

Hot Versus Cool Behavioural Styles in Electronic Negotiations: The Impact of Communication Mode

EVA-MARIA PESENDORFER AND SABINE T. KOESZEGI

*University of Vienna, Faculty of Business, Economics, and Statistics, Bruenner Str. 72, A-1210 Vienna, Austria
(E-mails: Eva-Maria.Pesendorfer@UniVie.ac.at, Sabine.Koeszegi@UniVie.ac.at)*

Abstract

In this paper, we study the effects of synchronous and asynchronous communication mode on electronic negotiations. By applying content analysis, we compare the negotiation processes of two e-negotiation simulations conducted in a synchronous and an asynchronous setting. Our results show significant differences in communication behaviour of subjects. Synchronous negotiation mode leads to less friendly, more affective, and more competitive negotiation behaviour. In the asynchronous communication mode, negotiators exchange more private and task-oriented information and are friendlier. These results suggest that negotiators in the asynchronous mode, who have more time to reflect, cool down and control emotions better while negotiators, who communicate synchronously engage more in emotional and competitive “hot” debates. In addition, negotiators in the asynchronous mode are more satisfied with the process and outcome of the negotiation. We conclude that de-individuation and escalating effects might be caused by communication mode rather than by the ability of the media to transmit social cues.

Key words: electronic negotiation, communication mode, behavioural styles, content analysis, experiment, computer mediated communication CMC, escalation, de-individuation, social cues

1. Introduction

Internet allows geographically dispersed persons to cooperate and exchange information at low cost and nearly without time delay. Therefore, an increasing number of people exploit the potentials of electronic communication and negotiation systems to conduct business over the Internet. During the last decade, sales over the Internet have been continuously rising. In some Business-to-Consumer industries, online-sales amount up to one third of total sales (e-BusinessW@tch 2004).

Recently, several experimental (Kersten and Noronha 1999; Schoop and Quix 2001) and commercial (e.g. www.smartsettle.com) electronic negotiation support systems (eNS) have been developed. These systems facilitate electronic negotiation processes (e-negotiations) by enhancing the capabilities for information storing, processing, and transferring. At the same time, however, these systems reduce communication bandwidth. Similar to other computer-mediated-communication (CMC) technologies – eNS impede the transmission of interpersonal cues and can therefore be referred to as “cool” communication media. On the one hand, eNS are therefore associated with more rational problem-solving and decision-making since information is processed without social considerations that might otherwise lead to poor decisions (Lea et al. 1992). On the other hand, it is argued that electronically

mediated communication increases the probability of misunderstandings and communication problems and thereby raises the likelihood of conflict escalation (Friedman and Currall 2004). We expect that whether computer-mediated communication has a de-escalating effect (more rational problem-solving) or an escalating effect on conflict resolution depends – amongst other factors – on the communication mode. While Poole, Shannon, and DeSanctis (1992) show that the communication media have different effects in the differentiation and integration phase of a negotiation, we ask whether synchronous and asynchronous communication modes also influence negotiation processes. We therefore recognize a need for an in-depth analysis of electronic negotiation processes in this regard.

To date, researchers have investigated the differences of synchronous and asynchronous negotiations only by comparing face-to-face negotiations with computer-mediated negotiations. Electronic negotiations using different communication modes, however, have not been investigated so far. Furthermore, many studies compare only negotiation outcomes and ignore the process leading to these results. In this paper, we make a contribution to fill this gap by comparing electronic negotiations conducted in a synchronous and an asynchronous mode.

The remainder of this paper is structured as follows: in the next section, we give a brief review of relevant literature and develop hypotheses to be tested in this study. In Section 3, we describe the simulation cases, the subjects, as well as the system used in the experiments. In Section 4, we discuss content analysis, the method applied to analyze the data. Section 5 summarizes the findings of the analysis and finally, in section 6, we draw conclusions and give an outlook for further research.

2. Literature Review and Hypotheses

The research question discussed most recently is whether CMC technology is, in principle, an appropriate means to resolve conflicts. The discussion involves the general question of how social CMC technology is. Basically, there are two opposite positions:

1. Representatives of the *pessimistic view* base their assumptions on the media richness theory by Daft and Lengel (1986) and the reduced social cues approach as well as the de-individuation theory put forward by Kiesler and colleagues (Kiesler et al. 1984; Sproull and Kiesler 1986). De-individuation effects and missing social cues increase the danger of conflict escalation processes (Friedman and Currall 2004).
2. The more *optimistic view* has different theoretical and empirical sources. First of all, negotiation support systems literature strongly supports positive effects of CMC mediated negotiations on outcomes and satisfaction, e.g., (Rangaswamy and Shell 1997). Secondly, Spears and Lee (1992) differentiate between interpersonal and social cues. While, in fact, interpersonal cues are reduced in CMC, social cues are also transmitted in text-based media. Therefore, CMC is social enough to inhibit negative de-individuation effects. Thirdly, researchers focusing on computer-mediated group processes, e.g., (Walther 1995; Walther 1996) attest a similar potential for relationship building and social interaction to CMC technology like to face-to-face communication.

Table 1. Communication mode/media characteristics.

| Communication mode/media | Electronic | Face-to-face |
|--------------------------|--------------------|--------------------|
| Synchronous | (1) Co-presence | (1) Co-presence |
| | (4) Co-temporality | (2) Visibility |
| | (5) Simultaneity | (3) Audibility |
| | (7) Revisability | (4) Co-temporality |
| | (8) Reviewability | (5) Simultaneity |
| Asynchronous | (7) Revisability | (6) Sequentiality |
| | (8) Reviewability | |
| | | |

Daft and Lengel (1986) distinguish between media efficiency and media richness. The former means the information processed per unit of time by the sender and the receiver, whereas the latter refers a measure of emotional and social content that occurs while communicating (Sheffield 1995). According to Lengel and Daft (1988), three relevant media characteristics exist: The possibility to

1. provide multiple information cues simultaneously,
2. address individuals personally and
3. give and receive immediate feedback.

Lengel and Daft (1988) argue that media richness increases with the possibility of the media to provide these features. Furthermore, they assume that highest media richness is necessary for non-routine tasks. In a similar vein, Sheffield (1995) argues that in a negotiation, a rich medium helps to interpret the other party's bargaining orientations and increases perceptions of trust or dominance, thus facilitating conflict resolution.

We contend, however, that the three characteristics have to be analyzed more concisely to determine their specific effects on negotiation. We suspect that, for instance, the provision of interpersonal and social cues (e.g., race, gender, status, stigmata such as stuttering, attractiveness. . .) can – in some cases – be counterproductive for negotiation and conflict resolution. Furthermore, the possibility of immediate feedback may lead to affective communication. In case of positive emotions, this can facilitate the problem-solving process, whereas, in case of negative emotions, anger, or aggressive reactions, this may lead to a negative cycle of reciprocity.

Studies comparing face-to-face with CMC negotiations concentrate mainly on the first criterion, i.e., the provision of information cues (Perkins 1996; Delaney et al. 1997; Rangaswamy and Shell 1997). Since eNS are designed to address individuals personally, the second criterion can be neglected. The possibility to provide immediate feedback, which is determined by the communication mode (synchronous vs. asynchronous), has not been considered so far.

The characteristic of a synchronous CMC, like for instance chat, is that the communication takes place in real time without time delay. This makes synchronous text-based communication richer compared to asynchronous CMC technology. Asynchronous CMC

systems do not consist of the real time feature and delays are usual when communicating via such a system. Examples are electronic mail (e-mail), discussion boards, newsgroups and asynchronous electronic negotiation systems (Dietz-Uhler and Bishop-Clark 2001). However, in contrast to face-to-face communication, synchronous as well as asynchronous electronic communication is one-directional and intermittent (Friedman and Currall 2003). As reported by Friedman and Currall (2003), face-to-face communication has six important characteristics being (1) co-presence, (2) visibility, (3) audibility, (4) co-temporality, (5) simultaneity, and (6) sequentiality. In contrast to face-to-face communication, *asynchronous* electronic communication has none of the above characteristics, but instead (7) revisability and (8) reviewability. *Synchronous* electronic communication is more comparable to face-to-face communication as it is characterized by (1) co-presence in the sense of being in the same "virtual room", (4) co-temporality, (5) simultaneity but also (7) revisability and (8) reviewability (see Table 1).

Comparing synchronous with asynchronous communication, the time delays between the messages are much shorter in the former mode. Furthermore, the negotiators in the asynchronous mode are not necessarily online at the same time. These facts also reflect how the messages are written. In the asynchronous mode, the messages are similar to a letter whereas in the synchronous setting, the communication style resembles a chat.

Sproull and Kiesler (1986) suggest that reduced social context cues in electronic communication lead to disinhibited behaviour. Constrained self-awareness about the actual situation and about consequences of one's own behaviour, as well as reduced concern about judgment from others cause disinhibition. Disinhibited behaviour, sometimes also referred to as 'flaming' (Lea et al. 1992), comprises behaviour ranging from impoliteness to the expression of emotions (Joinson 1998).

We assume that in synchronous communication, time pressure and the need for immediate reaction are causes for spontaneous and unreflective emotional behaviour. Furthermore, in synchronous negotiations people have less time to consider alternatives and to analyze the actual situation. Therefore, negotiators might use more competitive and offensive behaviour. On the contrary, in asynchronous negotiation settings, emerging emotions can be reflected and the negotiator has more time to calm down and to consider consequences of (affective) behaviour. In addition, negotiators might exchange more information, develop different alternatives and use problem solving behaviour (Fisher and Ury 1981) when they have more time to react.

Therefore, we hypothesize that

1. Synchronous communication leads to more disinhibited behaviour compared to asynchronous communication.

We expect to observe more emotional statements (negative as well as positive) and less polite communication (thanking, apology, business phrases, etc.) in synchronous negotiations.

Furthermore, we expect that

2. Synchronous communication leads to more competitive and less problem-solving negotiation behaviour compared to asynchronous communication.

We expect to observe less information exchange, less empathetic behaviour (express understanding), less soft tactics such as promising, excuses, etc. as well as less exchange of private communication in synchronous negotiations. At the same time, we expect to find more persuasive behaviour and more use of hard tactics, such as exerting pressure, threatening etc.

Apart from differences in negotiation strategies, we know that written communication demands for specific communication behaviour (Koeszegi et al. 2006): there are communication protocol, text-structuring and process coordination requirements.

Communication protocol elements (comprising salutations and communication indicating politeness, such as 'Thank you for your message', etc.) can be found in almost every message in asynchronous communication. They allow to tie in with previous and upcoming events and to keep up a communication flow perceived to be continuous over time. This need for re-integration is not necessary in synchronous communication. On the other hand, time pressure will force negotiators to coordinate their process more precisely in synchronous settings.

We therefore assume that:

3. Synchronous communication leads to more process coordination.
4. Synchronous communication leads to fewer communication protocol statements.

To test these four hypotheses we conducted two simulation experiments, which we describe in the following section.

3. Experiments

In this study, we use data from two experiments conducted in May 2003 and March 2005 (see Table 2). In May 2003, students from an international negotiation course at the University of Vienna and the National Sun Yat-sen University Taiwan participated in a buyer-seller-negotiation experiment using the web-based e-negotiation platform SimpleNS (www.interneg.org). The subjects negotiated in an asynchronous mode and had three weeks time to reach an agreement. The synchronous negotiation experiment was conducted in computer laboratories at the University of Vienna. In this setting, the students had forty-five minutes time to reach an agreement using the same platform. All negotiations were conducted in English.

In total, we analyze the negotiation behaviour of 100 participants¹ (50 in each setting) in this study. Subjects, mostly graduate students, received credit points for participation. Negotiators did not know each other and the roles were assigned randomly. The negotiators had to complete questionnaires before and after the experiment to gain data on demographics and feedback.

3.1. Simulation cases

We simulated two buyer-seller negotiations with a similar structure. One case dealt with the supply of bicycle parts, the other with pharmaceutical products. Both cases were designed

Table 2. Subjects and experiment design.

| Role | Region | Communication mode | | Total |
|--------|--------|--------------------|-------------|-------|
| | | Asynchronous | Synchronous | |
| Buyer | Europe | 15 | 25 | 40 |
| | Asia | 10 | 0 | 10 |
| | Total | 25 | 25 | 50 |
| Seller | Europe | 10 | 25 | 35 |
| | Asia | 15 | 0 | 15 |
| | Total | 25 | 25 | 50 |

in a mixed motive setting, including both, integrative and distributive elements. In both cases, the subjects represented either a buyer or a seller company and negotiated on behalf of their constituents. They received a detailed explanation of the case and of their respective role, however, they were not suggested a particular strategy. The cases only indicated that, for instance, for a buyer a lower price would be preferable. In both simulations, subjects had to agree on price, delivery, and quality issues. In the bicycle case, subjects additionally had to agree on terms of payment and in the pharmaceutical case on future cooperation. The parties were informed about alternative partners in both cases, so that a termination was possible throughout the whole negotiation.

3.2. Negotiation system

We used SimpleNS, a text-based electronic support system, for both simulations. As a passive system (Kersten 2004), SimpleNS merely offers a communication platform to exchange, store, and retrieve offers as well as messages. It does not provide any additional support features.

4. Methodology of Data Analysis

We applied content analysis to the logged negotiation transcripts. Content analysis is a research method developed specifically for investigating problems in which the content of communication serves as the basis of inference (Holsti 1969). The method originates from communication research (Krippendorff 1980) and is applied for systematic analysis of even huge amounts of textual material (Mayring 2002). Qualitative analysis comprises the following major steps (Srnlka and Koeszegi 2006; Koeszegi et al. 2006):

1. Unitization: the textual material is divided into units for further analysis. In this stage, researchers decide which type of units (sentences, thoughts, speaking turns, etc.) is used for coding and analysis. This choice depends on the research problem and the focus of

analysis. For multi-focus studies investigating several dimensions like our study, thought units (conveying one thought communicated by a negotiator) are appropriate units of analysis.

2. Categorization: this is the development and revision of categories relevant to the research questions through an iterative process of analysis. We started with existing categories of the BPA framework (Koeszegi et al. 2006) and adapted these categories for both, the synchronous and the asynchronous communication mode. The resulting category scheme consists of nine main categories and is, apart from slight differences in some sub-categories, identical for both modes.
3. Coding: this is the assignment of coding units to categories. For further analysis, the data was coded based on the adapted category scheme (see following Table 3).

Each main category summarizes up to seven sub-categories. In total, the category scheme comprises nine main categories and 42 sub-categories. The first four main categories pertain to the content of the negotiation. Affective behaviour and communication about private topics are relationship categories. Procedural, text-specific communication units and communication protocol are categories intended to coordinate and structure the negotiation process.

Table 3. Category scheme and frequencies of thought units.

| | Main category | Examples and sub categories |
|--------------|-----------------------------------|---|
| Content | Substantive negotiation behaviour | Communication that constitutes fundamental negotiation behaviour, such as making an offer, a concession, or reject an offer, logrolling |
| | Task-oriented behaviour | Communication that promotes or facilitates problem solving and that is not substantive, persuasive, or tactical. e.g. request or provide information |
| | Persuasive argumentation | Communication that supports the claims a negotiator makes e.g. self- or other supporting arguments, persuasive remarks |
| | Tactical behaviour | Communication that is intended to influence the negotiation partner, such as exerting pressure, making promises |
| Relationship | Affective behaviour | Communication linked to the expression of feelings about the content, the opponent, such as expressing positive or negative emotions or thanking |
| | Private communication | Communication that is not related to the negotiation task itself e.g. release of identity information, communicate about private topics |
| Process | Communication protocol | Communication units at the beginning and in the end of a message as well as formal business letter phrases such as address, close and signature, politeness |
| | Text-specific communication units | Communication particularly linked to written electronic communication 'e.g.', or 'p.s.', or "This is my offer:" |
| | Procedural communication | Communication that facilitates the negotiation process such as exchanging information about IT or about time issues |

Minor differences in the category schemes were observed for the following sub-categories: we did not find sarcastic communication units, humor and text-specific elements such as ‘...’ in the asynchronous mode. In order to compare the two modes, we subsumed sarcasm in negative emotion, humor in positive emotion, and neglected “...”. Since we had only a few observations in the sub categories self- and other-supporting arguments in the synchronous mode, all sub-categories of persuasive behaviour were summarized in one category. Similarly, we summarized apology and thanking in one category.

From the 50 negotiations, we extracted 4,418 communication units. Two trained, independent coders assigned each communication unit to a main and a respective sub-category. The coding process was run individually and after the first run, the coders compared categorization of units and discussed the differences. Then they went through another round of coding and compared their results again. Inter-coder reliability was measured with Cohen’s kappa (Cohen 1960). In the asynchronous mode, the Cohen’s kappa amounted to $\kappa = .84$, and in the synchronous mode, Cohen’s kappa was $\kappa = .86$. These values are considered to be very good in the literature (Weingart et al. 1990; Brett et al. 1998). The remaining differences between coders were resolved through discussion.

5. Results

The following Table 4 depicts descriptive statistics of general communication behaviour (number of messages, words, and communication units) in the two different communication modes.

In both settings, negotiators expressed on average 377 words in about 12 messages. Although negotiators used on average the same amount of words, there is a significant difference between the two communication modes in how the content was expressed. First of all, in the synchronous mode, there are more communication units indicating that thoughts are expressed with fewer words. Additionally, in synchronous negotiations, messages are significantly shorter and therefore more messages are sent compared to asynchronous negotiations.

Table 4. General differences in communication behaviour.

| Variable | Mode | <i>N</i> | Mean | SD | <i>T</i> -Value | <i>P</i> |
|-------------------------------------|-------|----------|--------|--------|-----------------|----------|
| Number of communication units | Asyn. | 50 | 39.10 | 23.62 | -2.290 | 0.024 |
| | Syn. | 50 | 49.26 | 20.64 | | |
| Number of words | Asyn. | 50 | 383.08 | 264.08 | 0.279 | 0.781 |
| | Syn. | 50 | 371.10 | 150.45 | | |
| Number of message | Asyn. | 50 | 5.06 | 2.88 | -11.485 | 0.000 |
| | Syn. | 50 | 19.02 | 8.10 | | |
| Average number of units per message | Asyn. | 50 | 8.16 | 3.78 | 9.693 | 0.000 |
| | Syn. | 50 | 2.78 | 1.06 | | |

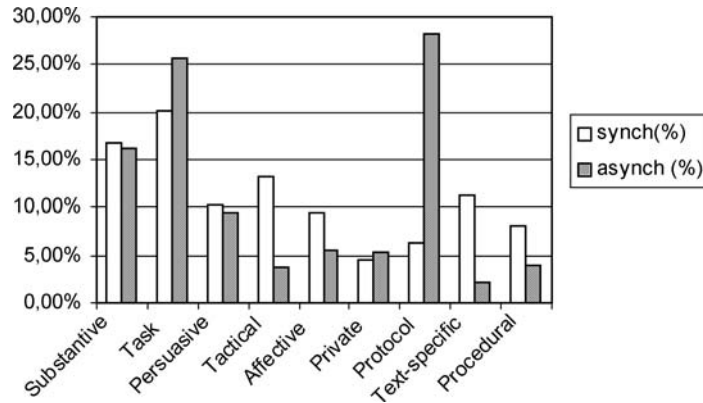


Figure 1. Synchronous/asynchronous communication.

The distribution of communication units in the main categories is displayed in Figure 1.

According to Figure 1 we observe – overall – more tactical, more affective, more procedural, and more text-specific communication in the synchronous mode, while there are more task-oriented and communication protocol units in the asynchronous mode. For the remainder of the main categories, i.e. substantive, persuasive, and private negotiation behaviour, the data shows a similar distribution in the two communication modes.

In the following Tables 5–7, we display the differences of the communication behaviour on the level of each individual negotiator. Since we have count data, we use non-parametric statistics to compare the communication modes. For every subject, we calculated the relative frequencies of communication units in each main and sub category and used the median

Table 5. Differences in affective and private communication behaviour.

| Main category | Mode % | | | Sub category | Mode % | | | | | |
|---------------|--------|------|----------|----------------------------|------------------|------|----------|-------|-------|--------|
| | Asyn | Syn | <i>p</i> | | Asyn | Syn | <i>p</i> | | | |
| Affective | Low | 62 | 38 | 0.014 | Positive emotion | Low | 64 | 36 | 0.004 | |
| | | High | 38 | | | 62 | High | 36 | | 64 |
| | High | 38 | 62 | | Negative emotion | Low | 86 | 34 | | <0.001 |
| | | | | | | High | 14 | 66 | | |
| Private | Low | 58 | 42 | 0.081 | Apology thanking | Low | 38 | 66 | 0.004 | |
| | | | | | | High | 62 | 34 | | |
| | High | 42 | 58 | | Release ID | low | 60 | 84 | | 0.007 |
| | | | | | | High | 40 | 16 | | |
| Low | 58 | 42 | 0.081 | Release other private info | Low | 74 | 84 | 0.163 | | |
| | | | | | High | 26 | 16 | | | |
| High | 42 | 58 | 0.081 | Private emotion | low | 86 | 92 | 0.262 | | |
| | | | | | High | 14 | 8 | | | |

Table 6. Differences in content negotiation behaviour.

| Main Category | | Mode % | | | Sub category | Mode% | | | P |
|---------------------------|--------------------------|--------|-----|--------|----------------------|--------|-----|----|-------|
| | | Asyn | Syn | P | | Asyn | Syn | P | |
| Substantive | Low | 54 | 46 | 0.274 | Concession | Low | 40 | 62 | 0.022 |
| | High | 46 | 54 | | | High | 60 | 38 | |
| | Rejection | Low | 62 | | 38 | 0.014 | | | |
| | | High | 38 | | 62 | | | | |
| | Logrolling | Low | 58 | | 48 | 0.212 | | | |
| | | High | 42 | | 52 | | | | |
| Full offer | Low | 54 | 46 | 0.274 | | | | | |
| | High | 46 | 54 | | | | | | |
| Single issue offer | Low | 52 | 48 | 0.421 | | | | | |
| | High | 48 | 52 | | | | | | |
| Task oriented | Low | 30 | 70 | <0.001 | Request info | Low | 58 | 38 | 0.036 |
| | High | 70 | 30 | | | High | 42 | 62 | |
| | Provide info | Low | 32 | | 70 | <0.001 | | | |
| | | High | 68 | | 30 | | | | |
| | Express understanding | Low | 84 | | 58 | 0.004 | | | |
| | | High | 16 | | 42 | | | | |
| Reference to relationship | Low | 56 | 44 | 0.159 | | | | | |
| | High | 44 | 56 | | | | | | |
| Persuasive | Low | 50 | 50 | 0.579 | Persuasive arguments | Low | 60 | 38 | 0.022 |
| | High | 50 | 50 | | | High | 40 | 62 | |
| Self supporting | Low | 70 | 82 | 0.121 | | | | | |
| | High | 30 | 18 | | | | | | |
| Tactical | Low | 76 | 24 | <0.001 | Commitment | Low | 64 | 52 | 0.156 |
| | High | 24 | 76 | | | High | 36 | 48 | |
| | Exert pressure | Low | 94 | | 60 | <0.001 | | | |
| | | High | 6 | | 40 | | | | |
| | Authority related excuse | Low | 78 | | 86 | 0.218 | | | |
| | | High | 22 | | 14 | | | | |
| Promise | Low | 94 | 86 | 0.159 | | | | | |
| | High | 6 | 14 | | | | | | |
| Alternative buyer/seller | Low | 84 | 62 | 0.012 | | | | | |
| | High | 16 | 38 | | | | | | |

split method to divide the sample into a low and a high category of users of a specific communication category. These categories are then cross-tabulated with communication mode and tested with a Chi-squared-test².

As predicted in Table 5, we find more positive and negative affective statements but fewer thanking and apology communication units in synchronous negotiations. This supports hypothesis 1 that synchronous communication leads to more disinhibited behaviour.

Table 7. Differences in technical communication behaviour.

| Main category | Mode % | | | P | Sub category | Mode % | | | P |
|------------------------|----------------------|------|----|--------|-------------------|--------|-----|----|-------|
| | Asyn | Syn | | | | Asyn | Syn | | |
| Communication protocol | Low | 16 | 84 | <0.001 | Formal address | Low | 64 | 44 | 0.035 |
| | High | 84 | 16 | | | High | 36 | 56 | |
| | Informal address | Low | 18 | | 82 | <0.001 | | | |
| | | High | 82 | | 18 | | | | |
| | Formal close | Low | 34 | | 88 | <0.001 | | | |
| | | High | 66 | | 12 | | | | |
| | Informal close | Low | 88 | | 86 | 0.500 | | | |
| | | High | 12 | | 14 | | | | |
| | Formal signature | Low | 86 | | 96 | 0.080 | | | |
| | | High | 14 | | 4 | | | | |
| Informal signature | Low | 42 | 94 | <0.001 | | | | | |
| | High | 58 | 6 | | | | | | |
| Politeness | Low | 44 | 56 | 0.159 | | | | | |
| | High | 56 | 44 | | | | | | |
| Procedural | Low | 76 | 26 | <0.001 | Time coordination | Low | 68 | 40 | 0.004 |
| | High | 24 | 74 | | | High | 32 | 60 | |
| | Process coordination | Low | 80 | | 20 | <0.001 | | | |
| | | High | 20 | | 80 | | | | |
| Text specific | Low | 72 | 28 | <0.001 | Redundancy | Low | 86 | 92 | 0.262 |
| | High | 28 | 72 | | | High | 14 | 8 | |
| | Filter | Low | 80 | | 20 | <0.001 | | | |
| | | High | 20 | | 80 | | | | |
| | Text structuring | Low | 72 | | 54 | 0.048 | | | |
| | | High | 28 | | 46 | | | | |
| | Emoticons | Low | 84 | | 82 | 0.500 | | | |
| | | High | 16 | | 18 | | | | |

Hypothesis 2 is supported by the data: in the synchronous mode, we find more tactical behaviour, i.e. exerting pressure and referring to alternative suppliers/buyers, more request of information, more persuasive argumentation and also more rejections. We find fewer concessions, less release of private information and less provision of information. In summary, this behaviour clearly indicates more offensive and competitive negotiation behaviour (Putnam and Jones 1982; Koeszegi et al. 2006) in the synchronous communication mode. The only surprising result is the more empathetic communication (express understanding) in the synchronous mode. This type of behaviour can, however, be interpreted as tactical behaviour too and then also fits to the competitive style.

Synchronous communication – as assumed in hypothesis 3- necessitates significantly more procedural coordination. Time and process coordination are higher in the synchronous

Table 8. Negotiator satisfaction with process and outcome.

| | Linkert scale | Mode | <i>N</i> | Mean | SD | <i>T</i> | <i>p</i> (2-sided) |
|-----------------------------------|---------------------|------|----------|-------|-------|----------|--------------------|
| Satisfaction with agreement | 1=Very satisfied | Asyn | 32 | 3.313 | 1.674 | -2.539 | 0.013 |
| | 7=Very unsatisfied | Syn. | 50 | 4.320 | 1.801 | | |
| Satisfaction with own performance | 1=Very satisfied | Asyn | 34 | 3.294 | 1.24 | -1.738 | 0.086 |
| | 7=Very unsatisfied | Syn. | 50 | 3.840 | 1.517 | | |
| Experienced friendliness | 1=Very friendly | Asyn | 34 | 2.412 | 1.351 | -3.840 | 0.000 |
| | 7=Hostile | Syn. | 50 | 3.700 | 1.607 | | |
| Control over process | 1=Much control | Asyn | 34 | 3.412 | 1.395 | -0.219 | 0.827 |
| | 7=No control at all | Syn. | 50 | 3.480 | 1.403 | | |

mode. Subjects also use significantly less communication protocol units in the synchronous mode, which is clearly supporting hypothesis 4.

Although we did not formulate hypotheses with regard to the impact of different behaviour on outcome, it is interesting whether we observe an effect on agreements. In total, 31 out of 50 dyads reached an agreement. There was no significant difference between the communication modes ($\chi^2 = 1.528$ ($df = 1$), $p = .151$), 17 dyads (68%) in the asynchronous and 14 dyads (56%) in the synchronous mode reached an agreement.

We cannot measure the quality of negotiation outcome directly from the packages negotiators agreed on. However, we have measured four criteria on 7-point Likert scales indicating negotiators' satisfaction with the process and outcome in the post questionnaires: (1) satisfaction with agreement, (2) satisfaction with own performance, (3) experienced friendliness of negotiation and (4) control over process during negotiations. The following Table 8 shows *T*-Tests between the two groups.

These results clearly indicate lower satisfaction with the process and the outcome of negotiators in the synchronous communication mode. Especially, negotiators feel less satisfied with the outcome and they experienced negotiations to be significantly less friendly. In both groups, subjects felt to have similar control over the process. Although it is not a direct measure for the quality of an agreement, satisfaction with the outcome is an important predictor for the subsequent commitment of negotiators to the agreement, its implementation, and for the quality of future interaction. Therefore, it should be considered when evaluating effectiveness of communication mode (Oliver et al. 1994).

6. Conclusion and Outlook

Our main concern with existing studies on the effects of electronic media on negotiation processes is their mere focus on cues transmission. We believe, however, that the possibility of immediate feedback – one of the three characteristics of the media richness theory according to Daft and Lengel (1986) – is similarly important. We contend that time pressure and immediate feedback associated with synchronous communication mode leads to behaviour that is more competitive. This in turn may initiate a negative cycle of reciprocity and consequently reduce the possibility to reach an agreement.

We clearly find different negotiation behaviour and all four hypotheses were supported by the data. As predicted, synchronous negotiation mode leads to more affective, more competitive, and less friendly behaviour. Conversely, we find more problem solving attempts (e.g. provide information) in the asynchronous communication mode. We may therefore refer the synchronous mode to a “hot debate” and the asynchronous mode to a “cool conversation”. These results suggest that in fact asynchronous negotiation support systems can facilitate problem solving and integrative behaviour in negotiations. We assume that the differences in the two modes can be explained by a faster sequence of interaction in the synchronous mode. In this mode, individuals not only expect that their communication partners respond immediately but also know that their counterparts have the same expectations. Therefore, they try to come up to these expectations. The pressure for immediate reaction might be perceived even stronger since the duration of the negotiation is much more constrained in a synchronous setting.

Although there is no difference in the rate of agreements, negotiators differ substantially in how they interpret what they have achieved in the two modes. The results are unambiguous: the asynchronous negotiation mode makes subjects feel better about the process as well as about their outcome. Obviously, what is visible for the researcher in the communication behaviour is also perceived by the subjects and mapped in their evaluation.

We suggest expanding existing theories (of the pessimistic view) by the feedback dimension and reconsider predictions, since our results indicate that de-individuation and escalating effects of computer-mediated behaviour are, indeed, mediated by communication mode. Practitioners can benefit from our results when deciding which communication media to use depending on the case that has to be negotiated. Our results suggest that especially when high emotional involvement can be expected, the asynchronous mode may facilitate problem solving.

The problem with comparing synchronous and asynchronous communication is that the latter is less controllable in experiments and might introduce unobservable impact on process and outcome of experimental research. For further research, we suggest to compare different phases of the negotiation in both settings. This procedure would allow analyzing whether time pressure at the end of asynchronous negotiations (with an imposed deadline) shows the same or similar communication patterns as in synchronous communication. Although the results of this study were robust, the results also indicate that the cultural background of negotiator influences communication behaviour. Further studies should shed light on this aspect. In addition, an analysis of escalating or de-escalating behaviour and the sequence of tactics over time would provide interesting insights into the negotiation process. With this knowledge, we would be able to predict consequences of negotiation behaviour and different negotiation styles more precisely.

Acknowledgements

This work has been supported with grants from the Social Sciences and Humanities Research Council of Canada and from the Austrian Academy of Sciences. The authors particularly thank Gregory Kersten for the access to the negotiation system. Furthermore, we gratefully

acknowledge the contribution of Sabine Stolz in data editing and coding and Michael Filzmoser for his technical support. We also want to thank Ka Pong Law for adapting the negotiation system. Last but not least, we thank Rudolf Vetschera as well as the anonymous reviewers for helpful comments on the earlier versions of this paper.

Notes

1. As can be seen from Table 2, twenty-five negotiators of our sample are from Taiwan. Literature has demonstrated that negotiator characteristics such as culture, role, or gender influence negotiation behaviour. In this study, we want to focus on communication mode and therefore do not analyze an impact of these factors in detail. However, we also tested all hypotheses with a sub-sample containing only European negotiators to control for cultural influences. The differences with regard to communication mode proved to be very robust. In the subsequent sections we will report the results of the full sample but mention deviations probably caused by culture.
2. We also calculated Chi-squared tests using a sub-sample containing only European negotiators. For all main and sub-categories, we only find that the following four categories do not remain significant when Taiwanese negotiators are not included: (1) at the main category level: affective behaviour ($p = .060$); (2) at the sub-category level: release of personal identity ($p = .099$), rejection ($p = .109$), and formal address ($p = .082$). All other results remain the same. Given these robust results for communication mode, we decided to report the results of the whole sample.

References

- Brett, J. M., D. L. Shapiro, and A. L. Lytle. (1998). "Breaking the Bonds of Reciprocity in Negotiations," *Academy of Management Journal* **41**(4), 410–424.
- Cohen, J. (1960). "A Coefficient of Agreement for Nominal Scales," *Educational and Psychological Measurement* **20**, 37–46.
- Daft, R. L. and H. Lengel. (1986). "Organizational Information Requirements, Media Richness and Structural Design," *Management Science* **32**(5), 554–571.
- Delaney, M. M., A. Foroughi, and C. Perkins. (1997). "An Empirical Study of the Efficacy of a Computerized Negotiation Support System (Nss)," *Decision Support Systems* **20**, 185–197.
- Dietz-Uhler, B. and C. Bishop-Clark. (2001). "The Use of Computer-Mediated Communication to Enhance Subsequent Face-to-Face Discussion," *Computers in Human Behaviour* **17**, 269–283.
- e-BusinessW@tch. (2004). The European E-Business Report: A Portrait of E-Business in 10 Sectors of the Eu Economy. Bonn, e-Business W@tch, 13.
- Fisher, R. and W. Ury. (1981). *Getting to Yes*. Boston, Houghton Mifflin.
- Friedman, R. A. and S. C. Currall. (2003). "Conflict Escalation: Dispute Exacerbating Elements of E-Mail Communication," *Human Relations* **56**(11), 1325–1347.
- Friedman, R. A. and S. C. Currall. (2004). E-Mail Escalation: Dispute Exacerbating Elements of Electronic Communication. Nashville, Vanderbilt University, 39.
- Holsti, O. R. (1969). *Content Analysis for the Social Sciences and Humanities*. Reading, MA, Addison-Wesley.
- Joinson, A. (1998). Causes and Implications of Disinhibited Behaviour on the Internet. Psychology and the Internet. Interpersonal, Intrapersonal, and Transpersonal Implications. J. Gackenbach. San Diego *et al.*, Academic Press, pp. 43–60.
- Kersten, G. E. (2004). E-Negotiation Systems: Interaction of People and Technologies to Resolve Conflicts. UNESCAP Third Annual Forum on Online Dispute Resolution, Melbourne, Australia, 5–6 July 2004, InterNeg Research Papers INR 08/04.

- Kersten, G. E. and S. J. Noronha. (1999). "Www-Based Negotiation Support: Design, Implementation, and Use," *Decision Support Systems* **25**(2), 135–154.
- Kiesler, S., J. Siegel, and T. W. McGuire. (1984). "Social Psychological Aspects of Computer Mediated Communication," *American Psychologist* **39**, 1123–1134.
- Koeszegi, S. T., K. J. Srnka, and E.-M. Pesendorfer. (2006). "Electronic Negotiations – a Comparison of Different Support Systems," *Die Betriebswirtschaft*, forthcoming.
- Krippendorff, K. (1980). *Content Analysis. An Introduction to Its Methodology*. Beverly Hills, CA, Sage.
- Lea, M., T. O'Shea, P. Fung, and R. Spears. (1992). "Flaming," in *Computer-Mediated Communication. Contexts of Computer-Mediated Communication*. M. Lea. New York, Harvester Wheatsheaf, pp. 30–65.
- Lengel, R. H. and R. L. Daft. (1988). "The Selection of Communication Media as an Executive Skill," *The Academy of Management Executive* **2**(3), 225–232.
- Mayring, P. (2002). *Qualitative Content Analysis – Research Instrument or Mode of Interpretation? The Role of the Researcher in Qualitative Psychology*. M. Krieglmann. Tübingen, Huber, pp. 139–148.
- Oliver, R. L., P. V. Balakrishnan, and B. Barry. (1994). "Outcome Satisfaction in Negotiation: A Test of Expectancy Disconfirmation," *Organizational Behaviour and Human Decision Processes* **60**(2), 252–275.
- Perkins, W. C. (1996). "Can a Negotiation Support System Help a Purchasing Manager?," *International Journal of Purchasing and Materials Management Spring*, 37–45.
- Poole, M. S., D. L. Shannon, and G. L. DeSanctis. (1992). "Communication Media and Negotiation Process. Communication and Negotiation." L. L. Putnam and M. E. Roloff, Newbury Park, *Sage Publications* **20**, 46–66.
- Putnam, L. L. and T. S. Jones. (1982). "Reciprocity in Negotiations: An Analysis of Bargaining Interaction," *Communication Monographs* **48**, 171–191.
- Rangaswamy, A. and G. R. Shell. (1997). "Using Computers to Realize Joint Gains in Negotiations: Towards an "Electronic Bargaining Table," *Management Science* **8**, 1147–1163.
- Schoop, M. and C. Quix. (2001). "Doc.Com: A Framework for Effective Negotiation Support in Electronic Marketplaces," *Computer Networks* **37**, 153–70.
- Sheffield. (1995). "The Effect of Communication Medium on Negotiation Performance," *Group Decision and Negotiation* **4**, 159–179.
- Spears, R. and M. Lea. (1992). Social Influence and the Influence of the "Social" in Computer-Mediated Communication. *Contexts of Computer-Mediated Communication*. M. Lea. New York, *Harvester Wheatsheaf* 30–65.
- Sproull, L. and S. Kiesler. (1986). "Reducing Social Context Cues: Electronic Mail in Organizational Communication," *Management Science* **32**(11), 1492–1512.
- Srnka, K. J. and S. T. Koeszegi. (2006). "From Words to Numbers – How to Transform Rich Qualitative Data into Meaningful Quantitative Results: Guidelines and Exemplary Study," *Schmalenbach's Business Review*, forthcoming.
- Walther, J. B. (1995). "Relational Aspects of Computer-Mediated Communication: Experimental Observations over Time," *Organization Science* **6**(2), 186–203.
- Walther, J. B. (1996). "Computer-Mediated Communication: Impersonal, Interpersonal Und Hyperpersonal Interaction," *Communication Research* **23**(1), 3–43.
- Weingart, L. R., L. L. Thompson, M.H.Bazerman, and J. S. Carroll. (1990). "Tactical Behaviour and Negotiation Outcomes," *The International Journal of Conflict Management* **1**(1), 7–31.