performance level), this difference will decrease in both experimental conditions. It has been described in the research literature that men usually talk more in public contexts, whereas women talk more in private contexts (Canary & Dindia, 1998; Dindia, 1988; Noller & Fitzpatrick, 1988). This situation was expected to be interpreted as a public context.

Finally, I expected as a main difference between the two gender-anonymous conditions that in the non-salient group gender may be less frequently a focus of communication than in the salient group. I have included these two conditions, because one can not assume automatically that gender is salient in any context. Consequences of different degrees of gender salience dependent on the situation have earlier been described by Lott (1995), Deaux and Major (1987) and by Fiske, Lin, and Neuberg (1999).

H4: In the salience conditions there will be more gender-related communication and more congruency of arguments (in the text task) than in the non-salience group. By congruency of argumentation I mean that when participants highlight their gender cues in the texts they produced, there will be a clearer, more logical and more congruent argumentation for one gender to one participant in the salient condition (as it was possible for them to form the hypotheses earlier and apply a more active testing strategy in their gender search). If the activation of gender would make a difference in the direction mentioned this would be evidence for gender functioning as an organizer in the gender-salient condition, whereas the non-salient condition would be a gender-free space. If it would not make a difference it would rather speak to the omnipresence of the gender in this context.

In all conditions, open questions were posed first in order to avoid an activation of gender as a category, followed by the trait based-ratings and then the directly gender-related questions.

2.3 Results: Cue analysis and constructive processes

2.3.1 Gender construction in CMC

The following leading questions were of special interest for us: Did participants form hypotheses about the gender of the co-participants on the basis of language and communicative behavior? If so, which criteria did they use? How often were their hypotheses correct, and what did such accuracy depend on? In the given context, *guessing probability* for gender was better than chance: 2/3 of guesses were correct independent of sex and condition. In the research literature reported guessing probabilities range from chance (e.g., Mulac, 1998) to anywhere like 91.4% (Thomson & Murachver, 2001). In naturally occurring discourse, guessing probability seems to be higher than in less natural contexts.

Trait-based-ratings

A general MANOVA yielded the following results: There was a main effect for gender-hypothesis, with $Rao R(8,181) = 2.42$; $p < .002$, and for the interaction of gender-hypothesis and condition, with $Rao R(8,181) = 1.57$, $p < .02$, while no significant effect was found for real gender. This strongly indicates that constructive processes were at work. The main differences occurred on the items analytic/task-oriented $F(1, 61) = 17.21$, $p < .0002$ and supportive/cooperative $F(1, 61) = 16.69$, $p < .0002$ on which "assumed women" were rated higher. "Assumed men" were rated higher on assertiveness/dominance $F(1, 61) = 6.48$, $p < .01$. Effect sizes (η^2) did not exceed $\eta^2 = .30$ (with a confidence interval of 95%). Such small effect sizes are not surprising, because of the small samples of groups in this study. There was no effect of real gender of participants in the anonymous conditions. Effects for real gender were only found in the non-anonymous condition.

Overall, in the anonymous conditions women and men were perceived more similar than in the non-anonymous condition, indicating the lack of the usual accentuation effect. Trait-ratings depended on gender-hypothesis rather than on real gender of participant. In the non-anonymous condition participants were evaluated by their real gender. Evaluations pointed in stereotypical direction: women were rated more cooperative and pleasant, men more analytic, assertive and dominant. Quality of argumentation (competence) was rated higher in women whereas their influence on the opinion of others was rated lower. In the anonymous conditions assumed women were additionally rated more task-oriented, what can possibly attributed to the slight gender-bias in the discussion topic. The fact that participants

ratings in the anonymous conditions depended on their gender-hypotheses before they were even asked to actively think about them in the questionnaires points to the omnirelevance of gender.

Cue utilization

Although some cues were highly idiosyncratic, people mostly used cues that were gender-stereotypic. However, different types of cues (cf. Merten, 1995) led participants to differential guessing success. The cues were, in the order of frequency of use:

1. Pragmatic cues (69% of the cases): Hints from conversational behavior, style, arguments and relational behavior. For example, cracks lots of jokes → must be a man; listens carefully → must be a woman.
2. Semantic cues (16% of the cases): Hints taken from direct content-related text parts, talking about profession or hobbies, descriptions of certain experiences or interests. For example, always wanted to become a nurse → must be a woman; very interested in motor sports → must be a man.
3. Syntactic cues (15% of the cases): Hints from language and grammar, e.g., sentence construction, use of certain expressions, and use of certain grammatical forms. For example, use of softeners or hedges, "kind of, sort of" (German "irgendwie"), intensifiers "really, truly" (German "wirklich") → must be a woman, if use is high; must be a man, if use is low.

Figure 10: Cue utilization and predictive value in the gender-anonymous conditions

Examples of cues used in the anonymous gender non-salient condition: 40 of 64 guesses correct → 63% (36 of 57 mixed-sex only → 63%)

Syntactic cues (12% use; 6 of 7 correct; only women saw those cues):

- Group B1: uses strong language → man (correct);
- Group B2: uses intensifiers → woman (correct); talks a lot → woman (wrong);
- Group B3: uses male and female version of the word student → woman (correct);
- Group B4: uses colloquial language → man (correct);
- Group B5 (same sex): certain expression → woman (correct);
- Group B6: colloquial language ("hi") → man (correct);

Semantic cues (11% use; 3 of 6 correct; 3 men and 3 women observed these):

- Group B1: "I am looking forward to stats" → man (correct); doing therapy gives one the sensation of power → man (correct);
- Group B4: reminds group of barriers like statistics exams → man (wrong); math and biology interests → man (wrong); Organizational Psychology (ABO) interest → man (wrong);
- Group B5 (same sex): dancing as a female hobby → woman (correct);

Pragmatic cues (77% use; 31 of 51 correct):

Group B1: identity important → woman (correct); understanding → woman (correct); sensitive → woman (wrong); serious, differentiated → woman (2x correct); thinks about everything → woman (correct); aggressive → man (correct); aggressive → man (wrong); helpful → woman (correct); self-confident → woman (wrong); search for "traitor" → man (correct); wants to flirt, searches contact → man (2x correct); talks a lot, "bullshits" → man (correct);

Group B2: communicative → woman (correct); "mothering" → woman (wrong); over-interpretive → man (wrong); provocative → man (correct); assertive → man (correct); dominant and humorous → man (wrong);

Group B3: search for soul → woman (correct); rational → man (correct); honest → woman (wrong); emotional → woman (correct); emotional → woman (2x wrong); cautious → woman (wrong); assertive → man (correct);

Group B4: rational → man (wrong); great interest in psychology → woman (correct); insecure → woman (correct); open → woman (3x correct); demonstrates strength → man (correct); shy → woman (wrong); "sorry", apologetic → woman (wrong); very self-confident → man (correct);

Group B5 (same sex): rational, thinks about stats → man (wrong); very personal → woman (correct); does not want to deal with his own emotions → man (wrong);

Group B6: Assertive → man (wrong), doesn't talk about anxiety → woman (correct); shy → man (wrong); likes to care about others → woman (correct); specific metaphor → woman (wrong); direct → man (wrong); insensitive → man (wrong); emotional → woman (wrong); opportunistic → man (correct);

Examples of cues used in the gender-anonymous gender-salient condition: 41 of 62 guesses correct → 66% (25 of 40 mixed-sex only → 63%)

Syntactic cues (17% use; 9 of 10 correct; 9 women and 1 man mention syntactic cues):

Group C1: colloquial language → man (correct);

Group C2: complex sentence structures → woman (correct); strong language → woman (correct); talks a lot → woman (wrong);

Group C3: uses male and female version of the word student → female (correct);

Group C4: uses strong language → man (2x correct);

Group C5 (same sex): uses intensifiers (*super fast*) → woman (2x correct); to think 'normally' (in quotation marks) – woman (correct);

Semantic cues (20% use; 6 of 12 correct; 7 from women 5 from men):

Group C1: "on the weekend I'll rather be in front of the computer" → man, computer interest (2x wrong); dancing as hobby → woman (correct);

Group C4: "Verona Feldbusch (German Sex Symbol) is a genius" → man (wrong); "who is Verona?", men do know Verona → woman (wrong); likes Verona → man (wrong); provides

precise definition → man (correct); talks about car races and Rome → man (correct); talks about making money at the car races → man (wrong);

Group C5 (same sex): "I recently read a book about..." → woman (correct); "talking with friends" → woman (2x correct);

Pragmatic cues (63% use; 26 of 40 correct):

Group C1: aggressive, ironic, sexist → man (wrong); taking things personal/serious → woman (correct); romantic → woman (wrong); self-ironic → woman (correct), solidarity against another person, making fun of another person → man (correct);

Group C2 (same sex): brief, structured → man (wrong); direct, tries to take leadership → man (wrong); balanced viewpoint → woman (correct); easily hurt → woman (correct); depression: female topic → woman (correct); humanistic viewpoint → woman (correct); creative, discussion oriented → woman (correct); cynical → man (wrong); without emotion/cold → man (wrong);

Group C3: humor → woman (correct); reflecting, person-oriented → woman (correct); emotional → woman (2x correct); knows everything better → woman (correct); takes leader role, not shy → man (wrong);

Group C4: cynical, over-generalizing → man (wrong); addresses others directly → woman (correct); emotional → woman (wrong); sensitive, shows solidarity, helper syndrome → woman (2x correct); emotional → woman (correct); cordial expression → woman (wrong);

Group C5 (same sex): dominant → man (wrong); shy → woman (correct); self-confident → man (2x wrong); assertive → man (wrong), personally addressing people → woman (correct); friends important → woman (2x correct); rational → man (wrong); open → woman (correct); reflecting, discussing personal things → woman (correct); provocative → man (wrong);

Note: for further classification see Table 2

Although they were the least used *syntactic cues* had the best predictive value. For example, e.g., ‘using both gender forms in addressing people’ (e.g., "*Student/In*", as the male and female form of "*student*") was the best predictor for women; ‘using strong language’ was the best predictor for men. The specific syntactic cues used led participants to a success rate of > 88% (see Table 2). Interestingly, almost only women made use of syntactic cues, only one man out of 17 participants used a syntactic hint (*uses strong language* → must be a man). *Semantic cues* had the least predictive value. People, for example, talked about ‘interest in statistics’ and usually inferred male gender from statistical interest. However, the predictive value of this cue was no better than chance (50%), as were on average all the semantic cues people attempted to use. *Pragmatic Cues* had a predictive value of 63% (the exact average guessing probability). Participants used mostly stereotypic conversational behavior. Paragraphs pointing to assertive or aggressive behavior were mostly used to infer male

gender, whereas paragraphs pointing to emotional or sensitive behavior were mostly used to infer female gender (for a detailed overview see Koch, Müller, Kruse, & Zumbach, 2002).

Table 2

Results of cue analysis for anonymous groups in Experiment 1 ($n = 42$): cue utilization and percent accurate within each type and for women and men separately

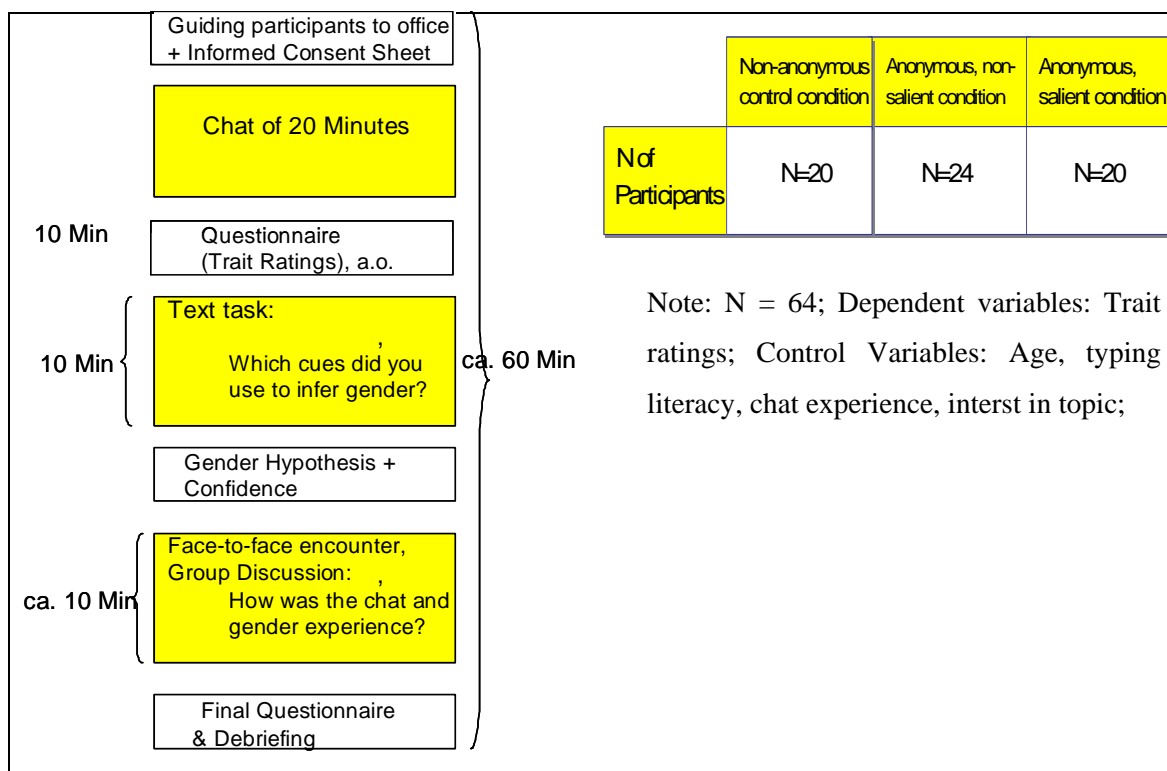
	Use	% accurate	Men ^a	% accurate	Women	% accurate
Non-salient Condition						
Syntactic Cues	12%(7)	86%(6)	0% (0)	0% (0)	100% (7)	86% (6)
Semantic Cues	11%(6)	50%(3)	66% (4)	50%(2)	33% (2)	50% (1)
Pragmatic Cues	77%(51)	61%(31)	46%(23)	65%(15)	54%(28)	57%(16)
Salient condition						
Syntactic Cues	17% (10)	90% (9)	10% (1)	100%(1)	90% (9)	89% (8)
Semantic Cues	20% (12)	50% (6)	50% (3)	50% (3)	50% (3)	50% (3)
Pragmatic Cues ^b	63% (40)	65% (26)	48%(19)	79%(15)	52%(21)	52%(11)

Note: Percentages do not always sum up to 100 due to rounding errors; they have been computed from mean frequencies of two raters; agreement was 91%, Cohen's kappa = .70, agreement on rank order of cue use was 100%; ^apercentage of use by men from total men and women; ^bin a strict linguistic sense all cues here are pragmatic cues: syntactic-pragmatic, semantic-pragmatic, and pragmatic-pragmatic (cf. Merten, 1995).

Qualitative Analysis of Cues Used. Overall, there was a great variety of reasons given for why certain text passages were used for guesses about the gender of the "speaker". Participants used pragmatic cues in two thirds of the cases, and syntactic or semantic cues together in one third of the cases as the basis for inferring gender. Interestingly, syntactic cues were almost exclusively used by women (no corresponding hypothesis had been formulated). Semantic cues were used almost equally by men and women and pragmatic cues (mostly inferences on the basis of gender stereotypes) were slightly more often used by men, and with greater success, than by women. Overall, men used almost exclusively pragmatic and semantic cues, whereas women used all three categories, and were particularly successful at inferring gender from syntactic cues. Semantic cues (mostly interests, hobbies) were the least reliable for inferring gender.

In the non-anonymous control condition almost all of the highlighted texts were the middle names, even though participants had been asked to mark the cues from the text that they would have used, if gender had not been known to them. 23% estimated that they would not have guessed gender correctly in this condition. Further gender hypotheses in this condition were mostly taken from the communicative behavior observed (pragmatic cues). Reasons mentioned were, for the most part, oriented toward stereotypic traits. Most of the reasons mentioned by men about women dealt with cooperative, mediating and understanding behavior, and aiming to keep up the conversation/discussion. Reasons mentioned by women about men were mostly derived from self-confident, provoking, and arrogant behavior. For their own gender, only one man and one woman mentioned a gender stereotypic reason (possibly a kind of actor-observer-bias). In this condition, men and women used both semantic and syntactic cues.

Figure 11: Flow-Chart and design of Study 1 (n = 64)



In both gender anonymous conditions participants assumed that they dealt with a woman when the person approached the discussion topic in a serious way and was openly contributing personal information. Only women inferred female gender from what they called an "emotional argumentation style". Most behaviors under this label were judged as "female" attempts to keep the conversation going and to support others in what they wanted to say. Additionally, sensitive and insecure behavior was in all cases attributed to women. Half of

those attributions were made by men. Complementary to this picture of "typically female behavior", unwillingness to take the given discussion topic seriously and not contributing anything personal to the discussion was mostly viewed as "typically male behavior". Even with this attribution of rather non-task-oriented behavior, analytic and rational argumentation style was nonetheless used as a cue to infer male gender, but only women did so. In addition, self-confident, provoking, aggressive and dominant behaviors were almost exclusively used to infer male gender. Sometimes the use of these gender stereotypic traits led to the wrong gender hypothesis. For example, to "talk a lot" (syntactic cue) was viewed as a typically female trait, but it led to the wrong gender hypothesis in the gender-anonymous conditions. Grammatical forms explicitly including female gender (e.g., "StudentInnen" → male and female form of students in one word which is one possibility of political correct language use in German), were only used by women as a cue for female gender of "speaker", and these were always correct. The diverse content-related (semantic) cues were related to certain experiences and interests. "Male typical"-interests, mostly used to infer male gender, however, were in reality more often interests of women. Generally speaking, attending to the content of the conversation led more often to the wrong gender hypotheses than did attending to syntactic or pragmatic cues.

For the most commonly used pragmatic cues, there was an almost chance probability of guessing correctly. The more frequent pragmatic cues were rational / aggressive / assertive / dominant for men and emotional / sensitive for woman; these were never used in a counter-stereotypic way. Yet, they led to not much more than chance levels of guessing success. Considering all cues used, participants behaved slightly gender stereotypic (gender non-salient condition: 32 stereotypic cues of 40 correct cues; gender-salient condition: 36 of 41) and the guessing probability was indeed better than chance. Both of these factors are based on knowledge about gender stereotypes. Swim (1994) emphasizes that depending on the situation and our motivation we can use our knowledge about stereotypes actively or passively in the service of our communicative goals. However, we normally do not know exactly how big the "kernel of truth" within a certain stereotype is, so we are more or less prone to biases.

Dominance cues in conversational behavior: Talking time and nonverbal dominance

Conversational behavior during CMC varied depending on gender anonymity: when gender was known men talked more, when it was not known women talked more. I interpret these findings in line with research findings that – when gender is known -- men talk more in public

contexts whereas women talk more in private contexts (cf. Canary & Dindia, 1998; Dindia, 1988; Noller & Fitzpatrick, 1988) assuming that the chat situation was in fact interpreted as a public situation. Gender-anonymity thus had an equalization function regarding the amount of talk.

In the face-to-face discussion (FTF) after the chat men talked more, but not significantly $F(1, 53) = .764; p = .38$; men on average talked 78.4 sec per discussion unit ($SD = 50$), women talked 68.3 sec. per discussion unit ($SD = 35.2$). This underlines the tendency for men to talk more in public contexts (assuming a moderate degree of public context in our face-to-face situation, Noller & Fitzpatrick, 1988; Canary & Dindia, 1998). Two independent observers agreed to 98% on the talking times of participants from videotape observations.

In order to assess nonverbal dominance we focused on expansiveness (i.e., the amount of space persons use for their movements, cf. Hall, 1984; Mehrabian, 1970), amount of gesturing (cf. Dovidio, Brown, Heltmann, Ellyson, & Keating, 1988), and relaxation (i.e., the amount of muscle tension of a person, with lower tension indicating higher dominance levels; cf. Mehrabian, 1970). For example, a person that needs not be very vigilant in a given situation will be more relaxed. The observation of nonverbal dominance cues resulted in men using higher amounts of expansiveness, higher amounts of gesturing, and women being slightly higher in relaxation, yet not significantly. Thus, corresponding to the higher amount of talking time, men showed in the non-anonymous chat groups and in the face-to-face groups they also displayed more nonverbal dominance in the face-to-face encounters.

Control Variables

Age, interest in discussion topic, typing literacy and chat experience served as control variables. All variables were assessed by self-ratings on four-point Likert-scales. Overall, men and women did not differ significantly on the control variables in any of the conditions. Additionally, differences between men and women in all three conditions were not significant. Though not significant, mean age of men was slightly higher ($p = 0.07$, especially in condition 1), women to rated their typing literacy as better ($p = 0.17$, especially in conditions 1 and 3) and men rated their chat experience as higher ($p = 0.12$, especially in condition 2), interest in discussion topic was slightly higher for women (across all conditions).

Differences between salient and non-salient condition

In the salient anonymous condition, I expected more gender-related communicative processes (H4) than in the non-salience condition. In addition, I expected more consistency in argumentation (between cue-based and overall gender hypothesis in the text task) of participants in the salient condition vs. the non-salient condition. The first part of the hypothesis was not confirmed: the missing gender information was mentioned to equal amounts in both anonymous conditions. Text parts were highlighted to about the same amount in both conditions. Participants in the salient condition asked slightly more content-related questions in order to get more gender cues, but these were of no use for their guesses (predictive value at chance level). The second part of the hypothesis was not confirmed either, as participants in both gender-anonymous conditions had an equal amount of inconsistencies in their argumentation between gender-hypotheses in the highlighted texts and overall gender-hypothesis. The fact that there were no significant differences between salient and non-salient condition, suggests that gender as a category is omnirelevant (cf. Garfinkel, 1967) and automatically assessed in the process of each interaction. As expected, gender-salience had a small influence on active strategy use in conversation, for example, participants asked interest and hobby questions, such as "do you like Schumi (Michael Schumacher)?" However, as we have seen, semantic cues did not really have any predictive value, and, thus, in the end were not of any use to them. We did not find influences of condition on guessing probability nor on confidence of those judgments (in fact, accuracy was at about 63% in all three conditions, given that in the non-anonymous condition participants were asked: if you would not have known, would you have guessed the gender of your chat mates?), nor did we find influences of the two anonymous conditions on congruency of argumentation in the chat text highlighting task (results of qualitative analysis). The same amount of consistent or rather inconsistent argumentation was found in the process of forming the gender-hypotheses in both anonymous conditions.

Gender anonymity

Gender anonymity within the chat situation was significantly, $F(1, 61) = 3,45, p < .05$ more comfortable for women. Some theorists have argued that CMC reduces normative influences and, thus, has an equalization effect on participants (Kiesler, Siegel, & McGuire, 1984; Sproull & Kiesler, 1986). Others (e.g., Postmes, Spears, & Lea, 1998) have argued that because there are less social identity cues in CMC the necessity of communicating identity verbally becomes more prevalent which causes an increase in norm-oriented behavior (e.g.,

gendered language use). Herring (1996) found that gender differences are amplified in electronic discourse, e.g., men monopolize talking time in online-discussion groups both in numbers and in lengths of messages. However, participant in CMC themselves can usually decide how much of their social identity they want to communicate, and women have more likely been found to use pseudonyms that mask gender (Jaffe, Lee, Huang, & Oshagan, 1995).

In sum, results suggest (a) that the *gender anonymity* within the chat situation is generally more comfortable for women, (b) that, in the given context, the *guessing probability* for gender was better than chance: two thirds of the gender guesses of men and of women were correct independent of the experimental condition, (c) that the cues people used –while some being highly idiosyncratic– were *mostly gender stereotypic*. The cue use, however, led to differential success, with syntactic cues being the most predictive, semantic cues the least predictive and pragmatic cues the most frequently used, (d) that in the anonymous conditions women and men were perceived more similar than in the non-anonymous condition indicating the *lack of the usual accentuation effect* under gender anonymous circumstances, (e) that *conversational behavior* varied depending on gender anonymity, e.g., when gender was known men talked more, when it was not known women talked more and (f) that the difference between *gender salience and non-salience conditions* did not play a role for the relevance of gender as an organizing category, pointing to the *omnirelevance of the gender category*.

2.3.2 Follow-up study: Who-said-what?

A test of basic category use

About three weeks later, a *Who-said-what* post test on the chat text data was additionally administered with some of the participants (Klauer & Wegener, 1998; Taylor, Fiske, Etkoff, & Rudermann, 1978). I was interested to test whether participants made more within-category errors (within gender categories, i.e., taking a woman for another woman or a man for another man), than between-category errors (across gender categories, i.e. taking a man for a woman or taking a woman for a man) while trying to remember, whether an utterance stemmed from a male or a female participant. Klauer and Wegener (1998) describe that the finding of more within-category errors than between-category errors has been extraordinarily stable and list 50 experiments that have employed the "who-said-what" method to a variety of social categories (mostly race, sex, educational status, academic status, attractiveness,

color of clothing). They furthermore list three sources of error, of which I have successfully excluded the first two in this study: a) usually participants do not have the option to say that they do not remember an item at all (in our study they selected only those utterances from the chat protocols, where they seemed to remember speaker or at least gender of speaker), b) if participants attend more to person-based than to category-based statements (cf. Fiske & Neuberg, 1990) any type of error will decrease and in the extreme case we might not get any erroneous assignments at all, even though the category of the speaker may be highly salient (Klauer & Wegener, 1998). This error is also extremely unlikely in our natural language material. Due to the amount of statements (quantity), as well as the form of communication, we can not expect as much gender salience in CMC as in face-to-face contact. This assumption could also be demonstrated by comparing CMC and FTF within a "who-said-what" approach. The third form of confounding is more problematic and I can not exclude that it happened in the context of this study. Because we are dealing with stereotypes, we have to assume that each participant holds expectations regarding the correlation between the content of utterances and the category membership or the gender-hypothesis in our study, depending on their implicit theories. Especially in the anonymous conditions we would assume a lot of guessing on the basis of those assumptions (illusory correlations). Expectancy-based guessing increases the error-difference measure independent from actual memory for the utterance, as Klauer and Wegener (1998) note. We thereby run danger to measure the effectiveness of the guessing strategy rather than the real differences in social categorization.

Method

Twenty-two students (ten women and twelve men) from the University of Heidelberg participated in this follow-up study. They were given partial credit toward a course requirement. Students were each given a print out of their chat texts and asked to simply write down, which utterance stemmed from which participant and the participants gender. They were also allowed to put down gender only, if that was the only thing they remembered (cued recall selection task). The conditions for this study were not ideal, because participants were unevenly distributed to the chat conditions. We assumed that recall would be influenced by chat condition and gender hypothesis, however, chat condition had no influence on memory retrieval. Moreover, because we worked with four person groups, gender -- in terms of guessing probability of group members -- was unevenly distributed in the groups: next to the *self* there was one other person of the participant's gender, but two other persons of the

other gender. The *me* versus *not-me* category is clearly expected to overwrite the gender category, as the self is probably one of the few *more basic* cognitive categories compared to gender. In order to account for the latter problem, Klauer and Wegener (1998) suggested a corrective procedure prior to data analysis which I applied to the data. One can effectively exclude self-related errors, if between-category errors are multiplied by a constant, $(n-1) / n$. This takes into account that there are more possibilities for confusion between categories (all members of the other category), than within categories (all members of the category minus the speaker).

Results

I found the expected difference in error-types in favor of within category errors, with $\chi^2(1, 214) = 5.52, p < .02$. Yet, the methodological limitations named above call for caution in the interpretation of this effect (different conditions with different group sizes). In order to control for gender-hypothesis related memory effects of participants in the gender-anonymous groups, I repeated the analysis with the participants in the gender non-anonymous control condition only ($N = 9$, five men and four women; $N_{obs} = 79$) and found no significant differences in chi-square values. Moreover, there were no significant differences in a comparison between gender anonymous and non-anonymous group, with $\chi^2(1, 189) = 2.11, p = .15$.

Despite the methodological problems, overall, I found that participants made more within-category errors (within one gender category, i.e. between two women or two men) than between-category errors (between the gender categories, i.e., between a man and a woman). Results point to the fact that *gender is a basic category* along which other information, i.e. here, the content of the discussion, is organized.

Taken together, in the chats, a high situated flexibility was observable *in the gendered behavior* of male as well as of female participants. The omnirelevance and primacy of the gender category is emphasized by our research. Gender as a category was just as influential and gender guesses just as accurate, when participants did not pay attention to it (non-salient group) than when they did pay attention to it (salient group), and gender was used as an organizing category of the discussion (who-said-what results). This study revealed constructive processes in trait-inferences, in type of cues used and in the interpretation of cues. All of these effects were depending on gender-hypothesis rather than on the real gender of the person. In order to test the influence of gender-hypotheses more systematically, I later

conducted Experiment 6 with an experimental manipulation of participants' gender-hypotheses, focussing on gender-hypothesis based acceptance of leadership in a team session.

2.4 Discussion: Evidence for constructive processes in verbal group conversation

2.4.1 Results of hypothesis testing

Experiment 1 uses a conceptualization of gender as something that we do not *have* but *do*, (e.g., by language use in social interaction). From this perspective the construction of gender in computer mediated communications among four chat mates who did not know each other was investigated. Results suggest, first, that the gender anonymity within the chat situation is in general more comfortable for women, pointing to the fact that gender expectations are usually experienced as more restrictive by women (cf. Jaffe, Lee, Huang, & Oshagan, 1995). Second, in the context of this study there was a better than chance probability of being able to correctly guess gender of group mates. 2/3 of the gender guesses of men and women were correct, independent of condition. This is a comparatively high percentage (cf. Mulac, 1998). Third, people next to using a lot of highly idiosyncratic cues also used a lot of gender stereotypic cues as the basis for inferring others' gender. Some stereotypic traits were systematically over- or underestimated (cf. Swim, 1994): in the cue-analysis the mentioning of content related stereotypic traits such as professional interests or hobbies often led to the wrong gender hypothesis, whereas certain syntactic markers, (e.g., the use of strong or colloquial language or the use of feminine and masculine forms of words), and certain pragmatic markers, (e.g., supportive conversational behavior as a basis for inferring female gender, competitive behavior as a basis for inferring male gender), often led to the correct gender hypothesis. The women of this sample were obviously more sensitive to syntactic cues, the type of cues with the highest predictive value for prediction of gender. Due to the small numbers of the use of syntactic cues (n=17), however, this effect needs testing in further studies (see Chapter 4).

In the gender-anonymous conditions women and men were judged more similarly than they were in the non-anonymous condition, indicating the lack of the usual accentuation effect under gender anonymous CMC conditions prevailing in face-to-face conditions. The difference between gender salience and non-salience conditions did not seem to play a role for the relevance of gender as an organizing category, pointing to the omnipresence and

omnirelevance of gender as a basic category for organizing interaction (this corresponds with findings from Markus & Oyserman's study, 1989). Conversational behavior varied depending on gender anonymity. When gender was known men talked more, when it was not known women talked more. Yet, not all outcome was gender-related, many findings were of more idiosyncratic nature.

We ought not to lose sight of the special conditions of the CMC context. There is mixed evidence about reduced or increased normative pressure in online communication. Some theorists have argued that CMC reduces normative influences and, thus, has an equalization effect on participants (Kiesler, Siegel, & McGuire, 1984; Sproull & Kiesler, 1986). Others (e.g., Postmes, Spears, & Lea, 1998) have argued that because there are less social identity cues in CMC the necessity of communicating identity verbally becomes more prevalent which causes an increase in norm-oriented behavior (e.g., gendered language use). Herring (1996) found that gender differences are amplified in electronic discourse, e.g., men monopolize talking time in online-discussion groups both in numbers and in lengths of messages. However, participant in CMC themselves usually can decide how much of their social identity they want to communicate and women have been found to more likely use pseudonyms masking gender (Jaffe, Lee, Huang, & Oshagan, 1995). In normal everyday situations our behavior and perception is probably more directly influenced by gender expectations. However, the impact of gender on these situations also varies considerably. Gender is always constructed within a concrete situation which might depend on a complex of interwoven perceptual and behavioral processes. These processes can re-construct gender, but they also include the potential for change. To what degree gender (stereotypic) expectations – toward ourselves and others- will shape or restrict our perceptual and behavioral possibilities is strongly influenced by the specific context.

Tests of the first two hypotheses suggest that gender has an influence on evaluations by other participants (a) when it is known, or (b) in the form in which it is guessed (H1). In the gender anonymous conditions the only significant actual gender difference was that women were rated higher than men on the item "talks a lot". The known gender of participants in the control condition was accompanied by differential evaluations on four of the eight items. In accordance with gender stereotypic expectations, the communicative behavior of men is evaluated as less cooperative and less pleasant, whereas women's behavior is evaluated as more cooperative and more pleasant. In contrast to the culturally dominant gender stereotype, though, men were evaluated as being less analytic and task-oriented and their quality of argumentation was rated lower. To interpret the lower competence rating, hidden in the latter

item, we need to take into account the specific context in which these interactions took place, and especially consider the implications of the topic. Task-orientation, in this situation, might have been associated with taking the topic seriously, and answering more open which was rather expected from women. Higher task-orientation might then also be related to higher quality of argumentation and, thus, explain why women would be rated higher on this item as well. Nonetheless, these findings do run counter to the general gender stereotypes. The fact that there was no difference depending on the degree of gender salience (i.e., between experimental conditions) and the results of the Who-said-what study suggest the omnirelevance of gender.

While the actual gender of participants was not important for others' judgments of them, the hypothesized gender was clearly related to how participants were evaluated by group mates. The effect of the hypothesized gender had about the same effect size in the anonymous conditions as the actual gender has when it is known in the non-anonymous condition. Furthermore, the role of hypothesized gender may also depend on additional aspects such as the age of the target or the topic-related interest of the observer.

2.4.2 Methodological considerations

A number of counter-stereotypical results need explanation. Women were rated higher "quality of argumentation", our competence measure, which could result from their higher behavioral task-orientation (taking the topic seriously and reacting more open to it). It is more difficult though to explain the similarities in ratings on "dominant/assertive", "talks a lot" and "displays emotions". One possible explanation for the discrepancies between the results of this study and the general gender stereotypes may be found in the main assumption of the shifting standards model (Biernat & Manis, 1994; Biernat & Fuegen, 2001). The model assumes that participants do not use the same standards for the judgment of men and women. These different standards manifest in subjective use of rating scales depending on whether the target is a man or a woman (e.g., "for a man he is pretty friendly"; "for a woman she is quite competent"). The use of subjective rating scales, as in this study, can lead to a differential anchoring on those scales depending on the target of judgment (here: the hypothesized and actual gender of participant). An identical amount of displayed emotion could, thus, lead to a higher rating for men than for women. Such a shift of standards could principally have occurred when gender was known (non-anonymous control condition). Moreover, the "assumed gender" in the other conditions could have operated in the same way. Thus, predictions of the model would have supported our hypotheses even more. It is hard to tell,

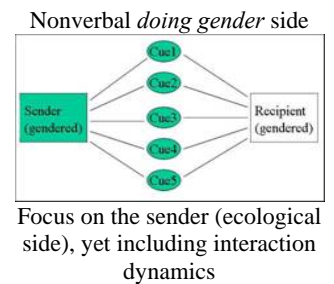
whether the effect of the known gender of participants on the judgment of their communicative behavior is related to observable behavioral differences or not (even though there are hints for this assumption.). In reality these processes are interwoven on many levels and I doubt that differential behavior would have led to a corresponding amount of differential judgments. In the end, the behavior of men and women did not differ fundamentally, but was to a large degree flexible and context dependent. What differed systematically were the perceptions of participants according to their gender-hypothesis. These observations would speak against the assumption that gender differences are deeply anchored in the biology of sex differences. Non-gender individual factors played a much more prominent role than did gender even when gender was known. Next to the highly significant influence of the chat experience of participants on how they were perceived on the item "talks a lot", interest in the discussion topic had an important influence on judgments of the others. Furthermore, the perception of a person was dependent on attributes of the perceiver.

In sum, results suggest (a) a strong role of gender expectations in CMC (b) the omnipresence of gender as a category independent of experimental condition, (c) gender-specific perception and implications of anonymity, (d) a comparatively high accuracy of guessing (63%) from non-standardized online CMC communication, (e) the conversational relevance of syntactic, semantic, and pragmatic cues as well as gender stereotypes and expectations for inferring gender hypotheses, (f) and the influence of gender anonymity on perceptual processes.

However, a great portion of behavioral variability was also due to other factors than gender. Gender construed in a strictly dichotomous fashion seems to restrict behavioral choices of men and women. Results point to a high context dependent situated flexibility in the conversational behavior of both genders in the given CMC context. Overall, the study demonstrated that a fruitful and elegant application of the lens-model and the performance and perception method to gender communication in CMC (verbal cues) is possible and can be integrated under the umbrella of a joint constructivist and gender-in-context perspective. In Chapter 3 I will now turn to the use of nonverbal cues in FTF communication that can serve as indicators of evaluations of male and female leaders' competence.

3 Nonverbal construction of gender and competence in leadership: Evaluative affect display (EAD) toward male and female authorities and its transmission in small groups

I am now turning back to the main questions from the beginning, focusing on face-to-face communication in small groups with the intention to generalize the experimental work to work related field contexts. Four studies were conducted in order to investigate differential reactions toward male and female small group leaders and authorities in a variety of contexts. I start with an overview of the relevant research.



3.1 Introduction: Evidence for differential treatment and self-perception of men and women starting a professional career

3.1.1 Self-efficacy in young authorities

Recent evidence shows that reactions toward male and female authorities on low levels of organizational hierarchies (i.e. within their first years after graduation) may be crucial to further career aspirations of men and women (Abele-Brehm, 2000a; Andrä-Welker, 1999; Phillips & Imhoff, 1997). Abele-Brehm (2000a, b) was able to show that in a sample of $N=1930$ university graduates from the University of Erlangen, Germany, men and women set out in their jobs with an equal amount of self-efficacy beliefs (Bandura, 1977; Hackett & Betz, 1981; for reviews of professional self-efficacy literature Ancis & Phillips, 1996, and Lent & Hackett, 1987). Then, they undergo a different development in their early career experiences. Three years after they started their jobs, professional women's self-efficacy had decreased considerably whereas men had remained at a similar level than at graduation time (Abele-Brehm, 2000a; Betz, 1994; Brooks & Betz, 1990; Phillips & Imhoff, 1997). In Abele-Brehm's study, this was true for women who stayed in the job. Women who did not stay in the job, mostly left for child-break. Though the explicit gender attitudes of men and women seemed to be very progressive in this German sample, almost all cases of child-break were taken by women who then had the career interruption on their side. Other researchers have

confirmed that gender differences in career advancement cannot solely be explained by intermittent workforce participation of women (Phillips & Imhoff, 1997). Terborg (1977) as an early researcher pointed out the importance of the professional entry for young women. Because of the lack of female role models in managerial positions and the masculine role-definition ("male managerial model") women think twice before entering management career, and may give up earlier when confronted with obstacles. In Terborg's times, women on average were also less qualified for management positions. This has changed fundamentally over the last 30 years. Today, social roles and social expectations generally allow women greater choices. When a woman is founding a family, it is just as accepted if she decides to fully work, fully stay at home, or combine both possibilities. Social role requirements are still stricter for men in this respect. Following Lewin's terminology between the working world and the domestic domain, there generally would be an approach - approach conflict for women, whereas there would more likely be an approach - avoidance conflict for men (Lewin, 1935). Abele-Brehm (2000a) talks about "multiple sufficient conditions" that need to be given for women to continue their careers in the face of other attractive and socially accepted options and "multiple necessary conditions" that need to be given for men, in their relative uniform life-plans of continuous participation in the workforce independent of their private situation. Taking this societal frame as a background, my research aims to find explanations for what potentially happens in the first professional years for women, and for the reasons why they often do not advance like their male colleagues. I consequently conducted a number of experiments to get hints about mechanisms that contribute to these phenomena on the basis of everyday communication in organizations. I focused on evaluative reactions that young authority persons received from their subordinates, the communication of such reactions among group members, and their potential behavioral consequences in the process of dynamic interaction.

Communication is crucial to organizational processes as it enables professional cooperation and coordination of organizational activities. Yet, because of our high degree of involvement and the high degree of its non-deliberateness, we easily do not become aware of gender related-processes in professional communication. It is the most unconscious processes that I am interested in, which cause me to focus on the nonverbal communication of reactions to gender and leadership. For example, evaluations that are manifested in glances, frowns or smiles and reactions to these signals. As Edward Sapir (1949) once said:

"We respond to gestures with an extreme alertness and, one might almost say, in accordance with an elaborate and secret code that is written nowhere, known to none and understood by all" (Sapir, 1949, p.556)

I assume that nonverbal reactions in FTF encounters are a neglected factor with implications on professional self-efficacy development in the first years of women's careers.

3.1.2 Gender, leadership and competence

Communication researchers have long been concentrated on the actor side and almost forgotten the recipient side. Duncan, Kanki, Mokros and Fiske (1984) have described this phenomenon under the label of *pseudounilaterality* (comparably Hörmann, 1978). However, the focus on active contribution of the recipient in the communicative process has experienced a recent revival in social psychology (e.g., Bavelas & Chovil, 2000; Bavelas, Coats & Johnson, 2000; Snyder & Stukas, 1999). At the same time, there has been an increasing interest in a closer investigation of the actor side, e.g., the properties and styles of men and women in leadership positions (Eagly & Johannesen-Schmidt, 2001; Eagly & Johnson, 1990; Schmid-Mast, 2000, 2002). Eagly and Johnson carried out a meta-analysis of 162 studies and found that male and female leaders did not differ on task orientation ($d = .00$) or interpersonal orientation ($d = .04$), whereas they differed in democratic style ($d = .22$). Women showed more democratic style, but only in laboratory studies, and not in field studies. In Eagly and Karau's (1991) study of leadership emergence, men emerged more often as task leaders ($d = .41$) and women more often as social leaders ($d = -.18$).

Perception of competence

An important aspect of leadership is the perception of competence. There is substantial evidence in the research literature that men are generally perceived as more competent than women (Biernat & Fuegen, 2001; Eagly & Karau, 2002; Heilman, 2001; Ridgeway, 2001). *Expectation states theory* (EST; Berger, Connor, & Fisek, 1974; Berger, Fisek, Norman, & Zeldich, 1977; Berger, Webster, Ridgeway, & Rosenholtz, 1986) argues that gender functions as a diffuse status cue. In situations of uncertainty or under the absence of other diagnostic cues, men will be perceived as more competent, especially in the context of a masculine or a gender-neutral task (cf. Ridgeway, 2001). Eagly and Karau (2002) integrated research on leadership perception and gender into their *role congruity theory* (RCT, see Chapter 1)

proposing two forms of prejudice toward female leaders. Women are *perceived less favorably* than men as potential candidates for leadership roles, and they are *evaluated less favorably* for behavior that fulfills the prescriptions of a leader role. As a consequence, attitudes are less positive toward (potential) female leaders (Eagly & Karau, 2002).

These negative evaluations may be communicated verbally and nonverbally. In situations where the target of evaluation is present and has a higher status or position, the lower status person will prefer the nonverbal channel of communication because the verbal channel may often be taboo in this context (cf. Mehrabian, 1971, Krämer, 2001). Therefore, I will focus on the nonverbal communication of attitudes, specifically of negative attitudes as we expect them to be the critical case in the communication of prejudice. I further expect that men and women in positions of authority will be differentially sensitive to the display of nonverbal cues (Hall, 1978, 1984; Hall & Bernieri, 2001), that they will notice group reactions to different degrees and at different points in time, and that they will react in different ways. If, however, leaders are not aware of negative reactions at all, they consequently should not be susceptible to behavior confirmation or self-fulfilling prophecies.

Competence perception is a crucial element of leadership acceptance (cf. Carli & Eagly, 1999; Heilmann, 2001; Ridgeway, 2001). In a qualitative study, we interviewed 26 professional men and women at the workplace, and found that *being viewed as professionally competent* was the most important factor of a positive professional self-image (free recall) for men and women in the working world (Koch, Kruse, Schey, & Thimm, 1999). Professional competence was named almost three times as much as any other contributing category, and was thus, the most important self-image factor in the professional life of men and women. The problem with competent women is that they frequently evoke much more dislike than their equally competent male colleagues at the workplace. *Expectation states theory* and *role congruity theory* would predict that in mixed-sex or masculine contexts women's efforts to assert authority will evoke resistance and dislike, thereby reducing their ability to get others to comply. This in turn impacts their effectiveness as leaders. These *double standards* for male and female leadership behavior have been described extensively by a number of experts in the field (Biernat & Fuegen, 2001, Biernat & Kobrynowicz, 1997, Carli & Eagly, 1999, Foddy & Smithson, 1999; Foschi, 1992, 2000). Reactions toward leaders in their communicative function for the group can be understood as leadership attributions. Leadership attributions are evaluations of competence (Brown & Geis, 1984). For excellent reviews in the area of gender, leadership and competence see Eagly and Karau, 2002 (last 30 years up to present),

Haslett, Geis, and Carter, 1996 (mid 70s to mid 80s), Phillips and Imhoff, 1997 (mid 80s to mid 90s); Terborg, 1977, and Unger, 1978 (both mid 60s to mid 70s; see Chapter 1.5).

3.1.3 Reactions toward women and men in positions of authority

Butler and Geis (1990) showed that the affective reactions toward men and women in authority positions¹¹ differed markedly: women in authority positions received more negative affect from both men and women. They demonstrated this in an experimental setting, where male and female confederates – playing the role of the responsible researchers – acted according to the same verbatim scripts. The two confederates dialogued with two participants, which were then observed by two raters through a one-way mirror. Observers used the Facial Action Coding System (FACS, Ekman & Friesen, 1978) to code affective facial reactions of participants toward the leaders online. The authors were able to show that women in authority positions received more negative affect reactions, whereas ratings of "leaders" competence did not reveal any differences on a cognitive measure. This suggests a non-deliberate evaluative affect display process, which participants may not be conscious of, as with many aspects of nonverbal communication (cf. Bargh & Wegner, 1998). Nonverbal leakage (cf. Rosenthal & DePaulo, 1979) constantly takes place. Nonverbal signals can be encoded and decoded while conscious attention is focused on the content of discussion. The fleeting signals themselves are quickly forgotten but their meanings remain and accumulate.

As demonstrated in a number of studies, women assuming leadership violate unconscious stereotypic expectations. Porter and Geis (1981) showed that leadership status of five person small groups (on photographs) is always assumed for the person sitting at the "head-of-the-table" position, except when the head of the table is a woman in a mixed sex-group. Then leadership is assumed from any remaining man (Porter & Geis, 1981). In dynamic interaction, fleeting facial expressions of disapproval, such as frowning, can influence evaluations of the contribution (Butler & Geis, 1990). Because we usually do not recognize when the disapproval is caused by the violation of stereotypic expectations (Haslett, Geis, & Carter, 1996), we misinterpret a disapproving expression as evidence of a poor contribution (Brown & Geis, 1984). The disapproval can be rapidly communicated non-verbally within the group, especially when uncertainty about the leader, content or process in

¹¹ Leader role variations in my experiments included „leader as experimenter” *auditory* (Exp.2), „leader as experimenter” *face-to-face* (Exp. 3), „leader as moderator” *face-to-face* (Exp. 4), factual leader *face-to-face* (field study; study 5), observed role-play leader *on video* (third person, visually and auditory, Exp. 6).

a given situation is high. These differences in treatment can influence leadership performance and potentially discourage women leaders.

In the Butler and Geis (1990) experiment, the identical content of contribution was evaluated differentially in male and female leaders. The authors' interpretation was, that it was not the content, but the violation of the gender-role prescription (that she overstepped the boundary of the low status expectation) that caused the disapproval. If a disapproving expression of a group member is recognized, it is usually attributed to the poor quality of the contribution. In the Brown and Geis (1984) experiment judges rated a leader's contribution followed by group members disapproving or approving facial expressions. Devaluation of identical contributions occurred for male and female leaders, when disapproval was displayed. The perceived "quality" of leadership is thus subject not only to leader's actual contribution, but also to judges interpretations and others reactions to it. This influence of others' reactions is in most cases unconscious, because cognitively we usually focus on other things, such as tasks (Haslett, Geis, & Carter, 1996).

3.1.4 Central concepts: Evaluative affect, attitude and bipolarity of affective reaction

An attitude is a system of beliefs with an affective and a cognitive component. (Allport, 1954; Chaiken, 1980; Edwards, 1990; Fishbein & Ajzen, 1975; McGuire, 1985). Eagly and Chaiken (1993) add the behavioral component to the definition. Prejudice is a negative and over-generalizing attitude system. Attitudes can be communicated by expressive verbal and nonverbal signals. Here, affect is understood as the expressive and communicative aspect of an attitude or an emotion. Evaluative affect display is the expression of a positive or a negative attitude by means of nonverbal communication. In trying to uncover prejudice or discrimination in work settings, we focus on the side of negative evaluative affect. We assume that negative attitudes toward authorities will be mostly communicated nonverbally. Once these signals reach the recipient, they may have perceptual and behavioral consequences and set off interaction dynamics, such as self-fulfilling processes and behavior confirmation. The relationship between affect and expression has long been discussed in the literature, as well as the relationship between communicative and expressive function of nonverbal behavior (Friedlund, 1994; Rosenberg & Ekman, 1994; Ruch, 1995). Summarizing the state of affairs, Yik and Russell (1999) write that faces convey social messages (communicative function) with about as much consensus as they convey emotional messages (expressive function). The concept of evaluative affect describes a communicative phenomenon. Under the *evaluative affect effect* we understand the biased reaction of displaying more negative nonverbal

expressions to female leaders and, thus, contributing to the communication of prejudice. In terms of the lens-model, on the cue level evaluative affect consists of a number of facial nonverbal cues, such as frowns, smiles, eyebrow-raises, and hand-gestures such as "thumbs up" or "thumbs down" (emblems) that are used solely or combined to encode and decode attitude of target (distal concept).

Cacioppo, Berntson, and Gardner (1999) state that affective reactions in their behavioral expression are bipolar (see also Neumann & Strack, 2000). Studies of the conceptual organization of emotion suggest that people's knowledge about emotions is hierarchically organized, and a superordinate division is between positivity and negativity (Cacioppo, Berntson, & Gardner, 1999; Brief & Weiss, 2002). One reason underlying this division may be that physical constraints restrict behavioral manifestations to bipolar actions (e.g., approach and avoidance, cf. Chen & Bargh, 1999; Neumann & Strack, 2000). Evolution favors the organism that learns, represents, and accesses rapidly whether approach or avoidance is adaptive when confronted with a stimulus. Accordingly, attitudes also tend to be more expected and stable when organized in terms of a bipolar evaluative dimension. Thus, the principle underlying approach/withdrawal can perhaps best be conceptualized as a single dimension at response stage with a bivalent affective response as the consequence of two evaluative channels, one for positivity (appetition) and one for negativity (aversion) (Brief & Weiss, 2002; Cacioppo, Berntson, & Gardner, 1999). The according categorization processes are mostly non-deliberate.

There has been ample research about attitudes toward women and men in leader roles, yet, they have mostly been measured on rating scales (verbally; cf. Eagly, Makhijani, and Klonsky, 1992). For example, the Harvard Business Review had two large samples of male and female executives in 1965 and 1985 to measure whether their own basic attitude toward women in management was "strongly favorable, mildly favorable, indifferent, mildly unfavorable, or strongly unfavorable?" The study found that 35% of the men and 82% of the women in 1965 chose strongly or mildly favorable, compared with 73% of the men and 91% of the women in 1985 (Eagly & Karau, 2002). The general conclusion from these surveys was that in 1965 the majority of male executives, but not females, disapproved of women in executive roles and that by 1985, this bias against women on the part of male executives had decreased considerably but not disappeared (Eagly & Karau, 2002). Looking at more recent data, we can assume that this trend continues. The use of explicit measures of gender attitudes usually creates a very large social desirability bias in the data obtained. Thus, Carpenter (2000) used the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998) to

assess the strength of student participants' associations between the terms "male leaders" and "female leaders" with pleasant and unpleasant evaluative words (e.g., *excellent*, *terrible*). The results of several experiments suggested that the women had a more favorable implicit attitude toward female leaders, whereas men's attitudes were inconsistent across the experiments. Employing a different type of implicit measure, Rudman and Kilianski (2000) primed student participants with drawings of male or female authority figures (e.g., doctor, boss, or judge) and assessed latency of response to positive or negative adjectives. This method suggested that both male and female students had negative attitudes toward female authority figures and more neutral attitudes toward male authority figures. However, women showed less prejudice than did men on an explicit measure on which respondents indicated their preferences for male versus female authorities (Eagly & Karau, 2002). Since nonverbal signals of approval and disapproval of authorities are in the majority of the cases given of non-deliberately, behavior observations in this case are one of the least intrusive methods to assess attitudes toward target persons.

3.1.5 Attitude transmission in groups: The potential role of emotional contagion

Similarly, non-deliberate processes are under investigation in Study 3. In Study 2 (see Chapter 3.2) some of the groups showed consistently more negative reactions toward female leaders across participants. I assume that there are processes of emotional contagion (Hatfield, Cacioppo, & Rapson, 1994) at work. Emotional contagion is defined by Hatfield et al. (1994) as

"the tendency to automatically mimic and synchronize facial expressions, vocalizations, postures, and movements with those of another person and consequently, to converge emotionally" (Hatfield, Cacioppo, & Rapson, 1994, p. 5).

Our research is setting out to investigate whether we have to add "or to converge attitudinally" to that definition. Hatfield et al. (1994) base their analyses on Theodor Lipps' theory (1903) of describing and analyzing steps in the empathic reaction. The process of emotional contagion is described as "relatively automatic, unintentional, uncontrollable and largely inaccessible to conversant awareness" (Hatfield et al., 1994). Hatfield and colleagues provide evidence that emotional contagion consists of the mechanisms of motor mimicry and synchrony on a behavioral level, and of facial vocal and postural feedback provided through

proprioception on a perceptual level. They further define contexts of susceptibility to emotional contagion. Similarly, Kenny, Mannetti, Pierro, Livi, and Kashy (2002) describe the phenomenon of the non-independence of groups from a methodological standpoint, and the necessity to assess the impact of indirect mutual influences in small groups.

Attitudes can be formed through simple learning mechanisms (Cacioppo, Marshall-Goodell, Tassinari, & Petty, 1992; Öhman, 1983). Little theoretical and empirical work in social psychology has been devoted to examining the influence of these "primitive" learning mechanisms on attitude formation and attitude change ("*the spreading attitude effect*", Walther, 2002). The authors emphasize the crucial role of non-cognitive evaluative processes in attitude formation (Eagly & Chaiken, 1993, which support Cacioppo's notion of a bivalenced attitude system (Cacioppo, Berntson, & Gardner, 1999), and Zajonc's notion of "affective primacy" (Zajonc, 1980, 2000; cited from Walther, 2002). In his paper "Preferences need no inferences", Zajonc underscores the general utility of studying the affect system as related to the cognitive system (Zajonc, 1980). By employing confederates whose task was to initiate an evaluative affect display manipulation, we tried to investigate these contagion processes among group members in order to find out whether they can describe and explain the phenomena under investigation.

3.1.6 Reactions of leaders

Men and women might react differently to the display of negative affect. We hypothesized the emergence of differential attributional patterns (cf. Swim & Sanna, 1996), and that men will notice the display of evaluative affect less frequently than women. The latter assumption results from a line of research that Robert Rosenthal and Judith Hall started in the 1970s. Judith Hall demonstrated in a number of meta-analyses that women on average have a higher nonverbal sensitivity than men (Hall, 1978, 1984; Snodgrass, 1985). In a meta-analysis of gender-effects over 64 studies, with effect sizes of about $r=.30$, women showed better encoding and decoding abilities, especially for facial cues (Hall, 1984)¹². Men, on the other hand, generally do slightly better in the encoding and decoding of vocal cues (Rosenthal & DePaulo, 1979). Rosenthal and DePaulo assumed a connection with the fact that facial cues mainly serve the communication of socio-emotional cues, whereas vocal cues serve the communication of dominance-related, agentic cues. We estimated that evaluative affect is

¹² Hall first calculated d (*female mean – male mean / pooled within sex SD*; Cohen, 1969) then r . The relationship between d and point biserial r is: $d = 2r / \sqrt{1 - r^2}$ and $r = d / \sqrt{d^2 + 4}$. For small to moderate values of r (up to .25) d is essentially $2r$.

communicated through facial expressions in about 95% of the cases (with about one affect every minute expressed toward the leader on average in the context of a lively team meeting of about six persons in a natural context, see Study 5). Not noticing evaluative affect display from the part of the group may make men more immune to negative evaluative reactions than women. They may, therefore, not be as susceptible as women to interactional expectation processes (cf. Blanck, 1993; but see Dvir, Eden, & Banjo, 1995), such as processes of behavior confirmation (Snyder, 1984; Snyder & Stukas, 1999), or self-fulfilling prophecies (Geis, 1993; Merton, 1948). Social expectations toward women may contribute to them questioning their leadership behavior more readily and, enhance or amplify processes of self-doubt, nervousness and a general downward spiraling of self-esteem and self-efficacy beliefs.

The present studies gather evidence that evaluative affect is an important source of communicating attitudes in face-to-face interaction. That emotional contagion processes are responsible for spreading these attitudes and that noticing these reactions has self-related implications and behavioral consequences for the further dynamic interaction process. More specifically, we want to demonstrate that gender may be a major variable for the behavioral differentiation of reactions, in the individual's role as a target and as an actor.

The implications of evaluative affect for attitude and stereotype research in social psychology are obvious. Attitudes in many cases are nonverbally communicated, especially if they are negative and the target of evaluation is in a higher status position than the actor. People can control their answers and suppress their negative attitudes on rating-scales (pc-bias, social desirability), particularly, if they suspect any relation to prejudice or stereotype research. They can, however, not (entirely) control their nonverbal reactions, especially if they are not aware that those are in the focus of a given study. Even though facial reaction can be better controlled than other body reactions, which are less controllable and subject to greater "leakage" of authentic feelings, needs and judgments (Kestenberg-Amighi, Loman, Lewis, & Sossin, 1999; Rosenthal & DePaulo, 1979), the degree of non-deliberateness is much higher than that of any subjective rating scale. If researchers do not want to miss a major part of the interaction process, the use of observational methods will be crucial in attitude and stereotype research in the future.

3.2 Experiments and main hypotheses: Attempting to trace discriminatory processes

In a series of three experiments (total $N = 287$) and one field study ($N = 104$), we investigated expressive affect reactions toward leaders in small groups and their mediation among participants. On the basis of Butler and Geis' results (from 1990) that female leaders receive

more negative affect than male leaders while both were judged equally competent on rating scales, we replicated those findings with an improved methodological control and a more economic coding scheme in Study 2. Study 3 expands on our finding that in some groups reactions have been much more pronounced than in others, suggesting an emotional contagion effect in face-to-face small groups that potentially creates a group consensus reaction. We used two confederates to create a negative evaluative affect reaction in the groups and then observe its spread. In Study 4 we investigated group leaders' awareness of, attributions and reactions to negative consensual affect display. We furthermore controlled for our earlier stimulus sampling problem by using a higher number of group leaders, and three confederates for the emotional contagion intervention. While Experiments 2 to 4 were conducted as social influence role-play studies, in Study 5 we examined evaluative affect display in routine working team meetings across a variety of field settings. Finally, Experiment 6 was conducted to investigate leadership perception in a more experimentally controlled non-group setting. Participants affect reactions to either male or female leaders on short video sequences were assessed (see Chapter 4). The rationale for the single studies and their succession will be given as I go along describing them.

Table 3

Overview of the hypotheses of the Experiments 2 to 6

Hypothesis

- | | |
|--------------|---|
| Hypothesis 1 | There will be more display of negative affect toward female authorities (F>M; evaluative affect effect), while at the same time |
| Hypothesis 2 | There will be no difference in competence ratings of male and female authorities (F=M), men will not be rated more competent (not M>F). |
| Hypothesis 3 | There will be an observable emotional contagion effect between baseline and intervention ratings in the direction of the intervention valence. |
| Hypothesis 4 | Dependent on gender leaders will react differently to negative consensual affect display re: self-ratings of competence (F: $t_2 < t_1$; $t_{2f} < t_{2m}$), awareness (F>M), attributions (F: internal>external; M: external>internal) and behavior (insecurity/nervousness: F>M at t_2). |
| Hypothesis 5 | Women will show a higher nonverbal sensitivity than men, recognizing negative affect or attitude more often (F>M). |

Context dependency

- Hypothesis 6 There will be similar patterns of evaluative affect in field settings.
- Hypothesis 7 There will be no or very little evaluative affect displays in non-communicative settings.
-

3.2.1 Study 2: Nonverbal affective reactions toward men and women in leadership positions. A replication study¹³

3.2.1.1 Methods

Participants and design

Fifty-nine participants (twenty men, thirty-nine women, mean age 24, $SD = 5.4$), mostly students from the University of Heidelberg, participated in small groups of four persons without previously knowing each other. They were given partial credit toward a course requirement or could pick from a variety of sweets. Groups were randomly assigned to two conditions: a male leader and a female leader condition in a single-factorial between-subject design. For methodological reasons (cf. Kenny, Mannetti, Pierro, Livi, & Kashey, 2002) many analyses included only mixed-sex groups ($N = 48$). Dependent variables (DVs) were frequency and the amount of negative evaluative affect display, and competence ratings. Female leaders were expected to receive more negative affect (Butler & Geis, 1990). Following *expectation states theory* (EST) and *role congruity theory* (RCT), the male leader would have been expected to be rated higher in competence (e.g., Eagly & Karau, 2002). However, following Butler and Geis (1990), no male preference was expected.

Procedure

Participants first took part in a 30-minute three condition chat experiment (gender anonymous vs. non-anonymous conditions with different degree of gender salience), and were then brought in one room to discuss their experience face-to-face. They did not have any specific instruction for this discussion, just a time limit of 10 minutes. Afterwards, they received the debriefing of the preceding chat experiment from audio-tape and were told that this happened "for standardization reasons". The tape recording of either the male or female voice was the

¹³ Studies 2 to 6 have been partially supported by DFG-grant KR505/11-2. I wish to thank the German National Science Foundation.

actual intervention of Experiment 2. We wanted to know, whether their affective reactions while listening to the tapes differed in the male leader vs. female leader condition.

As mentioned before, our experiment was a replication of the Butler and Geis (1990) experiment. They were able to show that women in authority positions received more negative affect in face-to-face communication than did men. However, one shortcoming of the Butler and Geis study (1990) was that they did not sufficiently control for confederates' potential differences in nonverbal behavior display. Online FACS-coders, who sat behind a one-way mirror, were not in the position to see the faces of the two presumed "leaders". They faced the two participants who's facial reaction needed to be coded. In order to exclude the possibility that they coded mimicry or mirroring reactions – reflecting only the degree of empathic response of participants to leaders' affect display – we replicated the experiment trying to improve control of nonverbal expression. We decided to exclude all visual cues from the experimental conditions (cf. Rosenthal & DePaulo, 1979. Affect is mostly transported through the face and dominance mostly through the voice. Our experiment was masked as the debriefing part of another experiment, in which participants had already dealt with the "responsible researchers" for over 45 minutes. They were told that due to standardization requirements they would receive the debriefing from an audiotape, and afterwards could pose any remaining questions to the "responsible researcher". Participants in the *female leader condition* listened to the voice of the female leader (n=24), and participants in the *male leader condition* listened to the voice of the male leader (n=24). Additionally, 11 participants listened to the voice of the female leader, but were attended to by a female control leader. Main leaders were faculty of the psychology department at the University of Heidelberg, and the control leader was doing her diploma thesis on the preceding chat experiment. Participants were mainly new students from the incoming classes which ensured that they would view the "responsible researcher" as authorities to an acceptable degree. Audiotapes had been recorded in a "standard voice" (rather analytical and little expressive) and the content was about expected gender difference in verbal communication. Voices of "leaders" had been rated beforehand by six research assistants on several dimensions (e.g., sympathy, dominance, competence, etc.), and had to be re-taped twice before they were judged to be sufficiently similar on all important dimensions.

Observational method and inter-rater reliability

We chose the method of non-participatory observations from video tapes (one of the reasons for this choice was the aim to closely control the validity of our coding scheme). As the main

intervention of Experiment 2 occurred toward the end of the experiment, we had reason to assume that the reactivity of participants to the cameras was already very low. Four independent coders, research assistants or diploma thesis students, rated the evaluative affect displays of all participants. Their instructions were as follows:

Evaluative affect reactions are nonverbal expressive displays that communicate either a positive or a negative attitude and, thus, have commentary character (the function of making a comment) in interactions. The categorization of evaluative affect falls into positive (open/accepting) and negative (skeptical/rejecting) nonverbal expressions of attitude. Affective expressions of a positive attitude are coded by positive values from 1 to 3 in intensity, affective expressions of a negative attitude by negative values from -1 to -3 in intensity. Expressions that cannot be classified as either positive or negative right away should be coded with 0 for neutral. Coding proceeds sentence to sentence on the basis of the verbatim scripts of the leaders. If the affect expression is directed toward the leader (or the content of speech,) it will be coded with reference one. If it is an affect reaction toward other group members or the group as a whole it will be coded with reference 2.

We assumed that naïve coders would be sufficiently capable of distinguishing between a positive and negative evaluative facial expression (skepticism vs. openness), as these are vivid indicators of attitude in everyday face-to-face-interaction, that have functional or adaptive value for our social skills. However, one coder had to be excluded from the coding process as she was consistently non-reliable with the other three coders, presumably due to her different cultural background. This unforeseen occurrence suggested that evaluative affect might be subject to cultural variations leading to particular difficulties in interpretive ratings, and needing further clarification in inter-cultural studies. Coders were all blind to the research hypothesis and had all received an initial training of about one hour in the coding method. Since we used *intuitive ratings* of positive, negative or neutral display of affect toward authority, calculation of inter-rater reliability was important not only to test observer agreement, but also to assess the validity of our coding scheme (see Table 5).

Initially, three possible situational sources for affective reactions were independently coded as *content*, *leader* and *group*. Inter-rater reliability for the differentiation between these three sources was a simple percentage of agreement of > 70% (*Cohen's kappa*¹⁴ = .61)

¹⁴ We computed Cohen's Kappa values for nominal data throughout (cf. Cohen, 1960; Fleiss & Cohen, 1973).

between the first two coders. Later we coded reactions toward leaders and content jointly as they were not separable, and the content of the texts was identical. The resulting coding scheme considered two sources of evaluative affect displays (*leaders* and *group members*), and three affect categories. The three categories were *open*, *skeptic* and *neutral* (intensities were not accounted for in the reliability calculations as there were systematic rater biases in use of scales, but correlations were high throughout). Overall, the inter-rater reliability for differential reactions toward leaders was 91% (simple percentage of agreement), with *Cohen's kappa* = .71.

Manipulation check

None of the participants recognized the real purpose of the experiment, only one suspected that the debriefing was another manipulation as she had never heard about a "debriefing from tape for standardization reasons". Nevertheless she did not further guess the purpose of the study and, thus, remained in the data set.

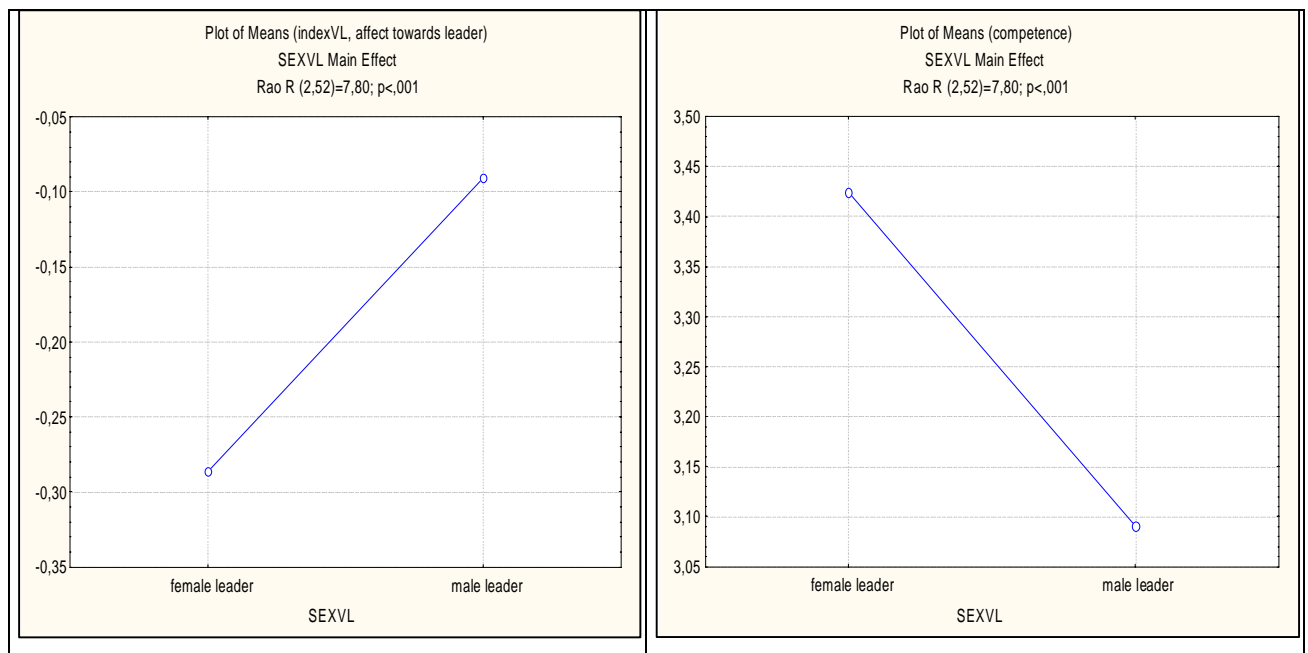
3.2.1.2 Results

Descriptive results of Studies 2 to 4 are provided in Table 4 (p. 114)

Affect display

An evaluative affect index variable was calculated using the means of the reactions to the 18 sentences of the tape-recorded debriefing of each participant. Affect displays were analyzed by computing a one-factorial ANOVA with sex of leader as the independent and the evaluative affect index variable and the competence rating as the dependent variables. Homogeneity of variances was given. A main effect for evaluative affect resulted with $F(1, 53) = 9,35, p = .003$ (and $p = .001$ for Rater R1 respectively), indicating that female leaders received clearly more negative evaluative affect than the male leader. A closer look at the data clarified that this was true for frequencies and intensity and for both female leaders to equal amounts. Values of both main raters reached statistical significances on the 1% level for the evaluative affect effect and on the 5% level for the competence rating (see Figure 12).

Figure 12: Experiment 2. Evaluative affect effect: women received more negative affect, while at the same time they were rated more competent



Note: Affect display was more negative toward female authority, with $p=.001$ (Rater1) and $p=.003$ (Rater2) while competence was rated higher for women, with $p=.19$ (R1) and $p=.039$ (R2).

Competence rating effects

Competence was assessed by ratings on 4-point Likert-scales presented within a total of 8 items per participant and leader at the end of the discussion, and computed in the one-factorial ANOVA described above. A main effect for competence resulted with $F(1, 53) = 4,47$, $p = .039$ (and $p = .019$ for Rater R1; results of all raters were significant at the 5%-level), indicating that women were rated as more competent than men.

Gender typicality effects

In order to control for the influence of psychological gender, we employed the GTS-scale (Altstötter-Gleich, Eglau, & Kramer, 2000), which is a gender type scale that measures the two dimensions of instrumentality (e.g., *I am assertive*, *I am eager to take risks*) and expressivity (e.g., *I am sensitive*, *I am open*). Like in the Bem Sex Role Inventory (BSRI; Bem, 1974), the scale allows to distinguish between the four groups of feminine, masculine, androgynous and undifferentiated individuals. We chose the GTS-scale because it had only recently been validated with a German sample and had achieved high Alpha-values for internal consistencies and (Chronbach's Alphas). In comparison to the German version of the

Bem-scales (Keller, 1978), it had the advantage that it was new. Changes within the last thirty years were taken into account. It was shorter (16 items), and it was developed in the cultural context of its employment. Factor analysis suggested two factors explaining 43% of the total variance. We determined group membership by the median-split method¹⁵. However, typicality had no effect on either affect display or competence ratings.

Other effects

We controlled for sex of participant (no effect), acquaintance between experimenters and participants (3 critical cases, no effect), condition in chat room experiment (3 conditions, no effect, trend A>B>C), group membership (big effect, some groups displayed greater skepticism than others), and group composition (i.e., membership in same-sex vs. mixed-sex group) (no effect). Thus, with respect to the control variables the only other effect emerging was a group membership effect. With $F(14, 42) = 6,10, p < .00001$ ($p=.000001$) participants in some groups unanimously reacted much more negatively than participants in other groups. This effect was unrelated to sex composition or any other characteristic of the groups.

In sum, results of the observations showed that women received significantly more negative affect ($p \leq .003$), while at the same time they were rated more competent ($p \leq .039$). The study was, thus, a successful replication of the Butler and Geis (1990) experiment. The observational method was refined and at the same time economized. In addition, there were no stereotype-conform differences of competence ratings on the 4-point Likert scales, in fact the male "responsible researcher" was rated less competent than the female "responsible researchers". For example, no male "gender-as-status" bias occurred as would have been predicted by *expectation states theory* (Berger et al., 1974), *role congruity theory* (Eagly & Karau, 2002), or former *social role theory* (Eagly, 1987).

In any case, we also need to consider that the competence ratings could have been subject to the *shifting standards effect* (Biernat, 1995; Biernat & Fuegen, 2001; Biernat & Kobryniewicz, 1997, Biernat & Manis, 1994). The shifting standards effect refers to people's use of rating scales dependent on (expectations toward) their target of evaluation. There are two gender-related findings: Women are subject to lower minimal standards in competence

¹⁵ The median-split method was first suggested by Spence & Helmreich (1978), and is also suggested by Altstötter-Gleich et al. (2000). First, medians are calculated for both scales (Expressivity and Instrumentality) separately over the entire sample. Persons with both values above the median are classified as androgynous, persons with both values below the median are classified as undifferentiated. Persons with the expressivity value above the median and the instrumentality value below the median are classified as feminine; Persons with the instrumentality value above the median and the expressivity value below the median are classified as masculine.

evaluations. However, they are subject to higher ability standards, when it comes to hiring or career decisions. That means dependent on whether they have to evaluate a man or a women people might use scales differently. For example, "*for a women she is really good (I would have expected less), for a man he is rather mediocre (I would have expected more)*". The solution to the shifting standards problem is the use of objective instead of subjective rating scales, as in the example of asking about graduation grades or salary expectations in Experiment 6 (see Chapter 4). Behavior observations of evaluative affect reactions are also a possible objective measure in the sense of Biernat and colleagues. They even go beyond their postulated requirements by additionally providing the possibility of a rank ordering of "*responsible researchers*" throughout the experiments. The phenomenon of some groups displaying jointly more negative affect than others, however, calls for an explanation. Which communicative mechanism is responsible for this effect to occur? How much of the effect occurs without verbal knowledge of the attitude one communicates and of the process of how the attitude one expresses came about? In our second experiment, we aimed to shed some light on these questions and started with the following assumptions:

- (a) There is a communicative mediating mechanism of attitude spread in groups.
- (b) The mediation works rather non-deliberately, and most likely on the nonverbal channel.
- (c) Consensual affect cues are able to raise or lower the perceived quality of identical leadership performances in a small group setting (cf. Brown & Geis, 1984).
- (d) Leadership evaluation like any attribution of competence tends to be subject to considerable sex bias (as predicted by *expectation states* and *social role theory*).
- (e) Nonverbal consensual affect cues, sex of confederates (reacting) and sex of the target (being reacted to) will influence leadership evaluations.

3.2.2 Study 3: *The transmission of evaluative affect*

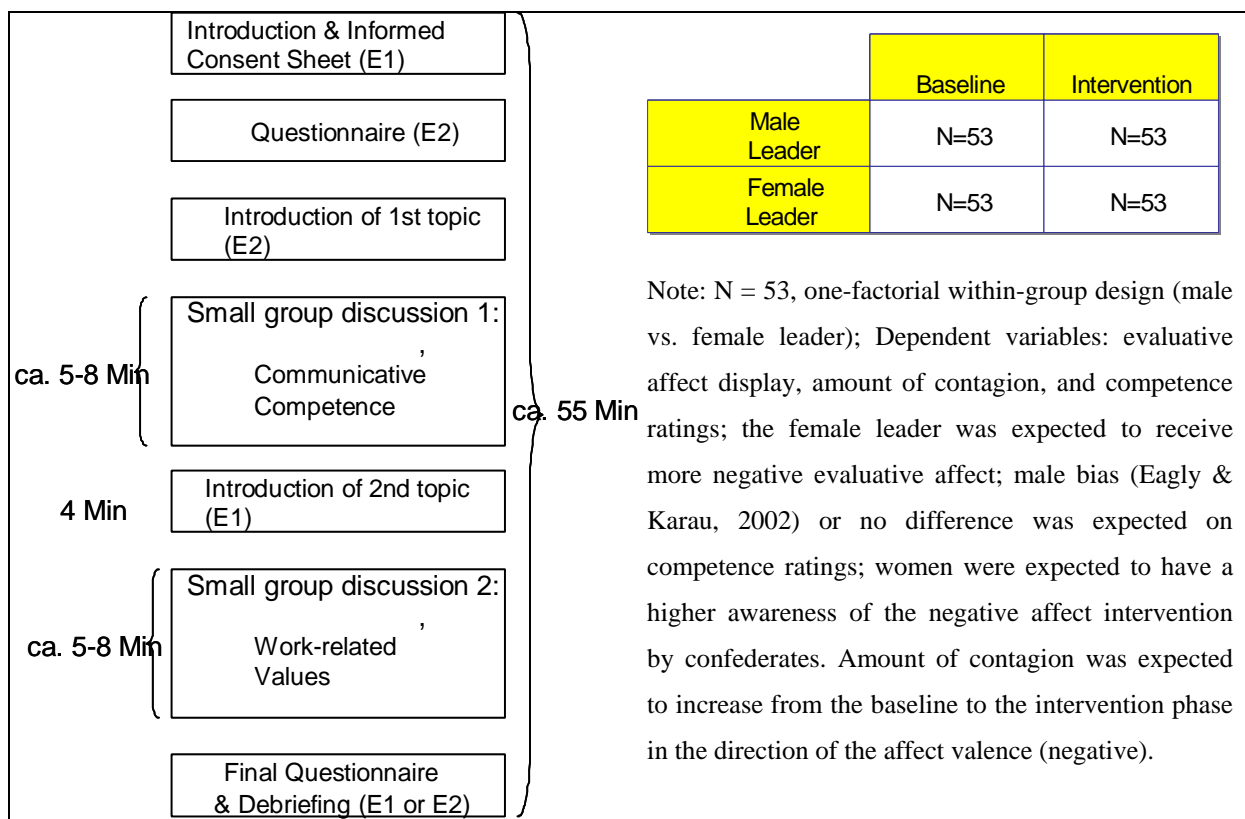
3.2.2.1 Methods

Participants and design

Fifty-three participants (seventeen men and thirty-six women; mean age was 25.7, $SD = 6.8$), mostly students from the University of Heidelberg, participated in small discussion groups of

four persons (2 participants and 2 confederates per group). They were either given partial credit toward a course requirement or received a book for their participation. In a single-factorial pre-post-test design, participants were confronted with a male and a female leader in either same-sex or mixed-sex groups. Two female confederates in each group performed the (negative) evaluative affect intervention. Scripts of leaders were balanced in sequence and role. 26 groups were run overall, 25 of those were videotaped. Dependent variables were the evaluative affect display, amount of contagion, and competence ratings.

Figure 13: Flow-chart and design of Study 3 (n=53)



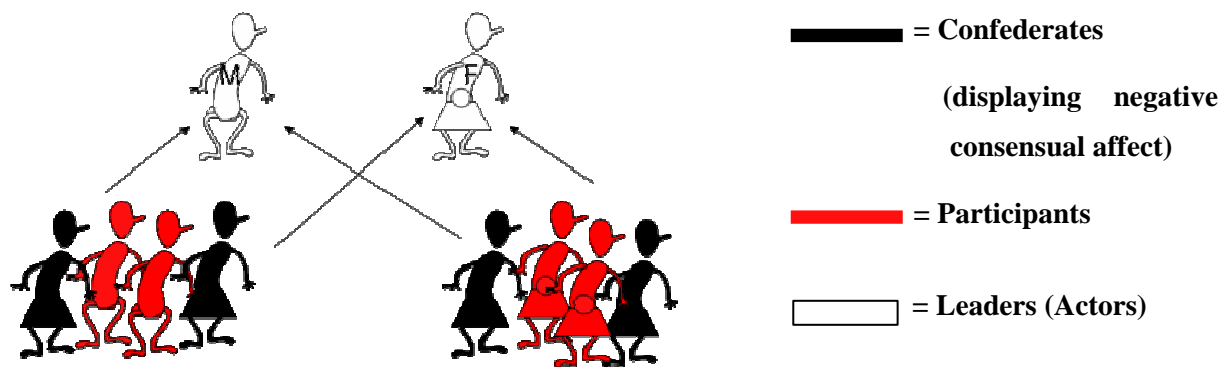
Procedure

Participants were told that the experiment was about cooperative problem-solving in small groups. A male and a female experimenter served as group leaders. Participants' consensus to be videotaped was gathered (by leader 1). Then they were given a first short questionnaire for completion (by leader 2). Baseline affect of reaction toward male and female authority was taken from these two short interactions of about three to four minutes. Groups were then presented with the first topic of discussion. The topic "workplace values" was chosen, because it proved to be rather gender-neutral in pre-tests. Participants had to rank order six "workplace values" in the sequence of their subjective importance to them. They were (a) high income,

(b) little work time - much spare time, (c) job security, (d) work is fun/pleasure, (e) social contacts at work, (f) career opportunities. Then they were supposed to enter into a five minute discussion, exchanging arguments about their solution, and coming to a group solution selecting the three most important "workplace values". Next the second discussion topic of "communicative components of workplace communication" was introduced to them and the procedure started from the beginning. The first topic was given to them by leader 2, who thus had three to four minutes of separate talking time with the group. The second topic was introduced by leader one, also talking to the group for about three to four minutes. When both leaders left the room one of the two confederates made a negative attitudinal statement about the respective leader and the second confederate agreed vividly to that statement. Confederates were all women, and the leaders were men and women. We used actors in the leaders role in order to make sure that verbal and non-verbal comparability of their performance was given. An additional male control leader was used for three groups. The main leaders switched script-roles in order to make sure that the sequence of presentation would not be responsible for possible effects. Leader similarity control was verified by having the "responsible researchers" rated by six research assistants on several important dimensions such as sympathy, dominance, activity, etc. The main male and female leader proved to be sufficiently similar on those dimensions at the initial rating.

We distinguished a *baseline* and an *intervention* phase. Only negative affect display interventions were used as they are the critical case in the communication of prejudice. Baseline affect was calculated considering participants' initial reactions to the leaders. Confederates were not yet in the room. Using the same coding procedure as in the baseline, participants were observed after negative affect intervention by the confederates had started. Confederates were instructed to start displaying negative affect when the "responsible researcher" started to explain the group task. As we did not know, whether a mere nonverbal interaction would have been sufficient, we additionally asked the confederates to make a negative statement after the "responsible researcher" left the room. "*Oh, he is really chaotic...*" (*with the second confederate agreeing vividly*), or "*oh, dear, she is really unorganized*" (*again with second confederate's agreement*). Leaders were instructed to stutter a bit during instruction, so that this observation appeared to be partially reality-based.

Figure 14: Procedure of Study 3



Note: 53 subjects participated in pairs of two in 26 4-person groups; each was exposed to a male and a female leader (within-group design) and a negative consensus reaction of female confederates; DVs: evaluative affect, competence ratings, emotional contagion; Control variables: Sex of participant, baseline affect, team membership, notice of intervention, gender typicality, gender attitude;

Observational method and inter-rater reliability

For baseline coding we observed the initial dyadic interactions of participants with each of the two “leaders”. Intervention coding followed while confederates displayed consensual negative affect and after confederates had made the negative verbal statement. Coding was done with a simple categorical coding scheme, distinguishing negative/skeptic from positive/open affect. All affect display that was not clearly negative or positive was coded as neutral. We used two main raters and one control rater for the codings.

Inter-rater reliability was calculated for the two main female raters on a sample of 143 observations. Simple percent agreement was 75.17% (ranging from 63.79 to 89.65 for single subjects) with *Cohen's kappa* = .38 ($p < .0003$), which is not very high, but acceptable for interpretive categories. The same sentence-by-sentence coding method as in Experiment 2 was used. One additional experienced rater, familiar with the general research hypothesis, did control-ratings for inter-rater reliability computation purposes. She coded a sample of 17 participants (1/3 of the data). The additional rater agreed to 91.79% with one of the two independent blind raters, with an acceptable *kappa* of .56, $p < .0001$.

Manipulation check

One subject noticed that confederates were participating in the discussion and consequently was excluded from the data set. In the course of the debriefing 21 out of 52 participants declared that they had noticed negative affect or a negative attitude communicated by group

members in some way (4 men and 17 women). We were content that almost half of the sample had noticed the intervention, as we had tried to keep the intensity of the intervention exactly at the threshold to the consciously noticeable.

3.2.2.2 Results

Affect display

Because we stopped working with intensities only frequency data resulted. Standard Person Chi-square was computed for affect display toward targets in all further analyses.

Table 4

Means, standard deviations and effect sizes (Cohen's d) for negative evaluative affect display toward male and female leaders in Experiments 2 to 4

	N	Mean		SD		d (Cohen) ^a	
		Pre	Post	Pre	Post	Pre	Post
Experiment 2	59						
Neg. reactions tw women (2)		0.29	0.45	0.26	0.33	0.39	0.42
Neg. reactions tw men (1)		0.09	0.32	0.17	0.21		
Experiment 3	53						
Neg. reactions tw women (1)		0.28	0.69	0.59	1.23	0.46	0.34
Neg. reactions tw men (1)		0.05	0.35	0.22	0.49		
Experiment 4	80						
Neg. reactions tw women (22)		0.68	1.82	0.89	2.26	-0.18	0.09
Neg. reactions tw men (18)		0.88	1.65	1.32	1.54		

Note: effect sizes are small ($d = .20$ to $.50$) for Exp. 2 and 3, for Exp. 4 they are negligible; contagion effects are reflected the increase in means from pre- to post-test; duration of observational period: Exp.2: 1½ min.; Exp.3: 4 min., Exp.4: 6 min.; ^abetween women and men in baseline phase (pre) and after intervention (post).

Affect display was calculated for the baseline and the intervention phase. We computed the sums of positive and negative affect displays. Four aggregated variables resulted. We found no significant main effect for *sex of leader*, with $\chi^2(1, 228) = 2.38$, $p = .12$, indicating that

neither women nor men received significantly more negative or positive affect, even though in absolute frequencies women received more negative affect. The two independent blind raters only found one significant difference in reactions. It was in leaders' last sentence in the baseline phase that stated "*I will now take a look, whether the other group members have arrived yet (leader leaves the room)*": the female leader received less positive affect than the male leader.

We generally need to be cautious when interpreting these results, as they are based on a low number of observations of negative affect ($N_{\text{negAffect}} = 42$ (34) vs. $N_{\text{posAffect}} = 244$ (194), frequencies of the second main rater in parenthesis). On average, participants did not even display one negative evaluative affect in the course of the contact with the leader. Because of the clearly visible cameras in the room we only found very few negative affect reactions toward leaders. This was a problem that we were confronted with in all further experiments (except for Experiment six where we used a hidden camera).

Contagion effects

Frequencies of negative reactions toward leaders were on average more than tripled from the baseline to the intervention phase (factor 3.25; 4.2 for women, 3.8 for men). At the same time, frequencies of positive affect only slightly increased (factor 1.3, 0 for women, 2.2 for men). Time, content type (*giving instructions*), and reaction opportunities were held constant in both phases. A main effect for increase of negative affect vs. positive (*emotional contagion*) resulted with $\chi^2(1, N = 228) = 4.04, p < .05$ ($p = .044$), likewise $\chi^2(1, N = 108) = 7.76, p < .05$ ($p = .005$) for the other rater. This effect consequently can be interpreted as the result of a contagion process after the onset of the confederates' reactions. Frequencies of negative affect increased from eight (nine; again numbers of second rater in parenthesis) to 26 (33), for positive affect from 81 (79) to 133 (165) from the baseline to the intervention phase. This indicated that negative affect intervention led to particularly more negative affect (three times as many displays, especially by women).

Awareness effects

Regarding the level of consciousness of the process, we found that noticing negative affect display by confederates and the own display of negative affect was not correlated. This suggests that emotional contagion processes seem to have worked independently of conscious

awareness in this context. In regard to the gender hypothesis that women will be more likely to consciously notice the negative affect or attitude, we found that 17 women and four men had noticed. Whereas 18 women and 14 men had not noticed, with $\chi^2(1, 52) = 2,98, p < .08$ (ns).

Competence ratings

An ANOVA was computed for the influence of sex of leader on competence ratings. As hypothesized following Butler and Geis (1990), there were no differences in competence ratings. Not even a tendency emerged, $F(1, 47) = 0.68, p < .42$ and $F(1, 47) = 0.26, p < .62$. Means were $M = 3.08$ for women rating the female leader, $M = 2.91$ for men rating the male leader, $M = 3.18$ for women rating the male leader and $M = 3.09$ for men rating the male leader, which showed that there was a slight tendency for women to rate more benevolently in this sample.

Gender typicality

Gender-type was computed using the median-split method for the *GTS-scales* (Altstötter-Gleich, Eglau, & Kramer, 2000). Twenty three feminine (6 men and 17 women), 7 masculine (2 men and 5 women), 17 androgynous (7 men and 10 women) and 6 undifferentiated (2 men and 4 women) gender types resulted. Yet, neither awareness of intervention, nor evaluative affect displays, nor contagion, nor competence ratings were related to gender type.

Attitude effects

Attitudes toward women and men were measured with nine items from the *Attitude toward Women Scale* (Spence, Helmreich, & Strapp, 1973) and nine items from the *NGRO-Scale* (Athenstaedt, 2000). The latter attitude measure had recently been developed with a German speaking sample. There was, however, no effect of more traditional or more progressive gender attitude on display of negative or positive affect, nor on competence ratings. Moreover, no sex of participant effect on gender attitude.

Gender differences in workplace values and communicative preferences

A brief content-related analysis of the discussion topic showed, which communicative competences at the workplace were assumed to be the most important. Kruskal-Wallis ANOVA by ranks revealed that men and women differed significantly ($p < .05$) on their first preferences in the communicative competences preference. Women chose almost unanimously "*to precisely communicate what needs to be communicated*" (CC2, 28 cases,) as the most important communicative competence at the workplace. Men, on the other hand, chose this item to equal amounts than the item "*to listen closely*" (CC5; 8 to 8 cases). The rank order of the most important communicative competences at the workplace was for women CC2, CC5 and CC4 (*to give feedback and acknowledge others' contributions*) and for men CC2/5, then CC4. Men and women did not differ regarding the degree to which they changed their opinion from the initial ranking to the final group solution.

Regarding workplace values, for both men and women it was most important that the *job was satisfying and they liked it* (V5). Next, *social contacts* (V6) were named by men and women, then *career opportunities* (V4), *security of job* (V2), and *short working time, lots of spare-time* (V3). For women in our student population, *income* (V1) was least important, and for men it was career opportunities. (Independent variable: Sex, with $\chi^2(1, 51) = 4.93, p = .026$). Again, men and women did not differ regarding the degree to which they changed their opinion from the initial ranking to the final group solution.

Other effects

We controlled for *sex of participant* (no effect), *acquaintance between experimenters and participants* (5 critical cases, no effect), and *group composition* (same-sex vs. mixed-sex groups; no effect). Regarding *group membership* again in some groups evaluative affect displays differed markedly from others suggesting that consensual affect either spread or failed to spread in single groups. However, due to the low N , Chi-square values could not be computed in the majority of these cases. Results will be discussed in the next paragraphs.

3.2.3 Study 4: Reactions of leaders to negative consensual affect display: awareness, attributions, cognitive and behavioral implications

Having found hints for emotional contagion processes possibly at work in consensual affect formation, and the communication of attitudes in small groups, we became curious about the reactions of the leaders. Specifically, to the negative affect display and their attributions and reactions. We were particularly interested to see if processes of self-fulfilling prophecies (Geis, 1993, Merton, 1948) and behavior confirmation (Snyder, 1984, Snyder and Stukas, 1999) would occur on the side of the leaders. Or, if they would be able to ward off negative influences of affect displays from the group. But first, we had to see, if the negative affect display had been noticed at least on one possible level.

A brief excursion into recent self-fulfilling prophecy literature (Geis, 1993; Snyder, 1984; Snyder & Stukas, 1999) confirms that even though gender and status-related nonverbal communication processes are mostly of a non-deliberate nature (Burgoon, 1994), their existence can be experimentally demonstrated in a stable and reliable way (Hall & Bernieri, 2001). Self-fulfilling prophecies (Merton, 1948) in social interaction have been demonstrated in empirical investigations, in which one person (the perceiver) having adopted beliefs about another person (the target), acts in such ways that the behavior of the target seems to confirm these beliefs. There are two kinds of expectation consequences. They are *perceptual confirmation* of expectations in the mind of the perceiver as shown in perceivers' impressions of targets and *behavioral confirmation* of expectations by the actions of the target in the course of the interaction (Snyder, 1984), as documented by raters' judgments of targets. This holds for self-related processes and for partner-related processes (*partner-hypotheses*, Kruse & Schwarz, 1992; Kruse & Thimm, 1994; Kruse & Wagner, 1995). The existence of these processes has maybe best been exemplified by demonstrations that teachers, led to expect particular levels of performance from students in their classrooms, act in ways that elicit performances confirming initial expectations (Rosenthal & Jacobson, 1968). Related studies have demonstrated confirmation in organizational settings (cf. Dvir, Eden, & Banjo, 1995, for a military context; Eden, 1993). Behaviors that mediate self-fulfilling consequences include the effects of (qualitative and quantitative) nonverbal behaviors such as displays of emotional warmth, attention, interest and encouragement by smiles, nods, and eye contact as well as verbal behaviors such as differentiated feedback. Even the grammar that people use to frame questions to test their hypotheses may have substantial effects on the responses they receive (Semin & De Poot, 1997; Semin & Fiedler, 1992). Semin and De Poot (1997) have demon-

strated that questions using action verbs elicit different answers than questions using state verbs. The authors have shown that perceivers select questions with verbs that indicate their expectations about the agency of the victim or the accused, such as in a rape investigation, questions that presumably will guide interviewees' responses (see also Krahe, 1999; Sczesny & Stahlberg, 2000; Semin & Fiedler, 1992).

One approach to examining social phenomena is to decompose them into their microlevel constituting elements. In line with this strategy, researchers have suggested four steps of the behavioral confirmation process: a. perceivers adopt beliefs about targets; b. perceivers behave toward targets as if these beliefs were true; c. targets fit their behavior to perceivers' actions/overtures; and d. perceivers interpret targets' behavior as confirming their beliefs (Snyder & Stukas, 1999).

In our study we were interested in all components of this process. For example, would perceivers (participants) hold initial beliefs about targets (leaders)(first competence rating; t1) or would they adopt them from the confederates' nonverbal intervention? Would perceivers join the negative affect reactions? Would targets fit their behavior to perceivers actions (i.e., would they become more self-focused and nervous/insecure, and would this covary with the degree of awareness of this process?). Finally, would perceivers later interpret target behaviors as confirming their beliefs (second competence rating; t2)? Would cognitive load have an impact on taking notice of the negative affect intervention?

Stimulus sampling problem and its solution

Methodologically, up to this point we had been conducting studies with mostly only one stimulus (=leader) in each gender category. Even though we had attempted to control for similarity in impression formation and person perception in a series of pre-tests -- by having our main leaders rated on scales of relevant dimensions (e.g., sympathy, dominance, activity) and adjusting non-congruent features (e.g., by re-taping our tapes in Experiment1) -- we were confronted with a resulting stimulus sampling problem. This type of problem has been described in a recent article by Wells and Windschitl (1999). The authors describe that in terms of stimulus sampling, studies similar to ours are n=2 studies and that the failure to sample stimuli can have negative consequences for construct validity (see also Fiedler, 2000). In order to overcome the resulting methodological limitations and to improve our design, we decided to use 40 leaders in our next study. Next to the evaluative affect reactions and the contagion effect we were interested in how leaders would react to negative consensual affect

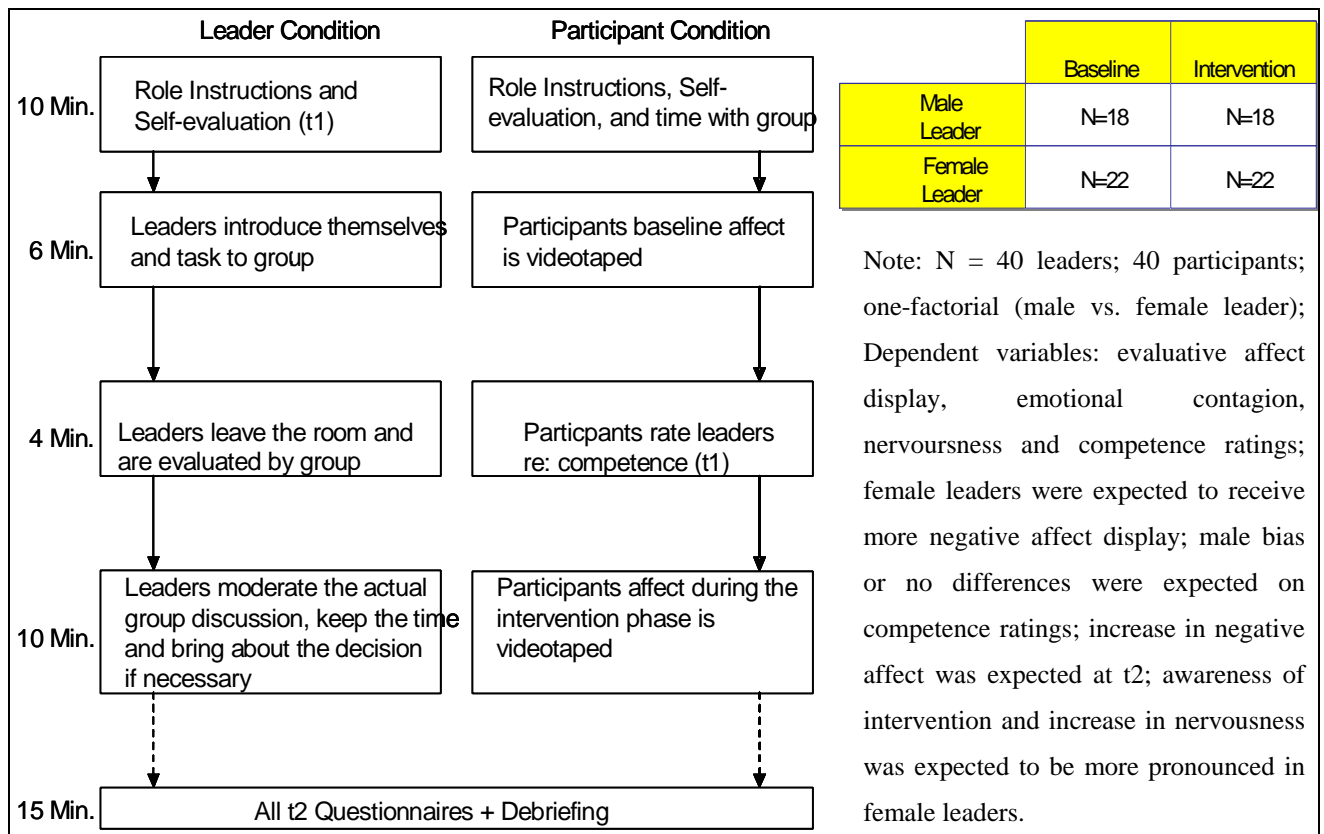
(observations of nervousness/ insecurity), and how this feedback would influence their self-ratings on competence scales.

3.2.3.1 Method

Participants and design

Eighty participants (fifty-nine women and twenty-one men, mean age 24.8, *SD* = 6.7), mostly students from the University of Heidelberg, participated in small discussion groups of four persons. They were either given partial credit toward a course requirement or received a book for their participation. There were two real participants and three confederates in each group. Participants were assigned to two roles: a leadership role (18 men, 22 women) and participant role (3 men, 37 women) making this study contain two single-factorial pre-post designs (participant and leader design). 40 groups were run and videotaped. Dependent variables were evaluative affect display, emotional contagion, and competence ratings in the participants design, and sensitivity, nervousness, attribution and self-ratings of competence in the leaders design.

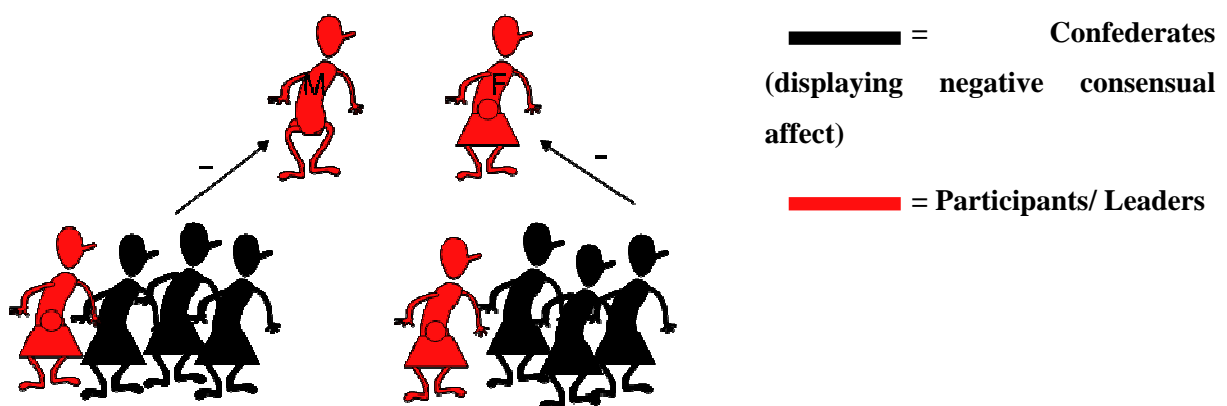
Figure 15: Flow-chart and design of Study 4 (n=80)



Procedure

A procedure similar to the one in Study 3 was used in this study. Participants were told that they participate in a cooperative problem solving task. We used the "workplace value" discussion task from Study 3 as the task had proven to provoke vivid discussions and to be sufficiently gender neutral. The first participant arriving was usually assigned the leader role, and got some time to prepare the role. The second participant was placed in a different room and assigned the participant role. When both had completed the initial questionnaire and felt comfortable with their roles they were guided to the group discussion room, where the three confederates (all women) were waiting. We used three confederates in this experiment, as we wanted to make sure that the negative evaluative affect was classifiable as a consensual reaction of the group majority. The leaders started their scripts and the group initially complied with the leaders suggestions. Everybody introduced themselves using color labels. Leaders started with the group instructions, however, they were to leave the room at a certain point in order to get additional information from the experimenter. When leaders had left the discussion room, participants filled in a first rating of leaders' competence. Up to this point, no negative affect intervention had occurred from the side of the confederates. When leaders came back and started to continue in their scripts, confederates' negative evaluative affect reactions set in. Leaders and participants discussed their "workplace values", and leaders had been instructed to remind the group to bring about a decision after five minutes of discussion.

Figure 16: Procedure of Study 4



Note: 80 subjects participated in pairs of two in 40 4-person group discussions, one being the leader of the group and one the only real subject; they were exposed to a negative consensus reaction (evaluative affect) of three female confederates. Dependent variables: evaluative affect, contagion, competence-ratings (self + others), nervousness/insecurity; Control variables: sex of participants,

baseline affect, baseline nervousness, team membership, notice of intervention, gender typicality and gender attitude.

If after an additional minute no group decision was in sight, leaders had been instructed to bring about the decision themselves. They, thus, had time control, and decisional control. After the discussion they were supposed to guide participants into different rooms for the final questionnaire containing evaluations of participants, leaders, and self. Then they were asked a sequence of questions:

- *Did you notice anything, any reaction from the group?*
- *If so, what did you notice?*
- *Did the group rather react positively or negatively to you as the leader?*
- *How did you notice? When did you notice?*
- *For what reasons do you think the group reacted that way (please name reasons in the sequence of their importance)?*

After the attribution question, they were asked to indicate their opinion on five-point scales:

- *I really liked to act in the role of the group leader*
- *I would do this again*
- *I would not do this again*
- *I would do it again with this group*
- *I would rather do it with another group*
- *I can easily imagine to take a leadership role after graduation*
- *I can easily imagine to work self-employed later*
- *I can easily imagine taking a high leading function in the course of my career.*

We wanted to find out about degree of awareness of evaluative affect or negative attitudes and the causal attributions leaders made to explain changes in the behavior of the group as well as the behavioral and self-related consequences.

Observational method and observer agreement

The observational method was identical to the one in Study 3 for affect ratings. Leaders were rated regarding their degree of *nervousness / insecurity* at four distinct points in time in the course of the experiment (t1: initial nervousness; t2: baseline nervousness; t3: intervention

nervousness, beginning of discussion; t4: intervention nervousness, end of discussion). Cue analysis was conducted for nonverbal, paraverbal and verbal indicators of nervousness and insecurity. Because of the high complexity and many idiosyncrasies of a differentiated cue-based analysis we decided to use intuitive ratings. Inter-rater reliability of 2 x 2 independent blind raters was 82% and 79% respectively, with *Cohen's kappa* = .60, $p < .0001$ (82%) and *Cohen's kappa* = .56, $p < .0001$ (79%).

Participants' *evaluative affect displays* toward leaders were rated by two independent blind raters: one man, one woman, and two control raters. Agreement for the first two raters was calculated for ¼ of the data (219 observations). Simple percentage agreement was 76.48% (ranging from 62.96% to 87.50% for single subjects), with *Cohen's kappa* = .35, $p < .0001$, which is not great but acceptable for interpretive ratings. The two control raters additionally rated 1/5 of the data and agreed to 89.10% (range: 76% to 96% per participant), with an acceptable *kappa* of .55, $p < .0001$ (see Table 5, p. 132).

Manipulation check

One participant had noticed that we were working with confederates and had been removed from the data set. 24 out of 74 participants (21 women and 3 men) had noticed that there was some type of negative reaction in the group and had attributed it to different reasons (see analysis below). None of the participants had recognized the real purpose of the study.

3.2.3.2 Results

Affect display

Chi-square values were computed for reactions toward male and female raters. There was no significant effect, neither overall with $\chi^2(1, 288) = 1.53$, $p = .21$, nor for baseline and intervention ratings separately. We were not able to compute χ^2 for single (sentence by sentence) comparisons as in the majority of the cases assumptions were not fulfilled due to the low N of negative affect display. Looking at the frequencies, women received more negative (male rater: 38 vs. 12 /female rater: 27 vs. 1; means of two raters: 32.5 vs. 6.5) and more positive (45 vs. 14 / 145 vs.11; means of two raters: 97.5 vs. 12.5) affect than men. Baseline affect display was 15.5 negative affects toward women vs. 1.5 negative affects

toward men (10 times as high for women!). Intervention affect display was 17 toward women vs. 5 toward men (still more than 3 times as high for women). Again caution is necessary in interpreting the results as raters on average only observed 39 incidences of negative affect overall, thus for most utterances, Chi-Square was not computable.

Interestingly, in the face-to-face situations of Experiments 3 and 4 we found much less negative affect than in the tape-recorded version from Experiment 2. This is another advantage of using tape-recordings when looking at evaluative affect, next to the convincing argument of a higher degree of standardization. It might just be easier for group members to express their attitudes toward the leaders when they are not in the room. This method, however, would not be appropriate to explain the interaction and expectation effects regarding changes in self-esteem and self-efficacy of the leaders, which we hypothesized in the first place.

Contagion processes

There was a substantial increase in frequencies of affect displays from baseline to intervention phase. Yet, it was as high for negative as for positive affect, with $\chi^2(1, 228) = 0.02, p = .89$, about factor 2.5 for both reactions (increase of 30 to 71 for negative affect, but equally high 57 to 130 for positive affect, resulting in no effect). How can we explain this effect? Presumably there are two intertwining processes active here: an actual emotional contagion process caused by the intervention of the confederates as found in Experiment 3, and a solidarity or empathic process with the leaders causing the additional increase in positive affect (see discussion below).

Awareness effects

Notice of negative affect or attitude (24 out of 74 cases) and own negative affect display were again unrelated, suggesting independence and non-deliberateness of processes. Regarding the gender hypothesis (increased nonverbal sensitivity of women) we found that overall 21 women and 3 men recognized negative affect in the group, whereas 34 women and 16 men did not. Standard Pearson chi-square - values were computed. In the leader role (and thus under high cognitive load), 10 women and 3 men recognized negative affect, whereas 11 women and 16 men did not. This effect was statistically significant with $\chi^2(1, 74) = 4.61, p < .04$. In the participant role 11 women and no man noticed whereas 22 women and 3 men did not (non-computable chi-square). So overall, at least three times as many women noticed and

mentioned affect display by the group. Taking into account the baseline-ratio in the sample, 38% of the women and only 16% of the men noticed the affect intervention. Looking at the leaders' nonverbal sensitivity alone, revealed that perceptual confirmation of negative expectations after negative evaluative affect intervention happened in about one third of the cases. Significantly more so in female leaders than in male leaders with $\chi^2(1, 40) = 6.06, p < .04$ for leaders only. Thus, the nonverbal sensitivity hypothesis was partially confirmed.

Competence ratings

No differences in participants' competence ratings occurred for male and female leaders (computed with a one-factorial ANOVA). Yet, confederates' ratings of leaders competence revealed a significant difference depending on *sex of leader*: they were (unexpectedly) significantly lower for male leaders on the first competence rating (before the intervention), with $F(1, 158) = 3.912, p = .049$, and still on the 10%-level in the second rating, with $F(1, 158) = 2.818, p = .095$. Because we used only five persons as confederates altogether, these competence ratings had the advantage that they were more stable than the competence ratings from participants. There was, however, no significant change between t1 and t2 ratings by confederates (computed with a repeated measure ANOVA).

Self-ratings on competence showed no difference between men and women before the intervention. However, after the negative consensual affect intervention the women of our sample rated their competence as lower than the men (the effect fails to become statistically significant, with $F(1, 74) = 3.41, p = .069$); yet, a repeated measure ANOVA showed that this change in self-rating of competence was significant, with $p < .05$.

Attributions of leaders

We were interested in how leaders reasoned, especially when they had noticed negative affect. In this part of the questionnaire out of 40 leaders 7 women and 3 men stated directly to have noticed negative affect, however, from their attributions one could clearly infer that in total 12 women and 3 men had noticed. So, there were five women who were too hesitant to directly state that they had noticed negative reactions from the group (this was a yes/no question; *Did you notice a reaction from the group? If yes, was it rather positive O or rather negative O (put mark in field)?*). From the persons who mentioned awareness of consensual affect in the questionnaires, the 3 men mentioned six external reasons and one internal reason for the negative reaction, whereas the 12 women mentioned 14 external and eleven internal reasons.

Subtracting external realistic reasons (*"part of the participants was instructed by the researcher to react this way"*), men had four external and one internal reason and women had ten external and eleven internal reasons. The remaining external reasons mentioned were situational (e.g., *experimental situation, being videotaped/camera presence, roles one had to play, too little time and highly demanding task*) and personal (e.g., *yellow and blue were responsible for negative atmosphere, blue was passive and resistant, yellow was dominant/little cooperative, the others were not in discussion mood*). Internal reasons mentioned were: *"my leadership style"* (by the only men), and *"I am younger than the others (3x), probably my instructions were unclear, I was not competent enough, not well enough prepared, I was no "respect-person", my arguments were too weak", or "I was not sovereign, not assertive, however, this may have left a more sympathetic impression (!), my unclear communication, insufficient sovereignty in my leadership style"* (all by women).

Reactions of leaders

No significant differences were found on nervousness and insecurity observations between male and female leaders or between baseline and intervention phase (coded by four independent raters).

Gender typicality

Gender-type was again computed using the median-split method on the GTS-scales (Altstötter-Gleich, Eglau, & Kramer, 2000). No effects emerged for gender type.

Attitude effects

Attitudes toward women and men were again measured with nine items from the Attitude toward Women Scale (ATW; Spence, Helmreich, & Strapp, 1973) and nine items from the NGRO-Scale (Athenstaedt, 2000). Progressiveness or traditionalism values had no influence on either affect display, or contagion, or competence ratings, nor was there a sex of participant effect. Differences in means showed that women and men had the same amount of traditionalism (very low: $M = 14.63$ for women and $M = 14.38$ for men). Whereas, women had the more progressive gender attitudes ($M = 33.24$ for women and $M = 28.90$ for men). Yet, this effect did not become significant, with $F(1, 74) = 3,0275, p = .085$.

Gender differences in workplace values

No significant gender differences were found for the discussion topic of workplace values. Women and men chose "*the work needs to be satisfying and fun*" (V5) as the single most important value (43 women; 16 men). Then *job security* (V2) and *career opportunities* (V4) were chosen by women, whereas men chose *social contacts* (V6). Next this sequence was turned around and then *income* (V1) was named by men, and women. The least important for both men and women were "*short working time and lots of sparetime*" (V2).

Other effects

Next to *sex of participant* (effect on self-ratings and attributions, see above), we controlled for *acquaintance between leaders and participants* (there were three critical cases, no effect), and *group membership* (no effect). Motivational and emotional factors (at least as assessed in the questionnaire) did not play a role for any of the dependent variables).

Given that the persons enacting the leaders in this experiment were all first or second year students and, thus, even younger than the confederates, it is not surprising that we did not find the expected affect display effect. Our intervention failed, because the leaders were not accepted as natural authorities, but rather as mates who just happened to have the leader role in a role-play situation. Why did contagion not work? One explanation would be that compassion with the 'leaders' was probably bigger than sensitivity toward confederates' reactions. Subjects knew that leaders had just been randomly selected and that it could have been them being selected ("*we are all in the same boat*"). Increase in frequencies shows that contagion in fact has worked, but in an unexpected way: both positive and negative affect display increased. Negative affect contagion could have happened in sensitivity and solidarity with confederates, whereas positive affect contagion could have happened in solidarity with leaders especially as confederates negative reactions set in. In sum, having not found the expected contagion effect nor the expected evaluative affect effect can in this case -- as one alternative explanation -- be attributed to the failure to create a realistic and ecologically valid experimental situation.

Neither nervousness nor insecurity rose observably in the leaders, when exposed to the negative consensus reactions. The low numbers of notice of negative affect or attitude coming from the group may have been partially due to the high cognitive load of leaders. They had to coordinate the task, watch the time, decision process and equal amount of contribution opportunities for all participants, as well as to find their own solution and argue for it; and all

of this in 10 minutes. But overall, we assume that it was the role-play character of the group discussion that let the leaders remain "cool". Self-ratings in competence showed that before the negative affect intervention there was no significant difference between male and female leaders. Yet, after the negative consensual affect intervention came from the group the women of our sample rated their competence considerably lower than the men (with $F(1, 74) = 3.41$, $p = .069$). The fact that confederates' ratings of female competence was at the same time significantly higher ($p < .05$) shows impressively how perception of self and others can differ in group situations.

Attributions of leaders shed some more light on internal processes involved in this decrease of women's self-esteem on the rating scales. Content analysis of attributions showed that (a) leaders did not particularly like confederates (in many more cases than participants did not like confederates), (b) women were more hesitant than men to state that they had noticed negative affect coming from the group (even though they noticed it more often as assumed in the nonverbal sensitivity hypothesis), and (c) women and men showed the classical attribution patterns. That is, when women noticed a negative reaction they mostly attributed it internally, whereas men mostly attributed it externally.

So far, we found an evaluative affect effect in Study 2. As hypothesized, there was no difference in competence ratings in status characteristics direction (men rated higher), but counter-stereotypical ratings. We found an emotional contagion effect but no significant evaluative affect effect in Study 3. In Study 4, we did not find observational evidence for the evaluative affect effect, nor for increased nervousness or insecurity in leaders after the negative affect intervention. Yet, we observed gender-specific changes on the competence self-ratings before and after the intervention. We furthermore found a general increase in affect from the baseline to the intervention phase, yet, the emotional contagion effect in Study 4 has been compromised by an equally high increase in positive affect. In both studies (3 and 4) we observed the expected similarity in competence ratings. Results led us to conclude that in Study 4 the affect manipulation was insufficient (notice of the consensual reaction was lower than we had hoped), and that the empathy with the leader was stronger than the empathy with the confederates, thereby preventing the emotional contagion effect from occurring in only negative direction. Thus, the role play situation was not equivalent to natural conditions and using students as leaders was not ideal. Consequently, no behavior confirmation effects occurred (on the observational level). Yet, perceptual confirmation happened in about one third of the cases and significantly more in female than in male leaders

($N=15$ out of 40; 12 women and 3 men, with $\chi^2(1, 40) = 6.06, p = .041$). This confirms our hypothesis as far as nonverbal sensitivity of leaders is concerned.

3.2.4 Study 5: Evaluative affect in team meetings at the workplace. A field study

Having observed a number of phenomena of our interest in the laboratory (under role-play conditions), we were ready to go into the field to test our findings up to this point. Eagly (1987; Eagly & Johannesen-Schmidt, 2001; Eagly & Karau, 2002) has consistently pointed out that almost all studies of prejudice toward women have been conducted in the laboratory and field studies are missing. In small groups at the workplace, people usually have known each other for years and do not encounter themselves in *tabula rasa* situations, where gender may be one of the very few salient categories (cf. Fiske & Neuberg, 1990; Fiske, Lin, & Neuberg, 1999). Snyder and Stukas (1999) similarly state that it is necessary for research to go beyond beginnings and to look at the effects of expectations in the context of social relationships going beyond first encounters. They suggest examining multiple interactions, yet still in laboratory setting. Our research goes beyond the laboratory setting to observations of long lasting work relationships.

In our field study, we did not expect to find emotional contagion effects, as we were working with teams whose members had been working together for several years in almost all cases. We assumed that the attitudes of the group members toward the leaders would be more stable and shared common knowledge. We assessed competence ratings on scales and evaluative affect by behavior observation as the two main dependent variables in this study. Our expectations were that in the field we would find an evaluative affect effect with female leaders receiving more negative affect. We expected competence ratings on scales to be similar for men and women, and independent of the evaluative affect effect. For lasting effects of attitudes and expectations on long term relationships see Blanck (1993) as well as Eagly and Chaiken (1993).

3.2.4.1 Method

Participants and design

One hundred-and-four professionals (fifty-four men and fifty women, mean age = 37.8, $SD = 8.1$) from 20 working teams of either the services or the production sector in a distance of

around 150 km from Heidelberg (south-west Germany), participated in our project about gendered workplace interaction. (DFG-grant KR505/11-2). They did so, on voluntary basis and at the final meeting received a SYMLOG-based feedback (Bales & Cohen, 1982) about perception of self and others in their teams. We assessed teams of four sex groups: (a) six mixed sex-groups led by a man, (b) six mixed-sex groups led by a woman, (c) four same-sex all-women groups and (d) four same-sex all-men groups. General purpose of the study within the project was to compare groups for sex-composition related systematic differences in communication and discourse processes.

Figure 17: Sample of Study 5 (20 teams; n=104; 53 men, 51 women)

Factor: SexL	Mixed-sex teams	Same-sex teams	Total
Male leader	6 (n=36)	4 (n=24)	10 (n=60)
Female leader	6 (n=24)	4 (n=20)	10 (n=44)
Total	12 (n=60)	8 (n=44)	20 (n=104)

Note: Participants were mostly academics from diverse professions; a number of teams came from three bigger corporations, yet, there were also single teams that themselves formed a small firm. Dependent variables were evaluative affect display toward their leaders during a 30 minutes to 1 hour section of each team meeting.

Procedure

Participants were audio- and videotaped for a total of two to three routine team meetings (mostly weekly sessions). After one of the team meetings they were interviewed for about 45 minutes to gain additional insights into team communication processes as well as subjective experiences and perceptions of gender-related issues. As one part of the interviews questionnaires were administered including the Gender-Typicality Scale GTS (Altstötter-Gleich, Eglau, & Kramer, 2000), the Attitudes toward Women Scale in our nine items version (Spence, Helmreich, & Strapp, 1973), the NGRO (Athenstaedt, 2000) and others. In total, data of twenty teams was gathered: four all-women teams, four all-men teams, six mixed-sex men-led teams and six mixed-sex women-led teams.

Observational methods and inter-rater reliability

Evaluative affect was assessed for 30 minutes to 1 hour sequences of all team sessions (8 hours and 30 minutes for teams with women in leadership positions and the same amount of material for men in leadership positions). There was a total of nine men and nine women in leadership positions. The coding scheme for affect ratings was adapted to group ratings and extended by/in one more important aspect. Was there an immediate preceding stimulus (affordance) before the affective reaction set in or not? For each action, actor and target were coded separately, so that individual and gender-related patterns could be distinguished later on. The instructions were as follows:

We are coding skeptic and open evaluative affect reactions of all individual group members toward all other individual group members. Evaluative affect reactions are nonverbal displays of attitudes with commentary character. They can mostly be observed in facial displays combined with paraverbal cues (for example, laughter). They need to be differentiated from reactions to content or objects. CAREFUL: Smiles and laughter, for example can either express a positive or a negative attitude or comment. This will dependent on the qualities with which they are expressed, the contingencies with other communicative cues and the context in which they appear/are uttered. We notate actor, target and valence of each affect expression (action; Note: we dropped intensity). If the valence cannot be clearly determined the affect ought to be called neutral. In addition, we code direct stimuli preceding the affect expression, if they are suited to elicit/ likely to have caused the affect expression."

A blind female rater who had proven reliable with other raters on experimental data before, coded the evaluative affect displays of the team members of all groups. A second female rater judged four team meetings to control validity (one from each sex group, 3 hours and 30 minutes of material). The agreement between the two raters was 79.5 % overall, with *Cohen's kappa* = .69. For the single sessions they agreed to 80% and 88% (*Cohen's kappa* of .64 to .79, - a very good agreement for interpretive judgments, see Table 5). We used an adjustment procedure in order to account for correct negatives in addition to hits and false alarms. Natural frequency of evaluative affect displayed toward the leader was calculated with one affect every 64 seconds in our team session contexts. There was a substantial difference in expressivity between women-led teams (one affect every 52 seconds; 115% above mean) and men-led teams (one affect every 84 seconds; 71% below mean). In order to compensate for the correct negatives that raters did not notate, we first added one correct negative for each

twenty-second segment of the rated material. We developed this procedure criterion-oriented at the frequencies of Study 2, which was the only prior study, when we conducted the field study. Results were then adjusted to the lower base-rates of evaluative affect display in natural discourse (subtraction of two correct negatives every minute). Table 5 provides an overview of the reliabilities of all four studies including Study 6 (see Chapter 4).

Table 5

Inter-rater reliabilities for nonverbal ratings of Experiments 1 to 6: Number of observations, simple percentual agreement and Cohen's kappa for nominal data (Cohen, 1960)

	Raters	Obs.	Percent	Kappa	Agreement^a
Exp. 1 (nv dominance)	man, woman	64	78%	.53	moderate
Exp. 2 (listening)	2 women (+1 contr)	263	91%	.71	substantial
Exp. 3 (face-to-face)	2 women (+2 contr)	214	73%	.38	fair
	Control1 with R1/R2	204	92%/73%	.56/.48	moderate
Exp. 4 (FtF, affect)	1 w, 1 m (+1 control)	219	76%	.35	fair
	Control with R1	218	89%	.54	moderate
Exp. 4 (nervousness)	2 women	91	79%	.56	moderate
	1 w, 1m	83	82%	.60	moderate
Study 5 (face-to-face, field study)					
Team C (all women)	2 women	133	82%	.68	substantial
Team D (men led)	2 women	149	85%	.69	substantial
Team J (all men)	2 women	177	88%	.79	substantial
Team M (women led)	2 women	90	80%	.64	substantial
Exp. 6 (viewing videos)	1 w, 1 m	91	79%	.61	substantial

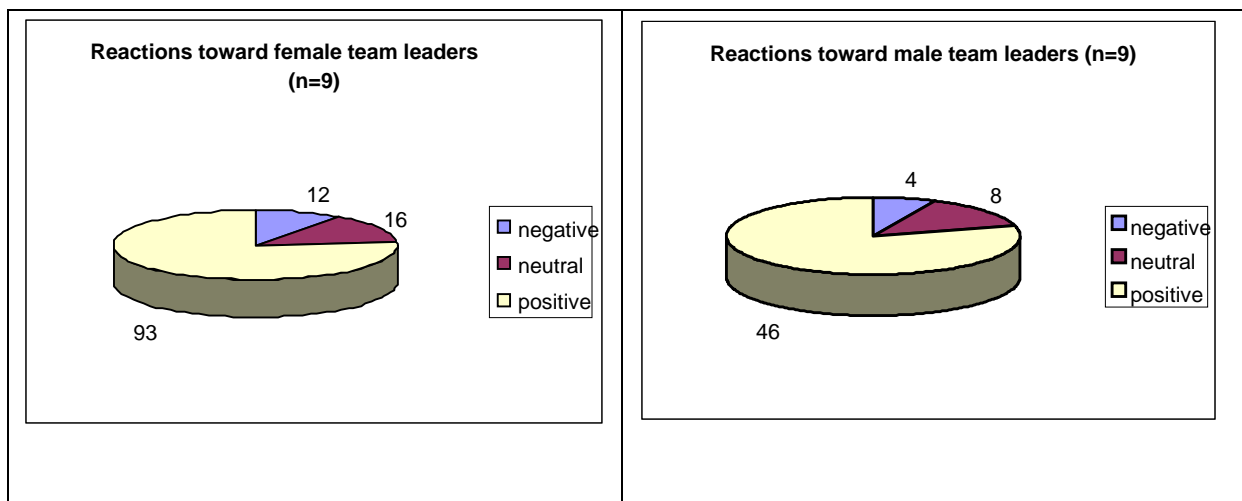
Note: ^astrength of agreement according to Landis and Koch, 1977 (p were all <.001); two independent blind raters coded evaluative affect displays for each experiment (plus one or two control raters in some experiments; kappas were calculated for pairs of raters).

3.2.4.2 Results

Affect display

Women in leadership positions received more negative affect displays than men (three times as many; not significant, see Figure 18), but they also received more affect displays overall (nearly twice as many, see Figure 18). Women received affect displays almost twice as often with one affect every three minutes. Whereas men received only one affect display every five minutes, indicating that team members of both genders expressed their attitudes nonverbally, more often toward women than toward men.

Figure 18: Reactions toward male and female leaders of routine team meetings at the workplace

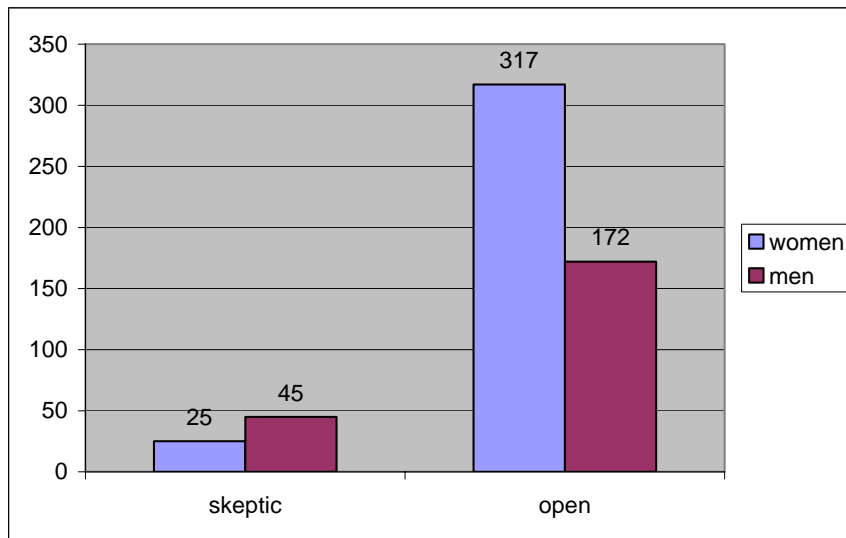


Note: skeptic reactions are negative evaluative reactions; open reactions are positive evaluative reactions; neutral reactions are all reactions that could not clearly be categorized as either positive or negative. (N_{obs} total = 559; N_{obs} toward leaders = 179; observation time was balanced with 8 ½ hours for men-led and women-led teams);

Women also *displayed* more affect than men overall (389 vs. 260 actions). They displayed almost twice as much open affect (317 vs. 172, 221/46 thereof toward women), but less skeptic affect. Men displayed less affect overall, but more skeptic affect than women (45 vs. 25, 13/23 thereof toward women). This difference is statistically significant with $\chi^2(1, N = 595) = 21.85, p < .001$. It fails to become significant for bosses' actions only and, thus, can be attributed to differences group members make in their actions toward others. Women were more expressive than men with one affect display every three minutes. Men only displayed

one affect every five minutes, i.e., they did not express their opinion by using nonverbal affect displays quite as frequently as women did.

Figure 19: Skeptic versus open affect display actions from all team members ($N=104$); women displayed more open affect than men, men displayed more skeptic affect than women.



Note: Both genders displayed more open affect overall (489 vs. 70 actions).

Relating the actions back to targets, women showed much higher skeptic affect toward women than men did (out of 25 skeptic affects from women 23 were addressed toward women, whereas out of 45 skeptic affects from men 13 were addressed toward women). This difference was statistically significant with $\chi^2(1, N = 70) = 7.62, p = .0058$. Yet, women also showed higher open affect toward women (out of 317 open affects from women, 221 were shown toward women). Men displayed higher open affect toward men (out of 172 open affects from men, 126 were displayed toward men) This difference was also statistically significant with $\chi^2(1, N = 585) = 27.10, p = .00002$. Considering the base-rates, however, only women's skeptic vs. open affect display differences toward women vs. men are significant with $\chi^2(1, N = 342) = 5.63, p = .017$, whereas men's are non-significant. Reactions toward content came in one third of the cases from the team leaders, there was no gender difference. The reactions after preceding stimuli (e.g., questions) were provided by women in 76% of the cases, and they addressed women in 90% of the cases.

Competence ratings

At the same time female team leaders were evaluated as more competent than their male colleagues (not significant) on the cognitive measure. The "women-are-wonderful effect"

(Eagly & Karau, 2002) is one possible explanation for the tendency to rate women higher in competence. Another plausible explanation is a possible leniency bias, particularly because the tendency mainly occurred in all women teams. Thus again, there was no significant difference in competence ratings of male and female leaders.

Gender-typicality effects

Gender-type was again computed using the median split method on the GTS-scales (Altstötter-Gleich, Eglau, & Kramer, 2000). Men in leadership positions scored significantly higher on instrumentality as well expressivity than men in subordinate positions ($p < .05$). Women in leadership positions scored significantly higher on instrumentality than subordinate women ($p < .05$), however, their scores in expressivity was one score point below the score of subordinate women. In leadership positions androgynous-type and masculine-type persons were over-represented. Affect expression was correlated with expressivity with $r = .55$.

Attitude effects

Attitudes toward women and men were again measured with nine items from the attitude toward women scale (Spence, Helmreich, & Strapp, 1973) and nine items from the NGRO-Scale (Athenstaedt, 2000). Men scored significantly higher on traditionalism than women ($p < .05$). No significant attitude effect (influence of traditional or progressive gender attitude) on either affect expression or affect reception was found.

Taken together, women in leadership positions received 2-3 times more negative affect than men (not significant), however, they also received 2-3 times more affect displays overall. Due to the small N of negative affect and the covariance of positive affect results are not conclusive. Not surprisingly, camera presence in team meetings is not very well suited to elicit natural negative affect reactions toward one's boss.

Having investigated the occurrence and the effects of evaluative (especially negative) affect displays in a number of interactive situations and different contexts (focusing on maximizing the *external validity* / *ecological validity* of the situations under investigation), we were now ready to put more emphasis on the *internal validity* of our findings. We therefore conducted Experiment 6, where we isolated the perceptual aspect of gender

construction from the interactive aspect, and had participants observe leadership scenes from short video-clips on a computer screen (see Chapter 4).

In Experiment 6 ($N = 115$ for evaluative affect; 76 women and 40 men; mean age = 25, $SD = 6.7$), which is described in detail in the next chapter, we investigated whether evaluative affect was also displayed in non-communicative settings (i.e., toward leaders on a videotape. I limit myself to describe the assessment and results of the affect display here (observational part). Participants completed an impression formation task in front of a computer screen where they watched videotapes of a person leading a team meeting. The video was masked and gender of the leader was not obvious, in fact the material had been tested to be just as accepted under male as under female gender-hypothesis. While watching the tapes participants themselves were recorded by a hidden camera, as I was interested in whether the evaluative affect effect (of prejudice toward female leaders) would also exist, while merely viewing a leadership scene on tape. Debriefing included getting their informed consent right after the 30 minutes experiment. I used this method of assessing nonverbal *evaluative affect* reactions because I assumed, that reactions would be much less pronounced in front of the computer screen than in interactive situations. I feared that the effect would totally vanish, when putting a camera right into the faces of our participants. Only four participants did not consent to the assessment of their facial reactions from the tapes and their data were deleted at the next possible opportunity. Affect Displays were coded by two independent raters, one man and one woman, who agreed on the ratings to 79.5 % (Cohen's Kappa = .61).

Results suggest no evaluative affect effect in Experiment 6, yet, observations were so low in numbers, that they are generally inconclusive. We observed very few *evaluative affects overall* (total $n = 15$ observations). We only found 12 negative (nine toward women, three toward men) and three positive reactions (two toward women, one toward a man). 90% of participants did not show any evaluative affect display at all in front of the computer screen, the above described reactions are distributed on 12 persons only (eight men and four women). Thus, people were not especially re-active in front of a computer screen and, more importantly, they did not show a particular pattern of judging male and female stimulus persons differently. No differences in *competence ratings* between assumed men and assumed women were found. In fact, perceptions regarding competence were almost entirely unrelated to gender hypotheses on the rating scales and in the text task, where participants had to indicate the cues they had used for their inference of competence. *Sex of participant* has a potential

influence with twice as many men reacting to the leadership scenarios on video-clips, yet as reported above only eight men and four women (out of 110) reacted at all. And, more importantly, they showed no particular gender-specific pattern of negative and positive affect display. More detailed results are reported in Chapter 4.3.

In sum, we found evidence that negative evaluative affect is shown to a considerably lower degree in non-communicative settings. Generally, negative affects were too infrequent to provide a firm basis for results to be conclusive. Yet, there was still a tendency that negative affect was displayed to a higher degree toward women than toward men even in non-communicative leadership situations.

Overall, in the experiments reported in this chapter, we found some evidence that in communicative situations negative evaluative affect was shown to a higher degree toward women than toward men in authority positions. Emotional contagion processes were found in two out of three studies, yet their relationship to evaluative affect display remained unclear. The fact that the effects reached only marginal significance in some analysis, leads to the impression that the gendered evaluative affect and emotional contagion effect is rather weak. We therefore calculated the effect sizes (Cohen's *d*), yet, effect sizes were consistently small to negligible. The values resulting from this analysis are reported in Table 4 (p. 114).

3.3 General discussion: Mixed evidence

The aim of the present research was to demonstrate that evaluative affect display in small groups can be one means of communicating prejudice toward female leaders. Experiment 2 showed the existence and degree of the evaluative affect effect. I furthermore intended to show that evaluative affect can spread among members of small groups and culminate into consensual affect display, which was found in Experiment 3, but not in Experiment 4. Consensual affect display as a potent feedback from the group can then affect self-esteem and self-competence ratings as well as attributions of the targets in the groups. These reactions can be gender-specific, as they were in Experiment 4, where they had more impact on women's self-esteem, and caused a decrease in their self-ratings of competence after negative group reaction. At the same time competence ratings of leaders on rating scales were not affected. I found no statistically significant differences in rating scale judgments for male and female leaders as targets (except for in Experiment 2, and only there, where in the replication study women were rated as being more competent). Additional evidence from a field study

(Study 5) portraying extensive affect rating material of team meetings, also pointed in the direction of an evaluative affect effect. Yet, additionally to negative reactions positive reactions toward female leaders were also more frequent; and, observations of negative affect were generally too infrequent for results to be conclusive. Finally, I showed that evaluative affect is a communicative phenomenon in face-to-face encounters and very rarely occurs in non-communicative situations, for example, in front of a computer screen. While the results for the evaluative affect and contagion effect were not as conclusive as I had expected, I found clear evidence for the assumed similarity in competence ratings of male and female authorities on rating-scales across studies. There was no male competence advantage, as some theories would have suggested. In fact, in Experiment 2 and in the field data competence of female leaders ($n_{\text{Lead}}=9$) was rated higher than competence of male leaders ($n_{\text{Lead}}=9$).

The experiments reported here *extend, empirically and methodologically, the few prior studies* that addressed bias in evaluative affect display toward male and female leaders (Brown & Geis, 1986; Butler & Geis, 1990). In Experiment 2 we replicated the findings of Butler and Geis (1990) and introduced a simpler and more efficient assessment method. Experiment 3 supported our assumption that evaluative affect can spread in groups by emotional contagion processes. Experiment 4 demonstrated a gender-specific effect of negative consensual affect display on ratings of self-competence potentially disadvantaging women in work-related contexts. Experiments 5 and 6 extended our previous studies to other, more general contexts, thus helping to specify their areas of validity.

Across four studies, I found that in face-to-face small group communication the occurrence of evaluative affect is a robust phenomenon. The frequency of affect displays toward leaders was on average one affect every minute in natural groups of about six persons (this is in the context of team meetings of long-term acquainted team members). One affect occurred every three minutes in laboratory groups (with two true participants and two to three confederates in the context of task-oriented discussions of participants not knowing each other before). One affect occurred every 20 seconds when four participants listened to a tape-recorded debriefing by the experimenter. That is, cue emission toward the leader in *face-to-face groups* was on average one affect every six minutes per person, no matter if occurring in a laboratory situation with authorities, or in natural group meetings. Yet, affect control was much lower in *leader-out-of-the-room situations*, when participants in groups of four listened to leaders' voices from audiotapes (emission rate of one affect every 80 seconds per person). While watching a video tape in non-communicative situations, participants' frequencies went down on average to one affect every 20 minutes. This included no affect in 90% of

participants at all (or one affect every five minutes for people who reacted at all; additionally, these reactions were context dependent with participants reacting mostly to a particular scene). The affect is in most cases displayed via the face (>90%), very rarely by hand gestures or other body movements. Not in all cases was the assumed gender bias observable, suggesting context dependency of the phenomenon of the *evaluative affect effect*. For example, when leaders were not really seen as authorities the effect did not occur. Moreover, the effect increased when leaders were not in the room (Experiment 2). We generally had a problem with the low numbers of negative affect observations preventing us from demonstrating the effect in a consistent manner. In contrast to the lack of evidence of the assumed gender bias of prejudice toward female leaders in our experimental face-to-face situations, there was some evidence of the transmission of negative evaluative affect after confederates' affect intervention in Experiment 3 and partly in Experiment 4. Regarding the affect intervention, there is only limited evidence from our data. The positive or negative attitude toward men or women in leading positions can indeed be influenced by deliberate display of one valence over the other by half of the group or the group majority. In sum, *neither Experiment 3 nor Experiment 4 makes an especially strong point for the assumed contagion effect*. We cannot exclude that each of the members acquired the same affective reaction on their own. This does not mean that there is no contagion, but there is no real strong argument that there must be, given the results.

The consequences of formation of negative expectations after having been the target of negative consensual affect intervention are shown for part of the sample in Experiment 4. Yet, by choosing first year students as group leaders in Experiment 4, we failed to create the conditions that would have been necessary for the evaluative affect effect to occur and spread. First year students were not accepted as authorities.

Regarding awareness effects (notice of the nonverbal affect intervention or its consequences, there was a slight advantage for women, supporting the notion of higher nonverbal sensitivity in women. For awareness effects being particularly low in Experiment 4 there is one possible *alternative explanation*: If evaluative affect is mediated by resource dependent cognitive operations, a task of high cognitive load should diminish transmission effects. Experiment 4 revealed that affect display and contagion were slightly reduced under a task of high mental load (leaders' task) and, thus, support this notion. Leaders had to control time, group decision process, participation and at the same time participate in the task themselves (creating their own rank order and defending it in the discussion). Despite the possible partial mediation of evaluative affect by conscious processes, our results support a

line of research that emphasizes affective factors in attitude formation (cf. Sherman & Frost, 2000).

3.3.1 Power and self-fulfilling prophecies

In work-related contexts there will often be an imbalance of power between agents. Power is a structural feature of the self-fulfilling prophecy process: Persons of low power find themselves dependent on powerful others for their outcomes. Their positions of lesser power may further a submissive orientation, while they seek to get along well with the powerful others and to accommodate themselves to their will. Because of this dependency, low power persons may be more responsive and show an increased sensitivity to cues given by their powerful counterparts (Geis 1993; Hall, 1984). Those cues may be founded on stereotype-based expectations, and effectively lead individuals onto the path of behavioral confirmation, in the hope of minimizing negative outcomes. As expectation states theory suggests, gender functions as a diffuse status cue and will potentially elicit similar behaviors between male and female colleagues of the same status. This was described for persons of unequal status, with the woman typically taking the deferent or accommodating role. Women not confirming to the respective gender-role expectations do so at the risk of losing *likeability*.

In power role relationships, Snyder and Stukas (1999) predict that the flow of influence will be from the expectations of the person with higher structural power to the behavior of the person with lower structural power. This is not so in our research. We are looking at what the joint power of the less powerful (but more numerous) can do to the (single) more powerful. Snyder and Stukas (1999) further predict that it will be the expectations of the more powerful that will find behavioral confirmation in the actions of the less powerful - a statement we agree with. In addition, however, the less powerful will reveal their real attitudes toward the leader by evaluative affect displays. This can be a clever means of communicating attitudes that can be understood by all, while at the same time the process of transmission remains mostly unconscious.

Finally, it is important to consider that power is not always the same but has different functional components to it. As a useful concept in the context of gendered use of power, Chen and Bargh (2001) distinguish two kinds of power: agentic and communal power. That is, exchange oriented power to ones own advantage versus power to the advantage of the community. The evaluation of power in this respect may also have consequences for the self-image of the actor or actress.

3.3.2 Nonverbal sensitivity and awareness effects

From Hall's meta-analyses of nonverbal gender differences, we know that women are better encoders and decoders of nonverbal signals (Hall, 1978, 1984; Hall & Bernieri, 2001). This finding has a number of implications for our research: we expected women to be more prone to emotional contagion and female leaders to notice more and be more susceptible to negative consensual affect display by the group. Moreover, we expected female raters to have a higher detection rate of evaluative affect. We worked with female raters in most cases. However, in order to avoid gender bias we introduced a male rater to the affect codings. We found no difference in detection rate and agreement for our male rater, he observed very carefully and even detected more evaluative affect than an expert rater in Experiment 6 (see chapter 4). Back to our nonverbal sensitivity observations, we have to realize that the negative affect intervention did not have an ideal effect. It obviously was not sufficiently intense to be just at the threshold of noticability, which was what we intended. A future option would be to replace lay-confederates with professional actors and observe, whether the affect intervention can be better controlled that way. Yet, such experiments have high costs in time and staff.

In any case, results suggest that transmission of evaluative affect occurs non-deliberately. Awareness of intervention across experiments was unrelated to any particular degree of positive or negative evaluative affect reactions. Research in automatic processing (Bargh, Burrows, & Chen, 1996, Chen & Bargh 1997; Bargh & Wegner, 1998) has proposed that automatically activated expectations can induce perceivers to act in line with these expectations without verbal knowledge (e.g. through "ideomotor processes", Bargh, Burrows and Chen, 1996). As evidence, Bargh, Burrows and Chen (1996) demonstrated, for example, that students who had an "elderly" expectation automatically activated (by subliminal presentation of a photograph on a computer screen), walked more slowly down the hall after the study than those who did not have the expectation activated.

Yet, as Snyder and Stukas (1999) note, targets have certain possibilities to decide whether they want to confirm the negative expectations or not. Even when in the position of low power, targets still have the opportunity to "ambiguate" their behavior. They may, for example, display behavior that can be interpreted in several different respects, so that each person involved in the interaction can confirm his or her own expectations and hypotheses.

3.3.3 How do we know that effects are gender-related?

The answer is as simple as unsatisfying: we do not know. First, we do not know, because of the stimulus sampling problem (cf. Wells & Windschitl, 1999; Fiedler, 2000). In those studies, where the authority intervention worked well, I only had a total N of 3 male and 3 female leaders. Despite our control of expressivity and perception of the leaders, reactions could have well been related to some other feature than gender. Second, we do not really know, at what time gender is a salient feature for the participants and at what time other features become more prominent. According to the lens model, there are at least three sources of variance on which the use of the gender filter may depend: (a) gender salience in the enactment of the target (intended or unintended), (b) gender salience for the perceiver (conscious or unconscious interpretation) and (c) gender salience in the situation (e.g., the setting, the task, the group composition). Even though the lens-model approach helps us to further differentiate relevant gender cues and the moments when they are used, it does not provide a complete answer to the complex phenomena. The main assessment problem remaining is the automaticity and non-deliberateness of many of the gender-related processes. The performance and perception method can only capture conscious processes, however, as gendered behavior has been learned from early socialization on, we might not know which cues we truly use to infer gender or gender-salience. As women we have learned to be flexible and to adapt well to all requirements of daily life. As long as we are in educational systems this is a highly adaptive mechanism that helps us to be successful. Yet, the requirements of professional life and especially leading roles contradict female learning histories in many respects. Women have to learn to say "no", and express negative attitudes and affect just as easily as positive attitudes and affect. For most women this re-learning of socialized habits happens at the entry in those first three years of their professional career. Before they have learned this required assertiveness (learned to say "no"), we assume that each situation where they need to be assertive or critical will be a gender question for them and for parts of their environment. After they have acquired the necessary assertiveness these situations will not be gender questions for them any more. They also cease to be gender-related for parts of their environment at that point. Men, on the other hand, have often learned these assertive behaviors much earlier during their socialization, as social roles demand them to be strong, show no weakness, and say "no" rather than "yes", because this belongs to their gender-role. Our finding that men expressed more negative affect, while at the same time being less expressive overall underlines this assumption. If women have not learned their assertiveness lessons before entering into professional life, and re-learning is necessary there, we assume

that each situation where they need to show assertiveness will become a gender-relevant situation (particularly for them, and potentially also for their environment). This line of thought underlines our focus on the communication of negative affect, as *the critical case*. The expression of negative affect often is a gender question per se, as is the ability to handle negative affect expressed toward oneself, especially for those professionals starting a career in middle to upper leadership roles. Interestingly, self-report statements of our confederates “confirmed” this observation. They stated that for them it was subjectively harder to display negative affect. Moreover, they reported that they experienced it as particularly harder for them (as women) to express negative affect toward men than toward women. However, observation of their performance showed no systematic differences in this respect.

3.3.4 Affect in the workplace: Shared affect and judgment effects in groups

Next to emotional contagion processes (cf. Hatfield, Caccioppo, & Rapson, 1994), a number of other factors have been posited to explain why work group members (in long-term teams in the field) tend to share affect (e.g., Bartel & Saavedra, 2000). For example, (a) common socialization experiences and common social influences, (b) similarity of tasks and high task interdependence, (c) membership stability, and (d) mood regulation norms and rules.

The effects of affect on judgments have been studied in a number of ways. Several studies (e.g., Brief & Weiss, 2002; Robbins & DeNisi, 1994) showed interpersonal affect and liking to be related to both performance ratings and certain intervening cognitive processes. However, as measured, interpersonal affect and liking seem more assessments of attitudes held toward a subordinate than assessments of any real affective experiences with the subordinate or affective responses to the subordinate. As such, these studies do demonstrate that attitudinal consistency can bias performance judgments, but provide less clarity regarding affective influences on appraisals (Brief and Weiss, 2002). Other performance-relevant judgments have been shown to be influenced by affect. Saavedra and Earley (1991, cited after Brief & Weiss, 2002) showed that self-efficacy was higher among subjects exposed to a positive affect manipulation than it was among subjects exposed to a negative affect manipulation. In a recent study, Richards and Gross (1999) showed that attempts to suppress the display of emotional states, a common requirement in organizations, impaired memory for information encountered during the period of suppression (Kita, 2000).

Directions for future research: Given that affect at the work group level has been demonstrated to be a meaningful construct, following the lead of Bartel and Saavedra (2000), more

effort ought to be expended to understand the processes by which affect come to be shared in the workplace. It appears that affect is often unconsciously processed (e.g., Damasio, 1994; LeDoux, 1995). It then is presumably not subject to self-reports, but still influences how organizational members think and act. If this is the case, then organizational researchers are faced with the methodological challenge of incorporating physiological indicators and observational studies of affect into their research (Brief & Weiss, 2002).

3.3.5 Methodological considerations and where to go from here

In this series of experiments I have introduced a simple rating method for evaluative affect display that raters are able to apply with minimal training on an intuitive basis with satisfactory reliability (see Table 5). This method can easily be applied in further studies on the topic.

The methods used in the course of these studies have clear limitations in (a) the fact that we conducted *role-play experiments* (Experiment 2 to 4), where no trial is like the other or independent of the use of actors in the main roles and, thus, no truly standardized conditions can be created; (b) the *stimulus sampling problem* as a serious limitation to generalization, and (c) the fact that in face-to-face interaction it is impossible to *control* all relevant variables (or to know them all in the first place). Yet, the limitation of Experiment 6 (see Chapter 4), trying to control for all the shortcomings named above, lies exactly in the fact that its setting is not a communicative situation. So, no matter how we try to improve the designs, we will in almost any case lose external validity at the expense of internal validity or vice versa.

Yet, our methods also have a number of convincing advantages: (a) behavior observations from video-tapes are an excellent non-obtrusive measure to assess nonverbal reactions (on a non-deliberate level of processing), (b) they may open a new window to the assessment of discriminative processes in research on stereotypes and prejudice and last but not least (c) our results show that cognitive measures (competence ratings on scales) are not an aggregate of real occurrences (nonverbal reactions), but on the contrary, can be totally independent or even negatively correlated. These methods have clear potential in contributing to explaining how communicative processes can hinder the advancement of women into high leadership positions, and how the decrease of self-esteem and self-efficacy beliefs (Abele-Brehm, 2000a) in the first professional years of a woman can come about.

A recommendation for future studies on evaluative affect display toward authorities would be to *use tape recordings* in order to re-examine the effect of our first experiment. However, this specific method causes challenges to external validity as the target actually is not present in direct face-to-face interaction. Yet obviously, subjects feel free from social

desirability pressures toward the leaders, when those are not directly present in the room for a short time. Higher frequencies of evaluative affect can be observed during these phases. Another advantage of using tapes is that mirroring effects causing possible biases in direct face-to-face interactions can be minimized. However, it seems necessary that in further experiments under this paradigm the authority is present in a face-to-face situation in order to test, whether the effect has the practical meaning we assume it might have. Thus, experimental designs need to be carefully constructed and a combined design (*baseline affect, post-intervention affect* and *leader-out-of-the-room affect*,) taking into account possible stimulus sampling problems may be a good start.

3.3.6 Conclusions

It was our aim to investigate evaluative affect and emotional contagion processes in socially meaningful situations and a socially relevant environment, i.e., reactions toward male or female authorities in face-to-face small group communication. After all we have learned, young leaders in the working world, on the basis of their gender, may react differently when they find themselves in situations where they are confronted with negative evaluative affect. The decrease in self-esteem, for example, – measured by lower self-competence ratings – will be more likely in women. However, this will depend on a number of moderators such as gender and status salience of the situation, gender schemata of the recipient and the reaction of the leader. Dependent on these moderators, leaders will make different choices in situations of negative group feedback. These choices will depend on the frequency, pervasiveness, quality and intensity of negative feedback, targets' nonverbal sensitivity, their attributional style and their gender. The decision to "leave the field" (Lewin, 1935), may be more readily taken by women, because it still is more socially accepted for a woman to reject a promotion possibility or to decide for the domestic domain, at least for a while. Overall, results support taking a *person x situation* approach (Lewin, 1935, 1951; Deaux and LaFrance, 1998). This approach allows the researcher to take into account moderators such as communicativeness of situation, degree of dependency on authority, etc., to come to a better understanding of the "genderedness" of certain behaviors in the context of evaluative affect reactions and their transmission in groups.

The lens-model approach employed to the nonverbal data brings interesting aspects into play: For laboratory and field data, affect displayed, affect received, and competence perceived, are important parts of the model. Higher overall affect display toward women and

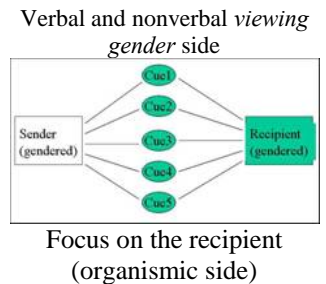
in all-women teams in the field study may be explained by higher expressivity of women. On the decoding side, using confederates' observations and raters' protocols revealed that in all studies both confederates and raters used mainly facial cues to infer evaluative affect; for positive evaluative affect they mostly used smiles and laughter; for negative evaluative affect they mostly used frowns, eye-brow-movements and mouth movements. Another interesting methodological option lies in the closer investigation of the encoding side. If researcher have the option to go back to their participants and review the tapes with them, they should do so, asking them for every single incidence of affect display (was this really an evaluative reaction toward the leader?). Thus, research would gain ecological validity and researchers would be able to find out more about systematic vs. idiosyncratic biases in the process of encoding and decoding nonverbal information. The lens-model approach, thus, is especially useful for the control of raters' cue utilization and of confederates intervention -- a crucial element for replicability. It can help with the assessment of cues emitted and used by targets and recipients, and with setting observational criteria for operationalization.

Taken together, the studies reported in this chapter provide partial support for the hypothesis that attitudes toward persons can be formed through simple processes of evaluative affect displays mediated by emotional contagion processes. These processes have a number of perceptual, attributional and behavioral consequences. There is convincing evidence that awareness does not play much of a role in these experiments and that, these processes happen on an affective and automatic rather than on a cognitive and deliberate level of processing. Furthermore, there is evidence for sufficient rater reliability, considering the interpretativity of the intuitive affect ratings. The present work is a beginning contribution to our understanding of attitude formation and transmission through nonverbal communication processes in interaction situations involving two or more agents.

Having conducted this series of role-play experiments and the field study with their good external, but lack of internal validity, the evaluative affect effect needed further support by an experiment with a better internal validity. To this end, Experiment 6 was developed.

4 Verbal and nonverbal construction of gender and leadership: "Viewing gender" in observing leaders of a team meeting

This chapter treats the influence of gender-hypothesis on the perception of identical leadership performance. A Goldberg-paradigm study was designed where participants viewed masked video-clips of a leader in a team meeting. Scenarios were derived from real team meetings of Study 5. The resolution of the screen did not allow participants to clearly identify the leader's gender (mosaic square-pattern mask). Half of the sample was told that Mr. K. is the leader, the other half was told that Mrs. K. is the leader of the team meeting. Gender hypothesis was accepted by participants in all but five cases.



4.1 Introduction: Evidence for gendered leadership perception

This study wants to account for some obstacles that women face in their efforts to exercise leadership at the same levels as men. Even though differences in leadership style undoubtedly exist, I am not so much interested in sex differences per se (for thorough reviews of sex differences in leadership style see Eagly & Johannesen-Schmitt, 2001; Eagly & Johnson, 1990). Coming from a social psychologist and constructionist perspective, I much rather focus on the differences in *person reception* or *person acceptance* from the stance of the observer. An early experimental researcher coming from such a perspective was P. Goldberg (1968). Like Goldberg I am interested in people's construction of perceptual differences under identical performance circumstances. I am talking about *person reception* because this includes perception and its behavioral consequences, some of which have been addressed in Chapter 3. The influence of the recipient and the context have long been underestimated in interaction processes (cf. Bavelas & Chovil, 2000; Bavelas et. al, 2000). In social psychology we know that recipients can cause cognitive and behavior confirmation processes setting of a chain of expectancy confirmation behaviors in a self-fulfilling prophecies manner (Blanck, 1993; Merton, 1948; Snyder, 1984). Since differences in "doing gender" consistently pointed to the importance of the assumed gender-hypothesis ("viewing gender") by the recipient, I manipulated the gender-hypothesis of the targets systematically in order to find out more about mere hypothesis-based stereotypic perception of leaders (*viewing gender side*).

4.1.1 The Goldberg-paradigm: Gendered perceptions of identical leadership performance

About thirty-five years ago P. Goldberg (1968) was the first to test, experimentally, judgment differences about persons of different gender who were represented with identical stimulus material. In Goldberg's (1968) initial experiment identical articles presumably written by a woman or a man were given to students for evaluation. Typically, in such experiments identical application résumés (or equated leader trait descriptions) are given to two groups: in one condition under a male and in the other condition under a female gender label. Then, the hiring probabilities, wage recommendations and similar dependent variables are assessed. The experimental control used in such studies is much better than in any other psychological gender research paradigm and it's particularly been used in studies about wages, hiring and promotion of applicants and leaders. The paradigm is particularly useful for assessing constructive effects. Many experiments have been run with this method and meta-analyses have been conducted about a number of them to calculate effect sizes. The results of the most recent and most extensive meta-analytic study (based on information in 49 articles and dissertations) showed that men were preferred over women for jobs rated as male sex-typed with an effect size of Cohen's $d = .34$ and women over men for jobs rated as female sex-typed with $d = -.26$ (Davison & Burke, 2000). Given that leadership roles are usually male sex-typed, this research suggests bias against female candidates for such positions (Eagly & Karau, 2002). This finding is supported by the predictions of Eagly and Karau's *role congruity theory* and *expectation states theory* (Berger, Connor, & Fisek, 1974).

Studies using the Goldberg-paradigm have the great advantage that they make causal arguments possible. They, therefore, became the method of choice in many gender related experimental studies including ours. However, Goldberg-paradigm studies so far have only been conducted with written material, not with dynamic visual material, which comes much closer to the reality of hiring or promotion situations. In such situations the impression of the entire person is important. Nonverbal communication has a high impact on the perception of social interaction. Numbers given in the literature show that between 60% and 93% (Mehrabian & Wiener, 1967) of the meaning in an exchange stems from nonverbal cues (cf. Burgoon, 1994). Birdwhistell's estimate (1955) of 60%-65% is supported by a meta-analysis of 23 studies (Philpott, 1983, cited after Burgoon, 1994). Using audiovisual material, therefore, raises the reality character or the *external validity* of such experiments. However, there are a number of different problems for the *internal validity*. The more communicative channels included the more complex the separation of single sources of variance gets. Voice and visual nonverbal behavior transmit different information. Especially, under the circumstances of

having synchronized the material by adding different voices to different video-clips, vocal and nonverbal variables are inseparably confounded, with the voice as a second source of variance in the verbal condition. In my study the nonverbal condition, is thus the only condition satisfying experimental requirements. The inclusion of visual and auditory aspects (such as gestures, facial expressions, rhythms, gaze, spatial behavior, qualities of movement, touch, laughter, smiles, sighs intonation, and the like) provides an opportunity to examine the "genderedness" of situations. In areas in which the verbalization of specific content is taboo (such as the communication of status, or dominance, or subtle sexual cues), the communication of gender often becomes exclusively a matter of visual and nonverbal communication.

Including the component of nonverbal communication into a Goldberg-paradigm study I need to briefly review what's known about nonverbal sex differences, expectations and reception in communication. Rosenthal and DePaulo (1979) emphasized the higher encoding and decoding ability of women with respect to nonverbal communication. Their results show women to have a better understanding and expression of body language cues, especially facial cues, whereas men were relatively better in the encoding and decoding of vocal cues. Rosenthal and DePaulo interpreted this as showing an affinity of women to the emotional and evaluative dimension and an affinity of men to the potency dimension (cf. see also Moskowitz, Suh & Desaulnier, 1994). Affect cues are communicated via the face, whereas dominance cues are communicated mainly via the voice. Judith Hall (1978, 1984) then extended this research by assessing nonverbal sex differences more systematically. She was able to show that women have a higher nonverbal sensitivity than men on the encoding and on the decoding side. Women have more expressive faces, smile more, look more, get more looks, approach others more and are approached closer by others. They are less restless, less expansive and emotionally more involved in interaction. They make fewer speech errors and fewer filled pauses. Their decoding accuracy is generally higher than that of men (be it through differential practice, child raising, social roles, historical dependency (oppression) or evolution based reasons). Other important visual and auditory difference in the communication of gender are reported by Aries (1987), Ridgeway (1992, 1997), Hall (1984, 1999), Hannah and Murachver (1999) and Strand (1999). Grammer, Fidova, and Fieder (1997) especially emphasize the temporal patterns of the flow of motion.

4.1.2 What is so special about motion?

Motion perception is a basic cognitive process. Distinguishing animate from inanimate objects is one of the first cognitive functions we acquire in our lives (Pauen & Träuble, 2002). To recognize intention from motion is psychologically important as the most elementary level of social cognition (Blythe, Todd, & Miller, 1999; Todd, Barrett, Blythe, & Miller, 2002). It is of functional value in the evolutionary process, as it aids survival of the individual and of the species. Motion is a major cue we use to infer intentions and motivations, to perceive cause and effect and to make causal attributions (cf. Heider & Simmel, 1944). Most of its informational value is thereby contained in the dynamics of the spacio-temporal patterns (Berry, Misovich, Kean, & Baron, 1992). The importance of the dynamic of an interaction has been pointed out by authors such as Kendon (1982) who focused on time and sequence, as did Werner and Baxter (1994). Kestenberg-Amighi, Loman, Lewis, and Sossin (1999) focused on rhythms and qualities of movement, and Todd, Barrett, Blythe, and Miller (2002) investigated intentionality through motion. Dynamic approaches have stimulated an increasing use of methods such as time-series analysis (cf. Cappella, 1996) or spectral analysis (cf. Gilden, 2001) in communication research. Recent work in approach and avoidance motor behavior has brought the topic back into the social psychological domain (Cacioppo, Priester, & Berntson, 1993; Neumann & Strack, 2000).

The biggest limitation of the classical person perception research (since Asch, 1946) has been that it is in fact not investigating direct person perception. Its stimulus material consists almost exclusively of verbal descriptions of persons, sometimes of photographs, which are equally remaining in the static realm. What we usually perceive, however, is temporally structured verbal and nonverbal behavior (cf. Kendon, 1982, Wallbott, 1990). Verbal labels are not the starting point of natural person perception and attribution. In most perceptual process they do not play a role at all: at best, they are the result of integration and inferential processes based on proximal cues (cf. Wallbott, 1990).

Up until now, little work has been done to explore the impact of gender-hypotheses on the processing of dynamic motion cues as one of the most fundamental levels of cognitive processing. The research presented in this article suggests that gender-hypotheses people hold about an actor (and, therefore, expectations based on gender stereotypes) affect the perception of motion and the processing of nonverbal behavior just as they affect processing of verbal behavior (Koch, Müller, Kruse, & Zumbach, 2002) and of vocal or auditory cues (Biemans, 1999, Strand, 1999).

4.1.3 Designing a study with increased internal and external validity

I designed a final study to demonstrate that constructive processes are a common phenomenon in gender communication. To control for earlier shortcomings regarding internal validity the setting was much more experimentally controlled (computer-based perception experiment). Next to the classical Goldberg-design, the reported experiment applies the methodology of verbal and nonverbal cue analysis using the performance and perception method. In terms of the lens-model, in this case, the performance side was fulfilled by "the boss", a male lay-actor with the help from a number of "team members", also lay-actors that role-played a scenario from a real team meeting (all was on videotape), whereas perception and judgments were tasks of the participants in the study. The study extends earlier studies in language psychology and linguistic gender research (Braun, Eckes, Gottburgsen, & Oelkers, 2000, Strand, 1999) empirically and theoretically: I intended to demonstrate gender construction with socially significant material, that is, text extracts adapted from real work place situations and video-clips with dynamic motion information. Thus, there also is a high external validity to this study, with the new methodology actually supporting more realistic Goldberg-paradigm studies. There is ample evidence that motion is associated with attributions of intention and meaning (Berry, Misovich, Kean, & Baron, 1992; Krämer, 2001; Pauen & Träuble, 2002; Todd, et al., 2002). However, dynamic material has – to our knowledge - not yet been used within the Goldberg paradigm. Moreover, natural language material was re-interpreted by discussion participants, and then analyzed using content-analytic techniques within the lens-model approach. In our first experiment, it was *gender* that needed to be inferred as the distal cue, whereas in this experiment, gender – more naturally - served as one out of a number of proximal cues to infer distal constructs, such as competence, support, dominance and emotionality in a team leader situation.

Remembering the results of the chat experiment (Study 1) a *high situated flexibility in gendered behavior* was observed from male and female participants. The *omnirelevance and primacy of the gender category* was emphasized by our research. Gender as a category was just as influential and gender guesses just as accurate, when participants did not pay attention to gender (non-salient group) than when they did pay attention to it (salient group), and gender was used as an organizing category of the discussion (who-said-what results). I have found *constructive processes* in trait-inferences, in type of cues used and in interpretation of cues. All of these effects were depending on gender-hypothesis rather than on real gender of the person. Study 6 was conducted in order to systematically test the influence of gender-

hypotheses with an experimental manipulation of it focusing on gender-hypothesis based acceptance of leadership in a team session.

4.2 Method: "Goldberg goes nonverbal": Construction of gender from audio-visual material (Study 6)

Participants and design

One-hundred-and-fifteen participants (forty-five men and seventy women, mean age 24.8; $SD = 6.7$) mostly students from the University of Heidelberg participated in small groups of up to four persons¹⁶. They were either given partial credit for a course requirement or received a book for their participation. Participants were randomly assigned to a two-factorial (gender-hypothesis of main actor: woman vs. man) between group design, sex of participants (men vs. women) was balanced and served as the second factor. Sequence of stimulus presentation was balanced, as well.

Figure 20: Design of Study 6 (two-factorial)

		Sex of Subject	
		Women	Men
Gender Hypothesis	Female Leader	34	21
	Male Leader	33	22

Note: N = 110 valid cases for nonverbal condition; Dependent variables: 21 trait-items presented in a semantic differential, among them competence, dominance, support and emotionality items. Ten additional items assessed nonverbal motion perception. The semantic differential for movement qualities had been carefully developed on a sample of 80 participants beforehand (see Figure 21).

Materials and procedure

The experiment was announced as a person perception experiment on leadership. Participants were and placed in front of one out of four computer screens by the experimenter, each with

¹⁶ Five participants had identified the main actor or had the wrong gender hypothesis in the nonverbal condition and were consequently excluded from calculations. The sample finally consisted of 110 participants (67 women and 43 men).

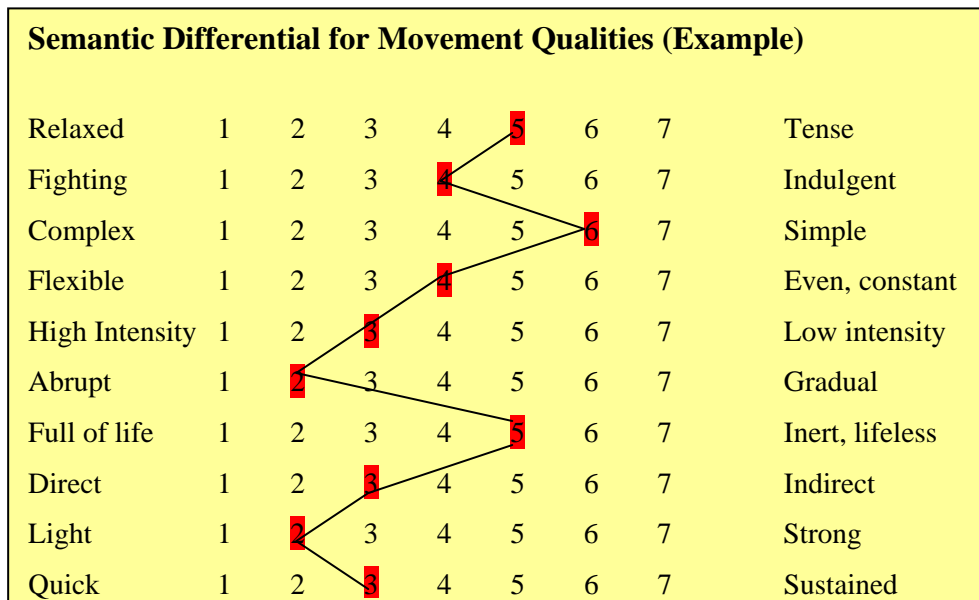
their own headphones. They received the written instructions explaining the rationale for assessing a nonverbal and a verbal condition, and describing the succession of videos and ratings during the experimental procedure. Instructions stated that, in person perception, we tend to form impressions even when the information from the stimulus material is rather minimal, like in this case, where a person is not clearly visible and not audible (in the first of two video clips). Participants were told that I was interested in (a) how much of an impression they are able to get from the minimal information in the first scene and in (b) a comparison of how the impression changes from the nonverbal to the verbal scene when the voice is added. Then the video-clips of the leadership scene followed. Each clip took 1 1/2 minutes. Before the experimenter started the first video-clip, she described the scenario on the video to each of the participants individually as they had finished their instructions: *"The first video-clip will run nonverbally. You will see a leader in front of a working team, there will be seven persons in the room sitting around a table, so it is an interactive situation. However, you will only see the main person leading the team session (Mr. K. / Mrs. K.)."* Then the video-clip was run with the volume turned off and they observed the main person. The instruction that followed asked participants to express their first and spontaneous reaction toward the presented video on a 21-item semantic differential for their first impression (trait ratings). In addition, they were then given a 10-item semantic differential for nonverbal behavior. Next, they saw the same leadership video with the volume turned on and then filled in another 21-item semantic differential of their impression. They were then asked to indicate competence, likelihood of promotion and income guesses (about their current income). The scene had been carefully constructed to include power-related and support-related behaviors that we had observed in routine team meetings at the workplace in a sample of 20 teams. Thus, the scene was quite representative of a boss's effective leadership behavior independent of sex of leader. The setting was a routine team meeting in the journalism sector. Boss and team discussed and distributed the tasks of writing articles, trying to match articles to interests and abilities of team members while considering rotation and other issues.

After participants had watched and rated the nonverbal and the verbal version of the first scene, they received the text of the scene. They were asked to indicate the cues in the text they had used to infer a) competence (C+/-), b) emotionality (E+/-), c) dominance/influence-behavior (D+/-) and d) support-behavior (S+/-). For 5 minutes they had the opportunity to use the labels in both directions (e.g., C+ for high competence and C- for low competence). Finally, participants completed a number of scales, among them a *gender typicality scale*

(GTS, Altstötter-Gleich, Eglau, & Kramer, 2000) and an *attitude toward women scale* (ATW, Spence & Helmreich, 1973; NGRO, Athenstaedt, 2000) which served as control variables.

Finally, they received their credits or present and were debriefed. Debriefing included getting their informed consent after having videotaped them in front of their computer screens. I had videotaped participants in order to assess nonverbal *evaluative affect*, a concept that distinguishes positive (*open*) and negative (*skeptic*) affect reactions toward a target. In this case I was interested in differential reactions toward male and female leaders as I had found differences in nonverbal reactions toward male and female leaders before (Koch, 2002). Replicating Butler and Geis (1990), I found that women in leadership positions received more negative affect than men in the same positions. I wanted to know, if this effect holds in front of a computer screen, merely viewing a leader on tape. I assumed, however, that reactions in front of a computer screen would be much less pronounced than in interactive situations and feared that the effect would vanish, if I put a camera right into the faces of our participants. Therefore, I decided to use a hidden camera as an exception and get the informed consent of participants after the 30 minutes experiment. All but four participants agreed to the assessment of their facial reactions from the tapes.

Figure 21: Semantic differential for movement qualities (short version)



Video clips

All persons participating as actors in the scenario were blind to the hypotheses of the experiment. I selected a male and a female model for the role of the main actor using the criterion of androgynous appearance and motion pattern. The main actor of the video-clips had been chosen to look and move in androgynous ways when he was selected by the author who is trained in movement analysis (KMP-system; Kestenberg-Amighi, Loman, Lewis, & Sossin, 1999). The scene was taped and re-taped with a digital video-camera, and then digitized into Mpeg1-format. Only after the taping were the main actors informed of the purpose of providing their clips in a male and a female version to the participants, to which they consented. Then I masked the clips, using a mosaic square pattern from the visual effects options in Ulead Media Studio Pro. The resolution of the pattern was 7 pixels, the size of the display 10x16cm using the Windows Media Player. Pretests of the material (n=12) showed that the male model was accepted under male and female gender hypothesis even by subjects acquainted with him, whereas the female model was recognized more often as a woman. I thus decided to use the phenotype androgynous *male model* as the main actor of the scene.

Figure 22: Example of material of Experiment 6. Screenshot of masked video-clip



Research Question and Hypotheses

- (1) There will be gender-hypothesis related systematic differences in the evaluation of leaders and applicants in stereotypic direction, with men being judged higher on competence and agentic traits and women judged higher on emotionality and communal traits (Eagly & Karau, 2002; Bakan, 1966).
- (2) There will be differences in income guesses, promotion and hiring probability dependent on the gender-hypothesis, with women being rated lower and men being rated higher (Heilman, 2001; Ridgeway, 2001).
- (3) Furthermore, I expect a systematic decrease of promotion or hiring probability ratings compared to competence ratings for the female gender-hypothesis, indicating a shifting standards effect for minimal standards versus ability judgments (Biernat, 1995; Biernat & Fuegen, 2001): In comparison to the competence rating women will show relatively lower hiring or promotion probability ratings compared to men.
- (4) I expect to find less pronounced differences in the nonverbal than in the verbal version

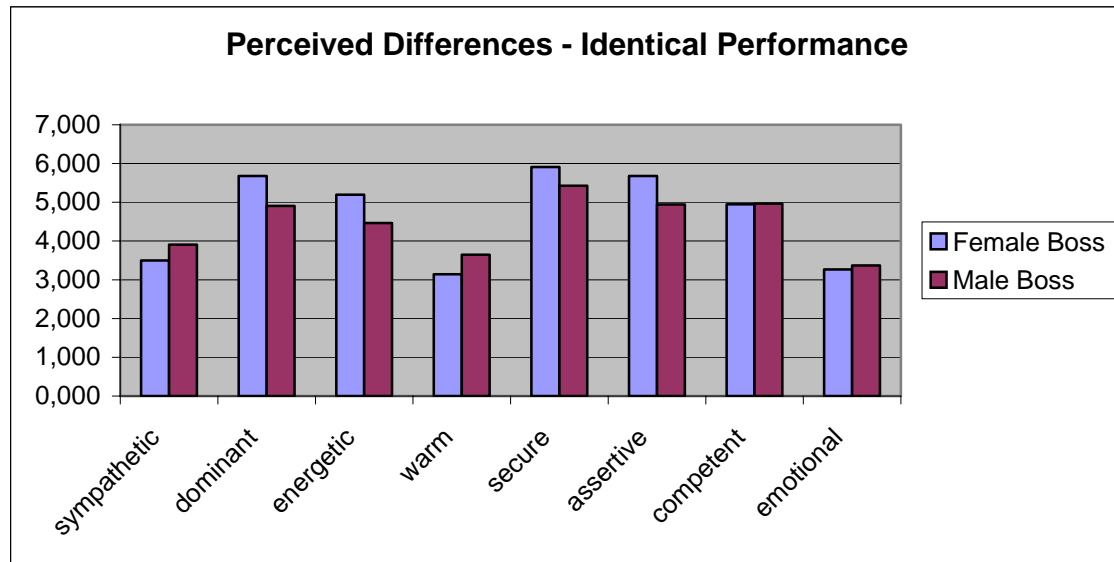
4.3 Results: Similarities and differences in gender perception

Constructive effects (for nonverbal condition only)

Trait-based ratings. A MANOVA was computed with *sex of participant* (men vs. women) and *condition* (male vs. female gender-hypothesis of leader) as independent variables, *gender-group* (the aggregated variable of gender-typicality) as covariate and the trait-based ratings of the nonverbal version of the video-clip as dependent variables. The following main effects resulted: for *gender hypothesis*, with $Rao R(20, 87) = 1.71, p = .046$, and Eta-square $\eta^2 = .28$ (with a confidence interval of 95%); for *sex of participant*, with $Rao R(20, 87) = 2.44, p = .002$, and $\eta^2 = .36$, and no significance with $Rao R(20, 87) = 1.62, p = .064$, and $\eta^2 = .28$ for the interaction. Main effects for *gender-hypothesis* resulted from differences on the following items (items with insufficient homogeneity of variance were excluded): Based on the female gender hypothesis (Mrs. K), the stimulus person was perceived as more dominant with $F(1, 106) = 14.36, p < .001$, assertive with $F(1, 106) = 9.70, p < .003$, energetic with $F(1, 106) = 8.30, p < .005$, and less warm with $F(1, 106) = 5.25, p < .03$ (\rightarrow more agentic, less communal). Based on the male gender-hypothesis (Mr. K), was correspondingly rated as less dominant, assertive and energetic, but warmer (\rightarrow less agentic, more communal). Overall, effect sizes did not exceed $\eta^2 = .25$ (with a confidence interval of 95%), i.e., the effect size esti-

mates point to small to very small effects. No main effect for *competence* or *emotionality* was found (for interpretation of these counter-stereotypical results see discussion).

Figure 23: Differences in means on main dependent variables for male versus female gender hypothesis (nonverbal version).



Furthermore, I found a main effect for *sex of participant* on the following items: women on average rated stimulus persons higher on dominance with $F(1, 106) = 19.07, p < .001$, assertiveness with $F(1, 106) = 19.08, p < .001$, influence with $F(1, 106) = 6.64, p < .02$, energy with $F(1, 106) = 5.50, p < .03$, professionalism with $F(1, 106) = 22.48, p < .001$ and lower on talkativeness with $F(1, 106) = 15.85, p < .001$. No main effect for competence or emotionality was found. Effect sizes were no bigger than $\eta^2 = .30$ (with a 95% confidence interval). Moreover, a number of interesting tendencies could be observed, e.g., women rated the female leader as slightly more cooperative but almost identical to the male leader whereas men rated the male leader as much more cooperative indicating a higher accentuation effect in men on this item as well as on a number of other items.

Factor Analyses

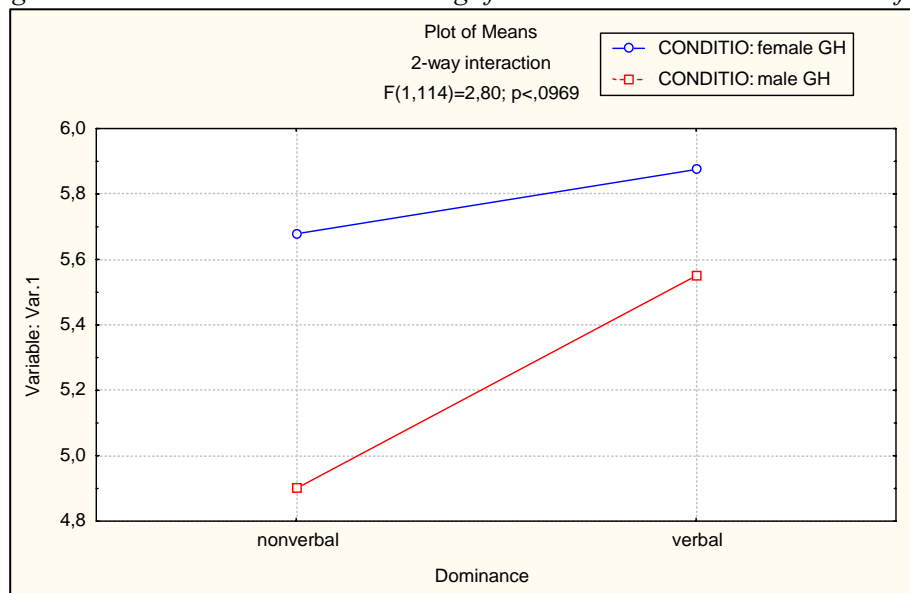
Factor analysis over items (trait-based ratings) revealed four factors for *female leaders* (55.8% of variance explained). Next to the three "classical factors" (cf. Osgood, Suci, & Tannenbaum, 1957) of *Evaluation* (including moral integrity; 18.18% of variance explained), *Potency* (including competence, 15.51% of the variance explained) and *Activity* (11.32% of the variance explained), I found a fourth factor of gender-typicality and called it *Femininity*

(including low efficiency and low influence, with 10.76% of the variance explained). Factor Analysis revealed three factors for *male leaders* (54.5% of variance explained): *Evaluation* (including competence and professionalism, with 24.11% of the variance explained), *Potency/Activity* (with 21.53% of the variance explained) and *Femininity/Emotionality* (including low professionalism and low competence, with 18.91% of the variance explained (cf. Fiedler, Blümke, Freytag, Koch, Plessner, & Unkelbach, 2002, who found that femininity and emotionality were often inferred using the same cues; however, this was the only time that the two concepts were highly correlated here).

Comparison between verbal and nonverbal condition

A comparison of main effect changes between verbal and nonverbal conditions showed that all main effects from the nonverbal condition remained intact, they were, however, more pronounced and intensified by the verbal contribution: dominance, assertiveness and energetic ratings were yet higher in the verbal condition and they moved closer together for male and female gender-hypothesis condition. Warmth was rated even lower in the verbal condition. Dominance was rated higher, yet all of these tendencies failed to reach significance.

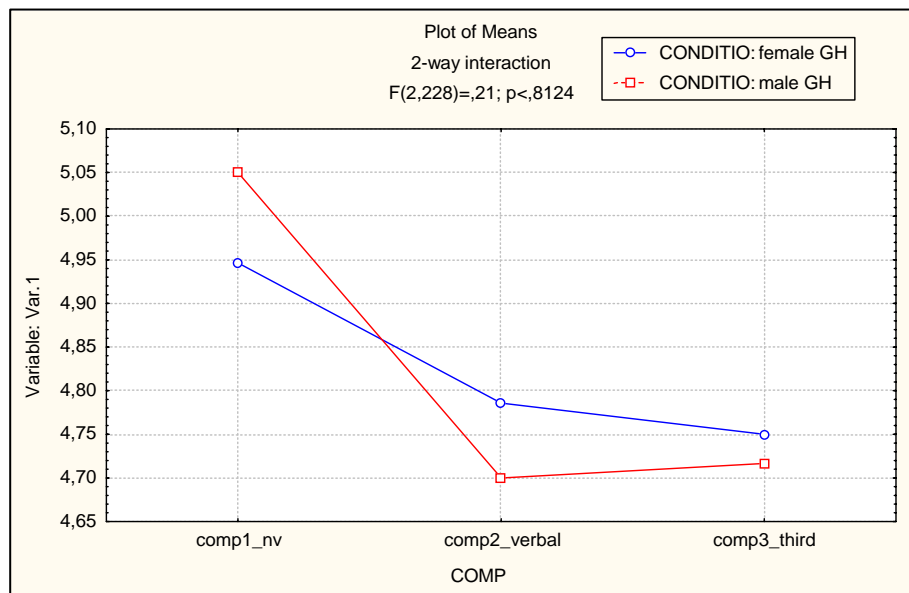
Figure 24: Increase in dominance-ratings from nonverbal to verbal version of videotapes



Even though the competence ratings were not significantly different for male and female gender-hypothesis, something interesting happened here: in the nonverbal condition assumed men and women are perceived equally competent, however, both are perceived as much less competent in the verbal condition. The third competence rating assesses more of an outside perspective from participants, asking: *How competent do you think this person is viewed in*

the organization? In comparison with the final ratings after the verbal condition participants rate men as being slightly more competent from the outside view than from their own view and women to be slightly more incompetent from the outside view than from their own view.

Figure 25: Change in competence ratings from the nonverbal to the verbal version; last value indicates the change to a third person view (how is the competence viewed in the organization)



Note: Under male (female) gender hypothesis competence ratings decreased from $M = 4.95$ (5.05) to $M = 4.78$ (4.70) from nonverbal to verbal version and to $M = 4.75$ (4.72 , increase) for third person view.

Income guesses

Income guesses were done on a rating scale indicating yearly income in 1000 €. The scale started at 13-18.000 € and went up in five intervals to 29-32.000 € (means at 23.000 €). However, this scale was too low for a middle management position in journalism. My intention was that participants who knew better, would use the category, where they had to indicate an actual amount of income (objective rating format; cf. Biernat & Kobrynowicz, 1997). Exactly 50% of participants used the scales with a strong tendency to the means or below (which are both unrealistic), the other 50% used the highest rating scale option or the "more (enter amount)" option. There was no difference in ratings between the two experimental conditions by the 50% of "ignorant" participants who were expected to show a rating bias in a stereotypical direction. Rather, the tendency of their ratings was in the direction of rating women higher than men in expected income. The "knowledgeable" subjects, on the other hand, showed the expected effect with $F(1,105) = 3.86, p < .05$ (only significant on the 10% level) of putting in higher income guesses for men than for women in

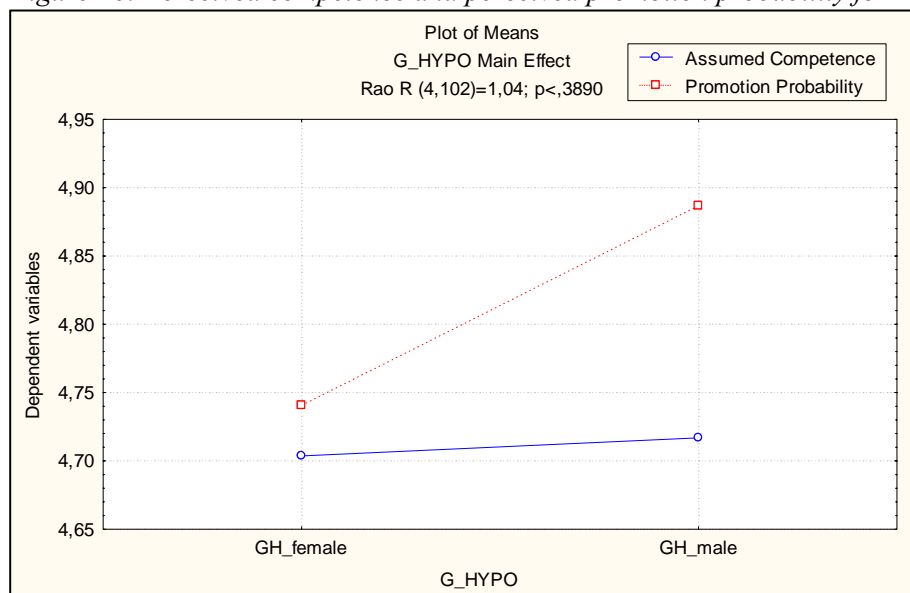
this branch. However, we can not assume that this is a stereotyping effect, it much rather reflects their baseline knowledge or at least their baseline guesses about income distribution between women and men in journalism. Independent of the causes, though, I assume that the results have a similar impact on the formation of expectations and the aspiration level of women as opposed to men in the working world (as predicted by EST and SRT).

Career predictions

Looking at promotion probability compared to assumed competence in the organization I found a tendency in the expected direction. Women and men assumed to be equally competent received differential predictions for promotion probability (see Figure 26): men were believed to be more likely promoted.

Even though all tendencies of the three hypothesis tests described in the last three paragraphs resulted in the correct direction, none of the effects became statistically significant. The results of the testing of hypotheses 2, 3, and 4, thus, are inconclusive. Additionally, results of the testing of hypothesis 1, although becoming statistically significant, all pointed in counter-stereotypical direction.

Figure 26: Perceived competence and perceived promotion probability for male vs. female leaders



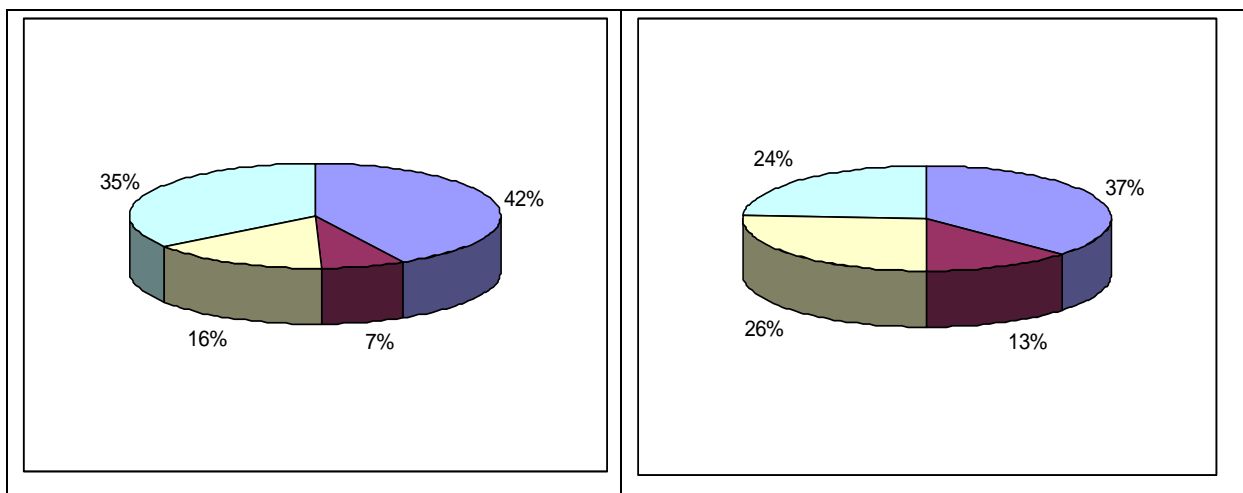
Evaluative affect display. Affect Displays were coded by two independent raters a man and a woman, who agreed on the ratings to 79.5 % (Cohen’s Kappa = .61; substantial agreement). We observed very few evaluative affects overall (total N=72 // 15). We only found 12

negative (nine toward women, three toward men) and three positive reactions (two toward women, one toward a man). 90% of participants did not show any evaluative affect display at all in front of the computer screen, the above described reactions are distributed on 12 persons only (eight men and four women). Thus, people were not especially reactive in front of a computer screen and more importantly they did not show a particular patterns of judging male and female stimulus persons differently (compare Chapter 3).

Competence ratings. No differences in competence ratings between assumed men and assumed women were found. In fact, perceptions regarding competence were almost entirely unrelated to gender hypotheses on the rating scales and in the text task, where participants had to indicate the cues they had used for their inference of competence.

Gender typicality. Gender typicality was computed from GTS-values serving as a covariate/control variable. On single-item basis, women claimed to be more empathic/sensitive ($F(1, 108) = 7.13, p = .008$) and more affectionate ($F(1, 108) = 4.95, p = .028$) than men. Raw scores were categorized into four groups using the median split method. Female participants fell into 29 feminine, 5 masculine, 21 androgynous and 11 undifferentiated type persons. Male participants fell into 16 feminine, 6 masculine, 11 androgynous and 12 undifferentiated (see Figure 27).

Figure 27: Gender typicality of men (right) and women (left) in Experiment 6



Note: left = gender typicality of women; right = gender typicality of men (right side of pie chart = feminine; front dark = masculine; front bright = undifferentiated; left hand side (back) = androgynous; calculated with the median-split method)

ANOVA results yielded an effect on four items from three different dimensions: video-clips were rated higher on *sympathy*, *support*, *emotionality* and *yielding influence* by masculine type participants and lower by feminine type participants (undifferentiated were closer to feminine and androgynous closer to masculine in their judgments). There was no effect of gender typicality on competence ratings or affect display.

Other effects. *Sex of participant* may have had an influence with twice as many men reacting to the leadership scenarios on video-clips, yet as reported above only eight men and four women (out of 110) reacted at all. And, more importantly, they showed no particular gender-specific pattern of negative and positive affect display.

Analysis of the nonverbal cues used on the encoding side ("doing gender")

In a Kestenberg Movement Analysis (Kestenberg-Amighi, Loman, Lewis, & Sossin, 1999) of the nonverbal cues of the actor, two independent raters analyzed the main movement qualities (development-related movements of fighting or indulgent quality) and shapes he used (opening and closing movement forms in the horizontal, vertical and sagittal plane). It resulted that our male model used more fighting than indulgent rhythms, however, on a low intensity with a high percentage of neutral flow (numbing emotions). He used abruptness and quickness and very little graduality. He used flow adjustment and indirectness to the same amount as directness. He used lightness with low intensity, and no strong effort at all. A typical movement phrase contained a quick onset of the movement with an abrupt end in low intensity or neutral. Body rhythms and qualities indicate analytical proceeding, slight impatience, slight playfulness, no self-indulgence and a high amount of abrupt starting and stopping. Shaping movements were appropriate to the group environment, with lots of opening and closing in the horizontal and vertical plane and shaping in three dimensions in the head. Inter-rater reliability was high except for two out of eight profiles, where it was only moderate (Rhythms and Pre-efforts). Overall, observer agreement was 75%, *Cohen's kappa* = 0.42 ($p = .002$). One rater did the movement profile under male the other under female gender-hypothesis in order to avoid gender-bias. The reader must not be concerned with understanding the details of technical movement analysis jargon at this point, what is important is that altogether the observed cues indicate high dominance, low emotionality, and do not provide enough conclusive hints for competence or support estimations. Dominance is, for example, reflected in the greater use of the vertical plane (presentation, self-related; more growing movements) than of the horizontal plane (communication, group-related). Low

emotionality is reflected in the low intensity and high percentage of neutral flow in the attributes profile and the low number of actions and load factor (complexity of actions) on the bipolar shape-flow profile. Nonverbal indicators of support were mixed: moderate amount of movements in horizontal plane with more widening, but few "supportive" rhythms. Competence indicators were also mixed: high use of the vertical presentation plane, yet, no strength in efforts (for further reading: Kestenberg-Amighi, Loman, Lewis, & Sossin, 1999; Laban, 1980).

Furthermore, in order to assess dominance and socio-emotional behavior from as many cues as possible I additionally computed frequency of head tilts (11 total, 6 of low degree) and smiles (0) for socio-emotional behavior and amount of gestures (low), relaxation (medium to low), expansiveness (low), and looking while talking (lwt, high: 56 sec out of 1.28 min) for nonverbal dominance. Head tilts and smiles are main indicators of socio-emotional behavior (cf. Hall, 1984; Krämer, 2001), whereas amount of looking while talking, amount of gestures, expansiveness and relaxation are indicators of high nonverbal dominance (Dovidio et al., 1988; Hall, 1984; Mehrabian, 1970). Overall, the stimulus person showed more dominance-related behaviors (e.g., high amount of "looking while talks") than socio-emotional behaviors (e.g., smiles).

Analysis of the nonverbal cues used on the decoding side ("viewing gender")

We have only indirect hints from their overall ratings for which cues participants used to make their judgments. In order to get an idea of the cues used, I employed a 10 item semantic differential for nonverbal behavior. The scale had been developed and previously been tested on a sample of 80 participants with good results in internal consistency and discriminability of items. Results suggest that participants correctly identified fighting movements to be more pronounced, they also identified the high amount of lightness in movement quality correctly. They did not, however, see the inertness of the neutral flow. Yet, they correctly identified the high abruptness of the onset of movements. Overall, they seemed to have a good intuition for movement qualities and shapes and their communicative meaning. Like the expert raters, they perceived more dominance-related and less socio-emotional activity. The high level of dominance ratings cannot be entirely explained from the observable cues I have focused on, as despite from *looking while talking* and predominant use of growing movements in the vertical plane, there were not a lot of nonverbal dominance cues. It could be that *looking while talking* has a very pronounced meaning in the identification of nonverbal dominance (confirming results of Dovidio et al., 1988). The increase in dominance ratings from the

nonverbal to the verbal condition for both conditions supports the findings of Rosenthal and DePaulo (1979) that dominance cues are taken rather from the voice than from body language. Men were rated as socio-emotionally warmer ($p = .02$) in the nonverbal condition, yet, this difference ceased to exist in the verbal condition. In dominance ratings differences in means became more pronounced from nonverbal to verbal condition.

Interestingly, there were a number of significant differences in *perception of movement under male and female gender-hypothesis*: movements of female leaders were perceived as more *fighting* in quality with $F(1, 106) = 10.03, p = .002$ ($m_{\text{female}} = 5.56, m_{\text{male}} = 4.68$); as *stronger* in quality with $F(1, 106) = 7.44; p = .007$ ($m_{\text{female}} = 4.01, m_{\text{male}} = 3.42$) as more *direct* ($p = .04$) as more *abrupt* ($p = .05$) and as more *intense* ($p = .05$). There furthermore was a main effect for sex of participant (with Rao's $R(10, 97) = 3.47; p < .001$), yet, this was not the focus of this analysis. The most interesting finding is that men in most cases saw the differences between men and women as *more pronounced*, whereas women overall gave *higher values* to men and women (especially for fighting, strong, abrupt, high intensity, high complexity and directness).

In order to perform the nonverbal cue analysis more accurately, it would be necessary to get not only overall ratings, but also single observations with frequency counts from participants as well. This way the comparison with the expert raters' results could be more precise and cue utilization could be determined more accurately with a higher validity on the organismic side. While conducting this research I was not as far with this method to already try this. Yet, this method will be tested within the next studies of our research project.

Verbal cue analysis (from scenario texts)

In the text highlighting task, participants used the scenario texts in order to indicate which cues they had used for the inference of *competence, emotionality, dominance and support behavior*. They had used differential cues dependent on their own gender and their gender-hypothesis. In the female vs. the male boss condition they overall used 108 vs. 73 cues for dominance, 59 vs. 67 cues for competence, 106 vs. 34 cues for support and 77 vs. 41 cues for emotionality (the first number indicating the frequency of cue use for female gender hypothesis the second number the frequency for male gender hypothesis). They were allowed to use cues in positive and in negative direction and did so for all concepts except for dominance cues. For most of the further analysis I will focus on the dominance and support cues, as competence and emotionality were judged almost identical for male and female boss on the semantic differentials. Participants used mostly syntactic and pragmatic cues when

inferring dominance, while they mostly used semantic cues when inferring support. Overall, pragmatic cues were used in 48.9% of the cases, semantic cues in 33%, and syntactic cues in 17.7%. Participants used mostly syntactic and pragmatic cues when inferring dominance, while they mostly used semantic cues when inferring support. Interestingly, there were no gender-hypothesis related differences in the cue use for inferring competence and emotionality.

42 participants completed the text task (21 in each condition) and produced a total of 492 proximal cues (360 actions, with 492 elements; with lesser complexity of actions, i.e., fewer elements, under male gender hypothesis). The frequency-analysis of cues used for inferring competence, support, dominance and emotionality (see Table 1) revealed that participants used syntactic cues in 18% of the cases ($N_{synt} = 87$), semantic cues in 33% of the cases ($N_{sem} = 164$) and pragmatic cues in 49% of the cases ($N_{prag} = 241$). Participants used the different types of cues context specifically depending on the distal cue to be inferred (see Table 1). Within the dominance ratings they used syntactic, semantic and pragmatic cues evenly distributed (1/3 each type). For the support ratings syntactic cues were employed in 3% (frequencies see Table 6), semantic cues in 55% and pragmatic cues in 44% of the cases. For the emotionality ratings, syntactic cues were used in 12%, semantic cues in 25% and pragmatic cues in 64% of the cases.

Table 6

Verbal cue analysis of Experiment 6; frequencies and standard Pearson χ^2 statistics

Distal Cue	Hypothesis	Syntactic	Semantic	Pragmatic	$\chi^2(df=1)$	p-value
Dominance	Man	26	31	16	4.50	0.0067 ^a
	Woman	32	31	45	7.36	0.0338 ^b
Support	Man	2	16	18		not significant
	Woman	1	42	29		
Emotionality	Man	6	5	30	6.68	0.0098 ^a
	Woman	3	14	19		
Competence	Man	10	13	44		not significant
	Woman	7	12	40		
Overall	Man	44	65	108		not significant
	Woman	43	99	133		
Total Elements		87	164	241		

Note: $n_{\text{maleGH}} = 21$; $n_{\text{femaleGH}} = 21$; Total Actions = 360 (male GH: 172; female GH: 188); Total Elements = 492 (male GH: 217; female GH: 275); ^adifference between pragmatic and semantic cues; ^bdifference between pragmatic and syntactic cues. Inter-rater reliability (IRR) of two female raters categorizing the cues: 82 %, *Cohen's Kappa* = .61 ($p < .001$); rank order agreement: 100%.

For the competence ratings, semantic cues were used to 13%, semantic cues to 20% and pragmatic cues to 67%. In comparison to the other concepts, there was a very high use of syntactic cues for the inference of dominance (e.g., use of imperatives "*you should/should not*" or use of last names without the formal Mr./Mrs., as another example), and a very high use of semantic cues in the inference of support (e.g., explicit laudation/reinforcement/pos. feedback "*that went well*"). Pragmatic cues, which were used most frequently in inferring competence and emotionality, are subject to interpretation to a higher degree as the other cues (e.g., phrases such as "*like always*", or interruptions, word searches, tone of voice or nonverbal cues).

In dominance ratings, I observed that pragmatic cues were more often used under female gender hypothesis ($N_{D\text{prag}} = 46$ vs. $N_{D\text{prag}} = 16$). Chi-square analysis (standard Pearson χ^2) revealed that this difference was significant with $\chi^2(2, N = 123) = 4.50, p < .007$ ($p = .0067$). In support ratings, I observed that semantic cues were used more often under female gender hypothesis ($N_{S\text{sem}} = 42$ vs. $N_{S\text{sem}} = 16$). This difference was not significant, though. In emotionality ratings, I observed that semantic cues were more often used under female gender hypothesis, and pragmatic cues were more often used under male gender hypothesis, with $\chi^2(2, N = 68) = 6.68, p < .01$ ($p = .0098$). There was no difference in competence ratings, with numbers of observations being evenly distributed in every respect.

29 women and 13 men completed the text task. Sex differences in ratings showed that men focused mostly on dominance ratings (39; 36% of total cases), thereafter on competence ratings (30; 28% of cases), then on support (19; 18% of cases) and finally on emotionality (11; 10% of cases). Women, too, focused mostly on dominance (142; 37% of cases), then on support (87; 23% of cases) and competence (86; 22% of cases) and finally on emotionality (66; 17% of cases). The difference in rank order suggests differences in perception dependent on sex of participant (independent of absolute frequencies). Regarding the dominance cues we found an obvious difference in cue use dependent on sex of participant and gender-hypothesis (interaction effect). Men focused much more on the search for dominance cues for male target (26 of 73 cases), than for female targets (13 of 108 cases). In support ratings, women looked for more semantic cues for female than for male targets. In emotionality ratings, men looked for more cues -- and thus for more evidence -- for the male than for the female gender

hypothesis. Overall, syntactic, semantic and pragmatic cues were used to 21%, 29% and 50% by men, and to 17%, 34% and 49% by women. Rank order of cue use varied for dominance and competence between men and women of our sample. Overall, men used far less proximal cues to make their inferences.

4.4 Discussion: Leader acceptance by gender-hypothesis. She is competent, but cold

The aim of this study was to investigate gender construction processes, employing a new methodology to make them more concrete by breaking them down to the observable cue level. We were interested in identifying cues used in the inferential process from verbal and nonverbal gender communication. The experiment reported here extends research on gender construction in different ways: It extends the Goldberg paradigm by using dynamic material. It uses a reformulation of gender communication into lens-model perspective and the associated performance and perception method for cue analysis. Recently, speech perception research has begun to consider cue-based processing (cf. Braun, Eckes, Gottburgsen, & Oelkers, 2000; Pasero & Braun, 1999). However, earlier research addressing dynamic processing of natural material is scarce (but see Biemans, 1999; Strand, 1999, for dynamic auditory data).

4.4.1 The use of dynamic material

The central role of motion for perceptual schemata is emphasized by Krämer (2001), Grammer, Kruck, and Magnusson (1998), and Grammer, Filova, and Fieder (1997). Re-analyses of Heider and Simmel's (1944) famous motion experiment have come to similar results (e.g., Berry, Misovic, Kean, & Baron, 1992): it's the dynamic qualities of the percept and not its structure that makes us ascribe animate concepts to inanimate objects. As Rimé (1983) puts it, it is possible to produce a socio-emotional perception of a physical structure in movement, and Krämer (2001) emphasizes that movement alone can evoke socio-emotional attributions. In line with this research, Neumann and Strack (2000) describe/investigate how kinesthesia is affecting the judgment process. And Kempter (1998) calls movement the single most important factor in trait attribution. And Kestenberg-Amighi et al. (1999) describe the differences between self and other motion building their system of movement analysis on kinesthetic empathy. All of these authors have put motion in the center of their analyses and

investigate its connections to trait attribution, intention, learning styles and other cognitive functions.

Research in communication differences between men and women can no longer ignore dynamic material in investigations of gender discrimination. Including nonverbal material into Goldberg-paradigm studies, therefore, seems to be a step in the right direction in order to find out more about gender construction in realistic contexts. Our results suggest differential perception on men and women in leadership perception, yet not in stereotypic direction as hypothesized, but in counter stereotypic direction in the majority of the cases.

4.4.2 Counter-stereotypical and unexpected findings

It was predicted that gender-hypotheses would influence trait-based-ratings in stereotypical direction, accentuating the differences between men and women. Yet, we found more effects in counter-stereotypical directions than in the expected directions. How can this be explained?

Counter-stereotypical response behavior on the semantic differential scales can be explained by the shifting standard effect (Biernat, 1995; Biernat & Kobrynowicz, 1997; Biernath & Fuegen, 2001). In her shifting standards model Biernat points out that we use rating scales dependent on characteristics of the target of our evaluation, e.g., gender, race or social status. We judge the target relative to our expectations ("for a man he is real sensitive", "for a woman she is quite competent and assertive") and distribute ratings accordingly. Moreover, we tend to use the scales generously when they do not have practical implications of importance, such as in trait attributions. By contrast, when they have implications of practical importance, such as in application or promotion decisions, we tend to use them conservatively (minimal standards versus ability judgments). Biernat & Kobrynowicz (1997) suggest to use objective measures (e.g., income guesses) next to subjective rating scales in order to prevent those biases. Our cue analysis can be read as providing closer evidence for exactly where and how shifting standards are applied, thus making the observed effect much more concrete and potentially more interpretable.

A different line of evidence for the importance of expectation and resulting counter-stereotypic effects comes from *double standards* research (Foddy & Smithson, 1999; Foschi, 1992, 2000). In Experiment 2, where gender of main actor seemed to be obvious, participants used their gender expectations to compare performance of the main actor to an expected standard and built their judgments from there. Carli and Eagly (1999) describe a *double standards effect* for equal nonverbal behavior. Verbal expressions of status-related notions are frequently taboo; so such messages usually are communicated nonverbally (Mehrabian,

1971). Nonverbal gender differences mostly point in stereotypical direction (Hall, 1978, 1984), with women showing similar gaze, smile and spacial patterns as low status persons (cf. DePaulo, 1992; Hall, 1984; LaFrance & Henley, 1994). Women and men specifically use unequal amounts of gaze behavior while talking and listening, one of the main nonverbal dominance cues (Dovidio, Ellyson, Keating, Heltman, & Brown, 1988; Dovidio, Brown, Heltman, Ellyson, & Keating, 1988). Women show less visual dominance than men, i.e., they look more while listening than while talking.

In identical performance, there is no nonverbal gender difference in status behavior. But will this be interpreted in favor of one gender due to differential expectations? Because dominance and assertiveness as nonverbal status behaviors are mostly communicated nonverbally and gender functions as a diffuse status cue, we can assume that the nonverbal experimental condition has its implications exactly in the dominance domain. According to *expectation states theory* and *role congruity theory* women should be judged lower on likability when using a higher visual dominance ratio, because they violate gender expectations. Women using the nonverbal patterns of high status persons will be judged more negatively, unless they bring a certain amount of communal behaviors into agentic leadership (which is a practical implication recommended by Eagly and Karau, 2002, and by Heilmann, 2001). I assume that this is exactly what happened in Experiment 6: The male model displaying a moderately high visual dominance ratio, but hardly any socio-emotional cues, was compared to a female standard. He was not able to live up to it, and was, thus, contrasted to other women (*competent but cold, dominant and cold*). Even though our male model showed only a minimal amount of gendered dominance cues in his performance (the only cue was the high amount of looking while talking), participants recognized that in women this behavior is more unlikely than in men resulting in them rating the person more dominant, assertive and energetic, but also colder when in the condition of a female gender-hypothesis (cf. Fiske, Cuddy, Glick, & Xu, 2002; see Chapter 5 for further explanations).

4.4.3 Implications of the cue analysis

The verbal cue analyses of Experiment 6 revealed that gender was used as an important cue in the inference of dominance and emotionality, yet not in the inference of competence and support. Having not used syntactic cues at all in the inference of gender in Experiment 1, men in Experiment 6 proved that they *will* use syntactic cues, when it comes to the inference of dominance. Obviously, cue use is gender and context dependent, and to a considerable degree subject to the concept in question (distal cue).

Overall, men used considerably fewer proximal cues and fewer observations of the single concepts to make their inferences. Why is that the case? Are they lazier or greater cognitive misers? Or are they just more economic and efficient? Do men not need so much evidence, trusting earlier or easier in heuristics? Do women need more redundancy, reliability and control, or do they just prefer to be on the safe side? One could argue that in the course of socialization women have been more likely to learn that men are louder, stronger, more assertive and more aggressive, this being a possible reason why they might put more effort into collecting broader factual evidence to have an argumentation advantage from careful observations.

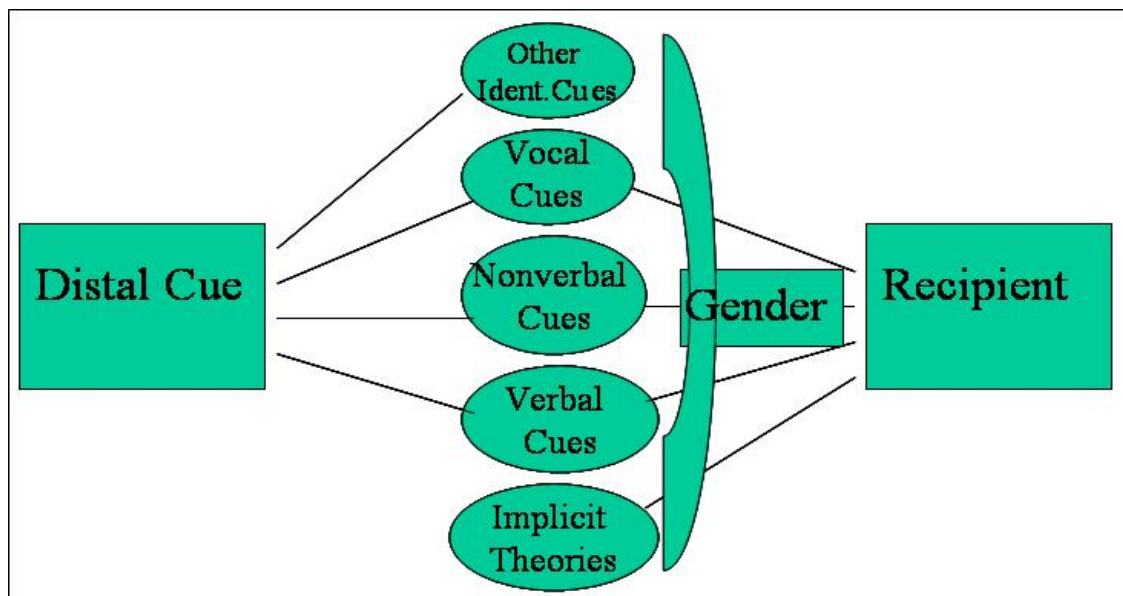
Rank orders of cue use varied by *gender hypothesis* and by *sex of participant*. Differences in rank order between the organismic and the ecological system are of particular interest, because in Brunswik's definition they indicate a good or a poor adjustment of the organism to the ecological evidences in the environment. In his view, we can talk about a well-adjusted organism, if the rank order of cue utilization is the same as the order of the cues' ecological validity: "*In a perceptually well-adjusted organism or species, however, the rank-order of utilization [...] should be the same as the order of their ecological validity*", (Brunswik, 1956, p.50). Rank order of ecological cues in our case was determined by two female expert raters from the field of language psychology with 100% agreement (82% on an item by item basis, *Cohen's kappa* = .61): in terms of frequency it was pragmatic then semantic then syntactic cues, in terms of predictivity it was syntactic then pragmatic then semantic cues (on average, being subject to change if looking at the single distal concepts). Different rank orders by gender hypothesis occurred in three out of four cases, namely for dominance, support and emotionality. Rank order varied by sex of participants in two out of four cases, i.e., for dominance and competence. Coincidences of rank orders occurred in support and emotionality ratings for female gender hypothesis, but not for male gender hypothesis and in dominance ratings neither for male nor for female gender hypothesis. Cue utilization of male and female participants coincided with the ecological rank order in dominance and competence ratings for women only. Thus, cue utilization was more ecologically valid for female gender hypothesis and more organismically valid when stemming from women. Yet, in the latter case, we have to take into account the lower numbers of male ratings as well as the fact that the experts in our case were women. I therefore do not want to over-interpret these findings.

Nonverbal cue utilization watching the video-tapes seems to have been quite valid, yet, it was not possible to analyze it on the level of the verbal cue analysis as I only had global

ratings of participants on scales. Participants' results from scales, however, corresponded well to the rank order of the two female raters. The two raters agreed to 75% in their judgments with Cohen's Kappa = .42 (moderate agreement; a complex rating procedure was employed with 52 nonverbal categories as opposed to just three verbal categories).

The lens-model perspective proved to be extremely fruitful in the context of the established experimental paradigm in which gender is not immediately visible and needs to be inferred. In natural discourse, however, gender will much rather be one immediately visible cue of a number of proximal cues that we readily use for making inferences and judgments about diverse distal cues (see Figure 29) -- like in Experiment 6. Given its primacy, however, gender may also act like a filter through which other cues are seen and weighted accordingly. In *situations of high gender salience* I would rather expect to find support for the latter assumption, because of the primacy of gender in the cognitive process.

Figure 29: A lens-model inspired gender communication model for everyday situations (gender visible). Dependent on the degree of gender salience in a given context and the recipient (cf. Hall & Carter, 1999, Koch, 2000) gender can either function as a single proximal cue or as a filter for several proximal cues.



Another study of ours shows that participants use different standards for judging identical communication patterns of man and women at the work place, if gender is made salient by offering two rating-scales, one for man the other for women (WorkComm-G questionnaire, Koch, 2000). Our research, however, also suggests that in some individuals there is a pronounced gender bias whereas in others there is no such tendency (cf. Hall &

Carter, 1999; Koch, Kruse, Schey, & Thimm, 1999; Thimm, Koch, & Schey, 2002). So, for some recipients gender may act as a filter, for others just as one out of a number of proximal cues. In Experiment 6, gender seems to act as a filter in the perception of dominance and emotionality, but not in the perception of competence and support. We cannot avoid to *do* and *view* gender, because every time we engage in behavior, we do so *at the risk of gender assessment* (cf. West & Zimmerman, 1991).

Taken together, Experiment 6 clearly demonstrated that there are other factors next to gender-hypothesis that are important in explaining variance of the results. Sex of participant, for example, with an effect size of $\eta^2 = .36$ explained more variance than gender-hypothesis. Also the overall judgment of the person was a better predictor of rating results than was gender-hypothesis. Yet, with an effect size of $\eta^2 = .28$ there is a small but consistent influence of gender-hypothesis. The lens-model approach once again provided a useful framework for the analysis of gender-related differences and implications for the perception of a number of crucial gender-related concepts. It allows to distinguish between situations of high and low gender salience (or corresponding personality characteristics) and to specify different functions of gender dependent on these situational contexts. It furthermore allows to look at different cues participants use and their correspondence to the ecological criterion. This is even more meaningful in the light of the many non-significant, counter-stereotypical and unexpected results of Experiment 6 in need of further explanation. The next chapter will wrap up the findings of all studies and provide some suggestions for further research.

5 General discussion

The aim of the present research was to investigate gender construction processes and to make them more concrete by breaking them down to the observable cue level. I wanted to identify cues used in the inferential process from verbal and nonverbal gender communication. Therefore, a number of methodological techniques have been employed for the first time and a *new methodological approach*, the "*performance and perception*"-method, has been established on the basis of the lens-model, suited as a useful framework for gender and stereotype research of every *couleur* that aims to provide observable and testable empirical findings.

The experiments reported here extend research on gender construction empirically, theoretically and methodologically. The presented research extends the Goldberg paradigm by using dynamic material. It introduces an easy to employ rating method for evaluative affect displays. It provides a reformulation of gender communication into a lens-model perspective that makes perceptual and behavioral processes as well as cue levels and cues much more concrete. Moreover, it develops the performance and perception method for cue analysis, and doing so extends communication research methodologically, using simple "feedback"-designs. These designs help to investigate processes of cues utilization for the inferences of gender or gender-related distal constructs, for example, by having participants judge the texts chat mates had produced and use them as a judgmental basis for their gender guesses.

Across the studies, I found evidence for a number of constructive processes in gender perception ("viewing gender") and influences on the behavioral ("doing gender") side in the frame of our lens-model inspired gender communication approach (not excluding that in some of the studies, such as in Study 3 and 4, I was initially subject to my own constructive processes). I observed an accentuation effect with polarization valances shifting between the stereotypical and the counter-stereotypical direction, depending on the standards participants used from situation to situation. In *situations of high uncertainty* about the gender of the other group members (Study 1: chat experiment) participants used their gender-related knowledge and beliefs in stereotypical direction. In contrast, in *situations of low uncertainty* (Study 6: masked video experiment) where the gender of the main actor seemed to be obvious, participants used their gender expectations to compare performance of the main actor to an expected standard and built their judgments from there, leading them to counter-stereotypical judgments. The main results of this research include that there were mostly *no differences in competence ratings* between men and women. Whenever I found differences, they were to the

advantage of women, that is, participants either perceived equal competence in men and women or they perceived higher competence in women (see 5.1). While it was predicted that gender-hypotheses would influence trait-based-ratings in stereotypical direction (accentuating the differences between men and women), in some experiments there were a *higher number of counter-stereotypical effects* suggesting that we commonly are influenced much more by our expectations than by factual evidence.

5.1 "Gendered" evaluation of leaders

5.1.1 Perceived competence

There was no significant difference in competence ratings in the expected direction (of men being rated higher) in any of the experiments. Rather, I found that *women were rated higher in competence* (but not in influence) by our participants or that there was *no gender difference*. Possible explanations for this finding include a political correctness bias, causing participants to rate women higher for social desirability reasons (because these issues have been widely discussed in public, people may just be too conscious of the usual biases). This includes the possibility that the scales are used as described by the shifting standards model (Biernat, 1995, see above). However, temporal or cultural explanations are also plausible as alternative explanations. It is possible –even though not very likely– that the effect occurs in the U.S. but not so in Germany. In former East Germany, women and men had a more equal status in society than in West Germany. Thus, the results may be due to a culture-temporal effect of mixing the two German populations after the wall came down. Finally, it may be a mere temporal effect: maybe things have just changed to the better with women being more and more accepted as competent in leadership positions in the working world - as they have become more numerous and probably more self-confident. I doubt a major influence of the shifting standards effect for competence in our data (see discussion below), but in order to find out we need to increasingly work with implicit measures, not only in the traditional sense but also more creatively, including, for example, behavior observation methods, such as evaluative affect ratings (see Koch, 2002).

Despite this perceived equality in competence, opportunities for men and women in the working world are still far from being equal in a number of respects. Even though it was not a major focus here, I have collected some suggestions implied in this research for a transformation to more egalitarian gender relationships in the working world (following box).

The suggestions seem suited to support the perceived equality in competence of men and women and can help to balance or change a number of additional perceived differences.

Some suggested solutions suited to further equal opportunities at the workplace

The following list, which is not by any means a complete list, is the result of extracting the ideas of changing professional conditions to more equal opportunities for women and men at work from the literature included here (for an excellent overview of suggestions and recommendations see ETAN-Report, 2001):

- a) Women should combine communal behaviors with agentic leadership performance to avoid devaluation. Research results suggest that a solution to the legitimacy problems of female leaders might be combining women's competent and agentic behavior with more communal behaviors and positive social "softeners" (Eagly & Karau, 2002; Heilman, 2001; Rudman, 1998; Rudman & Glick, 2001).
- b) Women need female models in leadership positions (Heilman, 2001; Phillips & Imhoff, 1997; Terborg, 1977); men, likewise, need male models in domestic roles or multiple roles (further research is needed here). Some researchers have found that previous experience with (or even merely information about) a successful woman in a male or leading position decreases gender bias in evaluation and selection decisions by students and professionals (cf. Heilman, 2001; Phillips & Imhoff, 1997).
- c) Women need female mentoring; mentoring should probably remain gender specific as same-sex mentoring at the workplace is experienced as more fair (Phillips & Imhoff, 1997).
- d) Women need professional networks; men had many decades to establish professional and scientific networks; being new to many fields women need to catch up quickly (cf. ETAN-Report, 2001).
- e) Men and women need support of professional flexibility (support for multiple roles from corporations and government). A step in this direction is the funding of both men and women who want to take a child-break. However, in Germany this possibility is not made much use of by men so far (cf. Abele-Brehm, 2000a; Hoff, Grothe, Hohner, & Dettmer, 2000).

5.1.2 Perceived agency and communality

The counter-stereotypical findings of higher agency in the female leader and higher communality in the male leader -judging an identical performance- in the last experiment are

only unexpected at first sight. Recent literature describes a number of similar phenomena. Given that our stimulus person in Experiment 6 has been acting predominantly agentic (displaying a high visual dominance ratio as appropriate leading a team meeting) and hardly socio-emotional (few smiles and head-tilts), explanations of evaluations of male and female leaders' agentic behavior become important. Results can be related back to what I have described as main findings in stereotype research (see Chapter 1.2.2): the paradox of being judged less likeable when acting in agentic ways as a woman.

In their literature review, Eagly and Karau (2002) found consistent evidence from empirical studies of less approval of agentic behavior enacted by women compared with men. Women exerting power or influence are "*less likely to be liked*" (Eagly & Karau, 2002, p. 584). Illustrating these phenomena are Carli's (1990) studies of tentativeness in speech, as manifested in tag questions or softeners. A male audience perceived tentative women as more influential and more trustworthy than confident women, whereas men's tentativeness did not affect reactions toward them. However, a female audience perceived confident speakers as more influential than tentative speakers, independent of their sex. Men but not women were, thus, biased against the influence of confident, assertive women. Likewise, in a study of Carli, LaFleur, and Loeber (1995), male and female students viewed a videotape of a man or a woman delivering a persuasive message while displaying different nonverbal styles. *Sex of participant* differences emerged as a reaction to the competent, task-oriented style, lacking any special nonverbal warmth and friendliness. Male participants were less influenced by the female speakers than the male speakers and judged the female speakers to be less likable and more threatening than their male colleagues. Female participants were equally influenced by male and female speakers. Furthermore, male participants liked female speakers more and were more influenced by them, when they combined their competent style with warmth and friendliness (e.g., friendly facial expression, forward body-lean). In sum, women lost influence with men, if they used a more agentic style that was not accompanied by a substantial amount of nonverbal warmth (Carli, LaFleur, & Loeber, 1995; cited after Eagly & Karau, 2002). Similarly, in Study 6 the identical agentic performance of our team leader was judged to be even more agentic when participants assumed the main actor to be a woman (overevaluation) and more importantly judged the "woman" to be *colder*, that is, less communal. Taken together, a number of empirical findings support the explanation of an *expectancy-based contrast effect* in the data (compare Chapter 4.4.2).

5.2 Context dependency of affect display and contagion

Potential answers to applied research questions

In Studies 2-5, my main interest was to assess nonverbal reactions toward leaders. I wanted to see, whether there are any hints for more negative reactions toward female leaders (the evaluative affect effect) and, thus, the communication of prejudice toward them. Moreover, I was interested in how these negative reactions spread in groups, whether leaders notice negative consensual affect and how they react to it. Results suggest a high context dependency of affect display, contagion and notice.

- There was more negative *evaluative affect display* toward women in Studies 2 and 3. In these two experiments, leaders were more specifically in the role of *authorities*, that is, in the role of the experimenters. In Study 4 leaders were in the role of moderators, in Study 5, they were leaders of real teams and in Study 6 they were role played leaders on videotape. Thus, there was more negative evaluative affect display toward women specifically *in authority roles* (but care needs to be taken with the interpretation because $N = 6$). This is true for the original Butler and Geis experiment (1990) as well.
- In Study 3, I found the hypothesized *emotional contagion effect*, that is, participants showed significantly more negative affect display after negative affect intervention by confederates of the researcher. In Study 4, this effect failed to emerge. Moreover, less participants noticed the affect intervention (or attitude change) of the group than in Study 3. The difference between the two studies consisted of a higher cognitive load for leaders of the group in Study 4. Even though we do not know whether this was the reason for less notice, we can assume that it at least contributed to it. As hypothesized, women noticed negative affect more often and, thus, showed more nonverbal sensitivity than men.
- Self-ratings of *competence* dropped considerably in female leaders of Study 4 from baseline to intervention measure, whereas there was no difference between t1 and t2 ratings of men. This quicker drop of self-ratings in women offers a possible explanation of the general drop in self-esteem and self-efficacy during the first professional years and, thus, an explanation for higher drop out rates and lower aspiration level of women in the professional world. Interestingly, this drop in self-ratings of competence was not observable in behavior ratings of nervousness/insecurity. Rating all leaders of Study 4 regarding a change in nervousness from t1 to t2, we found absolutely no

gender difference (see Table 4). Women generally noticed the attitude change more and attributed it more internally, yet, they did not display more insecurity. Women, thus, seem to be *high self-monitors* (e.g., Snyder & Cantor, 1998), that is, they seem to control their nonverbal emissions to a high degree.

- In Study 5 – the field study of affect display toward team leaders in real team meetings – more negative and more positive affect display toward female leaders was found. If we look at the data more closely there is evidence that this higher amount of affect display toward women is mainly due to differences in expressivity dependent on team type. All-female teams were extremely expressive toward their leader (with 142% of the average frequency of affect display), whereas all-male teams were hardly expressive toward their leader (with 72.5% of the average frequency). The average frequency of affect expressed toward the leader was about one affect every minute in the team context. Women-led teams were generally the more expressive. Men-led teams remained as low in expressivity in mixed-sex teams as they were in same-sex teams. Results remain inconclusive with regard to the communication of negative attitude. Instead, we found *differences in overall expressivity* toward the leaders, with women being more expressive than men and members of women-led teams being more expressive toward their leader than members of men-led teams. Especially female employees were more expressive toward female leaders regarding positive and negative affect in team meetings at the workplace (see Chapter 3.2.4).
- A main finding of Study 6 was that there is hardly any evaluative affect display toward a leader on a video-clip of a leadership scene, i.e., in the context of a non-communicative situation.

In sum, results suggest a high context dependency of nonverbal communication of prejudice toward female leaders. The evaluative affect effect (of communicating more negative affect toward women) was only found toward female *authorities*, not toward leaders in general. Different contexts caused different frequencies of affect display. In addition, affect display was reliably observable on the basis of interpretive ratings by trained judges.

Disturbing factors and alternative explanations

Generally, in role-play and small group experiments there are many other variables that are potentially influencing the reactions I am investigating here. An alternative explanation for the findings in Study 2 to 6 would, for example, be that participants reacted toward content-related utterances of the leaders more than toward the leaders themselves. This would have

direct implications for the frequencies of affect display we observed, also potentially for the amount of affect transmission, yet there should not be a difference between affect display toward male and female leaders presenting identical content then. Additionally, there is, of course, the possibility that the personality of the leaders or any sub-characteristic of it had more influence on reactions toward leaders than their gender. This is a more serious alternative explanation for the hypothesized evaluative affect effect as in the beginning of the series of experiments we worked with very small samples of leaders. We worked with only 3 male and 3 female leaders in Studies 2 and 3, where the effect was most prevalent; in Study 4 where we worked with 40 different leaders, and failed to find the effect. In the field study we had 9 male and 9 female leaders, yet, the effect occurred for negative and for positive affect display. Other possible disturbing factors are, for example, time of day, mood and motivation of participants, dynamics among group members, and the specific group setting with its many uncontrollable facets. Results are, thus, far from being conclusive, as far as the evaluative affect effect, and the contagion effect, are concerned. Having taken care of a high external validity of the studies (by choosing direct face-to face communication situations), I had to compromise with internal validity issues. This contributed to the high amount of uncontrollable disturbing factors, especially in the settings of Studies 3 to 5. In Study 6 where I controlled potentially disturbing influences much more rigidly – to the expense of external validity of the natural communication situation --, there was again the stimulus sampling problem. Thus, where the effect occurred, stimulus sampling was problematic, where stimulus sampling was sufficient, the effect did not occur. Given there is something to the *evaluative affect effect*, the findings of the initial study should be replicable with an increased number of (credible) leaders.

5.3 Application of the lens-model: potential and limitations

In the course of the experiments, it appeared increasingly interesting to assess the cues participants used in order to make their gender inferences. In Experiment 1, cues used in verbal communication in a content-analytic procedure were classified into syntactic, pragmatic and semantic cues, with the syntactic cues being the least used, but of highest predictive value (88% of correct gender guesses). Semantic cues were used almost to the same amount, but had the least predictive value (exactly chance with 50%). Pragmatic cues were by far the most frequently used cues (69% of cases), but had only a medium predictive value (63% of correct gender guesses). If the recipient inferring gender was a man, almost no syntactic cues were used. Participants' implicit personality theories obviously caused them to

ask content and interest-related questions in the gender-anonymous gender-salient condition. In other words, in order to infer gender they almost exclusively asked semantic questions (such as "Do you like Schumi (Michael Schumacher)?"), which obviously were of no help to them later, leaving the correct gender-hypothesis up to chance. Interestingly, neither the cues used to infer gender nor the coherence in argumentation for one gender-hypothesis differed between the two experimental conditions, one knowing that they had to guess gender later, the other not knowing anything about the fact that the study was gender-related. As a next step in the process to find out more about cognitive mechanisms used in these processes, I would like to suggest looking at possible heuristics and stopping rules used. First speculations lead us to believe that our participants used the "Take the Best"-heuristic described by Gigerenzer, Czerlinski, and Martignon, 1999. The "Take-the-Best"-heuristic first uses an ordered search thereby selecting the cue with the highest validity from a rank ordering. The stopping rule for the search is: if the cue value is 1 and the other is 0, then stop. Otherwise go back to step one. If no further cue is found, then guess. The decision rule is: predict that the object with the cue value 1 has the higher value in the criterion. Going back to the data once again, my observations were that participants mostly stopped after having found two to three gender-cues for one participant, no matter whether they were coherent or not. However, this might also partially have been a matter of time constraint, as they only had 10 minutes to complete the task. This time frame was obviously not enough in all the cases to make the judgment with high confidence. However, it provided sufficient security to make a judgment at all. And judgments, after all, were correct in 2/3 of the cases.

The cues participants used in the decoding of the nonverbal communication were not directly observable like the ones of the verbal analysis, but needed to be inferred from the response behavior of participants on the semantic differentials. Participants were able to correctly identify more fighting qualities in the movements of the leaders, which presumably led them to infer high degrees of dominance and assertiveness, security and directness for both female and male leaders. They also identified the high degree of abruptness, lightness (and missing strength) in the movements of the main actor, and the low degree of socio-emotional cues (no smiles, but a number of head tilts), which presumably led them to infer lower degrees of emotionality and warmth. In a current research project, we are now investigating the use and perception of movement qualities more closely. Furthermore, the nonverbal analysis can be improved by using *animated agents* in the video-clips. Bente, Krämer, Petersen, and DeRuiter (2001) at the University of Köln have developed a system with which the movement parameters of an animated agent (taken from a natural situation by

motion tracking) can be systematically manipulated, looking at the cues people in fact use for inferences from movement behavior. Their simulation is based on the Bernese System of time-series analysis (Hirsbrunner, Frey, & Crawford, 1987) and provides a protocol of movement data for each single change one imposes on the animated agent. This technique has a high potential for our form of communication analysis because it allows a more precise tracing of the use of nonverbal cues, which are mostly displayed non-deliberately and, thus, are usually not accessible to introspection.

The verbal cue analyses of Experiment 6 revealed that gender was used as an important cue in the inference of dominance and emotionality, yet not in the inference of competence and support (see Table 6). For competence ratings (one of our main dependent variables) –despite the expectations - I did not find any gender effects. Men and women used the same amount of cues in the same ways for male and female targets. This result of the cue analysis casts doubt on the role of a possible shifting standards effect operating in this context. At least in the verbal condition and in the consciously available information, participants do not seem to have used different standards for competence in judging men and women. However, they clearly used different standards and different cues for judging men's and women's dominance and emotionality. For example, they searched more for pragmatic evidence of dominance in female targets when they themselves were female and in male targets when they themselves were men.

Cue analysis has been explicitly used in Experiments 1 and 6. Experiment 1 brought us closer to understanding which cues people will use to infer unknown gender from natural written text material, thus, the concrete behavioral expectations surrounding gender construction which was the central focus of this research. Yet, the cue inference task in Experiment 6 has a higher ecological validity than the one in Experiment 1. This is due to the fact that we have the more natural condition of gender being (presumably) immediately visible in Experiment 6, as is the case in most everyday interaction. Experiment 6 also showed that gender is not always the central variable organizing our perceptions in a leadership reception context. Experiment 1 has some ecological validity in the context of modern communication media: who has never experienced to not know or be mistaken about the gender of a communication partner in an email conversation? Having moved beyond the point in conversation where one can easily ask the other person what their gender is, who would have not avoided certain expressions or topics? And finding out that one has been mistaken about the gender of a communication partner (e.g., when meeting somebody of your field for the first time at a

conference), who would have not -- at least in thoughts -- gone back and checked, if he or she had given off hints to this gender-hypothesis?

Studies 2 to 5 would enable us to do cue analyses of nonverbal behavior, if subjects or confederates went back to the videos and indicated the cues they used to infer traits (e.g., competence) or attitude of their group mates. In fact, cues have been traced that the raters used in the affect and nervousness ratings in Studies 4 and 5. At present, no further investigation into this area is planned, as there is a greater scientific urge to move on with our observations of natural groups (the team meetings from our field data) where far less is known so far, compared to laboratory groups.

5.4 Critique of gender studies

Effect sizes in my studies generally have been small to very small. This is also the general tenor of meta-analyses in the field (cf. Aries, 1998; Eagly, 1995; Hyde, 1995; Swim, Borgida, Maruyama, & Myers, 1989; compare reviews in Chapter 1.5). Aries (1998) argues that gender usually accounts for less than 10% in the variance of social behavior, typically less than 5% (cf. Eagly, 1987). She states that effect sizes for gender differences in communicative style range *from very small to moderate, accounting for less than 6% of the variance in behavior at best and generally less than 1% of the variance in communicative behavior* (cf. Canary & House, 1993, cited after Aries, 1998, p. 69).

In their meta-analysis over Goldberg-paradigm studies Swim, Borgida, Maruyama, and Myers (1989) found that the average difference between ratings of men and women is negligible. Many replications of Goldberg's original study (male vs. female author of text) have been inconclusive. Furthermore, although the effect sizes were not homogeneous, the difference remains negligible when other factors such as sex of subject or year of publication are taken into consideration. They discuss several explanations for the heterogeneity of effect sizes and the inconsistency of findings. As a consequence of this study Swim (1994) later turned to investigate the discrepancy between real and perceived effect sizes – a good approach, even though her method does not allow her to get down to the observable cue level, which in turn is supported by our lens-model analysis.

Eagly (1994) discusses the controversy over the scientific study of sex differences which stems in part from the failure of the findings of empirical research to tell the story that feminists hoped that they would. The state of evidence is reviewed, including the use of meta-analytical techniques that describe sex differences on a continuum rather than sameness or difference. Many feminist psychologists stress the very small size of virtually all sex diffe-

rences (and, thus, inaccurately minimize psychological gender differences) and the inconsistency of findings across studies. Hyde (1995) in a reply to Eagly (1994) asserts that feminist psychologists do not have a uniform position on this issue, and that many have argued for large gender differences. Meta-analyses indicate great variability in the magnitude of gender differences across different behaviors. However, more psychological gender differences (25%) fall in the close-to-zero range than do other effects in psychology (6%).

Even though the experimental designs introduced by expectation states theory (separation of masculine, feminine and neutral tasks) have brought some progress in separating the status and gender variable, many problems remain. The early warning by Unger (1978) and Terborg (1977, p. 659) "*We should be careful not to conclude the existence of sex effects when these effects may really be due to variables that covary with sex*" is still valid and is echoed by the more recent qualified critique of gender studies (e.g., Aries, 1998, Ridgeway & Dikema, 1992).

5.5 Conclusions: Where can we go from here?

Taken together, our analyses suggest that participants used mostly stereotypic cues in interactive situations where gender needed to be inferred whereas in mere observation situations, where gender seemed to be obvious, gender expectations served as the standard to which behavior was compared, thus, potentially causing a number of counter-stereotypical effects (such as in Experiment 6). Cue utilization analysis revealed that, in mere observation situations, gender can function as a filter or as a single proximal cue depending on the distal concept, on the gender-salience in a given situation, and on the recipient. Cue utilization in interactive situations was much more guided by gender-stereotypes due to high uncertainty and the distal cue to be inferred being gender. Here syntactic cues proved to be more predictive than semantic cues. Pragmatic cues (of intermediate predictive value) were the most frequently used. The methodological comparison of rating scales and cue analysis causes us to make a clear point for the use of cue analysis complementary to scales. Without cue analysis, the interpretation of the expected but not found difference in competence rating for male and female targets would have remained unclear and we would probably have preferred the shifting standards interpretation. However, cue analysis made the shifting standards explanation for competence ratings extremely unlikely, because the same cues have been used to the same amounts for male and female targets. This new methodology of complementarily both generating and judging (on the basis of perceiving) distal concepts by participants can be used to identify underlying gender schema and their validity. It is an example of how we can

investigate the adaptive fit between the ecological structure of environment (e.g., actual frequencies of gendered language use, actual gender category) and organismic reception and reaction to it (e.g., cues used and the corresponding cue integration method) (cf. Todd, Barrett, Blythe, & Miller, 2002), and it seems to be an appropriate means to get closer to what is really going on in peoples' heads.

A next step in the analysis could be a weighted cue analysis that does not just look at rank orders and frequencies, but also at height of correlations. However, looking at the rank order of cues like the ones I looked at here has been termed sufficient for inferring organismic adaptation and a realistic stance of the recipient by Brunswik (as the environmental conditions per se remain uncertain and transient). A more important step could now be to take the dynamic aspect of communication more seriously and to focus more on procedural or dynamic processing (e.g., by using continuous data), in addition to categorization or distinct categorical processing. This could be accomplished by using methods such as time series or spectral analysis, and rhythms assessment on data that incorporate dynamic changes and fluctuations. In order to capture nonconscious processes of proximal cue utilization it seems increasingly important to make use of the rapidly developing implicit measures in social psychology (e.g., the Implicit Association Test, IAT). Those could help to fill the gap that still remains between conscious processing of cues that can be captured by the performance and perception method and nonconscious processing that needs to be measured with modified methods.

In the context of our project we will now proceed further in our investigations of gendered group interaction in team meetings at the workplace. We plan to apply the masked video technique using our field data and to do cue analysis on more important gender stereotypic traits than just the few I focused on in Experiment 6. Bernieri and Gillis (2001) mention an additional useful perspective for our future cue analyses. Classically, a lens-model analysis is done for a single recipient. However, the model can also be used to assess group mean consensus judgments. Judgments of group means will be more reliable and more predictive of any given criterion and, thus, the accuracy of the judgment will be higher (cf. Hammond & Steward, 2001). On the other hand, we are also losing data on the pattern of responses for single individuals and the variance between them. When group mean consensus is applied there might not be one single individual for whom the consensus model applies. Therefore, Bernieri and Gillis (2001) suggest that the decision about the analysis of pooled data should depend on whether the goal is to describe a group judgment or the judgment of a typical member within that group. Furthermore, the authors add criteria for selecting representative material for the behavior observations. Following Ambady and Rosenthal (1992), they

suggest data sampling with a thin slices method. Thin slices are brief samples of behavior less than five minutes in length (cf. Ambady, LaPlante, & Johnson, 2001). The meta-analysis of Ambady and Rosenthal revealed that the information contained within less than 30-second samples of the behavioral stream can already be a powerful predictor of a number of behavioral outcomes, such as relationship status. Increasing the length of the segments did not appear to increase predictive validity (at least for subsets of the behavior under observation). Building on the experience we have now gained in the use of behavior observation techniques (Studies 1 to 6), it would be an asset to use the "thin slices methodology" with some of our team data as the project proceeds.

In sum, we have been able to show that the mere influence of different gender hypotheses has *expectational* (e.g., differential rank orders of cue use for men and women; causing participants to adapt their standards), *perceptual* (e.g., differential gender-related ratings for dominance and warmth) and *behavioral* (e.g., amount of talk) consequences. The use of the lens-model and the performance and perception method allowed us to distinguish between the processes on the "doing gender" and on the "viewing gender" side. The presented work contributes to more clarity in social psychological stereotype -- and particularly gender - - research by providing a theoretical model and a methodological approach for the detailed cue analysis of gender communication in different contexts. Moreover, it introduces a simple rating procedure for evaluative affect and brings more realistic material into Goldberg-experiments, reminding us that this is but a first step to the long overdue advance in person perception research of taking dynamic processes in social psychology more into account.

6 References¹⁷

- Abele-Brehm, Andrea (2000a). A dual-impact model of gender and career-related processes. In Thomas Eckes, & Hans Martin Trautner (Eds.), *The developmental social psychology of gender* (pp. 361-388). Mahwah, NJ: Erlbaum.
- Abele-Brehm, Andrea (2000b). Gender-gaps in early career development of university graduates. Why are women less successful than men? *European Bulletin of Social Psychology*, 12, 22-37.
- Abrams, Dominic, & Hogg, Michael A. (1990). An introduction to the social identity approach. In Dominic Abrams, & Michael A. Hogg (Eds.), *Social identity theory* (pp. 1-9). Exeter: Harvester Wheatsheaf.
- Acker, Joan (1991). Hierarchies, jobs, bodies. A theory of gendered organizations. In Judith Lorber & Susan A. Farrell (Eds.), *The social construction of gender* (pp. 162-179). Newbury Park, CA: Sage.
- Acker, Joan (1999). Rewriting class, race, and gender. Problems in feminist rethinking. In Myra M. Ferree, Judith Lorber, & Beth B. Hess (Eds.), *Revisioning gender* (pp. 44-69). Thousand Oaks, CA.: Sage.
- Alfermann, Dorothee (1995). Männlich – weiblich – menschlich: Androgynie und die Folgen [Male, female, human. The consequences of androgyny]. In Ursula Pasero, & Friederike Braun (Eds.), *Konstruktion von Geschlecht* (pp. 29-49) [Construction of gender]. Pfaffenweiler: Centarus.
- Allmendinger, Jutta (2001). *Personal communication*.
- Allport, Gordon W. (1954). *The nature of prejudice*. Redding, MA: Addison-Wesley.
- Altstötter-Gleich, Christine, Eglau, Beatrix, & Kramer, Jochen (2000). Möglichkeiten der Operationalisierung von Expressivität und Instrumentalität. Entwicklung von Skalen zur Erfassung der Geschlechtstypizität (GTS) [Operationalization of expressivity and instrumentality. Development of Gender Typicality Scales (GTS)]. *Forschungsberichte des Fachbereichs 8: Psychologie*, 23. Landau: Universität Koblenz-Landau.

¹⁷ Departing from the APA-convention I have cited first names entirely where I knew them, because some empirical evidences indicate that gender of author might have a certain impact on outcome of gender studies.

- Ambady, Nalini, & Rosenthal, Robert (1992). Thin slices of expressive behavior as predictors of interpersonal consequences: A meta-analysis. *Psychological Bulletin*, *111*, 256-274.
- Ambady, Nalini, LaPlante, Debi, & Johnson, Elizabeth (2001). Thin-slices judgments as a measure of interpersonal sensitivity. In Judith A. Hall, & Frank J. Bernieri (Eds.), *Interpersonal sensitivity. Theory and measurement* (pp. 89-101). Mahwah, NJ: Erlbaum.
- Ancis, Julie R., & Phillips, Susan, D. (1996). Academic gender bias and women's behavioural agency self-efficacy. *Journal of Counseling and Development*, *75*, 131-137.
- Andrä-Welker, Miriam (1999). *Verändert sich die Geschlechterrollenorientierung von Akademikerinnen und Akademikern durch den Berufseinstieg? Eine Längsschnittstudie* [Does gender-role orientation of academics change at job start? A longitudinal study]. *Psychologische Forschungsergebnisse*, *49*. Hamburg: Kovac.
- Aries, Elisabeth (1987). Gender and communication. *Review of Personality and Social Psychology*, *7*, 149-176.
- Aries, Elisabeth (1998). Gender differences in interaction. A reexamination. In Daniel Canary, & Kathryn Dindia (Eds.), *Sex differences and similarities in communication*. Mahwah, NJ: Erlbaum.
- Asch, Salomon E. (1946). Forming impressions of personality. *Journal of Abnormal and Social Psychology*, *41*, 258-290.
- Ashmore, Richard D., & Del Boca, Frances K. (1979). Sex stereotypes and implicit personality theory: Toward a cognitive-social psychological conceptualization. *Sex Roles*, *5*, 219-248.
- Ashmore, Richard D., & Del Boca, Frances K. (1986). *The social psychology of female-male relations. A critical analysis of central concepts*. Orlando, FL: Academic Press.
- Assig, Dorothea, & Beck, Andrea (1998). Was hat sie, was er nicht hat? Forschungsergebnisse zu den Erfolgen von Frauen in Führungspositionen [What has she, that he has not? Research results of women's success in leading positions]. *Aus Politik und Zeitgeschichte. Beilage zur Wochenzeitung "Das Parlament"*, *22/23*, 23-30.
- Athenstaedt, Ursula (2000). Normative Geschlechtsrollenorientierung (NGRO) – Entwicklung und Validierung eines Fragebogens [Normative gender role attitudes – development and validation of a new questionnaire.]. *Zeitschrift für Differentielle und Diagnostische Psychologie*, *1*, 61-74.

- Bakan, David (1966). *The duality of human existence: An essay on psychology and religion*. Chicago: Rand McNally.
- Bales, Robert F., & Cohen, Stephen P. (1982). *SYMLOG – Ein System für die mehrstufige Beobachtung von Gruppen* [SYMLOG – A system of the multi-layer observation of groups]. Stuttgart: Klett-Cotta.
- Bandura, Albert (1977). Self-efficacy. *Psychological Review*, 84, 191-215.
- Bargh, John A., Burrows, Lara, & Chen, Mark (1996). Automaticity of social behavior: direct effects of trait construct and stereotype activation on action. *Journal of Personality and Social Psychology*, 71, 230-244.
- Bargh, John A., & Wegner, Daniel M. (1998). Control and automaticity in social life. In Daniel Gilbert, Susan T. Fiske, & Gardner Lindzey (Eds.), *The handbook of social psychology* (4th ed., vol. 1, pp. 446-496). Boston: McGraw-Hill.
- Baron, Bettina, & Kotthoff, Helga (2001). *Gender in interaction. Perspectives on femininity and masculinity in ethnography and discourse*. Amsterdam: John Benjamins.
- Bartel, Caroline A., & Saavedra, Richard (2000). The collective construction of work group moods. *Administrative Science Quarterly*, 45, 197-231.
- Baumeister, Roy F. (1982). A self-presentation view of social phenomena. *Psychological Bulletin*, 91, 3-26.
- Bavelas, Janet B., & Chovil, Nicole (2000). Visible acts of meaning: An integrated message model of language in face-to-face dialogue. *Journal of Language and Social Psychology*, 19, 163-194.
- Bavelas, Janet B., Coates, Linda, & Johnson, Trudy (2000). Listeners as co-narrators. *Journal of Personality and Social Psychology*, 79, 941-952.
- Beal, Don, Gillis, John S., & Steward, Tom (1978). The lens model. Computational procedures and applications. *Perceptual and Motor Skills*, 46, 3-28.
- Bem, Sandra L. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology*, 42, 155-162.
- Bem, Sandra L. (1981). Gender schema theory. A cognitive account of sex typing. *Psychological Review*, 88, 354-364.
- Bente, Gary, Krämer, Nicole, Petersen, Anita, & DeRuiter, Jan Peter (2001). Computer animated movement and person perception: methodological advances in nonverbal behavior research. *Journal of Nonverbal Behaviour*, 25, 151-166.
- Berger, Joseph, Connor, Thomas L., & Fisek, M. Hamit (1974). *Expectation states theory. A theoretical research program*. Cambridge: Winthrop.

- Berger, Joseph, Fisek, M. Hamit, Norman, Robert Z., & Zeldich, Michael Jr. (1977). *Status characteristics and social interaction: An expectation-states approach*. New York: Elsevier.
- Berger, Joseph, Webster, Murray Jr, Jr., Ridgeway, Cecilia L., & Rosenholtz, Susan J. (1986). Status cues, expectations, and behaviors. In Edward Lawler (Ed.), *Advances in group processes* (vol. 3, pp. 1-22). Greenwich, CT: JAI Press.
- Bergmann, Kristin (1999). *Die Gleichstellung von Frauen und Männern in der europäischen Arbeitswelt. Eine rechtsvergleichende, empirisch-politikwissenschaftliche Untersuchung* [Equal opportunity laws and work-related policies in European countries]. Opladen: Westdeutscher Verlag.
- Bernieri, Frank J., & Gillis, John, S. (2001). Judging rapport. Employing Brunswik's lens model to study interpersonal sensitivity. In Judith A. Hall, & Frank J. Bernieri (Eds.), *Interpersonal sensitivity. Theory and measurement* (pp. 67-88). Mahwah, NJ: Erlbaum.
- Berry, Diane S., Misovich, Stephen J., Kean, Kevin J., & Baron, Reuben M. (1992). Effects of disruption of structure on perceptions of social causality. *Personality and Social Psychology Bulletin*, 18, 237-244.
- Bett-Report (1999). *Report of the Independent Review Committee on Higher Education Pay and Conditions*. London: HMSO.
- Betz, Nancy E. (1994). Basic issues and concepts in career counseling for women. In W. Bruce Walsh, & Samuel H. Osipow (Eds.), *Career counseling for women* (pp. 1-41). Hillsdale, NJ: Erlbaum.
- Biemans, Monique (1999). Production and perception of gendered voice quality. In Ursula Pasero, & Friederike Braun (Eds.), *Wahrnehmung und Herstellung von Geschlecht – Perceiving and performing gender* (pp. 63-72). Opladen: Westdeutscher Verlag.
- Bierach, Barbara (2002). *Das dämliche Geschlecht* [The silly gender]. O.O.: Wiley Verlag.
- Biernat, Monica (1995). The shifting standards model: Implications of stereotype accuracy for social judgment. In Yueh-Ting Lee, Lee J. Jussim, & Clark R. McCauley (Eds.), *Stereotype accuracy: Toward appreciating group differences* (pp. 87-114). Washington, DC: American Psychological Association.
- Biernat, Monica, & Fuegen, Kathleen (2001). Shifting standards and the evaluation of competence. Complexity in gender-based judgement and decision making. *Journal of Social Issues*, 57, 707-724.

- Biernat, Monica, & Kobrynowicz, Diane (1997). Gender- and race-based standards of competence: Lower minimum standards but higher ability standards for devalued groups. *Journal of Personality and Social Psychology*, *72*, 544-557.
- Biernat, Monica, & Manis, Marvin (1994). Shifting standards and stereotype-based judgments. *Journal of Personality and Social Psychology*, *66*, 5-20.
- Birdwhistell, Ray L. (1955). Background to kinesics. *ETC*, *13*, 10-18.
- Birdwhistell, Ray L. (1972). *Kinesics and context. Essays on body motion communication*. New York: Ballantine.
- Bischoff-Köhler, Doris (2002). Geschlechtstypische Besonderheiten im Konkurrenzverhalten. Evolutionäre Grundlagen und entwicklungspsychologische Fakten [Genderspecific competitive behavior. Evolutionary and developmental facts]. In Michael Wolf (Ed.), *Frauen und Männer in Organisationen und Leitungsfunktionen* (pp. 91-124) [Women and men in organizations and leading positions]. Frankfurt a. M.: Brandes & Apsel.
- Blanck, Peter D. (1993). *Interpersonal expectations. Theory, research, and applications*. Cambridge: Cambridge University Press.
- Block, Jeanne H. (1983). Differential premises arising from differential socialisation of the sexes. some conjectures. *Child Development*, *54*, 1335-1354.
- Blythe, Philip W., Todd, Peter, M., & Miller, Geoffrey F. (1999). How motion reveals intention. Categorizing social interactions. In Gerd Gigerenzer, Peter Todd, & the ABC Research Group (Eds.), *Simple heuristics that make us smart* (pp. 256-285). Oxford: Oxford University Press.
- Bowen, C., Swim, Janet K., & Jacobs, R. R. (2000). Evaluating gender biases on actual job performance of real people: A meta-analysis. *Journal of Applied Social Psychology*, *30*, 2194-2215.
- Braun, Christina von (2000). Gender, Geschlecht und Geschichte [Gender and history]. In Christina v. Braun, & Inge Stephan (Eds.), *Gender-Studien. Eine Einführung* [Gender studies. An introduction] (pp. 16-57). Stuttgart: Metzler.
- Braun, Friederike, Eckes, Thomas, Gottburgsen, Anja, & Oelkers, Susanne (2000). *Stereotypgestützte Sprachrezeption*. Abschlussbericht DFG-Projekt Br 1627/4-1. University of Kiel: Unpublished Research Report.
- Brief, Arthur P., & Weiss, Howard M. (2002). Organizational behaviour. Affect in the workplace. *Annual Review of Psychology*, *53*, 279-307.

- Brooks, Linda, & Betz, Nancy E. (1990). Utility of expectancy theory in predicting occupational choices in college students. *Journal of Counseling Psychology, 37*, 57-64.
- Brown, Virginia, & Geis, Florence L. (1984). Turning lead into gold: Evaluations of men and women leaders and the alchemy of social consensus. *Journal of Personality and Social Psychology, 46*, 811-824.
- Browne, Kingsley (1998). *Divided labours: An evolutionary view of women at work*. New Haven, CT: Yale University Press.
- Brunswik, Egon (1940). Thing constancy as measured by correlation coefficients. *Psychological Review, 47*, 69-78.
- Brunswik, Egon (1956). *Perception and the representative design of psychological experiments*. Berkeley, CA: University of California Press.
- Burgoon, Judee K. (1994). Nonverbal signals. In Marc L. Knapp, & Gerald R. Miller (Eds.), *Handbook of interpersonal communication* (2 ed., pp. 229-285). London: Sage.
- Buss, David M. (1995). Psychological sex differences. Origins through sexual selection. *American Psychologist, 50*, 164-168.
- Buss, David M., & Kenrick, Douglas T. (1998). Evolutionary social psychology. In Daniel Gilbert, Susan T. Fiske, & Gardner Lindzey (Eds.), *The handbook of social psychology* (4th ed., vol. 2, pp. 982-1026). Boston: McGraw-Hill.
- Butler, Judith (1990). *Gender trouble. Feminism and the subversion of identity*. New York: Routledge.
- Butler, Judith (1991). *Das Unbehagen der Geschlechter* [Gender trouble]. Frankfurt a. M.: Suhrkamp.
- Butler, Doré, & Geis, Florence L. (1990). Nonverbal affect responses to male and female leaders: Implications for leadership evaluations. *Journal of Personality and Social Psychology, 58*, 48-59.
- Butterfield, D. Anthony, & Grinnell, James P. (1999). Reviewing gender, leadership, and managerial behavior: Do three decades of research tell us anything? In Gary N. Powell (Ed.), *Handbook of gender and work* (pp. 223-238). Thousand Oaks, CA.: Sage.
- Cacioppo, John T., Berntson, Gary G., & Gardener, Wendi L. (1999). The affect system has parallel and integrative processing components: Form follows function. *Journal of Personality and Social Psychology, 76*, 839-855

- Cacioppo, John T., Marshall-Goodell, B. S., Tassinari, Louis G., & Petty, Richard E. (1992). Rudimentary determinants of attitudes: Classical conditioning is more effective when prior knowledge about the attitude stimulus is low than high. *Journal of Experimental Social Psychology, 28*, 207-233.
- Cacioppo, John T., Priester, Joseph R., & Berntson, Gary G. (1993). Rudimentary determinants of attitudes II: arm flexion and extension have differential effects on attitudes. *Journal of Personality and Social Psychology, 65*, 5-17.
- Canary, Daniel J., & Dindia, Kathryn (1998). *Sex differences and similarities in communication*. Mahwah, NJ: Erlbaum.
- Canary, Daniel J., & Hause, Kimberly S. (1993). Is there any reason to research sex differences in communication? *Communication Quarterly, 41*, 129-144.
- Cappella, Joseph N. (1996). Dynamic coordination of vocal and kinesic behavior in dyadic interaction. Methods, problems, and interpersonal outcomes. In James H. Watt, & C. Arthur VanLear (Eds.), *Dynamic patterns in communication processes* (pp. 353-386). Newbury Park, CA: Sage.
- Carli, Linda L. (1990). Gender, language and influence. *Journal of Personality and Social Psychology, 59*, 941-951.
- Carli, Linda L. (1999). Gender, interpersonal power, and social influence. *Journal of Social Issues, 55*, 81-99.
- Carli, Linda L., & Eagly, A. H. (1999). Gender effects on influence and emergent leadership. In Gary N. Powell (Ed.), *Handbook of Gender and Work* (pp. 203-222). Thousand Oaks, CA: Sage.
- Carli, Linda L., & Eagly, Alice H. (2001). Gender, hierarchy and leadership. An introduction. *Journal of Social Issues, 57*, 629-636.
- Carli, Linda L., LaFleur, Suzanne J., & Loeber, Christopher C. (1995). Nonverbal behavior, gender, and influence. *Journal of Personality and Social Psychology, 68*, 1030-1041.
- Carpenter, S. J. (2000). *Implicit gender attitudes: Group membership, cultural construal, consistency, and stability*. Unpublished doctoral dissertation, Yale University, New Haven, CT.
- Chaiken, Shelly (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology, 39*, 752-756.
- Chasseguet-Smirgel, Janine (1974). *Psychoanalyse der weiblichen Sexualität* [Psychoanalysis of female sexuality]. Frankfurt a.M.: Suhrkamp.

- Chen, Mark, & Bargh, John A. (1997). Nonconscious behavioral confirmation processes: The self-fulfilling consequences of automatic stereotype activation. *Journal of Experimental Social Psychology, 33*, 541-560.
- Chen, Mark, & Bargh, John A. (1999). Consequences of automatic evaluation: Immediate behavioral predispositions to approach or avoid the stimulus. *Personality and Social Psychology Bulletin, 25*, 215-224.
- Chen, Mark, & Bargh, John A. (2001). Relationship orientation as a moderator of the effects of social power. *Journal of Personality and Social Psychology, 80*, 173-187.
- Chodorow, Nancy J. (1978). *The reproduction of mothering. Psychoanalysis and the sociology of gender*. Los Angeles: University of California Press.
- Chodorow, Nancy J. (1990). *Das Erbe der Mütter. Psychoanalyse und Soziologie der Geschlechter* [The reproduction of mothering]. München: Frauenoffensive.
- Chodorow, Nancy J. (1999). *The power of feelings. Personal meaning in psychoanalysis; gender and culture*. New Haven, CT: Yale University Press.
- Christiansen, Kerrin (1995). Biologische Grundlagen der Geschlechterdifferenz [Biological basis of gender differences]. In Ursula Pasero, & Friederike Braun (Eds.), *Konstruktion von Geschlecht* (pp.13-28). Pfaffenweiler: Centarus.
- Cohen, Jacob (1960). A coefficient of agreement for nominal scales. *Education and Psychological Measurement, 20*, 37-46.
- Cohen, Jacob (1969). *Statistical power analysis for the behavioral sciences*. New York: Academic Press.
- Cohen, Jacob (1992). A power primer. *Psychological Bulletin, 112*, 155-159.
- Crawford, Mary (1995). *Talking difference. On gender and language*. London: Sage.
- Crowston, Kevin, & Kammerer, Ericka (1998). Communicative style and gender differences in computer mediated communication. In Ebo Bosah (Ed.), *Cyberghetto or cybertopia? Race, class and gender on the Internet* (pp. 185-203). Westport: Praeger.
- Daly, Martin, & Wilson, Margo (1983). *Sex, evolution and behavior*. Belmont: Wadsworth.
- Damasio, Antonio R. (1994). *Descartes' error. Emotion, reason, and the human brain*. New York: Putnam.
- Danet, Brenda (1998): Text as mask. Gender, play, performance on the Internet. In Steven G. Jones (Ed.), *Cybersociety 2.0: Revisiting communication and community* (pp. 129-158). Thousand Oaks, CA: Sage.
- Darley, John M., & Gross, Paget H. (1983). A hypothesis-conforming bias in labeling effects. *Journal of Personality and Social Psychology, 44*, 20-33.

- Daston, Lorraine (1992). The naturalized female intellect. *Science in Context*, 72, 209-235.
- Davison, Heather K., & Burke, Michael J. (2000). Sex discrimination in simulated employment contexts: A meta-analytic investigation. *Journal of Vocational Behavior*, 56, 225-248.
- Deaux, Kay (1998). An overview of research on gender: four themes from three decades. In William B. Swann, Jr., Judith H. Langloise, & Lucia Albino Gilbert (Eds.), *Sexism and stereotypes in modern society: the gender science of Janet Taylor Spence* (pp. 11-33). Washington, DC: American Psychological Association.
- Deaux, Kay, & LaFrance, Marianne (1998). Gender. In Daniel Gilbert, Susan T. Fiske & Gardner Lindzey (Eds.), *The handbook of social psychology* (4th ed., vol. 2, pp. 788-827). Boston: McGraw-Hill.
- Deaux, Kay, & Major, Brenda (1987). Putting gender into context: An interactive model of gender-related behavior. *Psychological Review*, 3 (94), 369-389
- DeBeauvoir, Simone (1949). *Le deuxieme sexe*. [The second gender.] Paris: Gallimard.
- DePaulo, Bella M. (1992). Nonverbal behavior and self-presentation. *Psychological Bulletin*, 11, 203-243.
- DePaulo, Bella M., & Friedman, H. S. (1998). Nonverbal communication. In Daniel Gilbert, Susan T. Fiske, & Gardner Lindzey (Eds.), *The handbook of social psychology* (4th ed., vol. 1, pp. 3-40). Boston: McGraw-Hill.
- Dindia, Katryn (1988). Communication with spouses and others. In Patricia Noller, & Mary A. Fitzpatrick (Eds.), *Perspectives on marital interaction* (pp. 273-293). Philadelphia, PA: Multilingual Matters LTD.
- Döring, Nicola (1999). *Sozialpsychologie des Internet* [Social psychology of the Internet]. Göttingen: Hogrefe
- Domsch, Michael, & Regnet, Erika (1990). *Weibliche Fach- und Führungskräfte. Wege zur Chancengleichheit* [Female professionals and leaders. Ways to equal opportunities]. Stuttgart: Schäffer.
- Dovidio, John F., Brown, C. E., Heltmann, K., Ellyson, Steve L., & Keating, C. F. (1988). Power displays between women and men in discussions of gender-linked tasks. A multichannel study. *Journal of Personality and Social Psychology*, 55, 580-587.
- Dovidio, John F., Ellyson, Steve L., Keating, C. F., Heltman, K., & Brown C. E. (1988). The relationship of social power to visual displays of dominance between men and women. *Journal of Personality and Social Psychology*, 54, 233-242.

- Driskell, James E., & Mullen, Brian (1990). Status, expectations, and behavior. A meta-analytic review and test of the theory. *Personality and Social Psychology Bulletin*, *16*, 541-553.
- Duncan, Starkey Jr., Kanki, Barbara G., Mokros, Hartmut, & Fiske, Donald W. (1984). Pseudounilaterality, simple-rate variables and other ills to which interaction research is heir. *Journal of Personality and Social Psychology*, *46*, 1335-1348.
- Dvir, Taly, Eden, Dov, & Banjo, Michael Lang (1995). Self-fulfilling prophecies and gender: Can women be Pygmalion and Galatea? *Journal of Applied Psychology*, *80*, 253-270.
- Eagly, Alice H. (1987). *Sex differences in social behavior: A social-role interpretation*. Hillsdale, NJ: Erlbaum.
- Eagly, Alice H. (1994). On comparing women and men. *Feminism and Psychology*, *4*, 513-522.
- Eagly, Alice H. (1995). Reflections on the commenters' view. *American Psychologist*, *50*, 169-171.
- Eagly, Alice H., & Chaiken, Shelly (1993). *The psychology of attitudes*. San Diego: Harcourt, Brace, Jovanovich.
- Eagly, Alice H., & Johannesen-Schmidt, Mary C. (2001). The leadership styles of women and men. *Journal of Social Issues*, *57*, 781-797.
- Eagly, Alice H., & Johnson, Blair T. (1990). Gender and leadership style. A meta-analysis. *Psychological Bulletin*, *108*, 233-256.
- Eagly, Alice H., & Karau, Steven J. (1991). Gender and the emergence of leaders. A meta-analysis. *Journal of Personality and Social Psychology*, *60*, 685-710.
- Eagly, Alice H., & Karau, Steven J. (2002). Role congruity theory of prejudice toward female leaders. *Psychological Review*, *109*, 573-598.
- Eagly, Alice H., Karau, Steven J., & Makhijani, M. G. (1995). Gender and the effectiveness of leaders: A meta-analysis. *Psychological Bulletin*, *117*, 125-145.
- Eagly, Alice H., Makhijani, M. G., & Klonsky, B. G. (1992). Gender and the evaluation of leaders: A meta-analysis. *Psychological Bulletin*, *111*, 3-22.
- Eagly, Alice H., & Wood, Wendy (1991). Explaining sex differences in social behavior. A meta-analytic perspective. *Personality and Social Psychology Bulletin*, *17*, 306-315.
- Eagly, Alice H., & Wood, Wendy (1999). The origins of sex differences in human behavior. Evolved dispositions versus social roles. *American Psychologist*, *54*, 408-423.

- Eckert, Penelope, & McConnell-Ginet, Sally (1998). Communities of practice. Where language, gender, and power all live. In Jennifer Coates (Ed.), *Language and gender: A reader* (pp. 484-494). Oxford: Blackwell.
- Eckes, Thomas (1997). *Geschlechterstereotype. Frau und Mann in sozialpsychologischer Sicht* [Gender stereotypes. Men and women in social psychological perspective]. Pfaffenweiler: Centaurus.
- Eckes, Thomas, & Trautner Hans-Martin (2000). *The developmental social psychology of gender*. Mahwah, NJ: Erlbaum.
- Eden, Dov (1993). Interpersonal expectations in organizations. In Peter D. Blanck (Ed.), *Interpersonal expectations: Theory, research, and applications* (pp. 154-178). Cambridge: Cambridge University Press.
- Edwards, Kari (1990). The interplay of affect and cognition in attitude formation and change. *Journal of Personality and Social Psychology*, 59, 202-216.
- Eiser, J. Richard, & Stroebe, Wolfgang (1972). *Categorization and social judgment*. London: Academic Press.
- Ekman, Paul, & Friesen, Wallace V. (1978). *The facial action coding system*. Palo Alto, CA: Consulting Psychology Press.
- Epstein, Cynthia F. (1988). *Deceptive distinctions: Sex, gender and the social order*. New Haven, CT: Yale University Press.
- Ernst, Stefanie (1999). *Geschlechterverhältnisse und Führungspositionen. Eine figurationssoziologische Analyse der Stereotypenkonstruktion* [Gender and leadership. An analysis of stereotype construction]. Opladen: Westdeutscher Verlag.
- ETAN-Report (2001). Förderung herausragender wissenschaftlicher Leistungen durch Gender Mainstreaming [Advancing excellent academic achievement by "gender mainstreaming"]. In Europäische Union (Ed.), *Wissenschaftspolitik in der Europäischen Union. Bericht der ETAN-Expertenarbeitsgruppe "Frauen und Wissenschaft"* [Science politics in the European Union. Report of the ETAN-Expertgroup "Women and Science"]. Brüssel: EU.
- Feingold, Alan (1994). Gender differences in personality. A meta-analysis. *Psychological Bulletin*, 116, 429-456.
- Ferree, Myra M., Lorber, Judith, & Hess, Beth B. (1999). *Revisioning gender*. Thousand Oaks, CA: Sage.
- Fiedler, Klaus (1996). Die Verarbeitung sozialer Informationen für Urteilsbildung und Entscheidungen [Processing social information in judgment and decision]. In

- Stroebe, Wolfgang, Hewstone, Miles, & Stephenson, Geoffrey M. (Eds.), *Sozialpsychologie. Eine Einführung* (3 ed., pp. 143-175) [Social psychology. An introduction. New York: Springer.
- Fiedler, Klaus (2000). Beware of samples! A cognitive-ecological sampling approach to judgment biases. *Psychological Review*, *107*, 659-676.
- Fiedler, Klaus, Blümke, Matthias, Freytag, Peter, Koch, Sabine, Plessner, Henning, & Unkelbach, Christian (2002). *A semiotic approach to explaining stereotype communication*. Unpublished Manuscript: University of Heidelberg.
- Fishbein, Martin, & Ajzen, Icek (1975). *Belief, attitude, intention and behavior: An introduction in theory and research*. Reading, MA: Addison-Wesley.
- Fiske, Susan T., Cuddy, Amy J. C., Glick, Peter, & Xu, Jun (2002). A model of (often mixed) stereotype content. Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology*, *82*, 878-902.
- Fiske, Susan T., Lin, Monika, & Neuberg, Steven L. (1999). The continuum model. Ten years later. In Shelly Chaiken (Ed.), *Dual process theories in social psychology* (pp. 231-254). New York: Guilford Press.
- Fiske, Susan T., & Neuberg, Steve (1990). A continuum of impression formation, from category-based to individuating processes. Influences of information and motivation on attention and interpretation. *Advances in Experimental Social Psychology*, *23*, 1-74.
- Fleiss, Joseph L., & Cohen, Jacob (1973). The equivalence of weighted kappa and interclass correlation coefficient as measures of reliability. *Education and Psychological Measurement*, *33*, 613-619.
- Foddy, Margret, & Smithson, M. (1999). Can gender inequalities be eliminated? *Social Psychology Quarterly*, *62*, 307-324.
- Forsythe, Sandra (1985). Influence of applicant's dress on interviewer's selection decisions. *Journal of Applied Psychology*, *70*, 374-378.
- Foschi, Martha (1992). Gender and double standards for competence. In Cecilia L. Ridgeway (Ed.), *Gender, interaction and inequality* (pp. 181-207), New York: Springer.
- Foschi, Martha (2000). Double standards for competence. Theory and research. *Annual Review of Sociology*, *26*, 21-42.

- Friedel-Howe, Heidrun (1990a). Zusammenarbeit von weiblichen und männlichen Fach- und Führungskräften [Colaboration of male and female professionals and leaders]. In Michael Domsch, & Erika Regnet (Eds.), *Weibliche Fach- und Führungskräfte. Wege zur Chancengleichheit* (pp. 16-34). Stuttgart: Schäffer.
- Friedel-Howe, Heidrun (1990b). Ergebnisse und offene Fragen der geschlechtsvergleichenden Führungsforschung [Results and open questions in gender and leadership research]. *Zeitschrift für Arbeits- und Organisationspsychologie*, 4, 3-16.
- Friedlund, Alan (1994). *Human facial expression. An evolutionary view*. San Diego, CA: Academic Press.
- Garfinkel, Harold (1967). *Studies in ethnomethodology*. New York: Eaglewood Cliffs.
- Geis, Florence L. (1993). Self-fulfilling prophecies: A social psychological view of gender. In Anne E. Beall, & Robert J. Sternberg (Eds.), *The psychology of gender* (pp. 9-54). New York: Guilford Press.
- Gigerenzer, Gerd, Czerlinski, Jean, & Martignon, Laura (1999). How good are fast and frugal heuristics? In Jim Shanteau, Barbara Mellers, & Dave Schum (eds), *Decision research from Bayesian approaches to normative systems: Refelections on the contributions of Ward Edwards* (pp. 148-173). Norwell, MA: Kluwer.
- Gilbert, Daniel, & Hixon, J. Gregory (1991). The trouble of thinking: Activation and application of stereotypic beliefs. *Journal of Personality and Social Psychology*, 60, 509-517.
- Gildemeister, Regine, & Wetterer, Angelika (1992). Wie Geschlechter gemacht werden? Die soziale Konstruktion der Zweigeschlechtlichkeit und ihre Reifizierung in der Frauenforschung [How gender is socially constructed]. In Gudrun-Axeli Knapp, & Angelika Wetterer (Eds.), *Traditionen Brüche* (pp. 201-254). Forum Frauenforschung, 6. Freiburg i.Br.: o.V.
- Gilden, David L. (2001). Cognitive emission of 1/f noise. *Psychological Review*, 108, 33-56.
- Giles, Howard (1984). The dynamics of speech accommodation. *International Journal of the Sociology of Language*, 46, 36-54.
- Giles, Howard, & Streeb, Richard L. (1994). Communication characteristics and behavior. In Marc L. Knapp & Gerald R. Miller (Eds.), *Handbook of interpersonal communication* (2 ed., pp. 103-161). London: Sage.
- Gilligan, Carol (1982). *In a different voice*. Cambridge, MA: Harvard University Press.
- Giora, Rachel (2001). Theorizing gender: Feminist awareness and language change. In Bettina Baron, & Helga Kotthoff (Eds.), *Gender in interaction. Perspectives on*

- femininity and masculinity in ethnography and discourse* (pp. 329-347). Amsterdam: John Benjamins.
- Glick, Peter, & Fiske, Susan T. (1996). The Ambivalent Sexism Inventory: Differentiating hostile and benevolent sexism. *Journal of Personality and Social Psychology*, 70, 491-512.
- Gmür, Markus (1997). Geschlechterrollenstereotypen in der Führungskräfteauswahl [Gender stereotypes in staff selection]. *Management Forschung und Praxis*, 19, 1-17.
- Goffman, Erving (1976). Gender display. *Studies in the Anthropology of Visual Communication*, 3, 69-77.
- Goffman, Erving (1977). The arrangement between the sexes. *Theory and Society*, 4, 301-331.
- Goffman, Erving (1994). *Geschlecht und Interaktion* [Gender and interaction]. Frankfurt a. M.: Campus.
- Goldberg, Philip (1968). Are women prejudiced against women? *Transaction*, 5, 316-322.
- Goodwin, Marjorie H. (1990). *He-said-she-said. Talk as social organization among black children*. Cambridge, MA: Harvard University Press
- Goos, Giesela, & Hansen, Karin (1999). *Frauen in Führungspositionen. Erfahrungen, Ziele, Strategie* [Women in leadership positions. Experiences, goals, strategies]. New York: Waxmann.
- Gottburgsen, Anja (2000). *Stereotype Muster des sprachlichen "doing gender"* [Stereotypic Patterns of language-related "doing gender"]. Opladen: Westdeutscher Verlag.
- Grammer, Karl, Fidova, Valentina, & Fieder, Martin (1997). The communication paradox and a possible solution: Toward a radical empiricism. In A. Schmitt, K. Atzwanger, K. Grammer, & K. Schäfer (Eds.), *New aspects of human ethology* (pp. 91-120). New York: Plenum.
- Grammer, Karl, Honda, Masanao, Juette, Astrid, & Schmitt, Alain (1999). Fuzziness of nonverbal courtship communication unblurred by motion energy detection. *Journal of Personality and Social Psychology*, 77, 487-508.
- Grammer, Karl, Kruck, Kirsten B., & Magnusson, Magnus S. (1998). The courtship dance. Patterns of nonverbal synchronization in opposite-sex encounters. *Journal of Nonverbal Behaviour*, 22, 2-29.
- Graumann, Carl F. (1972). Interaktion und Kommunikation [Interaction and Communication]. In Carl F. Graumann (Ed.), *Handbuch der Psychologie. Sozialpsychologie* (vol. 7, pp. 1220-1262). Göttingen: Hogrefe.

- Graumann Carl F., & Wintermantel, Margret (1989). Discriminatory speech acts. A functional approach. In Daniel Bar-Tal, Carl F. Graumann, Arie W. Kruglanski, & Wolfgang Stroebe (Eds.), *Stereotyping and prejudice. Changing conceptions* (pp. 183-204). Heidelberg: Springer.
- Greenwald, Anthony G., McGhee, Debbie E., & Schwartz, Jordan L. K. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology*, *74*, 1464-1480.
- Guzzo, Richard A., & Dickson, Marcus W. (1996). Teams in organizations: Recent research on performance and effectiveness. *Annual Review of Psychology*, *47*, 307-338.
- Hackett, Gail, & Betz, Nancy E. (1981). A self-efficacy approach to the career development of women. *Journal of Vocational Behavior*, *18*, 326-339.
- Hagemann-White, Carol (1993). Die Konstrukteure des Geschlechts auf frischer Tat ertappen? Methodische Konsequenzen einer theoretischen Einsicht [How to catch the constructors of gender in the very act. Methodological consequences of a theoretical insight]. *Feministische Studien*, *11*, 68-78.
- Hahne, Anton (1997). *Kommunikation in der Organisation. Grundlagen und Analyse - Ein kritischer Überblick*. Opladen: Westdeutscher Verlag.
- Hall, Judith A. (1978). Gender effects in decoding nonverbal cues. *Psychological Bulletin*, *85*, 845-857.
- Hall, Judith A. (1984). *Nonverbal sex differences. Communication accuracy and expressive style*. London: Hopkins.
- Hall, Judith A., & Carter, Jason D. (1999). Gender-stereotype accuracy as an individual difference. *Journal of Personality and Social Psychology*, *77*, 350-359.
- Hall, Judith A., & Bernieri, Frank, J. (2001). *Interpersonal sensitivity. Theory and measurement*. Mahwah, NJ: Erlbaum.
- Hamilton, David L., & Rose, Terrence L. (1980). Illusory correlation and the maintenance of stereotypic beliefs. *Journal of Personality and Social Psychology*, *39*, 832-845.
- Hammond, Kenneth R., & Thomas R. Steward (2001). *The essential Brunswik. Beginnings, axplications, applications*. Oxford: Oxford University Press.
- Hannah, Annette, & Murachver, Tamar (1999). Gender and conversational style as predictors of conversational behavior. *Journal of Language and Social Psychology*, *18*, 153-174.
- Haslett, Beth, Geis, Florence L., & Carter, Mae R. (1996). *The organizational woman. Power and paradox*. Norwood, NJ: Ablex.

- Hatfield, Elaine, Cacioppo, John T., & Rapson, Richard L. (1994). *Emotional contagion*. Paris: Cambridge University Press.
- Heider, Fritz (1958). *The psychology of interpersonal relations*. New York: Wiley
- Heider, Fritz, & Simmel, Marianne (1944). An experimental study of apparent behavior. *American Journal of Psychology*, 57, 243-259.
- Heilman, Madeleine E. (1983). Sex bias in work settings: The lack of fit model. *Research in Organizational Behavior*, 5, 269-298.
- Heilman, Madeleine E. (1995). Sex stereotypes and their effects in the workplace: What we know and what we don't know. *Journal of Social Behavior and Personality*, 10, 3-26.
- Heilman, Madeleine E. (2001). Description and prescription: How gender stereotypes prevent women's ascent up the organizational ladder. *Journal of Social Issues*, 57, 657-674.
- Heilman, Madeleine E., Block, C. J., & Martell, R. F. (1995). Sex stereotypes: Do they influence perceptions of managers? *Journal of Social Behavior and Personality*, 10, 237-252.
- Heilman, Madeleine E., & Saruwatari, L. R. (1979). When beauty is beastly. The effects of appearance and sex on evaluations of job applications for managerial and nonmanagerial jobs. *Organizational Behavior and Human Decision Processes*, 23, 360-372.]
- Henley, Nancy M. (1977). *Body politics. Power, sex, and nonverbal communication*. Englewood Cliffs, NJ: Prentice Hall.
- Henley, Nancy M, & Mayo, Clara (1981). *Gender and nonverbal behavior*. Heidelberg: Springer.
- Herring, Susan C. (1996). *Computer-mediated communication. Linguistic, social and cross-cultural perspectives*. Philadelphia: John Benjamins.
- Herring, Susan C. (1997) Geschlechtsspezifische Unterschiede in computer-gestützter Kommunikation. Von vertrauten Problemen an neuen Grenzen [Gender differences in computer-mediated communication]. *Feministische Studien*, 15, 65-76.
- Hirsbrunner, Hans-Peter, Frey, Siegfried, & Crawford, Robert (1987). Movement in human interaction. Description, parameter formation, and analysis. In Aron W. Siegman, & Stanley Feldstein (Eds.), *Nonverbal behavior and communication* (2 ed., pp. 99-140). Hillsdale, NJ: Erlbaum.

- Hirschauer, Stefan (1995). Dekonstruktion und Rekonstruktion. Plädoyer für die Erforschung des Bekannten [Deconstruction and reconstruction of what is believed to be known]. In Ursula Pasero, & Friederike Braun (Eds.), *Konstruktion von Geschlecht* (pp. 67-88) [Construction of gender]. Pfaffenweiler: Centaurus.
- Hirschauer, Stefan (2001). Geschlechtsneutralität. Zur Praxeologie einer Kategorie sozialer Ordnung [Gender neutrality]. In Bettina Heintz (Ed.), *Soziologie der Geschlechterdifferenz* [Sociology of gender difference]. Opladen: Sonderheft KZfSS (Kölner Zeitschrift für Soziologie und Sozialpsychologie).
- Hörmann, Hans (1978). *Meinen und Verstehen* [Meaning/Intending and understanding]. Frankfurt a. M.: Suhrkamp.
- Hoff, Ernst-H., Grote, Stefanie, Hohner, Hans-Uwe, & Dettmer, Susanne (2000). Berufsverlaufsmuster und Geschlecht in Medizin und Psychologie [Gender and career patterns in medicine and psychology]. *Zeitschrift für politische Psychologie*, 8, 203-223.
- Holmes, Janet (1992). Women`s talk in public contexts. *Discourse and Society*, 3, 131-150.
- Holmes, Janet (1998). Women's talk. The question of sociolinguistic universals. In Jennifer Coates (Ed.), *Language and gender. A reader* (pp. 461-483). Oxford: Blackwell.
- Hyde, Janet Shibley (1995). Magnitude of psychological gender differences. Another side to the story. *American Psychologist*, 50, 159-161.
- Ingenhoff, Diana (1998). Der Kampf ums Rederecht I. Formen und Strategien der Gesprächsbeitragskoordination. [The fight for the floor]. In H. Walter Schmitz (Ed.), *Vom Sprecher zum Hörer* [From speaker to listener] (pp. 125-200). Münster: Nodus.
- Instone, D., Major, Brenda, & Bunker, B. B. (1983). Gender, self-confidence, and social influence strategies. An organizational simulation. *Journal of Personality and Social Psychology*, 44, 322-333.
- Jacobs, Jerry A. (1995). Women`s entry into management. Trends in earnings, authority, and values among salaried managers. In Jerry A. Jacobs (Ed.), *Gender inequality at work* (pp. 152-177). Thousand Oaks, CA: Sage.
- Jacobsen, Joyce P. (1998). *The economics of gender* (2nd ed.). Cambridge, MA: Blackwell.
- Jaffe, J. Michael, Lee, Young-Eum, Huang, Li-Ning, & Oshagan, Hayg (1995). *Gender, pseudonyms and CMC. Masking identities and bearing souls*. Retrieved Mai 15, 2001, from <http://research.haifa.ac.il/~jmjaffe/genderpseudocmc.html>.

- Jessup, Len M., Connolly, Terry, & Tansik, D. (1990). Toward a theory of automated group work. The de-individuating effects of anonymity. *Small Group Research, 21*, 333-348.
- Judd, Charles M., & Park, Bernadette (1993). Definition and assessment of accuracy in social stereotypes. *Psychological Review, 100*, 109-128.
- Kanter, Rosabeth Moss (1977). *Men and women of the corporation*. New York: Basic Books.
- Keki, Viktoria (2000). *Der menschliche Gang als Signal. Einsatz eines künstlichen neuronalen Netzwerks in der Bewegungsanalyse* [Human gait as a signal. Employing an artificial neural network in movement analysis]. Wien: Diplomarbeit. Retrieved June 20th, 2001, from <http://www.urbanethology.at/>
- Kelle, Helga (2001). "Ich bin der die das macht." Oder: Über die Schwierigkeit "Doing gender" Prozesse zu erforschen [The difficulty to investigate processes of "doing gender"]. *Feministische Studien, 19*, 39-56.
- Keller, Heide (1978). *Männlichkeit – Weiblichkeit. Praxis der Sozialpsychologie* [Masculinity and femininity in social psychology]. Darmstadt, Steinkopf.
- Kempter, Guido (1998). Scriptanimation. Methode zur Beschreibung und Darstellung natürlicher menschlicher Bewegungen [Scriptanimation. Assessment method for natural human movements]. *Zeitschrift für experimentelle Psychologie, 46*, 129-134.
- Kendall, Shari, & Tannen, Deborah (1996). Gender and language in the workplace. In Ruth Wodak (Ed.), *Gender and discourse* (pp. 81-105). Thousand Oaks, CA: Sage.
- Kendon, Adam (1982). The organization of behavior in face-to-face interaction. Observations on the development of a methodology. In Klaus R. Scherer, & Paul Ekman (Eds.), *Handbook of methods in nonverbal behavior research* (pp. 440-505). Cambridge: Cambridge University Press.
- Kenny, David A., Mannetti, Lucia, Pierro, Antonio, Livi, Stefano, & Kashy, Deborah A. (2002). The statistical analysis of data from small groups. *Journal of Personality and Social Psychology, 83*, 126-137.
- Kestenber, Judith (1988). Entwicklungsphasen weiblicher Identität [Developmental phases of female identity]. *Psyche, 4*. Stuttgart: Klett-Cotta.
- Kestenber-Amighi, Janet, Loman, Susan, Lewis, Penny, & Sossin, K. Marc (1999). *The meaning of movement. Developmental and clinical perspectives of the Kestenber Movement Profile*. Amsterdam: Gordon and Breach.
- Kiesler, Sara, Siegel, Jane, & McGuire, Timothy W. (1984). Social psychological aspects of computer-mediated communication. *American Psychologist, 39*, 1123-1134.

- Kiesler, Sara, & Sproull, Lee S. (1992). Group decision making and communication technology. *Organizational Behavior and Human Decision Processes*, 52, 96-123.
- Kita, Sotaro (2000). *Personal communication*.
- Klauer, Karl Christoph, & Wegener, Ingo (1998). Unraveling social categorization in the "who said what" paradigm. *Journal of Personality and Social Psychology*, 75, 1155-1178.
- Knapp, Marc L., & Miller, Gerald R. (1994). *Handbook of interpersonal communication* (2 ed.). London: Sage.
- Koch, Sabine C. (2000). *WorkComm-G. Entwicklung eines Fragebogens zur geschlechtsspezifischen Arbeitsplatzkommunikation* [WorkComm-G. Development of a questionnaire on gendered workplace communication]. Heidelberg: Unpublished manuscript. Questionnaire available at: <http://workcomm.uni-hd.de> (German only).
- Koch, Sabine C. (2002). *Evaluative affect displays toward male and female leaders and its transmission in small groups*. Unpublished manuscript.
- Koch, Sabine C., Kruse, Lenelis, Schey, Sabine, & Thimm, Caja (1999). *Kommunikationseinstellungen und –erwartungen von Männern und Frauen am Arbeitsplatz* [Communication attitudes and expectations of women and men at the workplace], WorkComm Arbeitsbericht Nr. 1. Heidelberg: Universität Heidelberg. [Online-Document] <http://workcomm.uni-hd.de>
- Koch, Sabine C., Kubat, Antje, Kruse, Lenelis, & Thimm, Caja (2001). *Einfluß und Unterstützung in der Geschlechterkommunikation am Arbeitsplatz. Entwicklung eines Kodierschemas und erste Ergebnisse* [Influence and support in gender communication at the workplace. Development of a coding scheme and first results]. WorkComm Arbeitsbericht Nr. 2. Heidelberg: Universität Heidelberg. [Online-Document] <http://workcomm.uni-hd.de>
- Koch, Sabine C., Müller, Barbara, Kruse, Lenelis, & Zumbach, Joerg (2002). *"Doing gender" in chat communication*. Manuscript submitted for publication.
- Kohlberg, Laurence H. (1966). A cognitive-developmental analysis of children's sex-role concepts and attitudes. In Eleanor Maccoby (Ed.), *The development of sex differences* (pp. 82-173). Stanford: Stanford University Press.
- Korabik, Karen, Baril, Galen L., & Watson, Carol (1993). Managers' conflict management style and leadership effectiveness: The moderating effects of gender. *Sex Roles*, 29, 405-420.

- Korabik, Karen, & Van Kampen, Janice (1995). Gender, social support and coping with work stressors among managers. *Journal of Social Behavior and Personality, 10*, 135-148.
- Kotthoff, Helga (1991). Interaktionsstilistische Unterschiede im Gesprächsverhalten der Geschlechter. In Eva Neuland, & Helga Bleckwenn (Eds.), *Stil - Stilistik -Stilisierung* (pp. 131-149) [Gender differences in interaction style]. Frankfurt a. M.: Peter Lang.
- Kotthoff, Helga, & Günthner, Susanne (1992). *Die Geschlechter im Gespräch. Kommunikation in Institutionen* [Gender in discourse. Communication in institutions]. Stuttgart: Metzler.
- Krahé, Barbara (1999). Repression and coping with the threat of rape. *European Journal of Personality, 13*, 15-26.
- Krais, Beate (2000). Das soziale Feld Wissenschaft und die Geschlechterverhältnisse. Theoretische Sondierung [The social field of science and gender]. In Beate Krais (Ed.), *Wissenschaftskultur und Geschlechterordnung. Über die verborgenen Mechanismen männlicher Dominanz in der akademischen Welt* (pp. 31-54) [Akademia and gender order. On the hidden mechanisms of male dominance]. Frankfurt a. M.: Campus.
- Krämer, Nicole C. (2001). *Bewegende Bewegung. Sozio-emotionale Wirkungen nonverbalen Verhaltens und deren experimentelle Untersuchung mittels Computeranimation* [Moving movement – socio-emotional impact of nonverbal behavior and its experimental assessment by computer animation]. Lengerich: Pabst.
- Krumpholz, Doris (1996). "Ich schau' Dir in die Augen, Kleines". Weibliches Geschlechterstereotyp, äußeres Erscheinungsbild von Frauen und Führungsarbeit [Female stereotype, appearance and leadership]. *Gruppendynamik, 27*, 181-187.
- Kruse, Lenelis (1978). Ökologische Perspektiven in der Allgemeinen Psychologie [Ecological perspectives in general psychology]. In Carl F. Graumann (Ed.), *Ökologische Perspektiven in der Psychologie* (pp. 98-104). Bern: Huber.
- Kruse, Lenelis, Niederfranke, Annette, & Hartmann, Ute (1991). Frauen in Führungspositionen [Women in leadership positions]. In Eckhard Kuhlwein (Ed.), *Gutachten für die Enquete-Kommission "Zukünftige Bildungspolitik - Bildung 2000, 20*. Bonn: o.V.
- Kruse, Lenelis, & Schwarz, Susanne (1992). Who pays the bill? The language of social representation. In Mario von Charanach, Willem Doise, & Gabriel Mugny (Eds.),

- Social representation and the social basis of knowledge* (pp. 23-29). Lewiston: Hogrefe & Huber.
- Kruse, Lenelis, & Thimm, Caja (1994). Communication at the workplace. Requesting in asymmetrical interaction situations. In Britt-Louise Gunnarsson, Per Linell, & Bengt Nordberg (Eds.), *Text and talk in professional contexts* (pp. 219-236). Upsalla: Yearbook of the Swedish Association of Applied Linguistics.
- Kruse, Lenelis, & Wagner, Annette (1995). Partnerhypothesen und Sprache in sozialen Interaktionen. Zur Entwicklung eines Forschungsprogramms [Partnerhypothesen and language in social interaction]. In Kurt Pawlik (Ed.), *Bericht über den 39. Kongreß der Deutschen Gesellschaft für Psychologie in Hamburg 1994* (pp. 656-665). Göttingen: Hogrefe.
- Kruse, Lenelis, & Wintermantel, Margret (1986). Leadership Ms.-qualified. The gender bias in everyday and scientific thinking. In Carl F. Graumann, & Serge Moscovici (Eds.), *Changing conceptions of leadership* (pp. 171-197). New York: Springer.
- Kurz, Elke M., & Hertwig, Ralph (2001). To know an experimenter. In Kenneth R. Hammond, & Thomas R. Steward (Eds.), *The essential Brunswik. Beginnings, explications, applications* (pp. 180-191). Oxford: Oxford University Press.
- Laban, Rudolf von (1980). *The mastery of movement*. Eastover: MacDonald & Evans.
- LaFrance, Marianne, & Hecht, Michael A. (2000). Gender and smiling: A meta-analysis. In Agneta H. Fischer (Ed.), *Gender and emotion: Social psychological perspectives*. Cambridge, MA: Cambridge University Press.
- LaFrance, Marianne, & Henley, Nancy M. (1994). On oppression hypotheses. Or differences in nonverbal sensitivity revisited. In H. Lorraine Radtke, & Henderikus J. Stam (Eds.), *Power/Gender. Social relations in theory and practice* (pp. 287-311). London: Sage.
- Lakoff, Robin (1973). Language and women's place. *Language in Society*, 2, 45-80.
- Lakoff, Robin (1975). *Language and woman's place*. New York: Harper and Row.
- Landis, J. Richard, & Koch, Gary G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33, 159-174.
- Lave, Jean (1993). The practice of leaning. In Seth Chaiklin, & Jean Lave (Eds.), *Understanding practice: perspectives on activity and context* (pp. 3-32). Cambridge: Cambridge University Press.
- Lave, Jean, & Wenger, Etienne (1991). *Situated learning. Legitimate peripheral participation*. Cambridge, MA: Cambridge University Press.

- LeDoux, Joseph (1995). Emotions. Clues from the brain. *Annual Review of Psychology*, 46, 209-235.
- Lent, Robert W., & Hackett, Gail (1987). Career self-efficacy. Empirical status and future directions. *Journal of Vocational Behavior*, 30, 347-382.
- Lewin, Kurt (1935). *A dynamic theory of personality*. New York: McGraw-Hill.
- Lewin, Kurt (1951). *Field theory in social science*. New York: Harper.
- Lipps, Theodor (1903). *Leitfaden der Psychologie (Kap. 14: Die Einfühlung*, pp. 187-201) [Guide to Psychology. Chapter 14: Empathy)]. Leipzig: Wilhelm Engelmann.
- Lorber, Judith (1994). *Paradoxes of gender*. New Haven: Yale University Press.
- Lorber, Judith, & Farrell, Susan (1991). *The social construction of gender*. Newbury Park, CA: Sage.
- Lott, Bernice (1985). The devaluation of women's competence. *Journal of Social Issues*, 41, 43-60.
- Lott, Bernice (1995). Distancing from women. Interpersonal sexist discrimination. In Bernice Lott, & Diane Baluso (Eds.), *The social psychology of interpersonal discrimination* (pp. 12-49). New York: Guilford Press.
- Lyness, Karen S., & Judiesch, Michael K. (1999). Are women more likely to be hired or promoted into management positions? *Journal of Vocational Behavior*, 54, 158-173.
- Lytton, Hugh, & Romney, David M. (1991). Parents' differential socialisation of boys and girls. A meta-analysis. *Psychological Bulletin*, 109, 267-296.
- Maccoby, Eleanor E. (1998). *Psychologie der Geschlechter. Sexuelle Identität in den verschiedenen Lebensphasen* [Original Title: The two genders. Growing up apart, coming together]. Stuttgart: Klett-Cotta.
- Maccoby, Eleanor E., & Jacklin, Carol N. (1974). *The psychology of sex differences*. Stanford: Stanford University Press.
- Magnusson, Magnus S. (2000). Discovering hidden time patterns in behavior: T-patterns and their detection. *Behavior Research Methods: Instruments & Computers*, 32, 93-110.
- Major, Brenda, Barr, Lesley, Zubek, Josephine, & Babey, Susan H. (1998). Gender and self-esteem: A meta-analysis. In William B. Swann, Judith H. Langlois, & Lucia Albino Gilbert (Eds.), *Sexism and stereotypes in modern society* (pp. 199-229). Washington DC: American Psychology Association.

- Maltz, Daniel N., & Borker, Ruth A. (1982). A cultural approach to male-female miscommunication. In John J. Gumperz (Ed.), *Language and social identity* (pp. 196-216). New York: Cambridge University Press.
- Markus, Hazel, & Oyserman, Daphna (1989). Gender and thought. The role of the self-concept. In Mary Crawford, & Margaret Gentry (Eds.), *Gender and thought: psychological perspectives* (pp. 100-127). New York: Springer.
- Martins-Crane, Maria D. L., Beyerlein, Michael M., & Johnson, Douglas A. (1995). Adjusting models of gender and work to new work environment. *Journal of Social Behavior and Personality, 10*, 27-50.
- McGrath, Joseph E. (1991). Time, interaction, and performance (TIP). A theory of groups. *Small Group Research, 22*, 147-174.
- McGrath, Joseph E., & Hollingshead, Andrea B. (1993). Putting the "group" back in GSS: Some theoretical issues about dynamic processes in groups with technological enhancements. In Len M. Jessup, & J. Valacich (Eds.), *Group support systems. New perspectives*. New York: Macmillan Publishing Company.
- McGrath, Joseph E., & Hollingshead, Andrea B. (1994). *Groups interacting with technology. Ideas, evidence, issues, and a research agenda*. Thousand Oaks, CA: Sage.
- McGuire, William J. (1985). Attitudes and attitude change. In Gardner Lindzey, & Elliot Aronson (Eds.), *Handbook of social psychology* (vol.2. pp. 233-346). New York: Random House.
- Meeker, Barbara F., & Weitzel-O'Neill, P. A. (1977). Sex roles and interpersonal behavior in task-oriented groups. *American Sociological Review, 42*, 91-105.
- Mehrabian, Albert (1970). A semantic space for nonverbal behavior. *Journal of Consulting and Clinical Psychology, 35*, 248-257.
- Mehrabian, Albert (1971). *Silent messages*. Belmont: Wadsworth.
- Mehrabian, Albert, & Wiener, M. (1967). Decoding of inconsistent communication. *Journal of Personality and Social Psychology, 6*, 109-114. (Nicole)
- Merten, Klaus (1995). *Inhaltsanalyse* [Content analysis]. Opladen: Westdeutscher Verlag.
- Merton, Robert K. (1948). The self-fulfilling prophecy. *Antioch Review, 8*, 193-210.
- Mohr, Gisela (2002). *Personal communication*.
- Moskovic, Serge (1988). Notes toward a description of social representations. *European Journal of Social Psychology, 18*, 211-250.

- Moskowitz, D. S., Suh, Eun Jung, & Desaulnier, Julie (1994). Situational influences on gender differences in agency and communion. *Journal of Personality and Social Psychology*, 66, 753-761.
- Mühlen-Achs, Gitta (1998). *Geschlecht bewußt gemacht. Körpersprachliche Inszenierungen* [Gender made conscious. Body-language enactments]. München: Frauenoffensive.
- Müller, Barbara (2002). *"Doing Gender" im Chat*. Heidelberg: Unpublished Diploma Thesis.
- Müller, Ursula (1999). Geschlecht und Organisation. Traditionsreiche Debatten - Aktuelle Tendenzen [Gender and organization. Traditional debates - present directions]. In H. M. Nickel, S. Völker, & H. Hüning (Eds.), *Transformation – Unternehmensorganisation - Geschlechterforschung* (vol. 22, pp. 53-75). Opladen: Leske + Budrich.
- Mulac, Anthony (1998). The gender-linked language effect: do language differences really make a difference? In Daniel J. Canary, & Kathryn Dindia (Eds.), *Sex differences and similarities in communication* (pp. 127-153). Mahwah, NJ: Erlbaum.
- Mulac, Anthony (1999). Perceptions of women and men based on their linguistic behavior. The gender-linked language effect. In Ursula Pasero, & Friederike Braun (Eds.), *Wahrnehmung und Herstellung von Geschlecht – Perceiving and performing gender* (pp. 88-104). Opladen: Westdeutscher Verlag.
- Neumann, Roland, & Strack, Fritz (2000). Approach and avoidance: The influence of proprioceptive and exteroceptive cues on encoding of affective information. *Journal of Personality and Social Psychology*, 79, 39-48.
- Nieva, Victoria F., & Gutek, Barbara (1980). Sex effects on evaluation. *Academy of Management Review*, 5, 267-276.
- Noller, Patricia, & Fitzpatrick, Mary Anne (1988). *Perspectives on maternal interaction*. Philadelphia, PA: Multilingual Matters LTD.
- Öhman, Arne (1983). Evaluating evaluative conditioning: Some comments on "Cognition, evaluations, and conditioning: Rules of sequence and rules of consequence" by Levy and Martin. *Advances in Behavioral Research and Therapy*, 4, 213-218.
- Osgood, Charles E., Suci, George J., & Tannenbaum, Percy H. (1957). *The measurement of meaning*. Urbana: University of Illinois Press.
- Pasero, Ursula, & Braun, Friederike (1995). *Konstruktion von Geschlecht* [Construction of gender]. Pfaffenweiler: Centarus.
- Pasero, Ursula, & Braun, Friederike (1999). *Herstellung und Wahrnehmung von Geschlecht* [Production and perception of gender]. Opladen: Westdeutscher Verlag.

- Pauen, Sabina, & Träuble, Birgit (2002, April). *Causal attribution of animate motion in 7-months-olds*. Paper presented at the biannual meeting of the International Conference on Infant Studies, Toronto, ON, Canada.
- Pease, Allan, & Pease, Barbara (2000). *Warum Männer nicht zuhören und Frauen schlecht einparken*. [Why men don't listen and women can't read maps.] München: Ullstein.
- Phillips, Susan D., & Imhoff, Anne R. (1997). Women and career development: A decade of research. *Annual Review of Psychology*, 48, 31-59.
- Philpott, J. S. (1983). *The relative contribution to meaning of verbal and nonverbal channels of communication. A meta-analysis*. Unpublished master's thesis, University of Nebraska.
- Poro, Susanne (1999). *Beziehungsrelevanz in der beruflichen Kommunikation* [Relational relevance in professional communication]. Wien: Lang.
- Porter, Natalie, & Geis, Florence L. (1981). Women and nonverbal leadership cues. When seeing is not believing. In Nancy M. Henley, & Clara Mayo (Eds.), *Gender and nonverbal behavior*. Heidelberg: Springer.
- Postmes, Tom, Spears, Russell, & Lea, Martin (1998). Breaching or building social boundaries? Side-effects of computer-mediated communications. *Communication Research*, 25, 689-715.
- Powell, Gary N. (1999). *Handbook of gender and work*. Thousand Oaks, CA: Sage.
- Pyke, S. W., & Kahil, S. P. (1983). Sex differences in characteristics presumed relevant to professional productivity. *Sex Roles*, 8, 189-192.
- Ragins, Belle Rose (1999). Gender and the mentoring relationship. A review and research agenda for the next decade. In Gary N. Powell (Ed.), *Handbook of gender and work* (pp. 347-370). Thousand Oaks, CA: Sage.
- Reskin, Barbara, F., & Hartmann, H. I. (1986). *Women's work, men's work. Sex segregation on the job*. Washington, DC: National Academy Press.
- Reskin, Barbara F., & Ross, Catherine E. (1995). Jobs, authority, and earnings among managers. The continuing significance of sex. In Jerry A. Jacobs (Ed.), *Gender inequality at work* (pp. 127-151). Thousand Oaks, CA: Sage.
- Richards, Jane M., & Gross, James, J. (1999). Composure at any cost? The cognitive consequences of emotion suppression. *Personality and Social Psychology Bulletin*, 25, 1033-1044.
- Ridgeway, Cecilia. L. (1992). *Gender, interaction, and inequality*. Heidelberg: Springer.

- Ridgeway, Cecilia L. (1997). Interaction and the conservation of gender inequality. Considering employment. *American Sociological Review*, *62*, 218-235.
- Ridgeway, Cecilia L. (2001). Gender, status, and leadership. *Journal of Social Issues*, *57*, 637-656.
- Ridgeway, Cecilia L., Berger, Joseph, & Smith, LeRoy (1985). Nonverbal cues and status. An expectation states approach. *American Journal of Sociology*, *90*, 955-978.
- Ridgeway, Cecilia L., & Berger, Joseph (1986). Expectations, legitimations, and dominance behavior in task groups. *American Sociological Review*, *51*, 603-617.
- Ridgeway, Cecilia L., & Diekema, David (1992). Are gender differences status differences? In Cecilia L. Ridgeway (Ed.), *Gender, interaction, and inequality* (pp. 157-180). Heidelberg: Springer.
- Rimé, Bernard (1983). Nonverbal communication or nonverbal behavior? Toward a cognitive-motor theory of nonverbal behavior. In William Doise, & Serge Moscovici (Eds.), *Current issues in European social psychology* (pp. 85-141). Cambridge: Cambridge University Press.
- Robbins, Tina L., & DiNisi, Angelo S. (1998). A closer look at interpersonal affect as a distinct influence on cognitive processing in performance evaluations. *Journal of Applied Psychology*, *79*, 341-353.
- Robinson, Derek (1998). Differences in occupational earnings by sex. *International Labour Review*, *137*, 3-31.
- Rosenberg, Erika L., & Ekman, Paul (1994). Coherence between expressive and experiential systems in emotion. *Cognition and Emotion*, *8*, 201-229.
- Rosenstiel, Lutz von (1995). Motivation von Mitarbeitern [Motivation of staff]. In Lutz v. Rosenstiel, Erika Regnet, & Michael Domsch (Eds.), *Führung von Mitarbeitern-Handbuch für erfolgreiches Personalmanagement* (3rd ed., pp. 161-180) [Handbook of successful personnel management]. Stuttgart: Schäffer-Poeschel.
- Rosenthal, Robert, & DePaulo, Bella (1979). Sex differences in eavesdropping on nonverbal cues. *Journal of Personality and Social Psychology*, *37*, 273-285.
- Rosenthal, Robert, & Jacobson, Leonore (1968). *Pygmalion in the classroom*. New York: Holt, Rinehart & Winston.
- Ross, Lee (1977). The intuitive psychologist and his shortcomings. In Leonard Berkowitz (Ed.), *Advances in experimental social psychology* (vol. 10). New York: Academic Press.

- Ruch, Willibald (1995). Will the real relationship between facial expression and affective experience please stand up: The case of exhilaration. *Cognition and Emotion*, 9, 33-58.
- Rudman, Laurie A. (1998). Self-promotion as a risk factor for women: The costs and benefits of counterstereotypical impression management. *Journal of Personality and Social Psychology*, 74, 629-645.
- Rudman, Laurie A., & Glick, Peter (2001). Prescriptive gender stereotypes and backlash toward agentic women. *Journal of Social Issues*, 56, 743-762.
- Rudman, Laurie A., & Kilianski, S. E. (2000). Implicit and explicit attitudes toward female authority. *Personality and Social Psychology Bulletin*, 26, 1315-1328.
- Rustemeyer, Ruth, & Thrien, Sabine (1989). Die Managerin - der Manager. Wie weiblich dürfen sie sein, wie männlich müssen sie sein? [The male/female manager. How feminine may they be, how masculine must they be?]. *Zeitschrift für Arbeits- und Organisationspsychologie*, 33, 108-116.
- Saavedra, Richard, & Earley, Christopher P. (1991). Choice of task and goal under conditions of general and specific affective inducement. *Motivation and Emotion*, 15, 45-65.
- Sapir, Edward (1949). The unconscious patterning of behavior in society. In D. Mandelbaum (Ed.), *Selected writings of Edward Sapir in language, culture and personality* (pp. 544-559). Berkeley, CA: University of California Press.
- Savicki, Victoria, Kelley, M., & Oesterreich, E. (1999). Judgments of gender in computer mediated communication. *Computers in Human Behavior*, 15, 185-194.
- Schefflen, Albert E. (1976). *Körpersprache und soziale Ordnung. Kommunikation als Verhaltenskontrolle*. [Body language and social order.] Stuttgart: Klett.
- Schein, Virginia E. (1975). The relationship between sex-role stereotypes and requisite management characteristics among female managers. *Journal of Applied Psychology*, 60, 340-344
- Scherer, Klaus, & Scherer, Ursula (1979). Nonverbales Verhalten von Beamten in der Interaktion mit dem Bürger. Erste Ergebnisse. In Klaus Scherer, & Harald Wallbott (Eds.), *Nonverbale Kommunikation. Forschungsberichte zum Interaktionsverhalten* (pp. 307-319) [Nonverbal communication. Research reports on interactional behavior]. Weinheim: Beltz.

- Scherer, Klaus, & Wallbott, Harald (1979). *Nonverbale Kommunikation. Forschungsberichte zum Interaktionsverhalten*. [Nonverbal communication. Research reports on interactional behavior]. Weinheim: Beltz.
- Schmid-Mast, Marianne (2000). *Gender differences in dominance hierarchies*. Lengerich: Pabst.
- Schmid-Mast, Marianne (2001). Gender differences and similarities in dominance hierarchies in same-sex groups based on speaking time. *Sex Roles, 44*, 537-556.
- Schmid-Mast, Marianne (2002). Female dominance hierarchies: Are they any different from males'? *Personality and Social Psychology Bulletin, 28*, 29-39.
- Schultz-Gambard, Jürgen, & Altschuh, Eva (1993). Unterschiedliche Führungsstile im geeinten Deutschland [Different leadership styles in unified Germany]. *Zeitschrift für Sozialpsychologie, 24*, 167-175.
- Sczesny, Sabine, & Stahlberg, Dagmar (2000). Sexual harassment over the telephone: Occupational risk at call centers. *Work & Stress, 14*, 121-136.
- Selfe, C., & Meyer, P. (1991). Testing claims for on-line conferences. *Written Communication, 8*, 163-192.
- Semin, Gün R., & De Poot, Christianne J. (1997). The question-answer paradigm. You might regret not noticing how a question is worded. *Journal of Personality and Social Psychology, 73*, 472-482.
- Semin, Gün R., & Fiedler, Klaus (1992). *Language, interaction, and social cognition*. Thousand Oaks, CA: Sage.
- Sherman, Jeff W., & Frost, L. A. (2000). On the encoding of stereotype-relevant information under cognitive load. *Personality and Social Psychology Bulletin, 26*, 26-34.
- Snodgrass, Sara E. (1985). Women's intuition. The effect of subordinate role on interpersonal sensitivity. *Journal of Personality and Social Psychology, 49*, 146-155.
- Snyder, Mark (1984). When beliefs create reality. In Leonard Berkowitz (Ed.), *Advances in experimental social psychology* (vol. 18, pp. 248-305). Orlando, FL: Academic Press.
- Snyder, Mark, & Cantor, Nancy (1998). Understanding personality and social behavior: A functionalist strategy. In Daniel Gilbert, Susan T. Fiske, & Gardner Lindzey (Eds.), *The handbook of social psychology* (4th ed., vol. 2, pp. 635-679). Boston: McGraw-Hill.

- Snyder, Mark, & Stukas Arthur A., Jr. (1999). Interpersonal processes. The interplay of cognitive, motivational, and behavioral activities in social interaction. *Annual Review of Psychology, 50*, 273-303.
- Snyder, Mark, Tanke, E. D., & Berscheid, Ellen (1977). Social perception and interpersonal behavior: on the self-fulfilling nature of social stereotypes. *Journal of Personality and Social Psychology, 35*, 656-666.
- Sonnentag, Sabine (1996). Arbeitsbedingungen und psychisches Befinden bei Frauen und Männern. Eine Metaanalyse [Work conditions and psychological well-being of men and women. A meta-analysis]. *Zeitschrift für Arbeits- und Organisationspsychologie, 40*, 118-126.
- Spence, Janet T., & Helmreich, Robert L. (1978). *Masculinity and femininity. Their psychological dimensions, correlates and antecedents*. Austin: University of Texas Press.
- Spence, Janet T., & Helmreich, Robert L. (1981). Theoretical Notes. Androgyny vs. gender schema: A comment on Bem's gender schema theory. *Psychological Review, 88*, 365-368.
- Spence, Janet T., Helmreich, Robert L., & Stapp, J. (1973). A short version of the Attitudes toward Women Scale (AWS). *Bulletin of the Psychonomic Society, 2*, 219-220.
- Spieß, Erika, & Winterstein, Hans (1999). Kommunikation und Kooperation [Communication and cooperation in organizations]. In Erika Spieß, & Hans Winterstein (Eds.), *Verhalten in Organisationen. Eine Einführung* (pp. 51-119). Stuttgart: Kohlhammer.
- Sproull, Lee, & Kiesler, Sara (1986). Reducing social context cues. Electronic mail in organizational communication. *Management Sciences, 32*, 1492-1513.
- Staines, Graham, Tavis, Carol, & Jayaratne, Toby E. (1973). The queen bee syndrome. In Carol Tavis (Ed.), *The female experience*. Del Mar, CA: CRM Books.
- Staley, Constance C. (1984). Managerial women in mixed groups. Implications of recent research. *Group and Organization Studies, 9*, 316-332.
- Stephan, Inge (2000). Gender, Geschlecht und Theorie [Gender, "Geschlecht", and theory]. In Christina v. Braun, & Inge Stephan (Eds.), *Gender-Studien. Eine Einführung* (pp. 58-96). Stuttgart: Metzler.
- Stokes, Joseph, Riger, Stephanie, & Sullivan, Megan (1995). Measuring perceptions of the working environment for women in corporate settings. *Psychology of Women Quarterly, 19*, 533-549.

- Strand, Elisabeth A. (1999). Gender perception influences speech processing. In Ursula Pasero, & Friederike Braun (Eds.), *Wahrnehmung und Herstellung von Geschlecht – Perceiving and performing gender* (pp. 127-136). Opladen: Westdeutscher Verlag.
- Struthers, Nancy J. (1995). Differences in mentoring. A function of gender or organizational rank? *Journal of Social Behavior and Personality*, *10*, 265-272.
- Sturmfels, Christa (2002). Lebenszyklus, Geschlecht und Führung [Life-cycle, gender and leadership]. In Michael Wolf (Ed.), *Frauen und Männer in Organisationen und Leitungsfunktionen* (pp. 73-90) [Women and men in organizations and leading positions]. Frankfurt a. M.: Brandes & Apsel.
- Swann, William B., Jr. (1983). Self-verification: bringing social reality into harmony with the self. In J. Suls, & A. Greenwald (Eds.), *Psychological perspectives of the self* (vol. 2, pp. 33-669). Hillsdale, NJ: Erlbaum.
- Swim, Janet K. (1994). Perceived versus meta-analytic effect sizes: an assessment of the accuracy of gender stereotypes. *Journal of Personality and Social Psychology*, *66*, 21-36.
- Swim, Janet K., Borgida, Eugene, Maruyama, Geoffrey, & Myers, David G. (1989). Joan McKay versus John McKay. Do gender stereotypes bias evaluations? *Psychological Bulletin*, *105*, 409-429.
- Swim, Janet K., & Sanna, Lawrence J. (1996). He's skilled, she's lucky: A meta-analysis of observers' attributions for women's and men's successes and failures. *Personality and Social Psychology Bulletin*, *22*, 507-519.
- Tajfel, Henri, & Turner, John C. (1979). Intergroup relations. Integrative theory of intergroup conflict. In W. G. Austin, & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33-47). Monterey: Brooks + Cole.
- Tannen, Deborah (1990). *You just don't understand*. New York: Morrow.
- Tannen, Deborah (1993). *Gender and conversational interaction*. New York: Oxford University Press.
- Tannen, Deborah (1995). *Job talk. Wie Frauen und Männer am Arbeitsplatz miteinander reden* [Original title: Talking from nine to five]. Hamburg: Kabel.
- Taylor, S. E., Fiske, S. T., Etkoff, N. J., & Ruderman, A. J. (1978). Categorical and contextual basis of person memory and stereotyping. *Journal of Personality and Social Psychology*, *36*, 778-793.

- Taynor, J., & Deaux, K. (1973). When women are more deserving than men: Equity, attribution, and perceived sex differences. *Journal of Personality and Social Psychology, 28*, 360-367.
- Terborg, James R. (1977). Women in management. A research review. *Journal of Applied Psychology, 62*, 647-664.
- Thimm, Caja, Koch, Sabine C., & Schey, Sabine, (2002). Communicating gendered professional identity: Competence, cooperation and conflict in the workplace. In Janet Holmes, & Miriam Meyerhoff (Eds.), *Handbook of Gender and Language. Oxford: Blackwell.*
- Thimm, Caja, & Kruse, Lenelis (1993). The power-emotion relationship in discourse. *Journal of Language and Social Psychology, 12*, 81-102.
- Thimm, Caja, Rademacher, Ute, & Kruse, Lenelis (1995). "Power-related talk." Control in verbal interaction. *Journal of Language and Social Psychology, 14*, 328-347.
- Thomas, Wesley, Jacobs, Sue-Ellen, & Long, Sabine (1997). *Two spirit people*. Chicago.
- Thomson, Rob, & Murachver, Tamar (2001). Predicting gender from electronic discourse. *British Journal of Social Psychology, 40*, 193-208.
- Thorne, Barrie (1993). *Gender play. Girls and boys in school*. New Brunswick, NJ: Rutgers University Press.
- Thorne, Barrie (2001). Gender and interaction. Widening the conceptual scope. In Baron, Bettina Baron, & Helga Kotthoff (Eds.), *Gender in interaction. Perspectives on femininity and masculinity in ethnography and discourse* (pp. 3-18). Amsterdam: John Benjamins.
- Todd, Peter M., Baret, Clark H., Blythe, Philip W., & Miller, Geoffrey F. (2002). *Accurate judgments of intention from motion cues alone*. Manuscript submitted for publication.
- Trömel-Plötz, Senta (1996). *Frauensprache. Sprache der Verständigung* (3rd ed.) [Female language. Language of understanding]. Frankfurt a. M.: Fischer.
- Turkle, Sherry (1998). *Leben im Netz. Identität in Zeiten des Internet* [Living in the Web. Identity in times of the Internet]. Reinbek: Rowohlt.
- Unger, Rhoda K. (1978). The politics of gender. A review of relevant literature. In J.A. Sherman, & F.L. Denmark (Eds.), *The psychology of women. Future directions in research*. New York: Psychological Dimensions.
- Valian, Virginia (1999). Why so slow? The advancement of women. *Contemporary Psychology, 44*, 31-33.

- Vygotsky, Lev S. (1962). *Thought and language*. Cambridge: MIT Press.
- Wagner, David G., Ford, Rebecca S., & Ford, Thomas W. (1986). Can gender inequalities be reduced? *American Sociological Review*, 51, 47-61.
- Wall Street Journal (1986, March 24). The corporate woman: A special report. *Wall Street Journal*, 32-page supp.
- Wallbott, Harald G. (1990). *Mimik im Kontext. Die Bedeutung verschiedener Informationskomponenten für das Erkennen von Emotionen* [Facial expressions in context. The importance of different informational components for emotion recognition]. Göttingen: Hogrefe.
- Walther, Eva (2002). Guilty by mere association: Evaluative conditioning and the spreading attitude effect. *Journal of Personality and Social Psychology*, 82, 919-934.
- Walters, Amy E., Stuhlmacher, Alice F., & Meyer, Lia L. (1998). Gender and negotiator competitiveness. A meta-analysis. *Organizational Behavior and Human Decision Processes*, 76, 1-29.
- Watt, James H., & VanLear, C. Arthur (1996). *Dynamic patterns in communication processes*. Thousand Oaks, CA: Sage.
- Watzlawik, Paul, Beauvin, Janet B., & Jackson, Don D. (1969). *Menschliche Kommunikation* [Human communication]. Bern: Huber.
- Wells, Gary L., & Windschitl, Paul D. (1999). Stimulus sampling and social psychological experimentation. *Personality and Social Psychology Bulletin*, 25, 1115-1125.
- Wender, Ingeborg (2000). Wandel der Arbeitswelt, Schlüsselqualifikationen und Geschlecht [Change in the working world. Key competences and gender]. *Zeitschrift für Politische Psychologie*, 8, 261-272.
- Werner, Carol, M., & Baxter, Leslie A. (1994). Temporal qualities of relationships. Organismic, transactional, and dialectical views. In Marc L. Knapp, & Gerald R. Miller (Eds.), *Handbook of interpersonal communication* (pp. 323-379). London: Sage.
- West, Candace, & Zimmerman, Don H. (1987). Doing gender. *Gender & Society*, 1, 125-151.
- West, Candace, & Zimmerman, Don H. (1991). Doing gender. In Judith Lorber, & Susan Farrell (Eds.), *The social construction of gender*. Newbury Park, CA: Sage.
- Wetterer, Angelika (1995). *Die soziale Konstruktion von Geschlecht in Professionalisierungsprozessen* [Social construction of gender in processes of professionalization]. Frankfurt a. M.: Campus.

- Williams, Christine L. (1995). *Still a man's world: Men who do women's work*. Berkeley: University of California Press.
- Wimbauer, Christine (1999). *Organisation, Geschlecht, Karriere: Fallstudien aus einem Forschungsinstitut* [Organization – gender – career. Case studies from a research institute]. Opladen: Leske & Budrich.
- Wittgenstein, Ludwig (1922/1986). *Tractatus Logico-Philosophicus*. Frankfurt a. M.: Suhrkamp.
- Wolf, Michael (2002). *Frauen und Männer in Organisationen und Leitungsfunktionen* (pp. 73-90) [Women and men in organizations and leading positions]. Frankfurt a. M.: Brandes & Apsel.
- Yik, Michelle S. M., & Russell, James A. (1999). Interpretation of faces: A cross-cultural study of a prediction from Friedlund's theory. *Cognition and Emotion*, 13, 93-104.
- Yoder, Janice D. (1991). Rethinking tokenism: Looking beyond numbers. *Gender and Society*, 5, 178-192.
- Zajonc, Robert B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist*, 35, 151-175.
- Zajonc, Robert B. (2000). Feeling and thinking: Closing the debate over the independence of affect. In Joseph P. Forgas (Ed), *Feeling and thinking: The role of affect in social cognition. Studies in emotion and social interaction* (second series, pp. 31-58). New York: Cambridge University Press.
- Zumbach, Jörg, & Reimann, Peter (2001). Analyse und Förderung komplexer Kooperation und Kollaboration in synchronen Lernumgebungen [Analysis and support of complex colaboration in synchronous learning environments]. In Michael Beisswenger (Ed.), *Chat Kommunikation* (pp. 515-536). Stuttgart: Ibidem.

Erklärung

Hiermit versichere ich, dass ich die Dissertation selbständig angefertigt, nur die angegebenen Quellen und Hilfsmittel benutzt und die Zitate gekennzeichnet habe.

Ich erkläre, dass die von mir vorgelegte Dissertation nicht in dieser oder einer anderen Form bereits anderweitig als Prüfungsarbeit verwendet wurde oder einer anderen Fakultät als Dissertation vorgelegen hat.

Heidelberg, 30.09.02

Sabine C. Koch

Datenauswertung und Versuchsmaterialien wurden wegen ihres Umfangs nicht abgedruckt.
Bitte wenden Sie sich bei Interesse direkt an die Autorin: sabine.koch@urz.uni-heidelberg.de