A Relational Scaffolding Model of Hybrid Communication

Jens O. Meissner[1] and Harald Tuckermann[2]

[1] Lucerne School of Business, Switzerland
[2] University of St. Gallen, Switzerland

1. Introduction

Two fundamental trends with important implications for today's management of organizations build the impetus for this paper. The first is the ubiquity of computer-mediated communication (CMC). The second is the revived interest for social relations and social networks at the workplace and its focus on relational processes in organizations.

Recent research shows that cooperation and collaboration have to be mastered in neither entirely co-located nor entirely distributed work settings. Instead, organization's members have to manage their actions in hybrid settings in which face-to-face interactions and virtual communications are blended together (Griffith, Sawyer and Neale 2003). In this environment, all the involved actors work and communicate with a mix of face-to-face and computer-mediated interaction. Relational processes are assumed to be affected by this influence of computer technology. However, which typical relational patterns occur in organizations when cooperation takes place in hybrid work settings?

We proceed as follows to explore this research question: Firstly, we provide a brief overview on the two areas of literature of communication technology and relational concepts. Secondly, we build on the notion of scaffolding to outline our model of relational scaffolding. This step is informed by the concept of conversational scaffolding as it suggested by Woerner et al. (2005). Thirdly, our research methodology is presented as

well as – fourthly – our empirical findings. We discuss the results in the fifth section.

2. Relationships in Approaches of Computer-mediated Communication

In the "reduced-social-context-cues"-approach, communication processes mediated through computer media are seen to be limited to convey social cues (e.g. age, sex and social status) relative to face-to-face (FTF) communication. Social presence theory, which conceptualized structural characteristics of communication media, provided first insights into this mechanism. Short, Williams and Christie (1976) determined the social presence of a medium as the degree to which it enables interpersonal interaction. Information richness theory (Daft and Lengel 1984) found media differing in their ability to handle rich information. As a consequence, para- and nonverbal symbols are filtered out and fewer senses are addressed. Furthermore, possibilities for immediate feedback and for creating a sense of proximity decrease.

If communication lacks dynamic personal interaction and information, consequences for the social sphere are also observable. People focus their attention more on the characteristics of the message (e.g. words, pictures) than on the social setting in which it is situated. Researchers found that communicators feel a greater sense of anonymity and detect less individuality in others (Sproull and Kiesler 1991, 1986; Kiesler, Siegel and McGuire 1984). In Culnan's and Markus' view, FTF communication is the ideal one, while mediated communication – especially CMC – is a poor substitute (Culnan and Markus 1987). Subsequently, researchers have formulated more or less complicated "media hierachies" to rank media using for example,"task complexity" (Reichwald, Möslein, Sachenbacher and Englberger 2000) or "media synchronicity" (Dennis and Valacich 1999) as ordering criteria.

While the "reduced social context cues"-hypothesis dominated the academic discussion during the 1970s and 80s, an alternative view on CMC evolved in the 1990s. The *social information processing model* as applied to CMC was capable of handling relational communication. It states that groups interacting through technology are able to form social relationships like FTF groups, but are restricted by characteristics of media. The basic assumption of the model is that "relational communication is a question of rate, not capability" (Walther 1992:53). Thus, given enough time, groups communicating via computer media will develop in a similar way as do

FTF groups because they will establish a well defined set of symbols and behaviours expressing relational information. Empirical results showed that persons interacting by means of CMC exhibited a greater proportion of direct behaviours than participants that interacted unmediated. Additionally, they showed a higher degree of intimacy and demonstrated significantly greater gains in attributional confidence over the course of the investigated conversations, thus reducing uncertainty more effectively than the FTF couples (Walther 1992). This led to the development of the *hyperpersonal perspective* which proposes a higher relational development in CMC than in FTF (Walther 1996). Regarding the topic of this aticle, though, CMC theories share the critique of their mainly social psychological conception: Most empirical results stem from experimental zero-history observations which are not suitable to render contextual factors and dynamic processes. More comprehension can be gathered from alternative concepts on media use.

In this sense, several perspectives on the use of media have been deployed which broaden the understanding introduced by media richness theory. First, researchers developed a symbolic interactionist perspective (Trevino, Lengel and Daft 1987). It assumes that media is often chosen and used for symbolic purposes, so that the choice of media contains symbolic meaning. Second, researchers suggested that social constructions of technology determine the media use (Fulk, Schmitz and Steinfield 1990; Fulk 1993). Even "objective" media characteristics are seen as emerged shared meaning. i.e. that is negotiated in social interaction among the members of a collective. Third, the interplay between groups and their co-operation technology was investigated (Poole and DeSanctis 1990; DeSanctis and Poole 1994). The "adaptive structuration theory" suggested that technology enables and restrains group behaviour imlying that media use has to be adapted to existing structures and will also lead to other structures and "genres" (Yates and Orlikowski 1992). Fourth, Carlson and Zmud (1999) proposed the channel expansion theory. Here, media richness underlies the perception of the communicators,placing importance on their experiences with the medium, the tasks, their communication partners, and the organizational and social context. In a specific setting, actors learn to use media with each other and to jointly construct the necessary richness. Fifth, Barry and Fulmer (2004) propose a model of media adoption according to which communicators choose media mainly to influence others, and switch the medium or change media characteristics. Sixth, researchers chose context-sensitive positions to take organizational communcation into account. This discussion can be subsumed under diverse key words and can be identified in expressions like "hybrid work configurations" (Griffith

et al. 2003) or "local virtuality" (Quan-Haase and Wellman 2004). This switch towards a more contextual understanding seems to be adequate yet increasing the phenomenon's complexity (Nardi and Whittaker 2002). Our today's understanding of CMC starts to include non-linear aspects of CMC such as improvising and emerging strategies of media use but it stands right at the beginning.

What is still missing in this discussion is a profound relational model that can be used to adequately investigate relational effects of CMC. The last more comprehensive relationship model in CMC research was introduced by Walther and Burgoon (1992). It is based on a relational concept that was developed by Burgoon and Hale (1984). After this development, relational investigations remained relatively fragmented.

3. Relationship Concepts

Especially since the 1980s, there have been many attempts to understand relationships and their specific qualities. Later theoretical and empirical works stem mainly from communication researchers and social psychologists (cf. Barry and Crant 2000) as well as from other social sciences like e.g. anthropology (cf. Fiske 1992). This amassment of theories is a consequence of the scholars' insight that focusing on individuals is not sufficient for understanding social dynamics in dyads and groups. Haslam states: "The study of social relationships lies at the heart of the social sciences, but psychologists' understanding of the cognitive structures that support them remains in the hinterlands." (Haslam 1994:575). Asendorpf and Banse (2000:1) add that social psychology has been too individualistically interested in social cognition or individual interaction for decades. Since the mid-70s, Fitzpatrick (1999) argues that three major approaches have been applied to explain social relationships:

  Relational communication (Parks 1977:372) focuses on interactivity, yet based on the assumption that relationships are isomorphistic. In comparison, the other two approaches focus on intersubjectivity. *Relational topology* (Fitzpatrick 1999:445) emphasizes the subjective meaning a relationship has for a person. The *relational topoi* approach conceptualizes relationships as a multi-dimensional entity and provides an extensive set of dimensions to characterize relationships. Burgoon and Hale (1984) identified a comprehensive conceptualization which consists of seven non-independent dimensions of message themes. Then, Walther Burgoon (1992) established the above mentioned hyperpersonal perspective. De-

spite its comprehensiveness, this relationship concept ignores the inter-relation between the dimensions as well as aspects of relational dynamics.

Building on this critique Barry and Crant presented a model to capture "… emerging relationship norms and routines, which over time accumulate and can become difficult to disentangle or change." (Barry and Crant 2000:652). Their model takes into account three "behavioral and perceptual precursors of relationship development". The (1) *relational content* of specific messages that are exchanged in the dyad, the (2) *patterns of messages* that emerge over time and across communication encounters and the (3) *perceptions by dyad members* regarding the status of the nascent relationships. By taking into account the perceptions of the communicators the model points to the role of dependence, commitment and confidence in relationships as well as to their transferability. However, Barry and Crent focus on the relational development of dyads in organizational contexts. This focus seems to be too narrow because it does not consider the interwovenness of relationships in a collective.

To capture the complexity of relationships we draw on a relationship heuristic of qualitative research in leadership and consulting (Müller and Endrissat 2005). This heuristic is based on Weick's "double interact" (Weick 1979:110). Relationships are mutually constructed throughout ongoing social interaction by the communicative actions of the involved actors. We go along with theorists assuming that messages and relationships are inseparably interwoven (Stohl and Redding 1987). Thus, every communication contains relational information. Two persons interpret the relational actions of the other one, respectively, and act accordingly. The actors' self-conception is shaped by the relation on the one hand and the culturally defined context on the other hand. In this setting, the relationship is co-constructed as a social reality of its own which is part of a greater societal reality. This understanding of relationships provides the basis for our proceeding.

4. Scaffolding and Conversational Scaffolding

Scaffolding as a metaphor is tightly connected with the term "scaffold", something used to support the construction process of buildings, for instance. Several authors introduced the notion of scaffolding into social sciences. Originally, the term was coined by Bruner (1985) who used it for interaction support, mainly in the form of adult-child dialogue that is aimed on maximizing the child's psychological abilities. The term was applied also in learning theory and in the area of distributed cognition. Clark

uses scaffolding as a concept in human systems: "Scaffolding … denotes a broad class of physical, cognitive, and social augmentations – augmentations that allow us to achieve some goal that would otherwise be beyond us" (Clark 1998:163). Woerner, Orlikowski and Yates (2005:4) outline the main characteristics of scaffolds, as there are:

- *temporary and portable*, they can be assembled and disassembled on another site
- *flexible and heterogeneous*, they can be erected on site and can be adapted to its specific requirements
- *generative and constitutive of human activity and outcomes*, that is, they serve as the basis for other (constructing) work and thus enabling some possibilities and constraining others.

Woerner et al. (2005:5) state that "…once a building is complete, the scaffolds used in its construction are no longer useful or required. […] So scaffolds are critical supports, but they are of use only during the process of constructing a building." Woerner et al. (2005) transfer this understanding to communication terming "conversational scaffolds", i.e. means of support for communication in which they are embedded simultaneously: "Scaffolds are built by organizational members as they draw on different media in the process of emerging in conversations. Scaffolds are thus situated and temporally emergent" (Woerner et al. 2005:8).

4.1 The Relational Scaffolding Model

The central unit of analysis of the scaffolding concept is the conversation, in which people "…deliberately and artfully combine various media and communicative routines" (Woerner et al. 2005:1). Building on this idea we broaden their concept to focus rather on the relational aspects of conversational scaffolding. We coin the term "relational scaffolding" for describing the relational processes that enable media use in organizations. We thus go along with Star and Ruhleder (1996) which base their work about technological infrastructure on Bateson's concept of "infinite regress" of materialized structures: "What can be studied is always a relationship or an infinite regress of relationships. Never a thing" (Bateson 1985:323). Relating to IT infrastructure Jewitt and Kling "… hold that infrastructure is a fundamentally relational concept" (Jewitt and Kling 1991). On this basis Star und Ruhleder (1996:113f) develop nine attributes of information technology (IT) infrastructure: its embeddedness in social and technological structures; linked with conventions of practice; transparency of its functions; reaching beyond a single event; it's being learned as a part of membership;

it's embodying standards; it's built on an installed base of historical technological development; its visibility during breakdown; and finally, its inherent modular structure that allows rather local adaptation and development than top-down redesign.

In order to apply Jewitt and Kling´s concept of IT infrastructure to relationship quality we use a systemic model of communication. This model corresponds to the epistemological premises mentioned above and deviates from the commonly used sender-receiver-model of communication (cf. Shannon and Weaver 1949). Although it is obvious that a speaker speaks and a listener listens the model is unable to explain how human communication evolves and develops dynamics sometimes surprising for the participants, and sometimes even leads to shared meaning. As such, and following Gergen (1994), shared meaning emerges from relationships as reciprocal and dynamic processes in which those who are present cannot *not* communicate (Watzlawick, Beavin and Jackson 1969), or relate, respectively.

For a systemic understanding of communication – and thus relationships – we have to rely on contributions of Bateson, enhanced by various authors with constructivist background. We want to reduce their extensive contributions to three basic differentiations: relation and content, punctuation of sequences, text and context. All of these differentiations can be derived from social constructivists' roots, especially from Watzlawick et al. (1969) axioms of pragmatic communication:

1. *Every communication has a content and relationship aspect such that the latter classifies the former and is therefore a metacommunication (Watzlawick's second axiom)*: This means that any communication includes, apart from the plain meaning of words, more information - information on how the talker wants to be understood and how he or she wants to influence or to express the relationship.

2. *The nature of a relationship is dependent on the punctuation of the partners' communication procedures (Watzlawick's third axiom)*: Both the talker and the receiver of information structure the communication flow differently and therefore interpret their own behaviour during communicating as merely a reaction on the other's behaviour (i.e. every partner thinks the other one is the cause of a specific behaviour). Human communication cannot be resolved into plain causation and reaction strings, communication rather appears to be cyclic. Thus, communication massively depends on the understanding of the listener, receiver, observer or whichever human entity.

3. Text and Context of communication and relationships refer recursively to each other: The meaning of a text derives from the relating of a text to its context. In this process of ongoing differentiation of the text from its context, meaning evolves and takes shape (Dachler and Hosking 1995).

We can now illustrate the relational dynamics that occur when media is applied for communication purposes, as the following figure illustrates the "Relational Scaffolding Model" of CMC, addressing the three central dimensions content, relationship and technology:
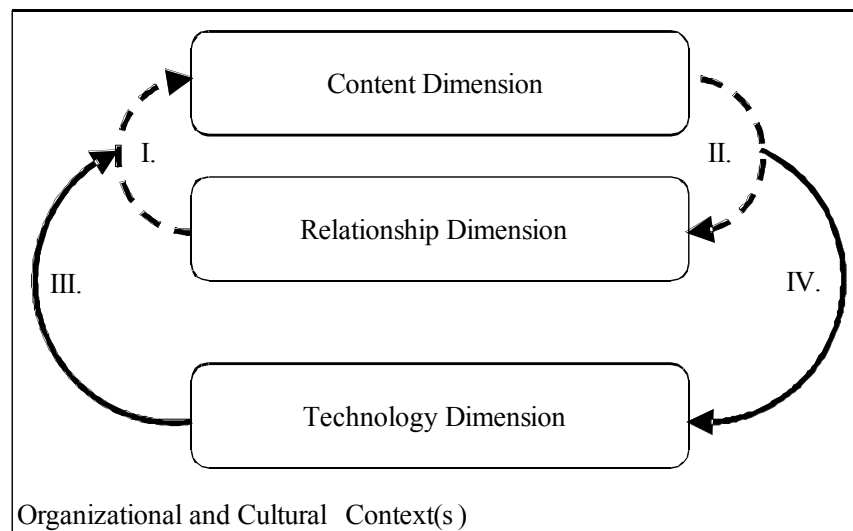

Fig. 1. The relational scaffolding model of CMC

As can be seen, the model promotes a circular and recursive understanding of communication process. The content dimension comprises elements concerning the "message" like words, sentences, expressions, symbols. This content can be seen as the text that only can be understood in its context (*I. Contextualizing Message Content*). The context of the message has a relational character, thus expressed in the relationship dimension. The meaning between the participants has to be contextualized by their relationship that has been evolved under specific situational, cultural and historic conditions. Vice versa, the intended content of human communication is shaping the relationship, for example in expressing "obvious" utterances but also in meaningful gestures (*II. Relationship Shaping*).

The core model of human communication – illustrated by the duality of content and relationship – has again to be contextualized by the characteristics of the technological infrastructure. This relationship, again, is recur-

sive in its character: On the one hand, communication is mediated by the communication technology (*III. Technological Enabling of Communication*). On the other hand, human communication processes generate a specific meaning about the technology, its purposes and areas of application (*VI. Social Constructing of Technology*). This relation is very well known in research and can be subsumed under the term "social construction of technology" (see for example Bijker and Pinch 1987; Fulk 1993; MacKenzie and Wajcman 1999; Suchman 1999). After all, this construction has to be contextualised within the culture of the organization and/or the societal culture on a more complex level (*V. Organizational / cultural context(s)*).

The relational scaffolding model allows us to formulate new questions concerning human communication in CMC, for example: How do message content and relationships correspond to each other in the context of communication technology? How does the technological context influence the "balance" between content and relationship? What needs to be undertaken concerning the communicative practices to sustain successful communication in the sense of successful understanding? How does the organizations' culture come into play? These questions are of organizing character in the results section later on.

5. Research Methods and Sample

The description of a social constructionist perspective on relationships shows that research has to be adequately designed as social constructionists gather insights about the studied phenomena by trying to "look through the eyes of the other" (Bryman 1988).

We chose a narrative approach to generate stories about the research topic which we interpreted later on. But most interviewees found it hard to tell their experiences in autobiographic-narrative form, because it is deeply anchored in every day work life and hard to reflect in a narration. Thus, we chose the technique of the "problem centered interview" (Witzel 2000). While the narrative interview demands the researcher to reduce his own influences to a minimum, the problem-centered interview focuses on generating meaningful sequences.

Throughout the subsequent analysis the researcher is guided by the following questions: How does the narrator see relationships in his CMC-context and what qualities does this construction offer? Of course, one will discover aspects in the interview which one is very familiar with. But this effect on the analyzer has to be acknowledged for in order to move beyond

looking at the other towards looking through his or her eyes, i.e. exploring their perspective. The main difference of this method with other well-known techniques of content analysis (like those used by Glaser and Strauss (1967), for example) is that there are no pre-formulated categories which can be used by the analyzer in order to process the interview. The coding scheme is replaced by the issues and topics which are addressed by the narrator himself. The analysis results in a list of topics supported by quotations, which can be developed into a map or "landscape" displaying the topics and their relations to each other.

To validate the interpretation we advanced as follows: The first step was to compare our own analysis with that of another partner, who also analyzed the material. During this step the interpreted topics and the landscape were critically discussed, reviewed and validated in multiple sessions. In a second step, the results were validated with the interviewee. In the end, the aggregation of topics from multiple organizational members enabled the researcher to identify typical common traits (communicative practices) of the organization and thus generate practice-based knowledge about the relational scaffolding process in CMC-contexts. These results will be presented shortly after sketching the sites and the interview sample.

We selected interviewees from four companies in order to assure a certain degree of contextual diversity in the sample.

The first company was a services department of a document imaging service provider that is relying heavily on its project organization. As a second organization, the holding of a financial services (and insurance) company was chosen. The third organisation was a multi-national conglomerate, operating in the production of pharmaceuticals. As a fourth organization we selected the national branch of a multinational stategy expert consultancy with more than hundred employees in Switzerland and several thousands world-wide. All companies are located in the German-speaking part of Switzerland.

In each organization, four to seven interviews were conducted between late 2004 and April 2005. Interview partners were selected in cooperation with one "gatekeeper" who was appointed by leaders in upper or top management (leader of the staff division/assistant of the CEO/the site leader/managing partner). The selected interviewees had to fulfill two minimum requirements: Firstly, they should have access to a significant variety (five or more) of seperated communication technologies in their working context. Secondly, their everyday work life should be predominantly related to communication activities. Overall, the whole sample consists of 21 interviewees, working in aidee and management positions to the largest part. The interviews took about one to one and a half hours each.

6. Relational Patterns in Hybrid Communication

Corporations operate in different environments – characterized by diverse competitors, markets, institutions, technologies and cultures. Organizations provide their members with the contextual frame in which they interact. In this study, companies from different industries were chosen to contrast relational scaffolding practices in different CMC-contexts.

The following is structured as follows: First, we will describe the core pattern, the explfication spiral. From there on, we will provide an empirical overview of the subsequent patterns in how they relate to the core pattern. The brief description of the specific patterns follows.

6.1 The Core Pattern: The Explification Spiral

When talking about their work in the context of computer media, interviewees often refer to the formalization of communication, which embodies a duality of two topics: On the one hand, the mere form of communication has shifted as it becomes more explicit. On the other hand, it is observable that the adequate regulation of communication is often discussed and described as a problem:

Communicating Explicitly

When people are asked about their experiences with computer media, it is remarkable that CMC is often depicted as the source of misunderstandings or erroneous communication. A typical situation is told by this project leader:

> [We had a developer working for us as subcontractor on a project. He was located in Vienna.] "But in the end obvious things were not discussed any more. One has focused on problems, but there were no informal exchange possibilities with him. That was fatal. At the integration, when we were all at the same place, it took less than two minutes to understand – and already before the computers were started up – that he had based his development on a totally different interface. That cost us dearly time and money." (ip3)

One challenge of virtual cooperation becomes clear: Communication is at the risk of being misunderstood. The interview partner assigns this fact to absent informal exchange possibilities. CMC is seen as a limited means of communicating relational information which is mostly exchanged nonverbally and which is very fine in its character:

"All these fine informal signals are entirely missing. You have to have an ex-treme consciousness about what is going on in yourself. You have to formulate everything. And there aren't those little, fine signals from everyday life." (ip3)

To avoid misunderstandnigs one needs to formulate very fine details as a compensation for these missing signals. This is the reason for a very explicit style of communication:

"Using e-mail you have to make most things explicitly. You really have to say: 'This and that is our problem and we expect this and that input'." (ip1)

When using text-based media the possibility to revise the typed message before sending offers the opportunity to reformulate it in a more effective manner. The effort to avoid misunderstandings leads to a shift in the function of the written language. This interviewee explains that her language becomes more bureaucratic.

"With the experience you get foxy. So I always reconsider the text of an e-mail and I say to myself: 'This here could be wrongly understood.' Then I start to reformulate the sentences I wrote. Formerly, you took care of well-formulated and smoothed messages. Today you lapse easily into bureaucratic language to avoid misunderstandings." (ip8)

The term bureaucratic language points towards the structuring of the message in such a way that it becomes clearer and less ambiguous. Of course, misunderstandings are not predictable per se. But communicating in a very explicit style and choosing a task-oriented form is one way of reducing misunderstanding that works for the interviewees.

Regulation of Communication

For the interviewees, CMC often implies that communication is altered in the sense that it is regulated and standardized. Multiple narrations can be cited here. The regulation of communication becomes especially obvious in this example of large projects where employees and customers likewise have to manage a huge amount of information:

"As far as the electronic means [at the initial meeting for a project] are concerned, we exchange the e-mail-addresses and we consider, where to store the documents – maybe in an e-room or some other application. Then you have to test, whether this works for everyone concerned. Often, there are some problems with firewalls or some protocols don't work properly. You have to test this first before you can use it. When everything is okay, we agree upon a structure, in which the project documents shall be stored. Partly there are large international projects in which even the e-mail-headers are standardized. (ip1)

All this is defined in a communication concept, which is one part of how projects are managed in the company. In this case, regulation aims at the storage of information and the standardization of e-mail-headers. Very often, interviewees use text-based media for documentation purposes. For the leader of an IT-training center the delegation of his instructions via e-mail serves as documentation.

"I prefer to send tasks to my people via e-mail – of course, with an explanation before or afterwards. But then I know they have it in their inbox and cannot say 'I forgot.'" (ip12)

By documenting his instructions, he creates communication which leaves no doubt about his intentions. On the flipside, employees can expect that an instruction in many cases will be backed up by a corresponding e-mail. Another example is that of an interviewee who has adjusted her behavior to the restraints of the medium and uses e-mail for her requests. Her imperative how to write an e-mail has changed:

"From all this mailing I've learned that my colleagues are swamped when I touch different topics in one mail. So the lesson learned is: One topic, one mail." (ip8)

The medium regulates her style of communication in the sense that she started writing more e-mails which are now shorter and more focused. Even when text-based communication is left aside, as in synchronous communication settings – like in telephone or web conferences – interviewees state that communication is very explicit and conferences are at its best when they are very structured and someone takes minutes which will be sent out for review after the conference.

These examples illustrate the formalization process, which takes place when means of CMC are applied. In its consequence it seems that communication rather takes place to fulfill the communication regulations that are set up than to produce commitment and reciprocity in the personal relationship. The relationship between 'communicating explicitly' and 'regulation of communication' is recursive because explicit communication often produces explicit regulations and rules. The other way around, rules and regulations are communicated explicitly and produce explicit communication. This recursive understanding has a central position in the landscape because it expresses a general dynamic which is very often emphasized in the use of CMC, but which is hardly reflected upon by practitioners.

6.2 Overviewing the Landscape Using the Core Pattern in the Context of Organized Communication

As the explification spiral provides the core, the subsequent patterns to be sketched shortly, relate to its movement in different ways. "People placement" is a structural means across single communicative events to aid inhibiting as well as handling misunderstandings by placing a person directly with the customer organization. Simirlarly, the last pattern of the list, "Creating Consciousness About the Document Effect" rather refers in scope across single settings, yet less materizalized in pointing towards this unintended effect of CMC in the workplace. Also a rather social practice of little materialization is "Social Awareness" pointing towards the relational dimension of participants within a communicative setting. If misunderstandings within and across single communicative events do occur, there is the possibility for "Activation of Hierarchy". This practice points towards handling a situation with outside help of those regarded more powerful. In order to avoid such problematic situations in the first place, the pattern "Committing on Ground Rules" points out to decide mainly within a communicative setting on how to deal with each other. This practice can become a part of the communicaiton culture as a "Communication Code of Conduct". Such a code can serve within and across communicative settings and thus works also across time and space, sometimes for the entire organization. If such a code may not be explicated, there is still the possibility for "Superior Orientation". This pattern indicates that members observe the preferred media and usage form of their superior to ensure organized communication.

In sum, the following patterns structure the explification spiral. On the one hand, they represent specific ways of explicating the practice of communicating. In doing so, the patterns help to reduce ambiguity within and across settings. On the other hand, these patterns also restrict the explification spiral, to allow for space of relationship building among participants by means of topics and time within settings that not relates directly to work purposes.

6.3 Pattern 'People Placements'

The practice of "people placement" is a very typical pattern to bridge the hazard of CMC and to improve organizational performance. Most of the interviewees concurrently work in multiple large projects and communicated by telephone and webconferencing tools as well as shared internet platforms. In this project work environment, it happens very often, that

multiple complications occur due to the use of advanced communication technologies. People describe these situations as "misunderstandings" between the involved project team members. These misunderstandings cause significant extra work often accomplished over night or during weekends. In addition, they lead to complications in the course of the company's projects. The project schedule is rigid, and the project size typically prohibits re-organising the schedule situatively. 'People placement' is a pattern to avoid such misunderstandings: In one company, managers began to organize their projects in such a way that at least one project member in every project is directly with the client's organization. This pattern evolved intuitively and became to be an accepted practice in the company's project organization. An advantage of this practice is that this team member is able to recognize project-relevant concerns directly at the customer's site, which in turn allows handling it before it evolves.

A major challenge for the distributed project member is to align the project within the context of the client company and the own organization including an adequate information flow. This process means on the one hand to translate problems, challenges, or otherwise significant information from the customer's site into the language and terminology of the project team. On the other hand, this person is able to transfer the internal terms of the project into the language of the client. He knows the most important persons in the customer's organization as well as the process framework in which they operate and he has knowledge about crucial cultural components.

As 'people placement' was successful externally with clients, some managers in the company try to realize it in internal collaboration as well. A manager mentions:

"I looked for possibilities to place my people in projects of my colleagues in other locations of the company. On first glance, most of the people said: 'Why should I work on a project in Geneva when my office is in Zurich?' But it's a fact that the efficiency is massively increased by this measure." (ip3)

It is through the personal presence by which the networking between the internal and external project members is planned and scaffolded. The interview partners argue that the personal presence not only increases the collaboration efficiency but also possesses a symbolic meaning that is able to absorb uncertainty. One project leader described a situation in which a project faced severe problems. Instantly, the project leader drove to the airport and took the next flight to the customer's site. Originally, it was not his project and he was not involved – but somehow he was the only one at-hand. He remembers:

"For the customer this really had a calmative effect: 'Ah, someone else is coming to help us here to solve the problem. That's a new face... someone who is reliable.' This was an enormous help. You cannot get such an effect by video conferences or anything technical. By the way, in this sense there is no difference between web conferences and even telephone conferences. Conferencing just doesn't contribute to trust building. That's our experience at least." (ip1)

These findings illustrate that personal contact remains the primary source to foster collaboration. It allows including the relational dimension among the participants, apart from solving the actual problem at hand. For this level, virtual media can also be used, as it does not require personal presence and therefore reduces travelling costs, as in this example. But, as the interviewee points out, trust building is rather difficult within technically mediated communication which means that it functions under the conditions in which the relationships are established. Although computer media is easily accessible in the company, it is either used when the project team constellation does not allow other solutions (for example routine conferences in largely distributed projects) or when personal relationships still exist.

The interviewees regard the lack of commitment in computer-mediated communication as a severe problem. Two patterns evolved to handle this identified problem:

6.4 Pattern "Social Awareness"

The pattern "social awareness" consists of a distinct culture of personal contact. This awareness is cultivated and repeatedly pronounced by the members of one department. This is observable in the typical media choice behaviour of the interviewees. When they sense upcoming ambiguities in interpersonal communication quickly switching between e-mail and telephone is quite common. By this manner, organizational members increase the synchronicity during the collaboration process and develop a precondition to avoid misunderstandings. This routine is promoted by the circumstance that all members are placed in one building. Thus, the opportunity exists to stop by at the office of the other to handle problems and upcoming vagueness.

All interviewees in this part of the company appreciate the direct personal contact. This also confesses in routinized – and often institutionalized – meetings. These meetings offer the important context for discussions on the one hand and for validating what was communicated via CMC before, on the other hand. Misunderstandings can be revealed and rectified relatively promptly and the danger of disintegrating trust can be averted:

"The personal contact is very important, of course. You know, we have institutionalized meetings. This is because even if you have e-mails: If you have to discuss something with three people and even if they are separated by four storeys only, you need the personal contact. Either you meet physically or you exchange by phone." (ip6)

Routinized team meetings are supplemented by informal meetings. The daily coffee breaks (in the literature also discussed as "water cooler talks", see for example Leland and Bailey 2006) are very much appreciated:

"Here we have a coffee break for realizing these interactive moments. And then we meet and we consciously experience 'high quality'. With coffee not in paper cups. By the way – do you want some?" (ip5)

Routinized team meetings compensate some disadvantages of virtual communication. Here, colleagues can clarify questionable issues and misunderstandings that arose during the day. Additionally information can be exchanged casually, discussions might be led and knowledge can be generated that would otherwise not be that easily possible via CMC. Especially the informal meetings have a social value on their own, which can become relevant for conducting business as it allows for personal relationships to build across the departmental "garden fences":

"We care for this interaction but they are not formal settings – they are informal talks. But we do care for business issues, too. Well, it's a platform where we meet once or twice a day. One comes along the floor [he is pointing on the open door] - "Coffee!" and then we know now comes a phase of relaxation and to talk about things beyond the gardenfence. We can deal with private issues – "my cat's sickness" and such things. And I think, that is very important." (ip5)

6.5 Pattern "Activation of hierarchy"

Besides "social awareness", there is a second pattern to deal with reduced commitment in hybrid communication. It is the activation of hierarchy in distance cooperation:

"For instance in Belgium: Even if you dial the direct number of anyone … you get anywhere except for the person you want to talk with. Within ten minutes this person is sick, in vacation or in a meeting. There I have to ask: Let they negate them or do they not know about their business? When I really need information from a person I have no choice than to escalate the whole thing to the upper levels. To ask the CEO. Because I need the information for doing my work." (ip6)

The role of hierarchy gains a new colour in this situation: Via the person of the CEO the interests of the interview partner become represented at the

office in Belgium. Thus, meaning is generated here via attributing requests to seemingly important persons rather than by using electronic media.

The description in this company shows that reduced commitment is especially caused through scant attention. A first strategy to deal with this problem consists of routinized and institutionalized contact in presence meetings and shared informal breaks. They are measures to validate (ex post) the meaning of virtual communication and to correct misunderstandings. The use of hierarchy to create meaning over great distances is a second strategically measure to raise the attention level and thus commitment. In this company the character of hierarchy can be described as relatively strict – this should be taken into consideration.

6.6 Pattern "Committing on Groundrules"

In one company, the pattern 'committing on groundrules' became very apparent. The company operates at multiple sites all over the world. The company operates globally. Its functioning crucially depends on the performance of the IT infrastructure, as an interviewee points out:

"[We have to report critical incidents] in our production to the health authorities. They are responsible for the drug safety in their country or country group. If I imagine I have to communicate such an incident to 200 people I would not be able to do so in adequate time with a conventional method, without electronics." (ip10)

Virtual communication between the sites on all management levels is quite common. This is especially the case in cross-section projects like human resources and IT management or in (re-)organization programmes. To sustain virtual collaboration the company offers video conferencing facilities at each site, which are taken care off by a company founded for this purpose.

Due to the size and form of the organization, the company's cooperation needs can be distinguished into assuring cooperation in *global* virtual teams as well as into *local* cooperation at one site. We will turn to them successively to highlight the respective use of communication media according to each of these modes of cooperation.

On the global scale, interviewees find the lack of a common global cooperation culture problematic. Guidelines for orientation and common standards are not established in practice despite respective written papers. Media use eases communication but not the process of joint understanding. Thus, the avoidance of misunderstandings and the creation of commitment are of central meaning here as well. To handle this shortcoming, the orga-

nization developed shared rules and standards ("groundrules") for dealing with the interpersonal issues:

"[There are] simply certain physical limitations, how much you can realize the personal get-together. Either you pull all people together or – as a leader – you visit them at the site. There are definitely certain limitations and a compromise has to be found. But this also means that other rules have to be defined. We named them "groundrules". For example, we imposed on us different groundrules depending on whether we work with video conferencing, NetMeeting or shareweb. Especially the rules have to be changed about how we deal with these issues in interpersonal communication." (ip14)

6.7 Pattern "Superior Orientation"

It is mentioned by almost all interviewees that they align their behaviour in virtual communication and their media use in the project with the preferences of the responsible partner respectively project leader. The leader's preferences serve as orientation for the whole project communication. As one consultant states:

"[Our style of communication] depends on the person not on the project. It depends on the preferences of the manager or the vice president. The one says: "If you have questions then leave me a message on my voice mail. I check them regularly every hour." The other says: "Always per e-mail, please." And the next one says: "Just call me via phone. I'm within reach at every time." So this varies a lot." (ip21)

The superior's communication style is known by the project team or is announced by him, with seemingly naturally not being questioned in this respect by the interviewees. This practice generates a certain clarity regarding the question of which medium is used and for what purpose. Hence, misunderstandings that are caused by different media use behaviour can be reduced.

6.8 Pattern "Communication Code of Conduct"

Knowing the communication style of the project leader is a practice that is supplemented by the communication codes of conduct. In the company there seems to be a wide agreement upon the standard how reachable the project team members have to be. A superior, for example:

"… cannot say good bye and go in vacation. A manager of us is actually reachable. Maybe reluctantly, but you'll reach him somehow. He will check his voice mail and reply. Whereas an associate on a project: If he goes in vacation, he really

will be in vacation. It's very seldom that someone calls him there or leaves him a voice mail message." (ip21)

Also at the workplace and during the working time the project members usually know each other's availability that is sometimes explicitly announced:

"… at the same time we do know that the other one do check their mails regularly and with a high frequency. That's a little bit special in this company." (ip20)

During the consulting communication with the client it is remarkable that media are chosen very carefully:

"We write a letter when we want that it's really of legal relevance. Like a work contract, for example. We send E-mails when it should be of legal relevance, too, but is hasn't to be too official. We use voice mails when it's equal whether other persons could potentially be informed by that or not. And we use the telephone simply then, when we don't want the other to forward the message. Ok, he can pass it on but he has no evidence somehow. I guess, we think carefully about what media we choose." (ip19)

The depictions of this media hierarchy regarding the documenting effect of communication were concordant in diverse interviews.

6.9 Pattern "Creating Conciousness About the Documenting Effect of CMC"

The well known media hierarchies in diverse organizational settings show that a process of creating consciousness about the documenting effect concerning these technologies took place at an earlier date. Using media that document communication bears the risk of loosing control about information and increases the probability of misuse. Besides the caused damage, this could be interpreted as unprofessional behaviour. Nevertheless, signalling the own competencies with professional communication behaviour is of importance for the company. Moreover, the consultants strive for that even in internal communication:

"I think it's linked up to where I guess the other presently is and which time he has. Let's assume it is relatively late at night. Then I won't call him. Although I can be sure that the other one is at 11 pm in a reasonably good mental shape. In this situation, I write an e-mail or I send him a voice mail. Somehow, it is … I just don't want to run around all 15 minutes – to a manager or so. In the consequence it produces the impression as if I can't do anything on my own." (ip21)

The practices of this company show how effective communication behaviour can be achieved. The orientation at the communication style of the su-

perior ensures that the adequate kind of transmission is chosen. This increases the possibility that the counterpart can understand the sent message. Additionally, it belongs to the corporate culture to make the own reachability explicit in case of deviation from the normal frequency of mail checking.

7. Discussion

Our findings stem from four different companies. All patterns could be observed in each company but were pronounced differently as well. Thus, the patterns could be recognized in diverse organizational contexts in different degrees of clarity.

The first organization showed that people placements took care for an efficient and holistic information transfer between organization and client. *Social awareness* and *hierarchical control* are typical patterns at the insurance company.

At the pharmaceuticals company on the global side the IT infrastructure requests the explicit *commitment to groundrules* for acknowledging the relational dimension that would otherwise be marginalized. On the local side the central challenge lies in the use of communication technology in a way that it does not hinder efficient work. People have to try to discipline themselves in virtual communication but are not really successful in developing collective routines that foster this striving. Eventually the very common use of video conferencing in the organization is such a part of mutual disciplining in virtual communication because this type of communication cannot be that inflationary used like e-mails can.

The strategy consulting company showed that the *superior orientation* and a strongly shared *communication code of conduct* make it easier to effectively communicate via communication media within an organizational setting of project oriented teams. Concluding, the process of *creating consciousness about the documenting effect* of communication media makes it easier to reflect on possible consequences of the communication and thus the possible losses of control. These three patterns seem to be at the communal communication core of this firm. And, in the eye of the beholder, this existing pattern of shared priorities with regard to communication seems to be successful to deal with the challenges of CMC.

As we have shown earlier, the relational scaffolding model distinguishes between four different CMC-processes which are embedded in organizational and cultural context(s): Contextualization of the message content, shaping relationships, technological enabling of communication and the

social construction of technology by human communication. As all CMC actions are embedded in a wider context, we also mention the organizational/cultural context(s) as source of influence. Table 2 sorts the patterns according to these processes to focus on their different functions in the process of relational scaffolding.

Table 1. Organizational scaffolding practices in the context of CMC

Social Processes / Influences	Patterns
I. Contextualization of message content	• people placements
	• social awareness
II. Shaping relationships	• committing on groundrules
	• communication code of conduct
III. Technological enabling of communication	• the explification spiral
IV. Social constructing of technology	• creating consciousness about the documenting effect of CMC
V. Organizational / cultural context(s)	• activation of hierarchy
	• superior orientation
	• communication code of conduct

I. Contextualization of message content

The patterns *people placements* and *social awareness* can be seen as measures to enact a specific context for technologically mediated messages. By *people placements*, the organization adds a pre-existing relationship (between the project team of the organization and distributed members) to the otherwise solely message-centered information exchange. In *social awareness* an implicit pattern exists in which people appreciate the wider social context and thus can improve the creation of meaning that was intended by prior CMC activities. People use the sense of awareness to validate virtual messages with the respective meaning or they supplement those messages by meaning that was not mediated before. To realize this practice, organizational members need to have niches of physical presence where conversation with a high degree of synchronicity is possible.

II. Shaping relationships

Committing on groundrules and *communication code of conduct* are two patterns that serve the shaping of relationships. In both the norms of how

to behave in CMC are discussed explicitly. These two patterns provide a discoursive context to create, reflect and develop meaning regarding the way of communicating. However, a communication code of conduct is also part of the organization's culture. Therefore, it is also listed under "organizational context".

III. Technological enabling of communication

Regarding the technological enabling of communication this study fails to explain detailed practices. Stories and narrations can be found in the material about how and why people combine various media to create technological frameworks that perform the requested purpose. As an example, we can refer to the *explification spiral*-process that we illustrated above: In this process people communicate with lean media (e.g. e-mail) and tap into a conflict. As a consequence, the participants very quickly switch to a medium providing higher synchronicity (e.g. phone) and usually try to de-escalate the situation. This seems to be a common practice as it is backed up by several narrations throughout the interviews.

IV. Social constructing of technology

A conspicuous link to the social construction of technology can be seen in the practice *creating consciousness about the documenting effect* of communication technology. By this practice the social constructing has taken place by which the used media is prioritized regarding its documenting effect. This construction process is of relevance for the company as it is working with information that is very sensitive with respect to the organization's competitors. The documenting effect provides additional meaning to the conveyed message relating to its potential use for legal purposes, for instance. It therefore also co-constructs the relationship quality among the participants as they all can expect the different possible usages.

V. Organizational / cultural context(s)

The activation of hierarchy, *superior orientation* and *communication codes of conduct* can be seen as CMC-patterns that are influenced by organizational and cultural context(s) of the organization. In this section, we find necessary conditions for successful CMC. The more and better these antecedents are commonly understood (regarding the functioning of the organization's hierarchy, the superiors' preferences as well as regarding the common traits in CMC) the more complex information may be generated among the participants of the communication. Furthermore, such knowl-

edge enhances communication speed as the response-time is supposedly reduced. This in turn, affects relationship quality via the mutually held images of the participants particularly in contexts, in which response time is considered critical, as it appears in consultancy.

7.1 Implications

Our findings suggest that CMC significantly increases the degree of complexity of organizational communication processes. In addition, relational processes in organizations are influenced by this.

Organizations' members today have more communication opportunities than ever before. Correspondingly, our interviewees showed sophisticated patterns of maintaining their existing relationships. In these relationships, the transparency of communication is much higher and they feel safer. Another relational issue that surfaced was the perceived risk of being disempowered by CMC use. This risk is based on the imminent loss of control over a digitally documented message. After it is sent, the control over its distribution turns to the other participant bearing the risk of becoming a kind of "boomerang" when strangers interpret it at some unknown moment in the future. For us, this risk seems to be the main reason for leaders and consultants not to use CMC in sensitive or delicate situations and rather turn to telephone or face-to-face communication. As communicative partner(s) might expect this risk as the reason for switching media, the media itself attributes to the meaning of the content of the communication as being delicate and of utter importance.

CMC is very often used in fields, where the relational basis is established or in which the meaning of the communication is unquestionable. In these areas it works very well. Nevertheless, for processes of creating shared meaning it can be seen as an ambiguous tool. Those processes can be subsumed under the kind of non-linear processes. A large variety of organizational topics belong in this type of communications, to name only a few: Leadership, gender issues, diversity management, negotiations or ethics, as they all address important issues of identity of those involved. The same can hold true for organizational change and organizational learning. They also base on non-linear communication processes. We assume, CMC should be deployed very carefully for organizational issues. In addition, for organizational analysis we should be highly aware of CMC processes. They have to be understood as forms of institutionalization that cannot being altered as easily as it seems.

The presented study allows for implications with regard to the applied methodology as well as concerning its results. In the following, we discuss some critical implications.

First, a methodological critique can be that we did not apply a field study section in our empirics. Therefore, no "thick description" is possible like it is used in cultural studies or ethnography. This objection is justifiable. However, we chose the method of problem-centered interviews for raising very detailed interpretations of the interviewees by this very good empirical substance to work with. Our underlying assumption is that people as actors are able reflect upon their actions. Their agency enables them to observe and reduce the environmental complexity according to their individual and relational needs. This is an idea of man who is both: constrained by his or her environment as well as capable of enacting it (see, for a similar understanding, e.g. Karl E. Weick or Anthony Giddens).

Second, although we are interested in explaining a facet of the phenomenon "communication" we did not choose to analyse the specific contents of messages. Classical communication researchers would not agree with this proceeding. But we decided to take another route to investigate communication: According to our idea of man we derive on the descriptions of our interviewees to gather "*in-vivo*" illustrations about the overall process of communication. Thus, our basic assumption here is that communication also has a dual character: On the one hand, communication is the mediation of information; on the other hand, meaning is symbolically created in that it is a relational process that has less to do with an explicit exchange of messages. This stance goes along with Watzlawick's first axiom of pragmatic communication that says, people cannot *not* communicate (Watzlawick et al. 2000). We can expand this understanding regarding relationships: People cannot *not* relate. In this position we are backed up by symbolic interactionism (Blumer 1973) which therefore is a very important intellectual resource for our methodology.

Third, we did not use the method of triangulation as it is demanded by some experts in interpretive methodology. Instead, we applied an extremely intensive group validation method. Each of our interviews was validated in group sessions that took up to multiple hours to raise the meaning out of it. And this result has to prove valid among all group members. It is caused by this method, why we call it "validation" – each interview analysis has gone through a process in which the "interpretive traceability" has been proven. Our basic assumption is here, that interpretive research has to deal with multiple perspectives that underlie - naturally – the interpretive process again. Shifting the "blind spot" in human recognition from one position to another is thus a never-ending process. We

chose to triangulate not with multiple source-origins (documents, interviews, protocols) but instead with use multiple group members as sources of slightly different meaning that could be derived from the interview transcripts.

8. Conclusion

With regard to our results, we can remark the following: The "explification spiral" itself is not entirely new in the field. It was in the beginnings of CMC-research when the explicit character of CMC was observed. But from an organizational perspective this explification shift is neither conceptualized nor understood. Our suggested spiral illustration serves as a delineation that expresses the recursive character of this phenomenon. Further studies may take this into account because this understanding destabilizes any linear perspective on the phenomenon of organizational communication. Also, the second half of the explification spiral has been of interest for decades: Formalization and formalizing processes were subject to studies in the mid-1960s and earlier. Especially, sociologists were fascinated of the fragile balance of formal and informal processes in organizations. Thus, our study shows nothing revolutionary new in this field but also a new interdependence between media characteristics and organizational processes. At the intersection of formalization (that is structuring in the wider sense) and technology-mediated communication thus new questions regarding processes of "organizational becoming" can be studied – online communities and spontaneous online solidarity are only two key words in this area. Also, the explification spiral illustrates how communication can be trapped in a vicious circle that promotes the massive generation of explicit data more than creating shared meaning. Our description offers leverage points for intervention for example by revising the own formalized structures and scrutinizing them.

Last but not least and according to the before mentioned argument, we should confirm that our results are dependant on the beholder's willingness to accept the contextuality of our results. We realized our empirics with a self understanding as social scientist with a qualitative social research background that means we are fundamentally addicted to the interpretive paradigm. Contextuality is of strong relevance in this research stream and it enables us to build (proto-)types and classifications of types to understand social world as it emerges and unfolds. Today, it seems for us that the crystallization of types as well as to prove whether they are fitting or not is a sustainable and powerful method to create understanding for peo-

ple that are concerned by the investigated topic. Working with types rejects the possibility of total comparisons – but it is our assumption that it enables the creation of shared meaning and thus builds the basis for successful learning and the improvement of (organizational) effectiveness.

This paper presented a relational approach to explore CMC in hybrid work settings. We used and developed the relational scaffolding model that bases on the conceptual notion of relational scaffolding. This framework enabled us to visualize common patterns and traits with regard to the use of communication technology in organizations. Thus, the relational scaffolding model has been proven as a heuristic to conceptualize a field of organizational reality. Organizational dynamics can be put into order by this model. The model can help to reflect upon taken-for-granted manners and behaviours, reality perceptions and perspectives on CMC in organizational communities of relational practice.

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