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How Hegemonic Masculinity can be Undermined:

Gender Hierarchies and Power Relations in the Operating Room

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Abstract

The present article describes the introduction of information and communication technologies in the operating rooms of two hospitals. It explores the dynamics of gender practices among the four occupational groups of the OR and how these practices evolved during computerization. With this, the paper contributes to the current discussions on hegemonic masculinity as a generative principle that consider multiple, complex and context-specific versions of hegemonic masculinity. Drawing upon the theoretical framework of workplace studies, video recording and video analysis are used to study computer expertise that the personnel developed as a result of their day-to-day practices. The article shows that computer expertise is treated as a status characteristic in the first hospital and only those with higher status are authorized to use the computer-supported information system to acquire prestige and to exert influence. In contrast, computer expertise does not function as a status characteristic in the second hospital. Here, computerized tasks are equated with assisting activities and are devalued. The paper examines the conditions under which computer expertise forms an amalgamation with gender and profession. It explains how existing gender hierarchies and power relations were restructured in the first hospital and how they were stabilized in the second hospital.

1 Introduction

There are very pronounced differences between the proportions of men and women employed in the four professional groups that work in the operating room namely, the surgical and anesthesiological personnel and the surgical and anesthesiological nursing services.[1] The division into female and male occupations is not only relevant for the OR but is also a feature of the labor markets of industrialized countries in general (see, e.g., Smyth and Steinmetz, 2008; Trappe and Rosenfeld, 2004). Female occupations are generally less well remunerated and enjoy lower prestige and status (see, e.g., Ridgeway and Correll, 2004; Ridgeway, 2001). Although men and women nowadays have equal access to education and occupations, the gendered division of labor has remained intact. It is so persistent, because actors are "doing gender while doing work" (see, e.g., Gottschall, 1998; Hall, 1993; Leidner, 1991). Occupations with higher status and prestige are ascribed to men, and the specific occupational traits and abilities are perceived as being masculine. This article will analyze such phenomena through the concept of "hegemonic masculinity" as originally developed by Raewyn Connell (see, e.g., Connell, 2011) and as discussed, for example, by Lengersdorf and Meuser (2010), Scholz (2004), Paulitz (2012) and Faulkner (2007). Technology is an extremely significant site for gender negotiations at work. What function does technology perform in ensuring hegemonic masculinity? Is masculinity equated with technology and femininity with sociality as, for example, in Faulkner (2007)? Do men always acquire status and prestige through the appropriation of technology? Under what circumstances do they incorporate feminine properties such as sociality?

In spite of the pronounced gender-specific division of labor in the OR, current studies on the technologization of the operating room fail to take gender into account (see Schubert, 2006; Prentice, 2005). Authors such as Oudshoorn (2009) or Wagner (1993, 1995) demonstrated that the autonomy of the nurses decreases when technology is introduced in hospitals. Under what circumstances can nurses gain autonomy during technologization? Can they undermine hegemonic masculinity? The pervasive character of gender becomes visible in the amalgamation of gender and profession in hospitals. The caring work of nurses is perceived as genuine feminine ability (see, e.g., Waerness, 2000), whereas the instrumental relation of surgeons to the operating table is constructed as masculine property (for the dissecting room see Hochschild, 1990: 67). The emphasis of this paper lies on the nurses in the OR and how they can gain autonomy vis-à-vis the male senior medical personnel that occupy the hegemonic position in the OR, on the one hand, and how hegemonic masculinity is ensured, also among men, on the other hand. It focuses less on the

[1] Evidence for gender segregation can be found, first, by referring to the examination statistics of the Berlin Chamber of Physicians. According to these statistics, for example, 33 men but only 7 women took the medical exam for the specialization in surgery in Berlin in 2004, whereas in anesthesiology the figures for men and women were 27 and 29, respectively (see Ärztekammer Berlin, 2005). Second, the study on which this paper is based confirms these numerical relations between the sexes among medical personnel. Moreover, it highlights the pronounced gender segregation among the nursing professions in the OR. While the surgeons in the surgery departments of the two hospitals investigated were primarily made up of men (81% and 74%, respectively), the proportions of men and women among the anesthesiologists were almost equal with 39 % and 52% men (61% and 48% women), respectively. By contrast, surgical nursing was a woman's profession (94% and 83% women, respectively). Men represented a quarter of the anesthesiological nurses, which is unusually high for a nursing profession (27% and 26% men and 73% and 74% women, respectively).

female anesthesiologists and the female surgical residents taking part in this study who also had to negotiate their position within the relations of gender and profession.[2] With this emphasis the present article will examine, firstly, the conditions under which the technologization of the OR contributes to the reconfiguration of the gender system and the redistribution of power relations and, secondly, under what conditions it leads to their stabilization.

This article draws upon the approach of video hermeneutics as developed in Kissmann (2009a, 2014). Within the framework of Merleau-Ponty's "intercorporeity", video recording is used to study human-machine intra-actions and especially gender-technology relations. Since sociality and corporeity are conceived as equally fundamental in Merleau-Ponty's writings, social relations between objects as well as between bodies become possible. This allows the video analysis of human-machine or machine-machine intra-actions. Video hermeneutics is a promising tool to analyze the pervasiveness of gender in such intra-actions, because it opens the "black box" of how bodies and things are seen, spoken about or intra-acted with. Against this background, this article investigates the configuration of gender practices in the OR before and after the introduction of computer systems, specifically, so-called OR management systems. The subject of the study were two hospitals with comparable numbers of operating rooms (12 and 14, respectively) that used the same OR management system supplied by the same firm. The study shows that in the first clinic, the introduction of the OR management system contributed to restructuring gender hierarchies. In this case, the surgical nurses were able to circumvent the status expectations they were confronted with. Computerization led to the establishment of a cooperative style of work that enabled the surgical nurses to wield power and to control the relevant area of uncertainty of OR planning. The latter was possible even though computer expertise was treated as a status characteristic and only those with higher status were authorized to use the computer-supported information system to acquire prestige and to exert influence. In the second hospital, by contrast, the OR management system stabilized the existing gender hierarchies. The introduction of the computer-supported information system contributed to reinforce the style of work of dependent assistance. Here, computerized tasks were equated with assisting activities and were devalued accordingly. Computer expertise did not function as a status characteristic. Responsibility for entering the data in the OR management system was reserved exclusively for the surgical residents and the surgical nurses. However, the actual OR planning, which constitutes the relevant area of uncertainty, remained the preserve of the senior surgeons who were all male.

In a first step, this article will focus on the relevant discussions in workplace studies, feminist STS, and micropolitics. In a second step, the gender system and power relations before the introduction of the OR management systems will be presented for both of the hospitals studied. In a third step, the central focus will be on the prob-

[2] Firstly, female surgeons only held the positions of surgical residents. In none of the surgery departments studied did women occupy the position of senior surgeons. This "ceiling" of women's careers could be analyzed in future studies. Secondly, the interactions between nurses and female doctors are also extremely insightful. As Ridgeway and Correll (2004) demonstrated, the status characteristics of gender and profession also come together in the interaction between a female doctor and a nurse. They play a structuring role when the women involved define themselves in contrast to men or perform functions typically classified as masculine. The latter conditions materialize in mathematics classes for girls, for example (see Correll, 2001).

lems that the surgical head nurse encountered in the first hospital following the introduction of the computer-supported information system. It will be described how she subverted the status expectations she was confronted with and, in so doing, how she undermined hegemonic masculinity. In a forth step, the emphasis will be on the style of work that became established in the two hospitals as a result of computerization. The conditions that led to the restructuring of power relations between the sexes in the first clinic and to their stabilization in the second will be described.

2 Workplace studies and videos

Videos have become useful tools for the analysis of workplaces and especially for the analysis of technology within the study of work (see, for an overview, Knoblauch and Heath, 1999). Scholars in the field of workplace studies share the premise from Lucy Suchman's work "Plans and Situated Actions" (1987, 2007) that the meaning of technological artifacts does not follow predetermined plans. Instead, the way technology is used depends upon local context and practices. If plans and scripts come into play, they are not inscribed into the artifact as one single purpose. Rather, they function as a kind of resource upon which users draw in order to organize their actions. This perspective sheds light upon the users' expertise, because they may develop new meanings for artifacts that were originally not envisaged by the designers. Video recording and analysis are used within this framework to study the expertise that people developed as a result of their daily practices. This essay will especially focus on computer expertise and examine under which circumstances it is treated as a status characteristic (see, e.g., Correll and Ridgeway, 2003). If computer expertise constitutes a status characteristic in a particular group, computer experts acquire a higher status due to the performance the group members ascribe to them and they can exercise greater influence and enjoy greater prestige.[3]

Scholars in the field of workplace studies make use of videos within a wider ethnography. It is usually supplemented by participant observation and interviews (see, e.g., Tuma et al., 2013; Kissmann 2009a). The present article is based on an evaluation of 40 narrative interviews, on an analysis of participant observation of the work of 39 people employed in the OR and on an analysis of a total of 400 hours of video data.[4] Within the latter, the misunderstandings were selected in order to reconstruct the interpretative achievements of the personnel that are necessary to use the computer-supported information system. It has been a longstanding concern in sociology and anthropology to analyze breaches and breaks in routines in order to understand the taken-for-granted everyday world (see Schütz, 1962; Garfinkel, 1963). This ethnomethodological approach was adopted by conversation analysis to elaborate on breaches in doctor-patient conversations (see, e.g., Ten Have, 1990; Maynard, 2003). In

[3] Whereas gender, ethnicity, and age constitute diffuse status characteristics, computer expertise is described as a specific status characteristic. The former involve both general and specific expectations concerning the competence of the respective individual, such as, for example, the general expectation "that men are diffusely more able than women at most things" and the specific expectation that "men are better at some particular tasks (e.g., mechanical tasks) while women are better at others (e.g., nurturing tasks)" (Ridgeway, 2001: 357f.). A specific status characteristic such as computer expertise, by contrast, rests exclusively on specific expectations regarding competence.

[4] The narrative interviews were evaluated using narration analysis (see Schütze, 1976 and 1978; for an overview, see Przyborski and Wohlrab-Sahr, 2008). The participant observation was conducted in the form of "job shadowing," so that in each case a person working in the OR was accompanied and observed at work over one or more days.

this paper, the misunderstandings in video-taped interactions were analyzed in order to reconstruct the doctors' and nurses' taken-for-granted interpretations when they use the OR management system. It will be asked how doctors and nurses deal with a communication problem when it crops up and how the OR management system is brought into the interaction.

In video hermeneutics as developed in Kissmann (2014), a segment-in-segment analysis is conducted as opposed to the picture-in-picture analysis by Bohnsack (2009) or Raab (2007). Through thought experiment, choices of action are developed in each segment of 5 seconds that could possibly occur in the next segment. In doing so one can eliminate interpretation possibilities in each new segment and one finally arrives at a point where one single interpretation remains. The process of analysis is not described in this article, because it is too complex. However, the interpretation work that was necessary to reconstruct the meaning of the thereinafter mentioned elbow gesture is shown in Kissmann (2014). The segment-in-segment interpretation makes it possible to analyze *the flow* of interactions. It focuses upon body conduct and not merely on positions.

Drawing upon Merleau-Ponty, the author distinguishes between two forms of sociality: "intercorporeity" and "dialog". The former denotes the triadic relation of the body self, the other body and the world. This form of sociality refers to pre-reflexive and practical knowledge, whereas the dialog is mediated through language and refers to theoretical knowledge. Merleau-Ponty also uses the terms of "gestural meaning" and "notional meaning" as synonyms for "intercorporeity" and "dialog" (see Merleau-Ponty, 1966). Everyday meaning is always made up of these two elements. Although they are interconnected in natural settings, video hermeneutics separates them during analysis. As a result, the meaning of gestures and facial expressions can be analyzed with respect to their visual and bodily content only. Video hermeneutics goes beyond traditional notions of intentionality, because corporeity and sociality are equally fundamental. Understanding is not primarily based on consciousness as postulated by Weber or Schütz. Instead, the body itself is able to understand the other body and the world. The concept of "intercorporeity" is the precondition for social relations between bodies as well as between objects. With this, visual-corporal expressions can be understood on a supra-individual and pre-reflexive level as they occur in everyday interactions. The nodding gesture can be quoted as an example of this pre-conscious understanding. It is conducted and also interpreted on a pre-reflexive level without the immediate use of language.

A long-standing concern of feminist STS has been to show that gender and technology are co-constructed: One cannot fully understand one without the other, because both are socially constructed and socially pervasive (see Harding, 1986; Cockburn 1985, 1992). This view was further developed and specified in so far that technology, masculinity and femininity are not conceived as fixed and uniform categories. They rather contain multiple possibilities in the way they can relate to one another (see Wajcman, 2000; Cockburn and Ormrod, 1993; Casper and Clarke, 1998). Recent writings use the concept of 'hegemonic masculinity" by Raewyn Connell to explain how technology and masculinity are co-constructed (see Paulitz, 2012; Faulkner, 2007; Peterson, 2007; Abrahamsson, 2003). Connell's concept is relational in two ways. Firstly, hegemonic masculinity designates "the configuration of gender practice which embodies the currently accepted answer to the problem of the legitimacy of patriarchy, which guarantees (or is taken to guarantee) the dominant po-

sition of men and the subordination of women" (Connell, 2011: 77). Masculinity does not exist except in contrast with femininity and within that relation it occupies the privileged position. Secondly, it denotes the relations among masculinities. Connell distinguishes two types of relationship: hegemony, domination/subordination and complicity on the one hand and marginalization/authorization on the other. The first type is internal to the gender order, whereas the second is used to characterize the interplay of gender with other structures such as class or race. Besides hegemony and domination, complicity is of particular importance for this paper. Not all men embody hegemonic masculinity, however they participate in the project of hegemonic masculinity, because they take advantage of the subordination of women. They are complicit in the sense that they benefit from being men in a patriarchy.

In the analysis of the co-construction of masculinity and technology one can distinguish the approach developed by Wendy Faulkner (see, e.g., Faulkner 2007 or Kleif and Faulkner 2003) from other approaches such as, for example, Peterson (2007) or Paulitz (2012). The former always relates masculinity and femininity to the dualism of 'asocial' and 'social'. The co-construction of masculinity and technology derives its power from *not being social*. This makes sense in some cases. But Faulkner overlooks the cases where men incorporate sociality such as described by Peterson (2007). The latter provides evidence that and how hegemonic masculinity adapts to new demands for a "softer" approach to work ideals. She describes how masculinity can incorporate classical feminine qualities such as social competence. Women do not benefit from this change. Rather they encounter problems if they perform in accordance with these new work ideals. As Peterson demonstrates, the privileged position of masculinity and the hierarchical order prevailing between women and men can be maintained, since women's social competence is assumed to be founded on biological and natural traits, whereas men's social competence is recognized as an intellectual accomplishment and therefore as more important. Peterson (2007) or, for example, Paulitz (2012) are in line with the concept of hegemonic masculinity as 'generative principle' as proposed by Sylka Scholz (2004). The latter suggested that many versions of hegemonic masculinity can exist simultaneously. She moved away from Connell's original view that every society generates one single pattern of domination. Instead, hegemonic masculinity as 'generative principle' encompasses multiple, complex and context-specific versions of hegemonic masculinity.

For the purposes of investigating the relation between computer systems and power in organizations, Ortmann et al. (1990: 13ff.) define power from the perspective of micro-politics as control over relevant areas of uncertainty. An actor's power depends on the relevance of the area of uncertainty he or she controls in relation to the other actors' capacity for action. This definition, which originally stems from the organization theory of Crozier and Friedberg (1979), is extended by the authors using Giddens' theory of structuration. Drawing on the distinction between allocative and authoritative power resources (see Giddens, 1988: 316), they supplement Crozier and Friedberg's concept of power, which is confined mainly to information and communication with the material aspects of power. The latter are especially relevant for analyzing technologization processes.[5]

[5] Technology is classified among the allocative power resources. According to Giddens (1988: 316), allocative resources are comprised of material aspects of the environment (raw materials, material sources of power), material means of production or reproduction (instruments of

3 The introduction of OR management systems

Firstly, OR management systems make computer-assisted OR planning possible. In large hospitals with centralized operating rooms with around 15 theaters, there is a very urgent need for coordination. This is because of the large reserve of personnel that must be assigned to a particular operating room according to the area of specialization. In this regard, the OR management systems make personnel planning possible. In addition, the OR management systems ensure the administration of sterile material. Large amounts of material, ranging from surgical sutures to prostheses, are used up and reordered on a daily basis. During operations, so-called OR protocols can be generated through the OR management system in which the use of materials is recorded. Finally, the data of the patients are managed, using the computer-assisted OR planning, and the patients are assigned to a particular operating room.

Prior to the introduction of the OR management system the OR program was drawn up by hand on large whiteboards in both the hospitals studied.[6] As a result, it was accessible to everyone, but the agreements on which it was based were made "on the fly" by the senior surgeons who were all male. This meant that the male and female senior anesthesiologists had little say in decisions, because they were only able to intervene after the fact had been established. At that time, both, the surgical head nurse and the anesthesiological head nurse could derive power from the fact that their staff was indispensable for the medical personnel. Nevertheless, they were restricted to fulfilling their function of providing assistance. They had to satisfy the expectations associated with this specific function in order to maintain the area of uncertainty they wanted to control (see Crozier and Friedberg, 1979: 63). As a result, the hierarchical relationship between the nursing and medical status groups was very pronounced. Moreover, prior to the introduction of computerization, neither the surgical nurses nor the anesthesiological nurses had opportunities for advancement. There was just one managerial position for each specialized nursing service and no further differentiations. This "ceiling" for the opportunities of career advancement within the specialized nursing services contrasts sharply with the physicians' field of activity and salary system.[7]

Before the OR management system was introduced in the two hospitals, a marked symbolic segregation regarding the use of technology could be

production, technology), and fabricated goods (products arising through the combination of the first two categories). In contrast, he subsumes the organization of space and time where this is relevant for social action (spatiotemporal construction of roads and regions), the production and reproduction of the body (organization of the relationships between human beings in communal relationships) and, finally, the organization of life chances (production of opportunities for developing and expressing oneself) under authoritative resources.

[6] The introductory narrative questions for the interviews were formulated in such a way that they covered both the time *before* and the time *after* the introduction of the OR management system. The video recordings and the participant observation, by contrast, referred to the phase *after* the introduction of the computer system. A feedback workshop was conducted in order to compensate for the fact that only the subjective impressions of the interview partners were available for the period prior to computerization. In the workshop, the individuals involved were able to discuss the results of the study. In this way it was possible to check whether the actors shared the same view of the period preceding computerization.

[7] For the latter, the career ladder begins with the residency position, and then extends from the specialist, the attending physician, and the senior attending physician positions to, finally, the position of head physician in the department. In some hospitals, the residency positions are also in part filled by specialists.

observed within the anesthesiological nursing service. Although structurally speaking all members of the anesthesiological nursing staff performed the same work and received the same salary, the men utilized the technology to wrest control over symbolically valorized tasks such as the repair of instrumentation. It was not only the men who engaged in "doing gender" as a valorization strategy; the women complied with this themselves by playing down their own technical competence. The constructions of identity were aligned with the expectations attached to the respective gender roles. The anesthesiological head nurse in the second hospital for example, described herself as a "technical embryo", even though she was very skilled in operating technical equipment.

Studies such as Heintz et al. (1997) and Heintz and Nadai (1998) analyzed the gender practices in different occupations such as the nursing profession, among others. In order to describe the behavior of male nurses within the female profession, they used the concept of *tokenism* as developed by Rosabeth Kanter (1977). This concept is also very useful in the present paper, because nursing as a caring profession emphasizes behaviors and skills characterized as antithetical to hegemonic masculinities. Male nurses embody a version of masculinity that can be characterized as "subordinated masculinity", because they are excluded from the OR program design that is constitutive for masculinity in the OR. However, they are also "complicit," because they use valorization strategies to demarcate themselves from the female majority and, in doing so, contribute to the subordination of women. The valorization strategy pursued by men in the anesthesiological nursing service can be explained in terms of the phenomenon of "status leveling" associated with *tokenism.* The latter concept was originally developed in order to explain the position of women in male professions. When they are first encountered, female *tokens* are assumed to be the secretaries or wives of male professionals. Even if their professional status is known, they are also approached with tasks that only secretaries and wives are required to perform. Kanter demonstrates that female *tokens* must achieve a "status leveling" in order to adapt the expectations they encounter to their proper professional role. By contrast, the findings presented here show that men within the anesthesiological nursing service engaged in "status leveling" in order to demarcate themselves from the female majority through their technical competence. Here, masculinity and technology are co-constructed and utilized as a valorization strategy within a female profession. These findings furnish evidence that female and male *tokens* experience different mechanisms of inclusion and exclusion. Male nurses in the anesthesiological nursing service contribute to establishing gender-specific boundaries and to ensuring their resulting exclusion from the majority by "doing gender." They do not have to prove that they belong to the female majority. By contrast, publications such as Heintz and Nadai (1998) and Hirschauer (1994) show that women in male professions have to achieve a balance between "doing gender" and "undoing gender." They must prove that they belong to the male majority and minimize differences while responding to cultural gender beliefs.

"Status leveling" of the men within the surgical nursing service could not be observed. The reason for this may be that the male minority within the surgical nursing service was much smaller than the male minority within the anesthesiological nursing service (6 % and 17% compared to 27% and 26%). Heintz et al. (1997) argue that the relation between numerical and social integration is not linear. Segregation begins to disappear if the minority is around 10% and smaller. These findings stem from the discussion of the

tokenism concept in relation to ethnicity (see Heintz et al., 1997: 47, footnote 33). They show that if the ethnic minority is around 5 to 10%, the relationship between minority and majority remains without conflict. Problems only emerge, if the minority increases to much more than 10%. Then the majority perceives the minority as threatening and reacts with discrimination and segregation. For the present findings in the OR this means that the male nurses within the surgical nursing service possibly perceived the female majority to be less threatening than the men within the anesthesiological nursing service. Accordingly, the former may not have felt the need to demarcate themselves from the female majority through technical competence.

4 How status expectations are subverted

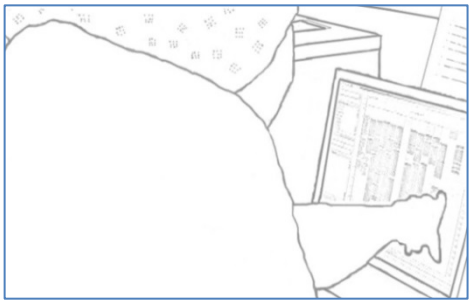
After the introduction of the OR management system the senior physicians in the first hospital from both the surgery and the anesthesiology departments had integrated the computer system into relevant routines. Computer expertise was treated as a status characteristic. Therefore, the surgical and anesthesiological nursing services, as lower status personnel, encountered problems when they used the OR management system to acquire prestige and to exert influence. Hegemonic masculinity was exercised through male senior surgeons' appropriation of the computer-supported information system on the one hand and through the male senior attending anesthesiologist's appropriation of it on the other hand. They occupied the hegemonic position, because they controlled the relevant area of uncertainty of OR planning. However, the surgical head nurse managed to circumvent the status expectations she was confronted with and in so doing she undermined hegemonic masculinity in the OR. As a result, the surgical head nurse and the senior physicians could integrate the OR management system into their routines, and they could develop a common view of their procedures. Moreover, the surgical head nurse in turn enabled the surgical nurses under her supervision to exercise power vis-à-vis the doctors and to gain autonomy. The OR in this clinic was therefore characterized by a *cooperative style of work.*

The style of work in the second hospital, by contrast, could be described as dependent assistance. There, the surgical nurses and the surgical residents were exclusively responsible for the OR management system. Computerized tasks were equated with ancillary activities and devalued accordingly. Here, hegemonic masculinity was ensured through male senior surgeons' reluctance to embrace computerization. The dominant version of masculinity was constructed in surgery entirely through the instrumental relation to the operating table and in sharp contrast to computer work. The OR management system had stabilized the gender system and relations of power in the second clinic, so that the surgical nurses remained confined to their classical professional role as assistants. By comparison with other occupational groups, in neither of the two hospitals was the anesthesiological nursing service able to break through the hierarchization between physicians and nurses. Instead, the use of technology reinforced the symbolic, gender-specific segregation *within* the professional group.

Fig. 1: The senior attending anesthesiologist (in the center) touches the elbow of the surgical head nurse (person at the right).

The analysis of misunderstandings in the video data have shown that the surgical head nurse in the first hospital with the cooperative working style had problems asserting herself vis-à-vis the senior medical personnel during the period following the introduction of the OR management system. These problems could be explained by the fact that computer work was treated as a status characteristic in the first hospital. Those with lower status, such as the surgical head nurse, encountered resistance when they demonstrated competence in dealing with computers. From the perspective of those with a higher status, the computer expertise of the surgical head nurse was not legitimate because it did not tally with her status. The following video still was not de-identified in order to keep the gestures as authentic as possible (see fig. 1). It shows how and why a misunderstanding occurs as well as how actors deal with it and how the OR management system is brought into the interaction.

The analysis of the video sequence from which the above still is drawn provided evidence that the elbow gesture performed by the senior attending anesthesiologist was an expression of sympathy. The surgical head nurse, by contrast, saw the gesture in a different light. The way she framed the elbow gesture stems from her daily experiences with the senior medical personnel. She was bound to interpret it as a reprimand because she had encountered resistance in many other interactions when she sought to exert influence through the OR management system. Her interpretation of the elbow gesture is made apparent in the above video still by the way she withdraws her body. It is a conduct of defense and renders visible that she has problems asserting herself vis-à-vis the senior medical personnel. However, immediately following the elbow gesture, the surgical head nurse leaned past the doctor toward the computer screen. The way the OR management system is brought into the interaction after the misunderstanding shows how the surgical head nurse subverts the status expectations she is confronted with. She develops a strategy of resilience through which she finally gains recognition for her contributions to the OR planning by the medical personnel. That strategy consists in appealing to shared schemes of interpretation and is a way of wielding power through consensus. Two de-identified video stills show how the previous misunderstanding was solved. They make visible how power can be exercised through consensus (see figs. 2 and 3).



Figs. 2 and 3: The surgical head nurse points at the computer screen and explains her contribution to OR planning to the senior attending anesthesiologist.

Surgical head nurse: *but it it's all look here I've already umh said to Mechthild when she's finished with the injections*

Senior attending physician anesthesiology: *to come down*

Surgical head nurse: *to come down, replace me and in 2 and then they're here in the back, right*

With her outstretched arm, the surgical head nurse indicated her contribution to OR planning. She showed the senior attending physician on the screen which nurses are assigned to which operating room for which procedures. By looking attentively at the screen- while supporting his chin in his left hand, he was signaling his undivided attention. In this way, he clearly indicated that he ascribed to her the competence to contribute to OR planning and that she had an equal right to influence the OR program. Both the language used by the surgical head nurse ("but it it's all look here") and her pointing gesture to the computer screen emphasized that she had the necessary planning and organizational knowledge to make independent contributions to OR planning. At "injections" the senior attending anesthesiologist anticipated what the surgical head nurse was going to say with "to come down." This indicates that he was following each step of her demonstration attentively and immediately recognized the implications of what had been said. The surgical head nurse knew in turn that the senior attending physician could follow each individual step. Her strategy of resilience consisted of appealing to shared schemas of interpretation and of deliberately using shared knowledge, such as the fact that Mechthild was entrusted with the injections. Other shared schemas of interpretations were, for example, which operation made sense at what time and with which staff. The surgical head nurse used them to back up her contributions to the OR program and, with this, wielded power through consensus. Appealing to shared interpretations in decision-making processes is a way to exercise power through consensus.

Although the surgical head nurse was not entitled to gain influence and prestige through the OR management system because of the differences in status, she managed to breach the status expectations and to demonstrate just as much skill in the design of the OR program as the male senior surgeons and the male senior attending anesthesiologist. The strong hierarchization between the surgical head nurse and the male senior surgeons was breached and gave way to a cooperative style of work. Hegemonic masculinity was undermined because the surgical head nurse became an equal player in the "serious game" of the OR plan design. Men seek homosocial communities to play for the position of hegemonic masculinity. They perform "serious games" (that are not for fun) because power resources are allocated (see Meuser, 2001). Competitiveness therefore is a major feature of hegemonic masculinity. The OR plan design was such a playground for the hege-

monic position because it represented the place where power resources were allocated. It was constitutive of the ideal of hegemonic masculinity.

The basic skill that the players need, was generally characterized by the senior attending anesthesiologist as "communication work": *"A system that is transparent, where you can see the changes at every workplace, it has the disadvantage that a certain, that certain umh that in addition to the PC, to the individual operation, communication work still must be maintained, and this communication must not, umh the PC must not replace the communication"*. The interview partner did not say that he uses communication work to wrest control over the relevant area of OR planning. For him, communication work seemed to be a general ideal and not a means to realize an ideal of masculinity. A principle feature of masculinity consists in *"the hypostasis of masculinity to the general human" and that "the constitutive impact of gender as common ground is masked in homosocial communities"* (see Meuser 2001: 14). However, the senior attending anesthesiologist also acknowledged that communication work is *"a problem with which we have to struggle"* and that *"it would not be a problem, if the surgical departments had more discipline"*. The specific communication skill was used by the senior surgeons and the senior attending anesthesiologist to compete for the hegemonic position in the OR.[8] Although communication work is generally seen as a feminine property such as, for example, sociality or social competence (see, for example, Peterson, 2007), it was adopted by male senior doctors for competitive purposes. It shows, in contrast to Faulkner (2007), that technical competence and sociality were not mutually exclusive for the project of hegemonic masculinity.

5 The working style in the two hospitals

In the new way of exercising power, which was encountered only in the hospital with the cooperative style of work, the surgical head nurse went beyond performing the function of providing assistance. She managed to assert herself and to acquire an equal role in designing the OR plan. Moreover, she in turn enabled the surgical nurses under her supervision to break through the classical assistant role vis-à-vis the surgeons. What enabled the surgical nurses in the clinic with the cooperative style of work to wield power was that they had the opportunity to check the decisions of the senior medical personnel in the so-called "history" of the OR management system and hence to criticize these decisions constructively.[9] In the second clinic in which the style of work was characterized by dependent assistance, the surgical nurses did not have the opportunity to scrutinize the OR planning process, because the senior doctors devalued computerized tasks as nonprofessional work and the OR planning was conducted informally "on the fly."

[8] Previous studies on the use of computer-supported information systems in the OR showed that communication work usually is performed by the OR coordinators, i.e. the senior anesthesiologists. This special task is necessary to make the computer system work and to ensure that the data of the patient are handled with care (see Kissmann, 2009b). However, in the first hospital with the cooperative style of work, communication work was performed by all senior physicians. Whereas the male and female senior anesthesiologists perceived the computer-supported communication work as a means to make data available everywhere, the male senior surgeons and the male senior attending anesthesiologist used it to wrest control over the relevant area of uncertainty of OR planning.

[9] The history contains a record of who made entries in the OR plan and the time of the entry.

In virtue of the practical option offered by the "history" as represented in the OR management system and of the fact that in the first hospital the senior physicians were centrally involved in OR planning, the surgical nurses could accumulate planning and organizational knowledge and exercise control over the area of uncertainty of OR planning. The surgical head nurse expressed the gain in power through the OR management system as compared to the whiteboard as follows: "*I see, aha, the operating room here, so the hernia was already scheduled, I saw that the time-limit would exceed for the room, I called the OR coordinator*[10] *and said, look can't we perform it in Room 8, I have staff there.*" The example quoted shows how the surgical head nurse exercised control over the area of uncertainty of OR planning. Through access to the computer system, she was able to reconstruct who had made which entries for which room. In the example in question, a "hernia" was scheduled for operation. Due to the planning and organizational knowledge she had accumulated, she was able to estimate that "the time-limit would exceed," i.e. that the schedule originally worked out by a senior surgeon was incorrect and that the operation would take longer than the time allocated. Against this background, she proposed to the OR coordinator that the hernia operation should be conducted in Room 8, because surgical nurses were still available there. By identifying incorrect entries in the OR management system, the surgical head nurse contributed to transforming personnel resources into work and, in doing so, exercised control over a central operational area of uncertainty (see Ortmann et al., 1990: 17). Moreover, the surgical head nurse had formed small workgroups of 5 to 6 surgical nurses that reflected the actual course of the operations and these groups were supposed to look for alternatives when the occasion arose. One workgroup, for example, was assigned to work out how preparing the rooms in the morning and replenishing them with material could be coordinated efficiently using the OR management system. In this way, the surgical head nurse enabled her team to develop contributions of their own to OR planning.

Moreover, in the first hospital the structural preconditions for opportunities for advancement within the surgical nursing service changed. The formal area of activity became increasingly differentiated because, with the introduction of the OR management system, the surgical head nurse established the position of assistant for supplies and had plans for further positions of this kind. This new activity no longer fit into the classical profile of the surgical nurse assisting the surgeon. Before the introduction of the OR management system, the surgical head nurse filled out the orders herself. In the case of small sterile materials, she let her surgical nurses assist her, however without allowing them to act independently. After computerization, the new assistant for supplies had independent responsibility for the computerized ordering of sterile material and pharmaceutical supplies and no longer worked in the operating rooms herself. Instead, she coordinated several storerooms and made the orders at her own discretion over the hospital's own intranet *without the signature of the surgeons*. Computerization had prompted the change in signing authority and, as a result, loosened the formal hierarchies between the medical personnel and the surgical nurses. The assistant for supplies was answerable to the surgical head nurse only. By contrast, after the computerization some of the anesthesiological nurses had to do the order-

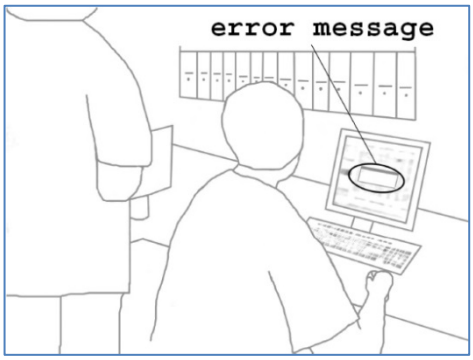
[10] In both of the hospitals investigated, the position of OR coordinator was filled on a rotating basis by one of the attending anesthesiologists as well as occasionally by the head anesthesiologist.

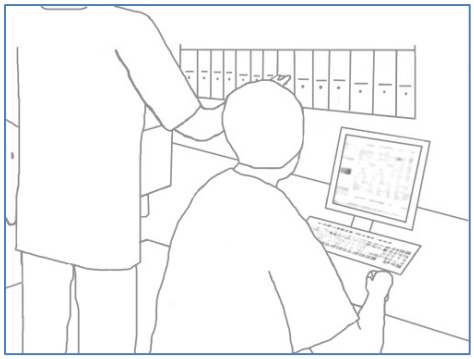
ing in addition to their work in the OR. For this purpose, the order forms saved on the computer were printed out, filled out by hand, and countersigned by the anesthesiological personnel. As a result, the ordering process within the anesthesiological nursing service depended on the decision of the physicians, and it did not contribute to differentiating this area of activity. Here, there were no further opportunities for advancement apart from the managerial position.

In the second hospital with the style of work of dependent assistance, by contrast, the OR management system was not integrated into the relevant routines by the senior physicians. Only the surgical nurses and the surgical residents used it and then merely as a "data base," for example, to enter the operation protocol data or to record the material used up in the course of an operation. The OR management system was not used to develop a shared overview of the procedures as it was the case in the first hospital. Since the same computer-supported information system was implemented in both clinics by the same firm, the surgical nurses and the surgical residents in the second clinic – i.e. those responsible for the computer work – could also have had access to the history. However, it would not have helped them, because the relevant area of uncertainty of OR planning was not dealt with through the OR management system. Instead, it was informally designed by the male senior surgeons "on the fly". They conformed to a model of "classical surgeon" that can be characterized through their instrumental relation to the operating table and that stands in sharp contrast to computer work. The "classical surgeon" was described by a senior surgeon as follows: *„He can contribute little to computers, because he boycotts them completely, he does not want to be concerned with them, he accesses the internet and looks at the stock exchange ehm but not more, but he spends the whole day in the OR, usually and in between runs to the intensive care unit and the endoscopy and stuff like that, that's the typical classical surgeon".*

As was made clear by the interview excerpt, the "classical surgeon" is male and wealthy enough to invest money in the stock exchange (or at least he toys with the idea). The model of hegemonic masculinity outlined here, bears similarities to Connells and Woods model of "transnational business masculinity" (see Connell and Wood, 2005: 347). They both idealize neoliberal attitudes and relate them to hegemonic notions of a tough, detached, and independent masculine self. In addition, hegemonic masculinity was strongly tied to the instrumentality of the operating table. The "classical surgeon" spends most of the day in the OR where the patient is reduced to his or her organs. The view on humans therefore was entirely instrumental. Moreover, hegemonic masculinity was constructed in contrast to sociality as a feminine property. In the first hospital, "communication work" was an integral part of hegemonic masculinity. Here, the emphasis was placed on classical surgery that is genuinely asocial, because communication is reduced to a minimum.

In the second hospital with the style of work of dependent assistance, hegemonic masculinity was ensured through senior surgeons' reluctance to embrace computerization. The OR planning was made informally "on the fly" and without the computer system. The following extract from an interview with a female surgical resident shows that the data were fed into the OR management system without consulting with the other professional groups. Unlike in the first hospital, computer work did not make it possible to influence the other status groups.





Figs. 4 and 5: The head anesthesiologist (right) does not know how to operate the OR management system and receives the necessary information from the surgical head nurse.

Female surgical resident: "*Well I always enter the patient number, and then the computer looks up the patient for me, and then I select the patient, and then it just asks me, the computer, I have to make entries in the box, what's the underlying condition, what should be operated, which side, what position should the patient be put in, what kind of anesthetic, who's the operating surgeon, then you click on done and it's in the OR program*."

Interviewer: *"Yes and you know all of that, the various things, I mean the kind of anesthetic, or do you read it from the patient record?"*

Female surgical resident: *"No, well I mean there are a set of anesthesiological procedures, you can kinda figure out what is involved, you know there's an intubation, or a laryngeal mask or you do that, or there's a plexus, I mean in the end it's up to the anesthesiologist, but yeah you can go ahead and enter whatever you think."*

The statements of the surgical resident quoted make it clear that she did not take entering the data into the OR management system seriously. She paid scant attention to the patient record and did not consult with the anesthesiologists. Computer knowledge was not a status characteristic in this clinic; otherwise those higher up in the status hierarchy would have been able to use it to gain influence and wield power.

While the surgical residents could afford not to take the OR management system seriously, the surgical nurses had to be extremely meticulous when entering the data in the operation protocol. The following de-identified video stills of an interaction between the head anesthesiologist and the surgical head nurse in the second hospital reveal that the physician did not need to be concerned about his ignorance of how to operate the OR management system. The surgical head nurse and her "girls," by contrast, had to feed the necessary data into the computer program (see figs. 4 and 5).

Surgical head nurse: *yeah sure, what's wrong with it*

Head physician anesthesiology: *but that one isn't even supposed to have started yet*

Surgical head nurse: *but until now*

Head physician anesthesiology: *here this one, it's already started*

Surgical head nurse: *well in the morning when the girls go into an OR, they log in of course and already prepare everything*

Head physician anesthesiology: *good, then I'll have to go in there again, I'll have a look myself, that'll be a bit faster*

In the example, the head anesthesiologist tried to access the OR plan in the OR management system. He knew that he could not access the information for an operation while the data for this operation was being entered in the relevant operating room and the corre-

sponding data field was open. However, he was not aware that every morning the surgical nurses enter the data for the rest of the day in each operating room and in the process open all of the data fields. As a result, it is not possible to access any information in the OR plan in the morning as long as the surgical nurses are still entering the data. The head physician was amazed at the error message, because the data field for the operating room he had clicked was supposed to take place only later in the day. This is why he said, "but that one isn't even supposed to have started yet." He thought that the surgical nurses entered the data only while an operation was actually taking place and hence that the data were inaccessible only during the operation. As a result, he was disconcerted and assumed that the operation which he had clicked, and which was actually scheduled for later, was nevertheless currently taking place: "here this one, it's already started." The surgical head nurse standing behind him explained that in the morning her surgical nurses, "the girls," prepare the operations for the day in question in all of the ORs and enter the data for each operation into the OR management system. This interaction shows that computer work was not a status characteristic in the second hospital with its dependent assistance style of work. The senior physicians paid no attention to the data input and to the way the OR management system operated. At the end of the interaction, the head anesthesiologist wanted to check in person whether everything was in order in the operating room. Thus he preferred to exercise influence through his presence and direct communication in the operating room. If computer work had been a status characteristic, he would have exercised influence through the OR management system. Moreover, the head anesthesiologist was not at the forefront of hegemonic masculinity. As an anesthesiologist, he did not match the ideal of instrumentality towards the operating table and of being asocial. The interaction showed that he relied on direct communication in the OR which stands in contrast to the ideal of hegemonic masculinity of reduced communication in surgery. In his situation, it was crucial to devalue women's work because it gave him a better position in the competition for the strongest masculinity.

The hierarchical relationship between physicians and nursing staff could not be breached by the anesthesiological nursing service in either of the two hospitals. Even after the introduction of the OR management system, the anesthesiological nurses had little autonomy, as was made clear, for example, by the abovementioned ordering procedure for anesthesiological material. In both hospitals, the order forms had to be countersigned by the medical personnel. Thus, the anesthesiological nurses were not able to order new material on their own initiative. The symbolic workplace segregation within the anesthesiological nursing service had increased following the introduction of the OR management system. The co-construction of masculinity and technology no longer occurred by way of the maintenance of instrumentation but through the mode of operation of the OR management system. The men within the anesthesiological nursing service achieved their symbolic status by "doing gender" within the occupational group by regularly explaining the mode of operation of the computer to the female nurses.

6 Summary and conclusion

The present article described the introduction of information and communication technologies in the operating rooms of two hospitals. Both clinics had a similar number of operating rooms, and the same OR management system was installed in both hospitals by the same firm. The paper examined how hegemonic masculinity adapted to the new demands of computerization.

Firstly, masculinity was not always equated with technology as, for example, in Faulkner (2007) or Kleif and Faulkner (2003). The model of the classical surgeon in the second hospital stood in sharp contrast to computer work. Secondly, when masculinity and technology were co-constructed, this was not always to the detriment of sociality. Technical competence of the masculine self and communication were not always mutually exclusive as, for example, in the two abovementioned publications. Instead, evidence could be provided of the flexibility and mutability of masculinity. The present paper examined the diverse ways in which technological competence can be employed to reinforce hegemonic masculinity. It demonstrated that the OR management system was used in the first clinic to support and value male senior doctors' competitions to win control over the relevant area of uncertainty of OR planning. In contrast to this, the computer-supported information system was used in the second clinic to devalue the activities of the nursing staff. In both cases, men acquired status and prestige either through the appropriation of the OR management system or through demarcation from it. However, the gender hierarchies in the first hospital were restructured, because the surgical head nurse subverted the status expectations she was confronted with. As a result, a *cooperative style of work* was established in the first hospital. By contrast, the *classical dependent assistance style of work* in the second hospital ensured that the existing gender hierarchies and power relations were reinforced. It was in the latter clinic only that the autonomy of the nurses became limited through technologization such as discussed in Oudshoorn (2009) or in Wagner (1993) and (1995).

In the first hospital with the cooperative style of work, greater value was attached to computer work in general, and it was integrated into the routines by the senior surgeons and anesthesiologists. Here it constituted a *status characteristic*. This explains why the surgical head nurse encountered resistance when she wanted to use the OR management system to exert influence. Because she was endowed with a lower status, she was not entitled to demonstrate competence in dealing with computers. In contrast, in the second hospital with the dependent assistance style of work, computer work was *not a status characteristic*. The higher-status physicians did not have to worry that their ignorance in dealing with the OR management system would entail a loss of influence or prestige. In the second hospital, only the lower-status surgical nurses had to be meticulous when entering the data into the computer system. The surgical residents also had to perform computer work. Since they belonged to the higher-status medical personnel however, they could afford not to take the OR management system seriously. In the second hospital with the dependent assistance style of work, computer work in general was devalued and equated with ancillary tasks.

The present article explored the strategies of resilience that women, such as the surgical head nurse of the first hospital, can use to weaken hegemonic masculinity. Abrahamsson (2003) examined the conditions that lead organizations to revert to their original form following the introduction of equal opportunity programs and organization-oriented projects. The present findings, by contrast, provided evidence that status expectations can be subverted and hegemonic masculinity undermined by wielding power through consensus. It could be demonstrated that the surgical head nurse of the first hospital managed to have her proposals implemented via consensus by appealing to shared interpretations, such as the interpretation of which operation made sense at what time and with which staff members. Her strategies of resilience led to changes in the established mode of

work of the surgical nurses assisting the medical personnel, whereas in the clinic with the *dependent assistance* style of work, the assistive occupational role of the nurses was solidified. In the first clinic, the practical options facilitated by the OR management system were utilized by the surgical head nurse to exercise power on the basis of consensus and shared interpretations. Using the so-called history, she was able to wield control over the relevant area of uncertainty of OR planning and to involve herself and her team actively in shaping the processes. In the second clinic, the surgical nurses did not develop these practical options afforded by the OR management system and they remained confined exclusively to assistive tasks. In comparison with the surgical nursing service, in neither of the two hospitals was the anesthesiological nursing staff able to breach the hierarchical relationship between physicians and nurses. Instead, a pronounced symbolic segregation *within* the occupational group took place via the co-construction of technology and masculinity.

The approach of video hermeneutics proved to be extremely worthwhile for the analysis of human-machine intra-actions. While social psychology scholars, such as Ridgeway and Correll only explain the emergence and maintenance of status expectations, such as computer expertise, video hermeneutics reconstruct *the ways in which* actors deal with machines and *how* they perform (status) differences. As the approach of video hermeneutics draws upon ethnomethodology and phenomenology, it does not ask *what* actors do; rather, it asks *how* they do it. In doing so, the present paper was able to reconstruct the surgical head nurse's strategies of resilience that would have been overlooked otherwise. The present article demonstrated that the way she subverted status expectations was a means to undermine hegemonic masculinity, because the gender hierarchies in the first hospital were restructured. Her contributions to OR planning enjoyed as much value as men's contributions.

7 Transcription rules

((laughs)) = comment by the transcriber
, = brief pause
much- = break-off

8 References

Abrahamsson, Lena (2003): When it Became Important, it Suddenly Turned Male. In: Ewa Gunnarsson/Susanne Andersson/Annika Vänje Rosell/Arja Lehto/Minna Salminen-Karlsson (eds.), *Where Have All the Structures Gone?* Doing Gender in Organizations: Examples from Finland, Norway and Sweden, Stockholm, Centre for Women's Studies, Stockholm University, 253-84.

Ärztekammer Berlin (2005): *Personal Communication, Department of Continued Education*, Berlin Chamber of Physicians.

Bohnsack, Ralf (2009): *Qualitative Bild- und Videointerpretation. Die dokumentarische Methode*, Opladen & Farmington Hills, Barbara Budrich.

Caspar, Monica/Adele Clarke, (1998): Making the Pap Smear into the 'Right Tool' for the Job: Cervical Cancer Screening in the USA, circa 1940-95. *Social Studies of Science*, 28, 2, 255-290.

Cockburn, Cynthia (1985): *Machinery of Dominance: Women, Men and Technical Know-How*, London, Pluto.

Cockburn, Cynthia (1992): The Circuit of Technology: Gender, Identity and Power. In: Roger Silverstone/Erik Hirsch (eds.), *Consuming Technology: Media and Information in Domestic Spaces*. London, Routledge.

Cockburn, Cynthia/Susan Ormrod (1993): *Gender and Technology in the Making*, London, Sage.

Connell, R. W. (2011): Masculinities, Cambridge, *Polity Press*, (first published in 1995).

Connell, R.W./Julian Wood (2005): Globalization and Business Masculinities. *Men and Masculinities*, 7, 347-364.

Correll, Shelley J. (2001): Gender and the Career Choice Process. The Role of Biased Self-Assessments. *American Journal of Sociology,* 106, 6, 1691-1730.

Correll, Shelley J./Cecilia L. Ridgeway (2003): Expectations States Theory. In: John Delamater John (ed.), *Handbook of Social Psychology*, New York, Kluwer, 29-51.

Crozier, Michel/Erhard Friedberg (1979): *Macht und Organisation. Die Zwänge kollektiven Handelns*, Königstein/Ts., Athenäum.

Faulkner, Wendy (2007): Nuts and Bolts and People'. Gender Troubled Engineering Identities. *Social Studies of Science*, 37, 3, 331-356.

Garfinkel, Harold (1963): A Concept of, and Experiments with, «Trust» as a Condition of Stable Concerted Actions. In: O.J. Harvey (ed.), *Motivation and Social Interaction*, New York, Ronald Press, 187-238.

Giddens, Anthony (1988*): Die Konstitution der Gesellschaft,* Frankfurt/New York, Campus.

Gottschall, Karin (1998): Doing Gender While Doing Work? Erkenntnispotentiale konstruktivistischer Perspektiven für eine Analyse des Zusammenhangs von Arbeitsmarkt, Beruf und Geschlecht. In: Birgit Geissler/Friederike Maier/Birgit Pfau-Effinger (eds.), *FrauenArbeits-Markt:* Der Beitrag der Frauenforschung zur sozio-ökonomischen Theorieentwicklung, Berlin, Sigma, 63-94.

Hall, Elaine (1993): Waitering/Waitressing: Engendering the Work of Table Servers. *Gender & Society*, 7, 3, 329-346.

Harding, Sandra (1986): The Science Question in Feminism, Ithaca, London: *Cornell Univ. Press.*

Heintz, Bettina/Eva Nadai/Regula/ Fischer/Hannes Ummel(1997): Ungleich unter Gleichen: *Studien zur geschlechtsspezifischen Segregation des Arbeitsmarktes*, Frankfurt/New York, Campus.

Heintz, Bettina/Eva Nadai (1998): Geschlecht und Kontext: De-Institutionalisierungsprozesse und geschlechtliche Differenzierung. *Zeitschrift für Soziologie,* 27, 2, 75-93.

Hirschauer, Stefan (1994): Die soziale Fortpflanzung der Zweigeschlechtlichkeit. *Kölner Zeitschrift für Soziologie und Sozialpsychologie,* 46, 668-692.

Hochschild, Arlie R. (1990): *Das gekaufte Herz. Zur Kommerzialisierung der Gefühle*, Frankfurt/M., Campus.

Kanter, Rosabeth M. (1977): *Men and Women of the Corporation,* New York, Basic Books.

Kissmann, Ulrike Tikvah (2009a): How Medical Forms are Used. The Study of Doctor-Patient Consultations from a Sociological Hermeneutic Approach. In: Ulrike Tikvah Kissmann (ed.), *Video Interaction Analysis. Methods and Methodology*, Frankfurt/M. et al., Peter Lang, 87-105.

Kissmann, Ulrike Tikvah (2009b): Fürsorgliche Orientierung jenseits des Arzt-Patient Verhältnisses: Informationsarbeit im Operationssaal. *Feministische Studien*, 2, 295-308.

Kissmann, Ulrike Tikvah (2014): *Die Sozialität des Visuellen. Fundierung der hermeneutischen Videoanalyse und materiale Untersuchungen*. Weilerswist, Velbrück Wissenschaft, in press.

Kleif, Tine/Wendy Faulkner (2003): "I'm No Athlete [but] I Can Make This Thing Dance!" - Men's Pleasures in Technology. *Science, Technology, & Human Values*, 28, 2, 296-325.

Knoblauch, Hubert/Christian Heath (1999): Technologie, Interaktion und Organisation: Die Workplace Studies. *Schweizer Zeitschrift für Soziologie*, 25, 2, 163-181.

Leidner, Robin (1991): Serving Hamburgers and Selling Insurance: Gender, Work and Identity in Interactive Service Jobs. *Gender & Society*, 5, 2, 154-177.

Lengersdorf, Diana/Michael Meuser (2010): Wandel von Arbeit – Wandel von Männlichkeiten. *Österreichische Zeitschrift für Soziologie*, 35, 2, 89-103.

Maynard, Douglas W. (2003): Bad News, Good News: Conversational Order in Everyday Talk and Clinical Settings, Chicago et al., *University of Chicago Press.*

Merleau-Ponty, Maurice (1966) : Phänomenologie der Wahrnehmung, Berlin, de Gruyter, (in the original: 1945, *Phénoménologie de la perception*, Paris, Gallimard).

Meuser, Michael (2001): Männerwelten. Zur kollektiven Konstruktion hegemonialer Männlichkeit. In: Doris Janshen/ Michael Meuser (Hg.), *Schriften des Essener Kollegs für Geschlechterforschung*, Heft II, 1-29.

Ortmann, Günther/Arnold Windeler/ Becker/ Albrecht/Hans-Joachim Schulz, (1990): Computer und Macht in Organisationen. *Mikropolitische Analysen,* Opladen, Westdeutscher Verlag.

Oudshoorn, Nelly (2009): Physical and Digital Proximity: Emerging Ways of Health Care in Face-to-Face and Telemonitoring of Heart-Failure Patients. *Sociology of Health & Illness*, 31, 3, 390-405.

Paulitz, Tanja (2012): 'Hegemoniale Männlichkeiten' als *narrative* Distinktionspraxis im Wissenschaftsspiel: Wissenschaftssoziologische Perspektiven auf historische technikwissenschaftliche Erzählungen. *Österreichische Zeitschrift für Soziologie*, 37, 45-64.

Peterson, Helen (2007): Gendered Work Ideals in Swedish IT Firms. Valued and Not Valued Workers. *Gender, Work and Organization*, 14, 4, 333-348.

Prentice, Rachel (2005): The Anatomy of a Surgical Simulation: The Mutual Articu-

lation of Bodies in and through the Machines. *Social Studies of Science*, 38, 6, 837-866.

Przyborski, Aglaja /Monika Wohlrab-Sahr (2008): *Qualitative Sozialforschung: Ein Arbeitsbuch,* München, Oldenbourg.

Raab, Jürgen (2008): *Visuelle Wissenssoziologie: Theoretische Konzeption und materiale Analysen*, Konstanz, UVK.

Ridgeway, Cecilia L. (2001): Social Status and Group Structure. In: Michael a. Hogg/R. Scott Tindale (eds.), *Blackwell Handbook of Social Psychology*: Group Processes, Oxford, Blackwell, 352-375.

Ridgeway, Cecilia L./Shelley J. Correll (2004): A Theoretical Perspective on Gender Beliefs and Social Relations. *Gender & Society,* 18, 4, 510-531.

Scholz, Sylka (2004): 'Hegemoniale Männlichkeit' – Innovatives Konzept oder Leerformel? In: Hella Hertzfeldt/ Katrin Schäfgen/Silke Veth (Hg.), Geschlechter Verhältnisse. *Analysen aus Wissenschaft, Politik und Praxis*, Berlin, Karl Dietz Verlag, 33-45.

Schubert, Cornelius (2006): *Die Praxis der Apparatemedizin: Ärzte und Technik im Operationssaal,* Frankfurt/M., New York, Campus.

Schütz, Alfred (1962): *Collected Papers I*: The Problem of Social Reality, The Hague, Martinus Nijhoff.

Schütze, Fritz (1976): Zur soziologischen und linguistischen Analyse von Erzählungen: *Internationales Jahrbuch für Wissens- und Religionssoziologie*, Opladen, Westdeutscher Verlag, 7-41.

Schütze, Fritz (1978): Die Technik des narrativen Interviews in Interaktionsfeldstudien - dargestellt an einem Projekt zur Erforschung von kommunalen Machtstrukturen*,* Universität Bielefeld, Fakultät für Soziologie, *Arbeitsberichte und Forschungsmaterialien* Nr. 1 Bielefeld.

Smyth, Emer/Stephanie Steinmetz (2008): Field of Study and Gender Segregation in European Labour Markets. *International Journal of Comparative Sociology,* 49, 4-5, 257-281.

Suchman, Lucy (1987): Plans and Situated Actions. The Problem of Human-Machine Communication, Cambridge, *Cambridge University Press*.

Suchman, Lucy (2007): Human-Machine Reconfigurations: Plans and Situated Actions (2nd edition), Cambridge, *Cambridge University Press.*

Ten Have, Paul (1990): Und der Arzt schweigt: Sprechstunden-Episoden, in denen Ärzte auf Patienteninformationen sprachlich nicht reagieren. In: Konrad Ehlich/ Angelika Redder/ Rüdiger Weingarten (eds.), *Medizinische und therapeutische Kommunikation: Diskursanalytische Untersuchungen*, Opladen, Westdeutscher Verlag, 103-121.

Trappe, Heike/Rachel A. Rosenfeld (2004): Occupational Sex Segregation and Family Formation in the Former East and West Germany. *Work and Occupations,* 31, 2, 155-192.

Tuma, René/Bernt Schnettler/Hubert Knoblauch (2013*): Videographie: Einführung in die interpretative Videoanalyse sozialer Situationen*, Wiesbaden, Springer VS.

Wagner, Ina (1993): Women's Voice: The Case of Nursing Information Systems. AI & Society, *Special Issue on Gender and Computers in a Cultural Context*, 7, 4, 295-310.

Wagner, Ina (1995): Hard Times. The Politics of Women's Work in Computerised Environments. *The European Journal of Women's Studies*, 2, 295-314.

Waerness, Kari (2000): Fürsorgerationalität. Zur Karriere eines Begriffs. In: Christel Eckart/Eva Senghaas-Knobloch (Hg.): *Fürsorge – Anerkennung –Arbeit*. *Sonderheft Feministische Studien*, 54-66.

Wajcman, Judy (2000): Reflections on Gender and Technology Studies: In What State is the Art? *Social Studies of Science*, 30, 3, 447-452.