EXPLORING THE IMPACT OF REAL-TIME COMMUNICATION ON MEDIA CHOICE IN THE CONTEXT OF DISTRIBUTED WORK

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Abstract

This paper presents an exploratory study into the use of real-time communication (RTC) systems to support distributed work. Motivated by the authors' dissatisfaction with theories assuming individually rational actors, the paper suggests the idea of informated presence to capture phenomena emerging from employees' increasingly computer-mediated engagement with their work environment. Four case vignettes are presented to illustrate different communicative strategies that develop in response to presence availability updates generated by RTC systems. Drawing from Goffman's microsociological idea of interaction order and Zuboff's seminal work on computer-mediated work, the findings indicate the limitations of approaches such as information richness theory in understanding real-time communication in organizational settings. More research is needed to elaborate the implications of informated presence on distributed work and coordination of knowledge workers.

Keywords: communicative strategy, distributed work, presence, real-time communication, RTC

1 INTRODUCTION

This paper presents an exploratory study into the use of real-time communication (RTC) systems to support distributed work. Real-time communication systems are a distinct type of computer-mediated communication tools emerging from the convergence of telecommunications and groupware systems. The applications typically combine a number of synchronous and asynchronous channels such as instant messaging, voice over IP calls, conferencing, and file transfers in addition to incorporating presence availability information (Frößler and Klein 2006). Systems such as Skype, IBM Lotus Sametime and Microsoft Office Communicator are already in use in numerous organizational settings and their proliferation is projected to continue in the coming years (Dewing 2008, Gantz et al. 2007, Gantz et al. 2008, Lyman and Varian 2003).

Previous studies on real-time communication in organizational settings have made several interesting findings regarding the function, content and style of communication. Too little attention has been, however, paid to understanding how these systems reframe the communicative arrangement employees find themselves at work. We argue that the material makeup of RTC tools differs from antecedent systems (such as email) to an extent that warrants re-examination. More specifically, the systems incorporate real-time presence information unlike any previous media. It is our contention that common approaches such as information richness theory (Daft and Lengel 1984) used to explain media choice are inadequate to understand these differences.

The paper puts forward an idea of informated presence as a way of capturing organizational phenomena revolving around shifts in the interactional arrangements. It also discusses emerging communicative strategies employees harness to cope with interaction in an increasingly digital working environment. We understand communicative strategies as the ways individuals choose a particular media and establish channels in order to communicate with others. The argument draws from the microsociological idea of interaction order (Goffman 1983, Knorr Cetina and Bruegger 2002) and the discussion on information as the substratum of organizing (Kallinikos 2006, Zuboff 1988). In order to substantiate our views we present four case vignettes representing distributed knowledge work, both in small and in large organizations in the information and communication technology industry.

Our contribution is primarily targeted for the study of distributed work and real-time communication in organizational settings, but we believe the findings could as well be useful in Computer-Supported Cooperative Work (CSCW) and Human-Computer Interaction (HCI) research. The reader should, however, be aware of the tentative nature of claims made in the paper. In other words, we do not claim to provide unquestionable evidence for our argument. The empirical data is drawn from two separate, ongoing PhD thesis projects that, nevertheless, have came to point to similar insights. This is at the same time promising but also introduces some methodological difficulties. Moreover, the authors' shared dissatisfaction with media choice theories based on the assumption of individually rational behaviour was strengthened by our empirical observations and to that end we think it is useful to apply fresh ideas to the topic.

The paper is structured as follows. The next section provides a concise summary of existing literature surrounding real-time communication systems in organizational settings and outlines the idea of informated presence. The third section presents four case vignettes to illustrate emerging communicative strategies through which employees use technological information to be present to each other. The fourth section reviews observations on informated presence and elaborates the communicative strategies that the employees developed across the cases. Finally, we identify possible avenues for future work.

2 LITERATURE REVIEW

It might be assumed that developing communication genres such as instant messaging or voice over IP calls, loosely grouped together as real-time communication, make no significant difference vis-à-vis practices revolving around email. Work-related, interpersonal communication becomes quicker and possibly more efficient, but it is essentially more of the same. In this section we first briefly review extant literature on real-time communication and discuss presence information as a key affordance that sets RTC apart from email. Finally, we sketch informated presence as a perspective to capture organizational implications of real-time communications.

2.1 Literature on real-time communication

The current understanding of the use of RTC systems in organizational settings derives mainly from studies on instant messaging (Cameron and Webster 2005, Huang et al. 2007, Isaacs et al. 2002, Nardi et al. 2000, Quan-Haase et al. 2005). Instant messaging has been found to take place often in a polychronic situation in which the employee engages simultaneously in several different conversations. It can speed up the exchange of information and support new forms of collaboration, but instant messaging has not been found to eradicate social distance or status differences between people. Users typically perceive instant messaging to be more informal than email.

Studying individual communication channels in isolation tends, however, to provide an impoverished view on how technologies mediate social relationships (Licoppe 2004). In the age of internet, employees can choose from a diverse and expanding portfolio of tools and channels to get in touch with each other (Aducci et al. 2008). The variable geometry of work communication easily escapes studies focused narrowly on individual channels. The same employee can take care of equivalent tasks through different media and different employees can use the same media for a variety of different purposes. Most importantly, RTC systems overlay this diversity with situational metadata intended to support individuals in their attempts to instigate and make oneself available for mediated communication with others.

RTC systems provide a status indicator and a short mood message that are used to convey one's immediate availability to other users. This sets RTC apart, for instance, from email (Quan-Haase et al. 2005). Even relatively simple RTC systems are known to generate awareness of remote colleagues ongoing activity in a number of ways (Riemer et al. 2007), and the sensation of mediated co-presence has been found to play an important role in distributed work (Frößler 2008, Schmidt 2002). Nardi et al. (2000) identified certain outeraction practices, in contrast to the content of the interaction, by which people reach out to others in order to manage their interactions. Outeraction encompasses negotiations about the availability and choice of appropriate media in order that individuals can communicate effectively. Mediated presence has been available in planned occasions using dedicated technologies such as videoconferencing systems. More recently, however, real-time presence information has become increasingly integrated into generic technologies, such as workstations and mobile devices, gradually turning it into a constantly active background condition. RTC applications are often configured to launch and set the user's online status automatically.

2.2 Computer-mediated presence

Researchers in the field of Computer-Supported Cooperative Work (CSCW), Human-Computer Interaction (HCI) and virtual environments have studied presence awareness since the mid-1980s (Luczak 2002, Makropoulos et al. 2007). The concept refers to the phenomenon of employees effectively coordinating their work without making a cognitive effort to align their interdependent acts (Schmidt 2002). Under such circumstances people are able to take heed of each other's unfolding activity while focussing on their individual tasks.

Several conceptual distinctions have been put forward to describe the phenomenon. *Presence* is the experience of being in and interacting with a place other than the one is physically located in, and *co-presence* refers to carrying out this process jointly with others (Schroeder 2006). *Connected presence* is the degree to which one's relationships are mediated in environments in which presence and co-presence are experienced (Licoppe 2004). *Presence availability* refers to practices around the instruments such as the status indicator that are at actors' disposal to signal their availability and eventually come together in the mediated setting (Frößler 2008).

It is, however, too limited to frame mediated presence merely as a question of efficient coordination. Whenever two or more people enter into each other's presence they enact a distinctive social institution that microsociologist Goffman (1983) labelled *interaction order*. The basic sociability of humans entails that in order to cope with immediate availability to each other people has to enact a set of institutionalized rules how co-produce an orderly encounter. Knorr Cetina and Bruegger (2002) observed a similar phenomenon in a technologically mediated, real-time environment of currency traders buying and selling currencies on financial markets. They found that market transactions were embedded in situations distributed across organizations, continents and timezones leading the authors to distinguish between the embodied *face-to-face presence* observed by Goffman and technologically mediated *response presence*. The awareness of other's presence results in accountability of interaction, as participants are tied to a moral order knowing that everyone is aware of everyone else's acts. Erickson and Kellogg (2000) describe systems that facilitate normative, immediate commitment to those who are present to us as socially translucent.

2.3 Media choice in the context of informated presence

Computer technology differs from most other machineries in that it does not simply automate tasks, but, crucially, renders organizational processes, events and objects visible in a way that opens up new avenues of acting upon them. Zuboff (1988) labelled the latter as informating in contradistinction to the former in her seminal study on computer-mediated work. Processed by complex and to degree unpredictable corporate information infrastructures, the importance of technological information in organizational matters is steadily growing (Ciborra et al. 2000, Kallinikos 2006). The widespread availability of RTC systems holds a promise of going beyond informated organizational processes and objects of work. In RTC systems the availability of employees, allowing them to engage with each other across space, is turned into technologically mediated information. Presence availability updates constitute "a difference which makes a difference" being thus potentially informative (Bateson 2000, Kallinikos 2006). This is what we call *informated presence*.

The ephemeral presence availability updates generated by RTC systems are not persistently stored and have very little semantic content. This may lead an observer to ignore them in favour of the content of interaction. For instance, information richness theory (Daft and Lengel 1984), which posits that some media are richer than others, and managers, by default, prefer richer media for communication, has serious difficulties analysing this type of informativeness. The theory understands the richness of a medium as a function of its capacity to transmit cues such as body language, voice tone, and inflection. Consequently, alternative theories have been put forward to explain media choice. Straub and Karahanna (1998) researched media choice based on actors' prior knowledge of which media were available to the person being contacted. They suggested a theory based on task closure, so that individuals choose media that they know will likely result in completed communication sequences.

3 CASE VIGNETTES

In this section we present four case vignettes to illustrate our argument with communicative strategies employees deploy in the context of informated presence. In order to explore the topics outlined in the previous section we chose four organizational settings in the information and communication technology sector that had adopted real-time communication system for professional purposes. The

aim of the sampling was to generate rich data on practices revolving around organizational RTC while attributing less weight on the representativeness of our sample. We either knew each setting from our previous engagements or we carried out few days of participant observation to familiarize ourselves with them. The primary data corpus resulted from nineteen recorded and transcribed interviews, four to five in each setting, focusing on how employees get hold of each other and how they communicate in the context of distributed work. The nature of work in each case was essentially collaborative. Individuals had to actively coordinate their activities on an ongoing basis with remote others.

Two of the four case studies took place at multinationals, TelCo and AppsCo, both of which had deployed the same corporate RTC system. Since the companies employed tens of thousands of individuals, the interviews focussed on particular teams. IntStart, in contrast, relied by and large on freely available Internet applications. The employees used Skype as well as other RTC applications largely driven by their individual preferences resulting in a remarkably heterogeneous environment. PeriphCo employees had installed Skype on their workstations on the initiative of the company head. IntStart and PeriphCo organizations were radically co-located (Olson et al. 2002) so that their mediated communication was generally oriented outside the company while at TelCo and AppsCo a significant proportion of internal communication was mediated.

In descending order, the general perceived order of time spent on mediated communications activities in TelCo and AppsCo was email, followed by conference calls, instances of synchronous communication (voice calls and instant messaging) and then other modes of communications. All in all, there was within TelCo and AppsCo a significant variation in interviewees' responses regarding whether they reported using instant messaging more than voice calls or vice versa. Whilst the employees of IntStart considered Skype as a necessary part of their communication toolbox, email and fixed and mobile calls were perceived to be their most important modes of communication. PeriphCo had adopted Skype as the primary communications system and made an ample use of its features including instant messaging, voice and conference calls, file transfers and text messages to mobile phones. Email and other modes of communication were still used in addition to RTC. Despite variation between the entire portfolio of tools and their relative importance between the cases, real-time communication was an integral part of communicative practices in each case.

3.1 Case TelCo

TelCo is a large, traditional telecommunications operator offering consumer and corporate services in several countries. The interviews took place in a team developing solutions for mobile work in large corporations. Informants were a mix of home and office workers whose work required keeping in touch with other sites and occasionally spending time with customers. There were lots of commonalities in the use of mediated communication between TelCo and AppsCo. Amongst those interviewed, email generally remains the primary mode of business communications. It was felt that the asynchronous nature of email suited busy people, because they could respond on their own terms. Email was also perceived to allow an audit trail and facilitate the management of self-expression. The fact that email hands control to the receiver in terms of response meant, however, that questions could be skirted around, misconstrued and manipulated.

In comparison with the other cases, hierarchical control culture came most clearly through in the TelCo interviews. For instance, the informants reported using fixed line communications whenever possible, as the use of mobile was monitored to control costs. Managerial control was also implicated on online status indicator in the corporate RTC system that was used to give the impression of being a good employee. The description of status indicator usage by a lower grade employee expressed a clear awareness of his relative position:

> "I've never set my presence to 'Do not disturb'. […] I do see people who have done that and generally it does put a bold message up to say 'I cannot be contacted'. But I don't like to do that. I think its fear in a way. I don't really want my assignment managers or senior

people looking at it and saying 'Why doesn't he want to be disturbed, what's so important that he doesn't?' [...] I guess sometimes I have logged out of [RTC application] instead of having it as do not disturb."

Calls were thought of being more persuasive and suitable for debate and asking someone to get something done than email. Often misunderstandings and ambiguity that occurred through email had to be cleared up by a phone call. The dialogue enabled by a voice call was perceived to provide more control over ambiguity compared to other modes of communication. Calls were typically made from deskphones instead of the RTC application that was used mainly for simple instant messaging exchanges. Instant messaging was often perceived to be best suited for exchanging short bits of time critical information. It was also treated as urgent when received, which generally accorded a quick response. A time-pressed project manager described his use of instant messaging:

"I probably use it maybe at least a few times a day with various different people. It does depend on what work you're doing at the time. IM tends to be used at the early stages of projects as well and subsequent meetings. Because you've got lots of unknowns and you've got lots of questions that you have to ask. To save time [...] maybe send out a quick IM [...] It's very quick, maybe focused questions, but then as the project progresses and the maturity of understanding increases, you probably tend not to have those IM conversations until later on, when things are getting a bit close to completing then you might want to just double-check, you're finalising what you're doing at work people are, the wrap up type of stuff."

Informants noted, however, that busy people avoided taking calls, as it was felt that asynchronous modes such as email gave them more control as to when they responded to instances of communication. The majority of employees had incoming calls routed via their virtual number and few advertised their mobile numbers as their preferred point of contact. The fixed number for contact at home was only given to a select few. The preference for voice calls coupled with the sporadic availability of people to take up calls produced, interestingly, a specific practice around RTC application.

"I quite often, as behaviour, might look on IM to see – track down where somebody is, before I decide whether I ring them or not."

Despite the more limited use of RTC for the actual interaction at TelCo, it was useful as an outeraction device for assessing and negotiating recipient's availability in other channels. Individuals were clearly conscious of the availability status they displayed and they said to respect the status of others. In other words, even in the setting in which RTC was used in such a limited manner, being in the system demanded attention to the presentation of self and the others through presence availability information. This was the case both with light and heavy users of RTC.

3.2 Case AppsCo

AppsCo is one of the world's leading software development companies producing a range of office productivity applications. The interviews took place within the team concerned with the product management and marketing of these applications within the UK. Whilst the majority of interviewees were based in the same office, projects within the company often drew together people from various domestic and international sites. In contrast to TelCo, the company is less hierarchically controlled and encourages flexible working, so many employees often spend a day or two a week working from home. The widespread use of RTC system was implicated in many telecommuting practices. The system was perceived to engage employees with the work environment to a significant degree as is illustrated by the following comment by an administrator within AppsCo:

"If I do take my laptop home, it's normally because I need – you know I'm waiting for something - a call. So then I'll just check it a period in the evening. [...] But I do try and switch [RTC application] off because it's just too tempting for other people to contact you. Although sometimes you get contacted and it'll be by somebody saying "what are you doing working at this hour?"

Since AppsCo was a multinational with employees working in different time zones around the globe, there was a realisation that switching on the computer in the evening and becoming present on the corporate RTC resulted easily in being drawn into work with colleagues in other settings. Instigating calls was much less popular at AppsCo than in TelCo as many employees preferred instant messaging over voice calls that were viewed as the least effective means of communication within the company. Interestingly, while people were often simply too busy to pick up the call, email was considered by some too slow. Online presence had a clear impact on media choice as in the TelCo case, but with quite different outcomes.

> "If they're online, in fact, invariably if somebody is online, I won't send them an email I'll IM them. I'll just click on the globe and instead of sending them email, I'll IM them instead, generally."

Voice calls were said to be made most often when away from the desk, contacting a person for the first time or reaching people external to the company - especially when handling a sensitive issue. Much like TelCo case, it was felt that voice calls, along with instant messaging, had the advantage of more control, the feedback from intonation and other contextual clues help cut through the confusion that can occur when an email veers off track. There was a sort perception of information richness related to voice calls, but this was not always an advantage. Employees often preferred instant messaging because they found conversations over this medium more succinct avoiding the pfaff of having to waste time going through social grooming in a channel saturated with unnecessary contextual information. The synchronous nature of instant messaging nevertheless provided more control over the course of communication.

> " Before, there was a lot of email so my emails have reduced and my instant messaging traffic has gone up. [...] There are probably slightly more [transactions] because they are shorter and probably because you would break up one - would've been one traditional email thread, be it perhaps many smaller interactions. The topics, maybe a number of things that you've discussed, might be constant. [...] It's chopped up into smaller, more nimble interactions that we try to communicate with bigger single transactions on email. So the fidelity improves because you get more chances to correct the direction of your conversation rather than once a day, or how often you respond to email."

The shift from email to instant messaging was perceived to divide communication into ever-smaller segments. This enabled to tap into smaller and smaller in-betweens in the busy managers schedules – often facilitated by presence availability updates. A consensus appeared to be an emerging in terms of which communications mode should be used based on the availability status of the recipient. For instance, when the availability status of a correspondent was set to "In a meeting", a common strategy was to approach them with an instant messaging. The awareness that that a person is going to a meeting by underground without network coverage in London enabled to send SMS message to be delivered within those few free minutes when the person appears overground and walks to the meeting. This kind of communication needs to be made of very concise messages in order not to overwhelm the recipient. Tapping into such bits and pieces of information may not seem relevant, but, for the following informant, it was precisely what he needed to keep things rolling.

> "A lot of the projects I do have lots of dependencies on other people. But the dependencies are quite small. If I just need an answer that's 'yes/no', 'it's £27', 'here's a code', 'speak to this person', waiting for everyone to answer that in their own email schedule really can divert your day. And you can wait two or three days for someone to reply to an email saying 'I'm not the right person to speak to'."

The bulk of email processing was generally done in the company first thing in the morning and late in the working day. The responses were often received at the end of the business day and it was felt that it was easier to ignore email than other modes of communication such as instant messaging. Waiting all day for a reply from a colleague, whose presence availability you could observe, felt too long. There was also a view amongst some interviewees that an instant messaging dialogue was less intrusive than calling or emailing someone, as it did not require one hundred percent attention. In

TelCo and AppsCo where many people sat in the meetings most of the day it enabled concurrent working in environments such as meetings and conference calls and, as in special cases, backchannel chats between subsets of people engaged in a meeting. In contrast to TelCo, the team interviewed at AppsCo represents corporate heavy users of RTC. Resulting from the different organizational setting the practices revolving around RTC were different, but they equally drew from the affordance generated by presence information.

3.3 Case IntStart

IntStart is a social enterprise founded in 2006 by five co-founders (the informants) with a mission to introduce a radical innovation in the educational sector while aiming to be financially profitable at the same time. The company develops and operates an internet-based platform to facilitate informal learning by matching individuals who are interested in teaching and learning various skills. In a stark contrast to corporations like TelCo and AppsCo, people were relatively free to use whatever tools available in Internet to get their work done at IntStart – including using Facebook and a range of consumer instant messaging systems for work-related communication. While the informants reported a number of idiosyncratic communication patterns and tools, email, both fixed and mobile phone, and Skype were used by everybody.

> "It [Skype] is a sort of necessity rather than hey this is a really good idea, let's get on and do it. It is kind of I need to, I have to, I have no choice."

Having originally worked from various locations around the UK without a physical office space, the employees valued highly physical presence afforded by the newly acquired office. Resulting from this the importance of mediated communications in running the daily operations had diminished. Great deal of the daily activities revolved around the two big tables the company occupied in an open-plan office hosting several other organizations as well. In terms of advancing their common endeavour, being radically co-located at the same physical space was seen crucial. In order to enable the team to come physically together, the company relied, however, on distributed forms of work and RTC tools.

The informants reported having used real-time communication extensively before they had acquired the office space. Nowadays, RTC was still being used whenever the team members were working remotely or were travelling to meet different stakeholders. Status indicator was then used to signal availability between the remote team member and the core team at the office providing a sense of social cohesion. Long RTC conversations could emerge when distant team members were working simultaneously on the same software development issue or document. Questions about status indicator triggered elaborate accounts on how the informants interpreted each other's presence information.

> "A lot of people don't respect other people's business [status indicator state] very much. I like to think I do, but I think that it means that then you ask someone if they can talk, and they don't have to reply if they don't want to."

Individual employees had different habits with respect to how they set their online presence. These ranged from some of the employees being virtually always online whenever their computer was turned on to others preferring to hide their presence availability status. The very possibility of broadcasting and having others observe one's online presence was, nevertheless, something that employees had to relate to. Staying out from the digital work environment was difficult and, as in other cases, employees felt ambivalent towards the demands computer-mediated presence availability in the local setting.

> "Now, partly because [colleague name] is at home, the others maybe not around, and we are using Skype a bit more internally for a sort of pinging documents, doing things like that, I just kind of leave it on. But I hate it because what immediately happens is that I then go off to have a meeting other side of the desk and hour later I found someone tried to Skype me because I forgot to change my status."

Finally, the nature of start-up organization introduced an interesting twist to use of RTC and computer-mediated presence. The co-founders of IntStart had been and to some degree still are

simultaneously involved in other organizations. Real-time communication has enabled them to share their individual contributions – while sitting together at the office – across several organizations providing vital personal income before the company secured funding. In the case, presence information penetrates into the work of radically co-located team.

3.4 Case PeriphCo

PeriphCo develops computer peripherals such as headsets and webcams, and sells them to distributors throughout the world. The company is a subsidiary of an Asian manufacturing company that has its factory in Mainland China. Located in Northern Spain, PeriphCo office employs 7 people in a relaxed atmosphere. The informants included a product development manager, IT manager and the head of the company. In the fast-moving, highly competitive industry, everyday operations require coordinating projects with product designers, distributors and the main factory across the continents.

At PeriphCo Skype had become the preferred tool for many daily tasks. Employees used instant messaging, voice calls, file transfers and conference calls as part of their everyday tasks to interact with partners in Asia, Europe and North America. Email and mobile phones were still used, but the office had given up desk phones and all the calls were made using Skype. Informants also reported using Skype at the office to talk to a person next room. Voice calls and instant messaging were often used simultaneously, for instance, to clarify details, overcome language barriers and to leave a trail of what was said. The employees used the status indicator in Skype, but just like in the other cases they were ambivalent about it's meaning because people did not respect it consistently. Mediated presence availability was felt to change the environment in which business was being done. In addition, the value of the system was perceived to increase as more partners adopted it. The head of the company explained how the RTC system intensified certain business relationships.

> "I think the most interesting change I find about Skype as a business tool is that you find that when you become a Skype adopter you gravitate towards other people that use Skype. So that business I do, is more intense with other people that use Skype."

PeriphCo had been evangelizing Skype for its partners as a preferred way of keeping in touch and took some pride in making others to use the system. Given the small number of employees, most of the people in the contact lists were from outside the company. In addition and in contrast to TelCo and AppsCo, employees did not perceive significant differences in how they used RTC with people from inside and outside the company. The fact that mediated presence gave information concerning the availability of others remote from the company offices, sometimes led to local matters taking second place to those at a distance. People had to occasionally disconnect from the system in order to focus on the local task at hand.

> "The thing that I did not expect from Skype was that it is another level of ownership I did not expect. Even more so you become owned by the people you work with every day. So [partner name] owns me a little bit more because he knows when I am online."

Whilst presence availability updates were open to interpretive flexibility, the interpretations had a common orientation: the current situation of an omnipresent other. Like IntStart employees, the informants sometimes reported using RTC to approach others even if they did not seem to be online, as they knew that some people had the tendency to hide their presence when online. Despite the interpretive dance around presence information, people seemed to have no choice but to dance.

> "Getting to a buyer through a telephone is quite offensive, it is in English called a cold call. But send them a message over a Skype. You see they are online. They know that you know that they are online so they generally have to respond to it, but they can respond 'I am busy now can I call you back later', but at least you get a response."

In the last excerpt, the head of the company describes, almost word-by-word the accountability mechanism discussed by Erickson and Kellogg (2000). Awareness of the other introduced an obligation, that, in turn, could be harnessed to elicit at least minimal response. Much like in TelCo and

AppsCo, the employees of PeriphCo felt generally that RTC offered more flexibility in terms of choosing and negotiating the right time and channel for interaction, both in terms of the task content and in terms of the situation of receiver.

4 SUMMARY OF FINDINGS AND DISCUSSION

The minuscule digital events informing who is online, in a meeting, at the airport and so forth, both frame employees' attempts to get hold of each other and make their engagement in the work environment visible in a new way. In all of the cases, real-time presence information mediated the engagement of employees with their work environment resulting in different performances depending on, for instance, management culture, spatial arrangements and the type of work. The event of becoming available, change in user's online status, could perhaps be perceived as a question: "Should I contact this person now when he is available?" Knorr Cetina and Bruegger (2002) argue that the flow of real-time information from the currency traders' environment was not merely a resource for traders' decision making, but a self-perpetuating mechanism exciting the market itself. While the empirical evidence does not lend itself to generalizations, the case vignettes provide some insights in respect to study of RTC in organizational settings.

4.1 From media choice to co-configuration of channels

The case vignettes illustrate how different channels were co-configured and switched within broader patterns of mediated communication. Even in the case of TelCo with most limited RTC use, the application was used as an outeraction device to harness other channels appropriately. When instigating mediated interaction, different channels such as instant messaging was often used to negotiate the most appropriate time, for instance, for a call. There was no simple choice between clearly separate channels. Our study adds to the body of literature (e.g. Lee 1994, Markus 1994, Ngwenyama and Lee 1997) presenting contrary evidence to information richness theory that seems inadequate for understanding media choice in the context of real-time communication. Individuals perceived some media occasionally richer than others, but this seemed to have little to do with their choices between different channels.

Employees managed their communications in order to maintain control, maximize the likehood of achieving their communications objectives and to behave appropriately. Whilst many media choices appear to be consistent with the goal of task closure as posited by Straub and Karahanna (1998), there was also evidence that this is not always the case. For example, it was reported by interviewees that email communication is sometimes favoured as a means of response as issues can be skirted around, misconstrued and manipulated. Rather than focussing on task closure, it would appear that mediated communications may sometimes have other communications objectives, such as task obfuscation. In a similar manner with Knorr Cetina and Bruegger (2002) the order of interaction we observed in the context of mediated presence was not fully amenable to strategic action.

4.2 Obligation to observe the other's situation

The employees observed each other's presence and were aware that their own status indicator was being observed. The information was used to figure out what distant others were doing and to save time trying to get hold of someone. If a potential correspondent was freely available, then it was felt that the initiator of communication has a free choice as to which mode of communications to use. There was also evidence that it provided a sense of social cohesion. Presence information was not, however, just a resource for decision-making regarding media choice. It generated a moral obligation between people who shared their online presence to acknowledge each other at some minimum level.

Synchronous communication was perceived to provide the instigator with more control as long as they connect with their destination and, given the awareness of each other's presence, to impose an

obligation to reciprocate on the side of a recipient. Asynchronous communication was perceived to hand control to the receiver so that they could choose when to get back and how to interpret the message. In terms of receiving communication, interviewees were concerned with being communicated with on their own terms. They often preferred to be communicated with using asynchronous forms that are easier to filter and manage and could be responded to when it was convenient. The appropriateness of handing over or retaining control over the interaction is necessarily a complex issues that transcends any particular communication technology.

5 THE WAY FORWARD

This paper put forward the idea of informated presence as a means to understand organizational implications of real-time communication. Using this lens we analysed four cases and found strategic approaches such as information richness theory and task closure too simplistic in their underlying assumptions to understand mediated situations in which participants enact a form of interaction order through computer-mediated presence information. Employees were not just using presence availability information, but were, to some extent, overwhelmed by it.

Informated presence could be defined as reactions, reflections and orderings that develop out of presence availability updates in organizational settings. In all of the cases it appeared to affect the way interviewees went about their mediated communications. Informated presence forced increasing reflexivity in respect to the recipient's ongoing situation. Theoretically, the concept is an attempt to synthesize Zuboff's concept of informating with Goffman's interaction order. Although this is by no means a modest task, we hope that by describing some of the communicative strategies emerging in the context of informated presence the current study has illustrated the potential of such synthesis.

The limitations of the research design and the scope of study mean that a lot more work remains to be done. It is, for instance, interesting how the findings, so far, resonate with the observations made by Knorr Cetina and Bruegger (2002) on global microstructures. This suggests that further work studying the interplay between real-time communication and emerging coordination mechanisms underpinning distributed work environments could help to elaborate the underdeveloped role of technology in contemporary organization theory (Orlikowski and Scott 2008, Zammuto et al. 2007). Chunking work-related, interpersonal communication into smaller and smaller instances that are punched opportunistically into every possible in-between in employees' schedules may, at the same time, solve certain coordination problems while making it increasingly difficult to lay out work as a temporally planned succession of activities.

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