universität wien

MASTERARBEIT / MASTER'S THESIS

Titel der Masterarbeit / Title of the Master's Thesis

„Differences in the Language Usage in Electronic Negotiations and Face to Face Negotiations"

verfasst von / submitted by

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angestrebter akademischer Grad / in partial fulfilment of the requirements for the degree of

Master of Science (MSc)

Wien, 2018 / Vienna 2019

Studienkennzahl lt. Studienblatt / degree programme code as it appears on the student record sheet:	A 066 914
Studienrichtung lt. Studienblatt / degree programme as it appears on the student record sheet:	Masterstudium Internationale Betriebswirtschaft
Betreut von / Supervisor:	Univ.-Prof. Dr. Rudolf Vetschera

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Abstract

Previous research has shown that there is an interest in comparing negotiations with various communication modes. There are studies that examine the differences between electronic and face to face negotiations, however, little research has been done on analyzing the differences in the used language, and even less on doing this analysis with the help of text mining instead of human coding. This thesis attempts to close this gap in the literature by exploring the differences in the usage of several word categories between electronic and face to face negotiations by using the software program LIWC. Furthermore, the influence of the different negotiation phases and the interpersonal relationship on the language usage are examined. In addition, the correlation between the usage of certain word categories and the negotiation outcome is tested. The results of the empirical study showed that the usage rates of words conveying emotions, especially negative emotions, and exclusive pronouns (you) are higher in electronic negotiations than in face to face negotiations. On the other hand, the usage of agreeable language proved to be lower in electronic negotiations. Moreover, a positive correlation between the usage of agreeable language and a positive negotiation outcome was found, while the extensive usage of the exclusive pronouns showed to be correlated with a negative outcome.

Keywords: Electronic negotiations, Computer-mediated communication, Face to face negotiations, Emotions, Text mining, LIWC

Kurzfassung

Die vergleichende Untersuchung verschiedener Kommunikationskanäle ist ein wiederkehrendes Thema in der Forschung. Einige Fragestellungen beschäftigen sich insbesondere mit Verhandlungen, die auf elektronischem Wege oder persönlich geführt werden. Es gibt jedoch wenige Studien über Unterschieden in der Sprachverwendung, insbesondere Analysen, die sich auf algorithmisches Text Mining stützen.

Diese Arbeit versucht diese Lücke zum Teil zu schließen, indem die Nutzung verschiedener Wortkategorien bei verschiedenen Verhandlungs-Methoden (Persönlich, elektronisch) analysiert wird. Außerdem wird der Einfluss einer bereits bestehenden Beziehung der Verhandlungspartner untersucht, und die Veränderung der Sprachnutzung im Verlauf der Verhandlungen. Schließlich wird auch der Zusammenhang zwischen der Nutzung bestimmter Wortgruppen mit dem Verhandlungserfolg untersucht.

Die empirische Untersuchung zeigt, dass in elektronischer Kommunikation häufiger emotionale Sprache verwendet wird, insbesondere Wörter mit negativen Emotionen und exkludierenden Personalpronomen. Außerdem ist der Anteil an billigenden Worten geringer.

Es zeigt sich auch eine Korrelation zwischen billigenden Worten und einem positiven Verhandlungsergebnis, sowie zwischen Sprache mit häufigen negativer Emotion und einem negativen Verhandlungsergebnis.

Stichwörter: Elektronische Verhandlungen, Computervermittelte Kommunikation, Persönliche Verhandlungen, Emotionen, Text Mining, LIWC

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1. INTRODUCTION

1.1. Introduction

Negotiations are an inseparable part of our daily lives, be it over private, business or political issues. Whenever there is a need to distribute scarce resources, we start to negotiate with the other involved party, in an attempt to reach a favorable outcome (Pruitt & Carnevale, 1993). With the growing globalization and increasing usage of internet-based communication, the way we negotiate shifts more and more from face to face negotiations to electronic negotiations. The main difference between these two types of negotiations is that the parties are not in direct proximity and do not have a visual contact, thus a great part of the provided information is lost (Oates, 2009).

The selected communication media has a significant influence on the negotiation, affecting the context, communication patterns, managerial effectiveness, as well as the semantics, syntax and style of negotiators (Purdy, Nye, & Balakrishnan, 2000). The factor that causes all these differences is the level of richness that the selected media offers. For instance, face to face communication has the highest media richness, as it provides synchronous aural, visual and nonverbal communication cues (Daft, Lengel, & Trevino, 1987). On the other hand, computer-based communication, such as email or chat, offers only text information and no other cues, thus it is low in media richness (Purdy, Nye, & Balakrishnan, 2000).

The focus of this master thesis is on comparing the text structure of negotiations, conducted by using these two opposing communication methods, namely, face to face negotiations with that of electronic negotiations, and more concretely with chat negotiations. The analysis of the text structure consists of comparing the usage rate of different word categories between the two communication modes and their influence on the negotiation outcome.

1.2. Objective and research question

The words people use reveal important psychological cues about what they are paying attention to, what they are thinking about, what they are trying to avoid, how they are feeling, what their intentions and motivations are (Tausczik & Pennebaker, 2010). Research has shown that the usage of various words might differ when communicating face to face and electronically, as in the latter case there is a lack of social cues (Hine et al., 2009). As all these insights that a text analysis can offer are very important and applicable in the area of negotiations, this master theses researches the following question:

„Is there a difference in terms of language use in the negotiators' communication between face to face and electronic negotiations?"

The objective of this thesis is to establish the existence of differences in the language usage when negotiating in person and via electronic chat. The findings of this comparison can be used as basis for developing negotiation strategies for a specific mode of communication.

Furthermore, the results of this empirical research will contribute to the literature, as most of the research on the topic was done by human coders and only little research was done by using text mining tools.

1.3. Research method

For the purpose of answering the research question, two research methods were used – literature review and quantitative research method.

First of all, a literature review was performed in order to establish the foundations of the study and define the focus of the intended empirical research.

For the empirical part, a simulation negotiation experiment, developed by Pesendorfer et al. (Pesendorfer, Graf, & Koeszegi, 2007), was replicated together with my colleague Pia Nüssel (2015), but with a new setting, namely, by conducting it face to face as opposed to the previously used text-based electronic communication system. Both data sets – the pri-

mary data from the experiments conducted by Pia Nüssel and myself (2015) and the secondary data from the experiments carried out by Pesendorfer et al. (2007), were utilized for this study. The software program Linguistic Inquiry and Word Count (LIWC) was used for text mining of the negotiation transcripts in order to get comparable quantitative data for further analysis. LIWC is a text analysis program, which allocates words into predefined categories and reports the degree to which each word category was used. The LIWC text mining results of the two data sets were then compared and analyzed with the purpose of finding differences and similarities between the face to face and electronic negotiations, thus answering the research question of this thesis (Pennebaker, Francis, & Booth, 2001) (Wolf, et al., 2008).

1.4. Structure of the thesis

This thesis is divided into three main parts: theoretical background (chapters one and two), empirical model (chapters three and four) and empirical results and conclusion (chapters five and six).

The first two chapters offer an introduction to the subject of negotiations and provide a theoretical foundation of the differences between face to face and electronic negotiations. Furthermore, several word categories and aspects, by which the two types of negotiations will be analyzed, are reviewed. These include positive and negative emotions, agreeable and negative language, inclusive and exclusive pronouns, interpersonal relationships, negotiation phases and duration. Based on the literature review, the hypothesis and the research model are developed in chapter three. Chapter four describes the methodology of the empirical study, followed by chapter five, which presents the empirical results. Finally, chapter six offers a conclusion summarizing the results as well as their limitations and makes suggestions for future research.

2. THEORETICAL FOUNDATIONS

2.1. Defining face to face and electronic negotiations

2.1.1. Integrative and distributive negotiations

Negotiation is a decision-making process in which two or more independent parties attempt to make a mutual decision concerning the distribution of scarce resources (Pruitt & Carnevale, 1993).

A commonly used categorization of negotiations is differentiating between two types: distributive (win-lose) and integrative (win-win) negotiations (Fischer & Ury, 1981). In distributive negotiations one party's success is another's loss (Croson, 1999). Negotiators who use distributive tactics are very individualistic and focused only on their own positive outcome. Integrative negotiators, on the other hand, use trade-offs, creative thinking and share information in an attempt to achieve win-win solutions, in which both parties are satisfied with the outcome (Pruitt, 1981; Croson, 1999; Giordano, et al., 2007).

2.1.2. Media richness

Media richness theory, developed by Richard Daft and Robert Lengel (1986), is used to explain the reasons why there are differences between the negotiations that use different communication media. Media richness indicates the amount of information that can be transmitted by a concrete medium (Poole, Shannon, & DeSanctis, 1992). The level of media richness is "dependent upon its ability to handle multiple information cues simultaneously, to facilitate feedback and to enable communicators to establish personal presence beyond the raw content of the message" (Purdy, Nye, & Balakrishnan, 2000, p. 164). As already mentioned in the introduction, face to face communication offers the highest level of media richness, as it conveys the most types of cues, such as visual – gestures, mimics, eye contact, body language and overall appearance of the person, and aural – voice pitch and volume, speed of speech and usage of pauses and filler words and sounds (Purdy, Nye, & Balakrishnan, 2000). In contrast, electronic communication like chat and email, also known

as computer-mediated communication, has the lowest media richness, because it provides no aural and only limited visual cues, basically just in the form of text (Parlamis, 2010).

2.1.3. Synchronous vs asynchronous negotiations

Based on the used media, negotiations can be further divided into synchronous and asynchronous. In synchronous negotiations, the communication is happening in real time and there are no delays between the exchanged messages (Pesendorfer & Koeszegi, 2006). Examples of synchronous communication are face to face negotiation and all those computer-mediated negotiations that have high media richness like video conferences and chat systems (Pesendorfer & Koeszegi, 2005). On the other hand, in asynchronous negotiations, the communication is not taking place in real time and delays in the responses are very common. Some of the examples of asynchronous communication are electronic mail, discussion boards, forums, newsgroups and asynchronous electronic negotiation systems (Dietz-Uhler & Bishop-Clark, 2001).

According to Clark and Brennan (1991), there are eight communication properties that define and differentiate face to face, synchronous and asynchronous electronic communication. These are listed in Table 1 and should provide a better understanding of the differences in the various communication modes.

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
		(6) Sequentiality
Asynchronous	(7) Revisability	
	(8) Reviewability	

Table 1 Communication mode/media characteristics (Pesendorfer & Koeszegi, 2006, p. 143)

Face to face communication can be characterized by six properties: (1) *co-presence*, which means that all parties are sharing the same physical environment and can observe what the others are doing or looking at; (2) *visibility*, which gives both parties the opportunity to see each other, but not their surroundings and what they are doing or looking at; (3) *audibility*, which allows both parties to perceive the nuances of the speech, such as speed, volume and intonation; (4) *co-temporality*, which means that the messages are exchanged without a delay; (5) *simultaneity*, which suggests that participants can exchange messages both at once; (6) *sequentiality*, which means that the participants are taking turns in exchanging messages and the conversation stays in sequence (Brennan & Lockridge, 2006; Friedman & Currall, 2003).

On the other hand, asynchronous electronic communication, such as electronic mail, does not have any of the above-mentioned properties. The negotiators are not physically in the same place, they cannot see or hear each other and cannot get instant responses, all of which might lead to misunderstandings due to the lack of additional cues (Clark & Brennan, 1991). Nevertheless, asynchronous electronic communication has two other useful characteristics, namely, (7) *revisability*, which means that messages can be revised and corrected before being sent; and (8) *reviewability*, which is the ability to go through the record of the conversation and review it as many times as needed (Friedman & Currall, 2003).

Synchronous electronic communication is more similar to face to face communication, because in addition to the (7) *revisability* and (8) *reviewability*, it is also characterized by (1) *co-presence*, as both parties are in a common virtual room, (4) *co-temporality*, (5) *simultaneity* (Pesendorfer & Koeszegi, 2006).

When comparing the two types of electronic communication, Pesendorfer & Koeszegi (2006) have labeled the synchronous negotiations as “hot debates” and the asynchronous ones as “cool” interactions (Koeszegi, Pesendorfer, & Vetschera, 2011). The reason for this categorization is that the former negotiation mode was identified as emotional and competitive, while the latter as friendly and more focused on building rapport and exchanging information (Pesendorfer & Koeszegi, 2006). These differences can be explained by the fact that synchronous negotiations have almost no time delay between messages, whereas asynchronous negotiations do not have the pressure to reply immediately. This gives the negotiators time to reflect on the received message and the provoked emotions, eventually relax, formulate an answer, review it and only then send it

(Koeszegi, Pesendorfer, & Vetschera, 2011). Another difference between synchronous and asynchronous negotiations can be found in the structure, length and number of the messages. As observed by Pesendorfer & Koeszegi (2006), asynchronous negotiations consist of fewer messages, which, however, are longer and provide more information than those of synchronous communication. Most of the asynchronous messages have a similar structure of a letter, beginning with a salutation and a reference to previous message, then providing information, offers, suggestions, rejections, and ending with a concluding salutation (Koeszegi, Pesendorfer, & Vetschera, 2011). On the other hand, synchronous messages are observed to be considerably shorter and usually bearing only one thought or piece of information per message. This is compensated by the high rate of exchanged messages during a conversation when compared to asynchronous communication (Koeszegi, Pesendorfer, & Vetschera, 2011).

As described above, the characteristics of synchronous electronic negotiations have higher resemblance to the ones of face to face negotiations, than the characteristics of asynchronous electronic negotiations do. The focus of this research is to observe the pure effect of the communication mode, without the substantial differences caused by asynchronous communication. For this reason, in this thesis it was decided to compare the communication between synchronous electronic negotiations and face to face negotiations.

2.1.4. Advantages of face to face negotiations

Face to face communication provides a much better information flow than online negotiation, which is the main basis of effective decision-making. Due to the presence of multiple aural and visual cues, such as tone, gestures and overall body language, it is much easier to correctly interpret the intent of the messages. Consequently, the risk for misunderstandings, misjudgments and negative outcomes is much lower compared to computer-mediated communication (Berger, 2013; Crossley, et al., 2016). Moreover, research results of Aranachalam and Dilla (1995) show that in person negotiations have better judgment accuracy and better integrative outcomes with an equal split of resources (Galin, Gross, & Gosalker, 2007) .

Another advantage of face to face communication is that it is easier to increase the trust level between the negotiating parties. The reason for this is that people look for confirmation of the vocal message they hear in all the non-verbal communication or body language

that they perceive. If all bits of the received message match, this facilitates the development of trust and rapport (Galin, Gross, & Gosalker, 2007).

In addition to the above-mentioned advantages, face to face communication is also more efficient. One reason is that both parties are usually more concentrated in the negotiation process and are less prone to do multitasking than in the case of computer-mediated communication, thus the engagement is higher (Galin, Gross, & Gosalker, 2007). Furthermore, the time needed for negotiating in person is found to be shorter than when negotiating online, possibly due to the additional time for typing or the need of additional clarifications when social cues are missing (Hiltz, et al.,1986; Valacich, Paranka, George, & Nunamaker, 1993; Croson, 1999).

Finally, several studies showed that the level of satisfaction with the outcome and the level of collaboration were higher when negotiating in person as opposed to electronically (Carnevale & Probst, 1997; Galin, Gross, & Gosalker, 2007).

2.1.5. Advantages of electronic negotiations

One of the main advantages of electronic negotiations is the lack of distance barriers. A lot of traveling costs can be saved, as one can run negotiations from the comfort of his or her office, no matter if the other party is one block or thousand kilometers away (Epstein, 2001).

Furthermore, computer-mediated communication gives the negotiator better control of self-presentation (Crossley, et al., 2016). This can be explained by the fact that in electronic negotiations there is often a level of anonymity, so the physical appearance of the negotiators does not play a role in creating an image of the opponent. According to Gladstone & O'Connor (2014), negotiators with more feminine face lines, be it women or men, are perceived as being more cooperative, less aggressive, less demanding, and overall as a weaker negotiator. On the other hand, people with more masculine faces are seen as tougher, more effective and more successful bargainers. In electronic negotiations, these appearance perceptions remain irrelevant, thus participants can be viewed as more equal, without any status differences (Galin, Gross, & Gosalker, 2007) (Croson, 1999).

Another advantage is that online communication allows for longer intervals between responses, even in the case of chat, which provides both parties with the opportunity to thoroughly formulate, review and correct their messages before sending, if needed (Berger, 2013).

Another specific that can be seen as both an advantage and disadvantage, is that online negotiations often lead to depersonalization and self-focused communication (Kiesler, et al., 1984). As a result, this can encourage the negotiators to use more forceful communication, such as threads and persuasion (Giordano, et al., 2007) and to act more aggressively (Crossley, et al., 2016). However, this style of negotiation was found to be positively correlated to the individual's outcome in several studies (Crossley, et al., 2016; Giordano, et al., 2007) and can be further described as distributive negotiation tactics. On the other hand, other studies found that parties negotiating electronically show more integrative tactics, such as openness and creative ideas for mutual success (Gallupe, et al., 1994; Nunamaker, et al., 1991; Croson, 1999).

2.1.6. Bias in electronic negotiations

In order to understand electronic negotiations better, one should also consider the biases associated with this communication mode. There are four biases that are commonly observed in electronic negotiations, according to Thompson and Nadler (2002), namely: temporal synchrony, burned bridge, squeaky wheel, and sinister attribution.

Temporal synchrony bias is "the tendency for negotiators to behave as if they are in a synchronous situation when in fact, they are not" (Thompson & Nadler, 2002, p. 117). Electronic negotiators want to have control over the conversation and in terms of sending their own message, they do have full control of when to send it. However, they lose the control of getting an immidiate response, which they usually have in face to face negotiations. The problem arises when the expectations of the electronic negotiator do not adjust to the new communication mode and he or she keeps assuming that an instant reply will come from the other party, this is the so-called "tennis game" mental model. When the response is delayed, which can be by hours or even days, this can lead to frustration (Thompson & Nadler, 2002). As already mentioned before, the rate of exchanged messages is much lower for negotiations conducted via electronic mail than in face to face. What is more, according to the research of Morris et al. (2002), there are fewer requests for

information clarification in electronic negotiations compared to face to face negotiations. Instead, electronic negotiators tend to make assumptions and interpret what the other party meant, which often leads to misunderstandings and even anger (Thompson & Nadler, 2002).

Burned bridge bias can be described as the inclination of the electronic negotiator to choose riskier interpersonal communication when negotiating online, which he or she would not dare to use face to face (Thompson & Nadler, 2002). While in face to face negotiations there are a lot of politeness behaviors such as small talk, smiling, nodding, eye contact that foster the relationship between the two parties, in electronic negotiations these are missing (Thompson & Nadler, 2002). In addition, the lack of social cues also hinders the development of rapport. Consequently, all this leads to a sense of anonymity and social distance, as well as a feeling that the relationship is only temporary, this not important (Oates, 2009). As a result, electronic negotiators often show no consideration for the relationship and use ultimatums in their strategies, which increases the probability of failure (Thompson & Nadler, 2002).

Squeaky wheel bias is "the tendency for negotiators to adopt an aversive emotional style when interacting via an impoverished media, such as e-mail, to achieve their goals, whereas the same negotiator might use a positive emotional style in a face to face interaction" (Thompson & Nadler, 2002, p. 118). The lack of physical presence creates a sense of anonymity, which might encourage the negotiators to use more ruthless emotional styles. Especially, if the negotiator believes that intimidation can lead to a better outcome, the anonymity makes it easier to switch into this negative role and use the squeaky wheel approach (Rothbart & Hallmark, 1988). Another reason for the common appearance of this bias, is that when negotiating online, particularly via electronic mail, people tend to concentrate more on the content and the information that they are providing and less on the formalities of a conversation etiquette (Oates, 2009). This leads to higher rates of confrontations, rudeness and impulsive behavior (Thompson & Nadler, 2002).

Sinister attribution bias is the tendency to judge the actions of others without considering any situational factors and attribute their behavior to malevolent motives (Kramer, 1995). According to social identity theory, we like people who have more in common with us and tend to trust them and cooperate with them more than with others. And contrariwise, we do not trust and cooperate so easily with people who are not similar to us, and especially if

they are perceived as being part of an outgroup (Tajfel & Turner, 1986). The sinister attribution bias is very common in electronic negotiations due to the sense of anonymity, social distance and lack of social cues that help to build rapport (Thompson & Nadler, 2002). According to Fortune and Brodt (2000), electronic negotiators show more mistrust and suspicion of being deceived than in a face to face situation. However, research shows that in fact there is no difference in the rate of deception between face to face and online negotiations (Thompson & Nadler, 2002).

2.2. Theoretical Framework

After establishing the bases on the topic of face to face and electronic negotiations in the previous section, this section of the theoretical part will introduce different variables, by which the two negotiation modes can be further compared. The variables that will be reviewed are divided into two categories. On one hand, the thesis will focus on communication variables which describe behavior based on the used language during the negotiations, such as words conveying positive and negative emotions, agreeable and negative language, inclusive and exclusive pronouns. On the other hand, factors influencing these behaviors in addition to the communication mode, will be discussed, namely the negotiation phases, negotiation duration, and interpersonal relationship between the negotiators.

2.2.1. Communication variables describing behavior

Positive and negative emotions

The information that a message provides is determined not only by the used words, but also by the facial and vocal expressions (DePaulo & Friedman, 1998). When considering the usage of only text-based online communication, the following question arises: Is it possible to transfer the full meaning of a message in electronic communication in the case when facial and vocal expressions are absent? The computer-mediated communication theorists do not agree on the answer of this question, consequently, the literature is divided into two perspectives: the so-called "cues filtered out" and "cues filtered in" (Walther & Parks, 2002).

On one hand, defenders of the "cues filtered out" theory (Sproull & Kiesler, 1986; Daft & Lengel, 1984) imply that important socio-emotional cues that enrich the meaning of the message cannot be fully transferred through online text communication (Griessmair & Koeszegi, 2009). The lack of body language and other para-verbal cues leads to filtering out most of the conveyed emotions, thus makes the communication less friendly, less emotional and less personal (Gettinger & Koeszegi, 2015).

On the other hand, the supporters of the "cues filtered in" theory (Walther, 1992; Walther, 1994; Walther & Parks, 2002) advocate that it is possible to transfer socio-emotional information and establish interpersonal relationships through electronic communication as well as in face to face setting, although they agree that there are differences between these two communication modes and in the former one this transfer may take longer (Griessmair & Koeszegi, 2009). According to Walther and colleagues (2005), online negotiators manage to convey as many emotions and social cues as face to face negotiators by adjusting their communication styles to the text-based communication mode (Hine et al., 2009). Furthermore, Griessmair & Koeszegi (2009) observed that even factual statements in online negotiations consist of an emotional layer.

This thesis is consistent with the latter perspective of "cues filtered in" and will focus on the positive and negative emotions that can be identified from the used words both in face to face and electronic negotiations.

By using content analysis with the LIWC (Linguistic Inquiry and Word Count), the research of Hancock et al. (2007) found that positive and negative emotions can be depicted very precisely in an online text-based setting, such as chat (Gill et al., 2008). The researchers observed higher rate of exclamation marks and higher word count in texts where authors were showing positive emotion, while there were more affective words, such expressing negative emotion and negations in texts with negative emotion (Gill et al., 2008).

According to the findings of Parlamis (2010), there is a significant difference between the usage of emotions in electronic and face to face negotiations and namely, that face to face negotiators show much higher emotional engagement during and even right before the negotiation is about to start than electronic ones. Contrary to this finding, other researchers observed higher frequency of positive and negative emotions in online negotiations compared to face to face negotiations (Moore, Kurtzberg, Thompson, & Morris, 1999).

When considering the effect of positive and negative emotions on the negotiation and the usage of which emotion is strategically better, there is no one consistent answer in the literature. This can be explained by the fact that many factors, such as cognitive, relational and procedural negotiation aspects, influence the recommendation (Griessmair & Koeszegi, 2009).

The presence of *positive emotions* can give important information about the relationship status between the negotiators (Brett et al., 2007), as it suggests a sense of respect and trust

for the counterpart (Hecht & LaFrance, 1998). Furthermore, the usage of positive emotions shows willingness to negotiate, to be cooperative and to participate in problem-solving strategies in order to reach an agreement (Anderson & Thompson, 2004; Allred, Mallozzi, Matsui, & Raia, 1997). Another research done by Kopelman and colleagues (2006) focused on the effect of emotions in different negotiation settings, such as dispute, ultimatum or distributive negotiation. Their findings showed that in both negotiation settings the display of positive emotions was the more effective strategy for achieving a better outcome, as positive negotiators were more persuasive and more likely to come to a deal than negative or neutral negotiators (Hine et al., 2009).

Contrary to these findings, Van Kleef and colleagues (2004a, 2004b) observed a negative effect on the negotiation outcome when a negotiator was showing positive emotions. Their research consists of several studies, all of which demonstrating that negotiators with positive emotions were opposed with higher demands and ended the negotiation with a worse deal than those showing negative emotions. In addition, the "happy" negotiators were not seen to be significantly more cooperative than the "angry" negotiators (Hine et al., 2009).

The expression of *negative emotions* is connected to a more frequent usage of competitive strategies (Forgas, 1998), low degree of future cooperation and lower joint outcomes (Allred et al. 1997). According to Van Kleef and colleagues (2004b), participants who use negative emotions are more competitive and hesitant to make compromises (Hine et al., 2009). When examining the effect of negative emotions on the other party and on the final outcome of the negotiation, there are different findings in the literature. On one hand, Sinaceur and Tiedens (2004) observed that the expression of negative emotions can be strategically beneficial, as participants yielded more to negotiators, who were displaying negative emotions, specifically, when the participant had less appealing options and perceived the settlement as otherwise unlikely (Parlamis, 2010). On the other hand, following the social contagion theory, Levy and Nail (1993) stated that the usage of negative emotions by one of the negotiators causes the other negotiator to respond negatively as well, which in many cases leads to an impasse (Hine et al., 2009). Comparatively, Friedman and Currall (2004) found that when one of the negotiators shows affect, usually the emotion transfers to the other party as well. Although social contagion theory was initially developed in face to face settings, Thompson and Nadler (2002) confirmed that it is valid in a computer-mediated communication (Hine et al., 2009).

The differences in the observed effects of emotions on the negotiation process and outcomes might be due to the different negotiation modes, since some took place in a face to face setting (Kopelman et al., 2006, Sinaceur & Tiedens, 2004), others in a computer-mediated environment (Van Kleef et al., 2004a, Van Kleef et al., 2004b), or due to the various experimental and assessment designs that were used (Hine et al., 2009; Parlamis, 2010). Overall little research has been done in comparing emotions between different negotiation modes. This thesis should contribute to reducing this gap in the literature.

Agreeable and negative language

Agreeable language is used to express that a person perceives a statement, offer or behavior as pleasing and acceptable, while negative or disagreeable language is a sign of dissatisfaction and unacceptance. Therefore, observing the usage of agreeable and negative language during a negotiation can provide valuable insights about the needs and level of flexibility of the counterpart (Hine et al., 2009).

People tend to be cooperative and helpful to those they like (Baron, 1971). Furthermore, Pruitt (1981) suggests that a good mood, affection, identification and future dependence can positively influence the negotiation and lead to getting more concessions (Hine et al., 2009). For these reasons, it is advisable to create and maintain a nice positive atmosphere during the negotiation. This is especially valid for negotiations that take place in computer-mediated settings, since they are at a higher risk of getting to escalation situations (Friedman and Currall 2003). Compared to face to face conversations, online communication tends to generate more angry and negative moods, negative perception of the other party, and even flaming (Hine et al., 2009). Flaming can be defined as "antinormative hostile communication of emotions that includes the use of profanity, insults, and other offensive or hurtful statements" (Johnson, Cooper, & Chin, 2009, p. 661). Furthermore, the specifics of electronic negotiations, such as the lack of social cues, make the creation of personal relationship and the building of rapport much more complicated (Morris, Nadler, Kurtzberg, & Thompson, 2002).

More frequent usage of agreeable language in electronic negotiations was proved to be positively correlated to a successful outcome. And the opposite, the usage of more negative words led to higher chances of an impasse during an online negotiation (Hine et al., 2009).

Strategies for improving rapport and keeping the positive tone according to Hine and colleagues (2009) are being friendly, along with recognizing and agreeing with the opinions and values of others. Moreover, words of affirmation are found to encourage open exchange of views and suggestions as well as to promote further discussion (Brown & Levinson, 1987). Observing the frequency of the used agreeable and negative language can be strategically beneficial for identifying the goals, priorities and constraints of the other party during a negotiation (Pruitt 1981). It was observed that "strong and vigorous arguments almost always reveal high-priority issues while accommodating language indicates a concession is possible" (Hine et al., 2009, p.199).

Inclusive and Exclusive Pronouns

Pronouns can be divided into two groups – inclusive pronouns, such as "we", "our", "us" and exclusive pronouns, such as "I", "me", "you". It should be noted that the usage of the first person plural pronouns (we, our, us) can be both inclusive and exclusive, depending on who is it referring to. The inclusive first person plural pronouns refer to the speaker and his counterpart, while the exclusive ones refer to the speaker and some other person or group, who are not participating in the conversation (Scheibman, 2003). In most languages, one can differentiate between inclusive and exclusive uses of first personal plural pronouns. Analyzing the usage of these inclusive and exclusive plural pronouns can disclose useful information about the group membership, participant relation, positive and negative face needs (Scheibman, 2003), as well as about the level and distribution of power and solidarity between the two parties (Brown & Gilman, 1960).

When people use inclusive plural pronouns, such as "we, us, ours", while addressing the other party, they create a common in-group feeling and a positive tone (Hine et al., 2009). Furthermore, when a person refers to other individuals with the in-group "we", this creates a psychological closeness (Staub, 1978). In such cases, both parties are more likely to be open for cooperation with each other (Staub, 1978).

Pruitt (1981) defined a ratio of plural and singular pronouns – the we/I ratio, which correlates with the psychological closeness between the two sides of the conversation. The ratio compares two types of pronouns: on one hand, the plural inclusive pronouns, which define

both participants as a single entity, for example: we, us, ours; on the other hand, the exclusive singular pronouns, which refer only to the speaker alone, for instance: I, me, mine (Hine et al., 2009). As mentioned above, higher usage of inclusive pronouns that refer to negotiators as a single entity have a positive effect on the negotiation tone, promoting more friendly and helpful behavior. On the contrary, the usage of exclusive pronouns that stimulate an out-group feeling of not belonging together leads to expressing more negative emotions and having difficulties to establish a positive relationship and build rapport (Hine et al., 2009). In addition, researchers have found that negotiations that use exclusive out-group pronouns are more likely to end in an impasse than those who establish a friendly bases by using inclusive in-group pronouns (Moore et al, 1999).

2.2.2. Factors influencing behavior

Negotiation Phases

In order to study and explore the complex nature of negotiations, these are often broken down into different phases. In this section two of the phase models will be described, namely the two-phase model by Walton (1969) and the four-phase model by Adair and Brett (2005). Although they were initially developed to describe face to face negotiations, Pesendorfer and colleagues (2007) confirmed that the models are valid in computer-mediated negotiations as well. Both models are illustrated in Figure 1.

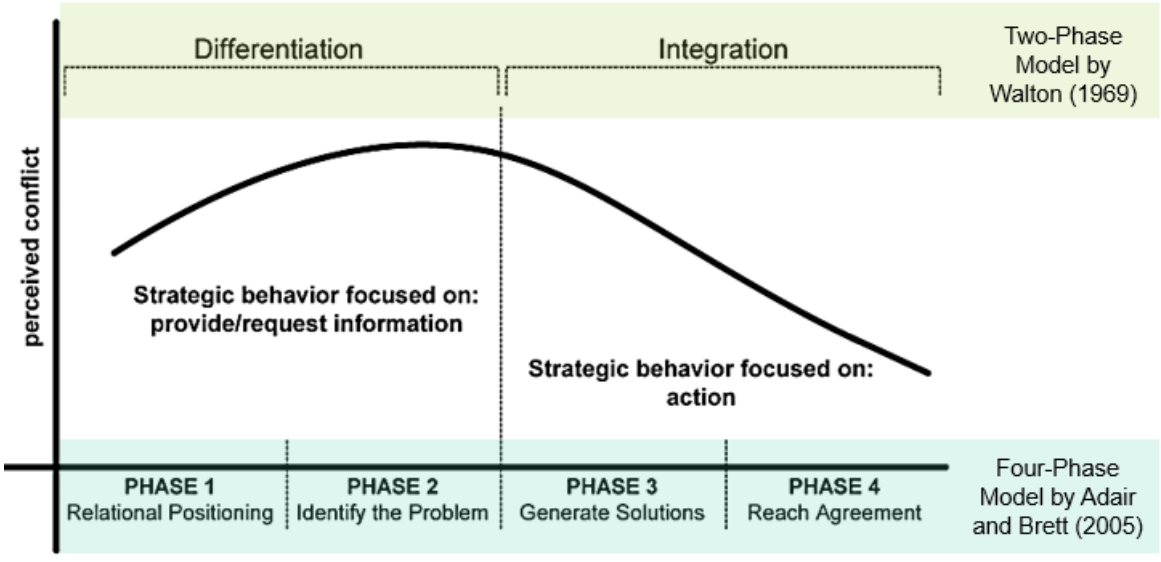

Figure 1 Negotiation phase models and negotiation behavior over time, adapted from Pesendorfer et al (2007)

According to the two-phase model of Walton (1969), negotiations have a differentiation and an integration phase. In the differentiation phase, the parties exchange information about their demands, identify the issues and the differences in their positions (Hine et al., 2009). Consequently, this usually leads to an increased sense of conflict (Pesendorfer, Graf, & Koeszegi, 2007). This phase is characterized by an open conflict and by establishing the positions of the negotiation parties (Pesendorfer, Graf, & Koeszegi, 2007). If both negotiators show mutual understanding for the position and the needs of the other and a motivation to resolve the identified differences, then they will proceed to the second phase – the integration phase (Hine et al., 2009). In the integration phase, the focus is more on strategic actions such as fostering a friendly atmosphere and a positive tone and considering possibilities for problem solutions and eventual positive outcome for both parties (Pesendorfer, Graf, & Koeszegi, 2007).

The model of Adair and Brett (2005) distinguishes between the four negotiation phases. In the first phase, the negotiators are establishing their relational position. In the second phase, they are exchanging information and identifying the problem of their negotiation. In the third phase, both parties are discussing different options and generating possible solutions. Finally, in the fourth phase, the negotiators try to reach an agreement (Pesendorfer, Graf, & Koeszegi, 2007).

Negotiation Duration

Computer-mediated negotiations are considered often as efficient and cost-saving, because they enable parties from different places to communicate without the burden of travelling to a specific meeting point. According to Carmel et al (1993), electronic communication is more concise and to the point, thus a faster way to communicate, as it does not have as high requirements for following conversational formalities, such as small talk, as face to face communication does (Galin, Gross, & Gosalker, 2007).

Nevertheless, most of the researchers agree that electronic negotiations are usually inefficient when it comes to the time it takes to exchange all the required information and offers and to reach an agreement, implying that "the amount of information communicated per unit of time" is lower than in face to face negotiations (Purdy, Nye, & Balakrishnan, 2000, p. 167). The results of the study of Galin, Gross and Gosalker (2007) concluded that

electronic negotiations take longer, sometimes more than double the time, than face to face negotiations.

The lower speed of the message exchange in electronic negotiations can be explained in several ways. First of all, people talk much faster than they are able to type (Thompson & Nadler, 2002). Furthermore, negotiators might take time to review and make corrections to the message before sending it (Galin, Gross, & Gosalker, 2007). For this reason, online communication, even the synchronous one, involves longer pauses between each message (Purdy, Nye, & Balakrishnan, 2000). Moreover, asynchronous communication can take hours or even days for a response to arrive (Thompson & Nadler, 2002). Another reason for electronic negotiations to take longer is the lack of social cues and non-verbal communication, the presence of which in the case of face to face negotiations provides much more information in a very short time (Galin, Gross, & Gosalker, 2007).

Interpersonal relationships

Prior interpersonal relationships between the negotiators were proven to influence the strategies and behavior of both parties and, consequently, also the whole negotiation process and outcome (Helpern, 1994; Moore et al., 1999). In most of the research, as well as in this thesis, interpersonal relationship is broadly defined as having had a social encounter before the negotiation, not necessarily being good friends (Li, Plunkett Tost, & Wade-Benzoni, 2007).

The effect that interpersonal relationships have on negotiations can be observed in many negotiation aspects, such as information exchange, aspiration level, strategy, allocation norms, and subjective evaluation (Li, Plunkett Tost, & Wade-Benzoni, 2007). The research in the literature is not conclusive of whether this impact is positive or negative, as studies have observed both a positive and a negative effect (Lewicki, Barry, Saunders, & Minton, 2003).

When considering how much information to share during a negotiation, participants are usually concerned not to reveal too much information, which can be then used in a strategy against them. At the same time, exchanging information can also lead to increasing the joint gains (Murnighan et al., 1999). For this reason, negotiators are often faced with a dilemma

of how much details to share. The decision is much easier for negotiators with a positive previous relationship as there is already an established trust between the parties, which makes them more open and honest during the conversation and more cooperative (Greenhalgh and Chapman, 1998).

According to Fry and colleagues (1983), interpersonal relationships have a negative influence on aspiration levels, as the aspiration levels were lower compared to those in negotiations without a previous relationship. Negotiators with a prior relationship are more friendly and cooperative, tend to easily make compromises and rarely use aggressive or competitive strategies for gaining a better individual deal, thus they usually end up with a lower outcome (Lewicki, Barry, Saunders, & Minton, 2003). Valley and colleagues (1995) found that these tendencies can be explained by the concern for maintaining a good relationship, which is perceived as more important than achieving a more profitable deal.

The research of Pesendorfer and colleagues (2006) showed that prior interpersonal relationships facilitate the negotiation, particularly in high conflict situations and escalation cases. Negotiators with no prior relationship have higher rates of unsuccessful negotiations that end in an impasse when a negotiation escalates (Pesendorfer et al., 2006).

Another effect of the interpersonal relationship on negotiations can be observed in the emotional dimension of the conversation. Negotiations of people with prior connection tent to be more emotionally loaded than those of strangers (Li, Plunkett Tost, & Wade-Benzoni, 2007). This emotionality can, however, have both positive and negative effects, depending on how the negotiators deal with their feelings (Kurtzberg & Medvec, 1999).

As illustrated above, it is not possible to conclude if relationships have only a positive or a negative effect on negotiations. On one hand, they encourage openness, trust, fairness, and promote collaboration, all of which facilitates the positive outcome even in high conflict negotiations. On the other hand, the anxiety of harming the relationship status results in lower levels of aspiration and competitiveness that lead to lower joint profits (Li, Plunkett Tost, & Wade-Benzoni, 2007).

3. HYPOTHESES AND RESEARCH MODEL

After looking into the findings of the literature in the theoretical part, in this chapter the hypotheses will be developed. First of all, the objective of the thesis will be explained. Furthermore, assumptions derived from the literature would be discussed. Consequently, the hypotheses will be formulated. Finally, the chapter will end with an overview of all derived hypotheses.

3.1. Assumptions and hypothesis deduction

As presented in the literature review, there has been a lot of research focusing on the effects of various communication modes on negotiation (Purdy, Nye, & Balakrishnan, 2000; Fortune & Brodt, 2000; Croson, 1999; Morris, Nadler, Kurtzberg, & Thompson, 2002). Furthermore, some research has been done on comparing negotiations that use different communication modes (Arunachalam & Dilla, 1995; Galin, Gross, & Gosalker, 2007; Hiltz, Johnson, & Turoff, 1986; Lynn A. Epstein, 2013; Oates, 2009). However, there is little research in the literature focusing on the differences in the language usage when comparing negotiations in diverse settings (Crossley, Woodworth, Black, & Hare, 2016). This thesis attempts to close this gap by conducting an empirical study, which compares several variables of the language structure of negotiations done face to face and such done electronically via a synchronous communication chat system.

The aim of this thesis is to answer the main research question, as already mentioned in the introduction:

„Is there a difference in terms of language use in the negotiators' communication between face to face and electronic negotiations?“

Based on the literature review that was presented in the theoretical part, the following sub-questions have arisen:

Q1: Are there differences in the usage of positive and negative emotion words when comparing face to face with electronic negotiations?

Q2: Are there differences in the usage of agreeable and negative language when comparing face to face with electronic negotiations?

Q3: Are there differences in the usage of inclusive and exclusive pronouns when comparing face to face with electronic negotiations?

Q4: Are there differences in terms of usage of positive and negative emotion words, of agreeable and negative language, and in the use of inclusive and exclusive between the first and the second negotiation phase?

Q5: Are negotiations between friends and non-friends different in terms of usage of positive and negative emotion words, of agreeable and negative language, and in the use of inclusive and exclusive pronouns?

Q6: Are there differences in the duration between face to face and electronic negotiations?

Q7: Do all the mentioned text differences influence the outcomes of the negotiations?

Consequently, from these questions in combination with the theory, the hypotheses will be developed.

3.1.1 Positive and negative emotions

As discussed in the theoretical part, there are different views on whether emotions can be effectively expressed in electronic negotiations or not. This thesis supports the "cues filtered in" perspective, which implies that both positive and negative emotions can be conveyed through the usage of electronic communication as well as in face to face communication.

According to the literature, there are significant differences in the usage of positive and negative emotions between negotiations taking place online and those taking place in person. However, not all research findings agree on which negotiation setting is accompanied by expression of more emotions. Some authors suggest that negotiators show much more

emotions when negotiating face to face compared to online (Parlamis, 2010). Others have observed higher usage rate of positive and negative emotions in computer-mediated negotiations compared to face to face negotiations (Moore, Kurtzberg, Thompson, & Morris, 1999).

This thesis assumes that the latter findings are true and the following two hypotheses will be tested in the empirical part:

H1a: The usage rate of positive emotions is higher in electronic negotiations compared to face to face negotiations.

H1b: The usage rate of negative emotions is higher in electronic negotiations compared to face to face negotiations.

3.1.2. Agreeable and negative language

In addition to positive and negative emotions in negotiations, one can also distinguish and analyze the agreeable and negative language usage in electronic and face to face negotiations.

Due to the characteristics of electronic negotiations, such as the lack of body language and social cues as, it is much more difficult to establish a positive personal relationship in computer-mediated compared to face to face negotiations (Morris, Nadler, Kurtzberg, & Thompson, 2002). As a consequence, more angry and negative expressions are observed in online communication as opposed to face to face negotiations (Hine et al., 2009).

It is expected that the results in this thesis will be consistent with the findings in the literature, therefore the hypotheses for the usage of agreeable and negative language are as follows:

H2a: The usage rate of agreeable language is lower in electronic negotiations compared to face to face negotiations.

H2b: The usage rate of negative language is higher in electronic negotiations compared to face to face negotiations.

3.1.3. Inclusive and exclusive pronouns

Another type of words which effects can be analyzed are the used pronouns. As described in the theoretical part, negotiators can use inclusive plural pronouns that refer to the counterpart as an in-group member or exclusive singular pronouns which refer to the counterpart as an out-group member (Scheibman, 2003).

According to Hine and colleagues (2009), the usage of inclusive plural pronouns is connected to more friendly and positive tone and more psychological closeness (Staub, 1978). On the other hand, the usage of exclusive singular pronouns is associated with more hostile and negative tone (Hine et al., 2009).

Since it has been proven that building rapport in a computer-mediated negotiation is more difficult than in face to face negotiations (Morris, Nadler, Kurtzberg, & Thompson, 2002), it is expected that the face to face conversations will be friendlier and, thus, the usage of inclusive plural pronouns will be higher than in electronic negotiations.

Consequently, the following hypotheses were derived:

H3a: The usage rate of exclusive singular pronouns is higher in electronic negotiations compared to face to face negotiations.

H3b: The usage rate of inclusive plural pronouns is lower in electronic negotiations compared to face to face negotiations.

3.1.4. Negotiation phases

Two negotiation phase models were discussed in the theoretical part – the two-phase model of Walton (1969) and the four-phase model of Adair and Brett (2005). Due to the small size of the data sample, the empirical part of this thesis will focus only on the two-phase model.

The two-phase model of Walton (1969) splits the negotiation into first differentiation phase and second integration phase.

In the differentiation phase, negotiators exchange their expectation and identify the differences and problems for reaching the desired deal (Hine et al., 2009). As a result, this phase is usually characterized by negative emotions and a conflict. (Pesendorfer, Graf, &

Koeszegi, 2007). Therefore, the expected outcome of this thesis' experiment is that in the first differentiation phase of the negotiation, there will be a high usage rate of all discussed language categories connected to a negative tone, namely negative emotions, negative language and exclusive singular pronouns.

In the integration phase, negotiators try to find solutions to the identified problems in order to reach a deal. This phase is usually distinguished by a friendlier atmosphere compared to the first phase, as both parties are trying to build rapport and find a joint positive outcome (Pesendorfer, Graf, & Koeszegi, 2007). Hence, the expected outcome of the empirical research is that in the second integration phase of the negotiation, there will be a high usage rate of all discussed language categories connected to a positive tone, namely positive emotions, agreeable language and inclusive plural pronouns.

Furthermore, since Pesendorfer and colleagues (2007) confirmed that the two-phase model of Walton (1969) is applicable to both face to face and computer-mediated negotiations, this thesis assumes that there will be no significant differences in the usage of the discussed language categories between first and second phase across the two communication settings.

Following the above discussion, the hypotheses are formulated as follows:

H4a: The first phase is characterized by higher usage rates of the following variables compared to the second phase:

a) *Negative emotions*
b) *Negative language*
c) *Exclusive singular pronouns*

H4b: The second phase is characterized by higher usage rates of the following variables compared to the first phase:

a) *Positive emotions*
b) *Agreeable language*
c) *Inclusive plural pronouns*

H4c: Hypotheses H4a and H4b are valid for both electronic and face to face negotiations.

3.1.5. Negotiation duration

Although Carmel and colleagues (1993) have suggested that electronic communication is faster than face to face communication due to the lack of conversational formalities, most of the researchers agree that the opposite is true, namely that face to face negotiations are much more efficient than electronic negotiations.

Many studies have supported the latter statement (Galin, Gross & Gosalker, 2007; Purdy, Nye, & Balakrishnan, 2000), with the explanation that due to the lack of social cues, the slower speed of typing and more limited information exchange electronic negotiation take longer than face to face negotiation.

This thesis supports the statement that electronic negotiations take longer than computer-mediated negotiations. The respective hypothesis is:

H5: The duration of electronic negotiations is longer than that of face to face negotiations.

3.1.6. Interpersonal relationships

Numerous research studies have confirmed that interpersonal relationship influences the behavior of the negotiators, their strategies and as a result, the negotiation outcome (Helpern, 1994; Moore et al., 1999; Li, Plunkett Tost, & Wade-Benzoni, 2007, Pesendorfer et al., 2006).

Negotiators who have prior interpersonal relationship tend to be friendlier and more open for discussions than negotiators who do not know each other (Lewicki, Barry, Saunders, & Minton, 2003). This implies that these friendlier negotiations will be characterized by higher usage of positive emotions, agreeable language and inclusive plural pronouns.

Thus, two hypotheses were formulated:

H6a: Negotiations between friends are characterized by higher rates of the following variables compared to negotiations between non-friends:

a) *Positive emotions*
b) *Agreeable language*
c) *Inclusive plural pronouns*

H6b: Negotiations between non-friends are characterized by higher rates of the following variables compared to negotiations between friends:

a) Negative emotions
b) Negative language
c) Exclusive singular pronouns

3.1.7. Negotiation outcome

The outcome of a negotiation is shaped by numerous variables, among others by the usage of positive and negative emotions, agreeable and negative language, and inclusive and exclusive pronouns.

According to Pruitt (1981), a nice and friendly atmosphere can positively influence the negotiation, as it makes negotiators more open and cooperative.

Furthermore, research results show that high usage of agreeable language is correlated to a successful outcome. On the contrary, the usage of disagreeable negative expressions was correlated to higher rates of impasses (Hine et al., 2009).

In addition, when considering inclusive and exclusive pronouns, Moore and colleagues (1999) observed that negotiators who use exclusive out-group pronouns are more unlikely to reach an agreement than those who used inclusive in-group pronouns.

Following these findings, the following hypotheses were created:

H7a: Positive outcome correlates with high usage rates of

a) Positive emotions
b) Agreeable language
c) Inclusive plural pronouns

H7b: Negative outcome correlates with high usage rates of

a) Negative emotions
b) Negative language
c) Exclusive singular pronouns

3.2. Overview of hypotheses

Based on the theoretical research and the initial assumptions, seven main topics of hypotheses were defined, some of which include several hypotheses. All derived hypotheses are presented in the following table for a better overview of what will be tested in the empirical part.

1	**Positive and negative emotions**
H1a	*The usage rate of positive emotions is higher in electronic negotiations compared to face to face negotiations.*
H1b	*The usage rate of negative emotions is higher in electronic negotiations compared to face to face negotiations.*
2	**Agreeable and negative language**
H2a	*The usage rate of agreeable language is lower in electronic negotiations compared to face to face negotiations.*
H2b	*The usage rate of negative language is higher in electronic negotiations compared to face to face negotiations.*
3	**Inclusive and exclusive pronouns**
H3a	*The usage rate of exclusive singular pronouns is higher in electronic negotiations compared to face to face negotiations.*
H3b	*The usage rate of inclusive plural pronouns is lower in electronic negotiations compared to face to face negotiations.*
4	**Negotiation phases**
H4a	*The first phase is characterized by higher usage rates of the following variables compared to the second phase: a) Negative emotions; b) Negative language; c) Exclusive singular pronouns*
H4b	*The second phase is characterized by higher usage rates of the following variables compared to the first phase: a) Positive emotions; b) Agreeable language; c) Inclusive plural pronouns.*
H4c	*Hypotheses H4a and H4b are valid for both electronic and face to face negotiations.*
5	**Negotiation duration**
H5	*The duration of electronic negotiations is longer than that of face to face negotiations.*
6	**Interpersonal relationship**
H6a	*Negotiations between friends are characterized by higher rates of the following variables compared to negotiations between non-friends: a) Positive emotions; b) Agreeable language; c) Inclusive plural pronouns.*
H6b	*Negotiations between non-friends are characterized by higher rates of the following variables compared to negotiations between friends: a) Negative emotions; b) Negative language; c) Exclusive singular pronouns.*
7	**Negotiation outcome**
H7a	*Positive outcome correlates with high usage rates of a) Positive emotions; b) Agreeable language; c) Inclusive plural pronouns*
H7b	*Negative outcome correlates with high usage rates of a) Negative emotions; b) Negative language; c) Exclusive singular pronouns*

Table 2 Hypotheses Overview

3.3. Research model

To better illustrate the empirical research and the different variables that will be tested, a research model has been created and presented in Figure 2.

It starts with gathering basic information about the participants and then assigning roles and explaining the negotiations case. The transcripts of the negotiations are then analyzed by examining several communication variables which describe behavior. Furthermore, the effect of four factors that influence this behavior, namely the communication mode, relationship, negotiation phases and duration, are being observed. Out of the four factors, the communication mode has the prominent focus in this thesis. In the end, the influence of the communication variables which describing behavior on the negotiation outcome is analyzed.

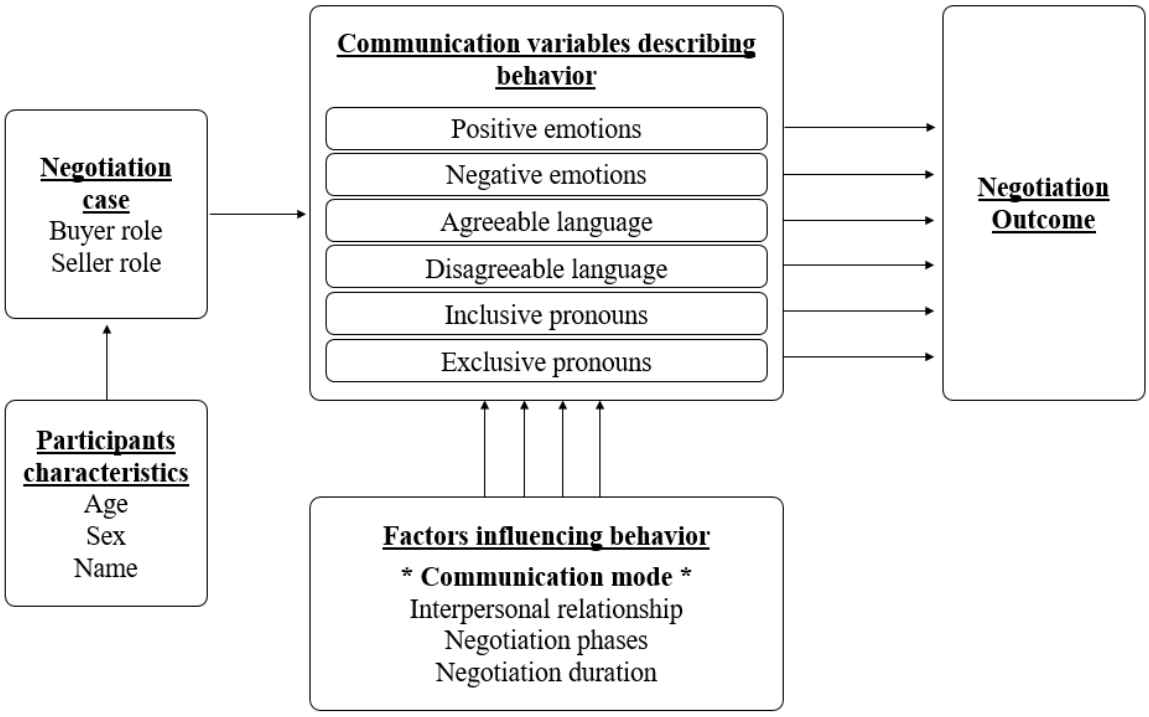

Figure 2 Research model

4. METHODOLOGY

4.1. Introduction

For the purpose of this thesis the data of two experiments will be analyzed, one conducted in a computer-mediated setting and one in a face to face setting.

On one hand, the data gathered by Pesendorfer and colleagues (2006) will be used. Their experiment was conducted by using the text-based electronic negotiation support system SimpleNS. It is a computer-mediated communication system that enables participants to exchange, store, and retrieve offers and messages synchronously, but without any additional support features.

On the other hand, the data from the experiments my colleague Pia Nüssel and I conducted was used. The negotiation experiments took place in a face to face setting.

This section will provide information about the two experiments, such as the data sample and selected data set for this thesis, experiment design, data collection and preparation. Furthermore, it will explain the different types of analysis that will be performed, namely sentiment, phase and statistical analysis.

4.2. Sample

4.2.1. Sample Experiment 1

The data for Experiment 1 was gathered in the University of Vienna in 2005. The participants were mostly graduate students without special negotiation skills or knowledge (Pesendorfer, Graf, & Koeszegi, 2007). Both the sex split (58 women and 52 men) and prior relationship split (52 friends, 58 non-friends) were relatively even. The total sample size was 110 participants. The average age was 23.5 years with a range between 19 and 32 years.

4.2.2. Sample Experiment 2

The data for Experiment 2 was gathered mostly in and around the University of Vienna in 2015. Since the execution of the experiment was not bound to a computer room, some of the participants had their negotiation round outside the university building. The participants were mostly graduate students with a few exceptions who were already working employees, but all without special negotiation skills or knowledge. More than twice as many women took part in the experiment than men - 27 women and 11 men. The prior relationship split was uneven, with 14 friends and 24 non-friends. The total sample size was 38 participants. The average age was 26.8 years with a range mainly between 21 and 27 years, with 3 big outliers at age above 46.

4.2.3. Comparison of the two experiment samples

Table 3 provides a summarized description of the two data samples.

An important difference that needs to be emphasized are the different languages used in the negotiations. While the electronic negotiations in Experiment 1 were conducted in English, the face to face negotiations in Experiment 2 were done in German. Another significant difference in the experiment settings is the duration of the experiments. While the electronic negotiations were limited to a maximum of 45 minutes, the face to face negotiations had no time limit. Nevertheless, none of the face to face negotiations lasted longer than 37 minutes.

	Experiment 1	**Experiment 2**
Researchers	Pesendorfer et al (2005)	Nüssel and Petrova (2015)
Type of negotiation	Electronic via SimpleNS	Face to Face
Mode	synchronous	synchronous
Sample size	110 participants	38 participants
Gender	58 women; 52 men	27 women; 11 men
Average age	23.5 years old	26.8 years old
Age range	19 to 32	21 to 57 (79% below 27)
Type of relationship	52 friends, 58 non-friends	14 friends, 24 non-friends
Prior negotiation training	No	No
Duration	Max: 45 min	Not limited
Language	English	German
Incentive	University credit points	10 EUR

Table 3 Sample comparison

4.2.4. Description of the selected sample for analysis

To make the data sets comparable, just 18 cases from Experiment 1 were selected for further analysis. The selection was made in a way so that the selected data is similar to the data from Experiment 2 in terms of sex and type of relationship split. In addition, since Experiment 1 had two different scenarios, one with high and one with low conflict level, and Experiment 2 used only scenarios with the high conflict level, only cases from the high conflict level negotiations were selected from the Experiment 1 sample. Apart from these initial specifications, the cases were randomly chosen.

In total 36 experiments have been included into the selected sample for analysis, 18 for each of both communication methods. In 11 negotiations, the participants came to a successful deal, in 25 they did not.

The study subjects consisted of roughly twice as many women (46) than men (26). This proportion has also been reflected in the pairing of the subjects in the experiments (8 male & male - MM, 10 male & female - MF, 18 female & female - FF).

22 of the paired subjects identified as friends, 14 were not friends.

Tables 4 to 7 provide further details about the selected data sample.

Method

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	FaceToFace	18	50.0	50.0	50.0
	Electronic	18	50.0	50.0	100.0
	Total	36	100.0	100.0	

Table 4 Selected sample: Method

Relationship

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Non-Friends	22	61.1	61.1	61.1
	Friends	14	38.9	38.9	100.0
	Total	36	100.0	100.0	

Table 5 Selected sample: Relationship

Sex Split Buyer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	14	38.9	38.9	38.9
	Female	22	61.1	61.1	100.0
	Total	36	100.0	100.0	

Table 6 Selected sample: Sex split of Buyers

Sex Split Seller

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	12	33.3	33.3	33.3
	Female	24	66.7	66.7	100.0
	Total	36	100.0	100.0	

Table 7 Selected sample: Sex split of Sellers

Pairing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MM	8	22.2	22.2	22.2
	MF	10	27.8	27.8	50.0
	FF	18	50.0	50.0	100.0
	Total	36	100.0	100.0	

Table 8 Selected sample: Pairing

Deal

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No Deal	11	30.6	30.6	30.6
	Deal Found	25	69.4	69.4	100.0
	Total	36	100.0	100.0	

Table 9 Selected sample: Deal frequency

Method * Deal Crosstabulation

		Deal		Total
		No Deal	Deal Found	
Method	FaceToFace	0	18	18
	Electronic	11	7	18
Total		11	25	36

Table 10 Selected sample: method vs deal comparison

4.3. Experiment negotiation case

The negotiation case was developed by Pesendorfer and colleagues (2007) and used in both Experiment 1 (2005) and Experiment 2 (2015).

The case was designed as a mixed-motive buyer-seller negotiation between a pharmaceutical company (PharmCo) and a farmers' association (VanDairy) (Pesendorfer, Graf, & Koeszegi, 2007). The story develops around a fatal disease that some cows have been infected with and the vaccine that the pharmaceutical company is developing against it.

The participants were provided with detailed information about the issues they need to negotiate about, their importance, prioritization, acceptable range and aimed value, but were not suggested a particular strategy to follow. The negotiators had to agree on four issues – price, delivery time, guarantee and possibility and extent of future testing of vaccines on the cows.

On one hand, the buyers from VanDairy aim for a low price and delivery of the vaccine as soon as possible in order to protect their cows and a total guarantee for covering all damages the vaccine might cause. The farmers are not interested in providing the opportunity for future vaccine testing on their animals, but might agree in case they get better conditions on the other issues. On the other hand, the pharmaceutical company PharmCo strives for a price as high as possible, no offered guarantee and long delivery times. Furthermore, PharmCo is interested in the further tests of the vaccines.

Moreover, both parties were provided with an alternative offer, so that they were not forced to reach an agreement at all means.

4.4. Data collection and preparation

The same basic data was gathered in both of the experiments. Participants had to fill out a questionnaire in which they state their age, sex and prior relationship to their negotiation partner. This allows for a further comparison of the data for differences between face to face and electronic communication mode among friends and non-friends. While in face to face negotiations participants met their counterpart in person, in the electronic experiment

the names and sex of both participants were provided to the negotiators to ensure that there is no anonymity.

The conversations of the electronic experiment were saved via the text-based electronic negotiation system SimpleNS and transferred to Excel for further analysis.

The conversations of the face to face experiment were initially recorded and as a second step transcribed into Word document files.

The negotiation transcripts from both experiments were then cleaned from text, which was not part of the negotiation, such as clarification questions. Furthermore, a coding of the pronouns was executed, specifying the different usage of “we” and “ours” as related to the speaker and the counterpart or the speaker and his/her company.

In a next step, the data was split into different data sets, to enable the comparison between the face to face and electronic negotiations, friends and non- friends negotiations, phase one and phase two of the negotiations.

4.5. Sentiment Analysis

To perform the sentiment analysis the software LIWC 2001 has been used. It is a widely used tool in research across psychological domains and has been validated in several papers. (LIWC Language Manual, 2015; Tausczik & Pennebaker, 2010). To allow for direct comparison of the categories, the 2001 version of the English and German dictionary has been selected.

The English dictionary has been used as provided by LIWC, the mean classification rate in this dataset was 79.8%.

The German dictionary has been sourced from one of the developers, Dr. Markus Wolf, and it is based on categories of LIWC 2001. It has been used in numerous papers and has been shown as reliable (Wolf et al., 2008). The mean classification rate in this dataset was 62.9%.

Only selected word categories from the LIWC dictionary, which are suitable for testing the defined hypotheses, will be used in this thesis. These are the positive and negative emotions, anger, affect, assent, negations, swear words, and the singular and plural pronouns: I, you, we, self. In addition, the word count and words per sentence (WPS) are also calculated.

The selected categories are described as follows (LIWC, 2001):

Affective processes (affect): This category signifies all emotions, both positive and negative. It consists of 615 words, such as “happy”, “ugly”, “bitter”.

Positive Emotions (posemo): This category is a subcategory of affective processes, signifying positive emotions. It consists of 216 words, such as “happy”, “pretty”, “good”. The category is a good indicator as discussed for positive emotions as described in the theoretical part.

Negative Emotions (negemo): This category is a subcategory of affective processes, signifying negative emotions. It consists of 345 words, such as “hate”, “worthless”, “enemy”. The category is a good indicator for negative emotions as described in the theoretical part.

Anger (anger): This category is a subcategory of negative processes. It consists of 121 words, such as “hate”, “kill”, “pissed”. Due to anger playing an important role in negotiations (Johnson, Cooper & Chin, 2009), a separate analysis has been made on this subcategory.

Assents (assent)*:* This category signifies words of agreement. It consists of 18 words, such as “yes”, “OK”, “mmhmm”.

Negations (negate): This category signifies words of disagreement. It consists of 31 words, such as “no”, “never”, “not”.

Swear words **(swear):** This category signifies the usage of swear words and in this thesis’ analysis it will be reviewed together with the words of disagreement. It consists of 29 words, such as “damn”, “fuck”, “piss”.

Pronouns (pronoun): This category signifies the usage of all types of pronouns. It consists of 70 words, such as “I”, “our”, “they”, “you’re”.

First person singular pronouns (I): This category is a subcategory of pronouns and signifies the usage of first person singular pronouns. It consists of 9 words, such as “I”, “my”, “me”.

First person plural pronouns (we): This category is a subcategory of pronouns and signifies the usage of first person plural pronouns. It consists of 11 words, such as “we”, “our”, “us”.

Total first person (self): This category is a subcategory of pronouns and signifies the usage of all first person pronouns, both singular and plural. It consists of 20 words, such as “I”, “we”, “me”.

Total second person (you): This category is a subcategory of pronouns and signifies the usage of all second person pronouns. It consists of 14 words, such as “you”, “you’ll”.

We vs we: *Company Pronouns*

Company Pronouns is a category that was added manually to the LIWC dictionary for the purpose of this thesis. It consist of the words “we”, “our”, “us”, which were encoded to “CoProWe”, “CoProOur”, “CoProUs”.

In negotiations the word “we” is often used to refer to positions of the company the participant is representing. Contrary to the typical usage of the word “we”, this type of usage cannot be regarded as inclusive in the same manner, as the counterpart is not included and is still defined as an out-grouper (Hine et al., 2009). Due to the high number of occurrences in negotiations, this type of usage of the pronoun has been encoded separately as “CoPro” (Company Pronoun) and taken into special consideration. As a further step, it has been added to the LIWC category “ICombined” for further analysis.

4.6. Phase Analysis

As clarified earlier, due to the relatively small data set it was decided to use only the two-phase model of Walton (1969) for the empirical part of the thesis.

There are two types of phase models – stage models and episodic models. While the stage models follow certain stages in a particular fixed predefined order, episodic models look for periods in which specific behaviors can be identified and order these into flexible phases with variable length and order (Pesendorfer, Graf, & Koeszegi, 2007). Following the example of Pesendorfer and colleagues (2007), this thesis will also use the stage model.

Furthermore, the interval-based approach was selected for dividing the data into two phases. This approach splits the conversations into phases according to time or number of interactions. It was selected as it enables a comparison of the phases between negotiations with different length (Pesendorfer, Graf, & Koeszegi, 2007).

In order to have a more precise and efficient split into phases, the word count was used for each conversation and then divided by two. The first part of the conversation was categorized as phase one and the second part as phase two.

4.7. Statistical Analysis

4.7.1. Normality in keyword categories

It is a common occurrence in sentiment analysis to find that keyword categories are not normally distributed within a data set (Tausczik & Pennebaker, 2010). Therefore a normality test is performed on each category, in order to decide about further handling of the data. To detect which categories are normally distributed, the Shapiro-Wilk normality test is used.

4.7.2. Dealing with distributions

In the following analysis, the distribution will be taken into account as follows: When data is normally distributed, parametric ANOVA tests are performed.

In case of non-normally distributed data, the nonparametric Mann Whitney U (2 groups) or Kruskal-Wallis (more than 2 groups) tests are used to determine significant differences.

5. EMPIRICAL RESULTS

5.1. Introduction

This section presents the results of the empirical study. It starts with a view into the descriptive statistics for all variables. After that the results are reported for each of the hypotheses and then the correctness of the hypothesis is assessed.

To sum up the results of the empirical part, the end of the section offers an overview of the tested hypotheses.

5.2. Descriptive statistics

To begin with, Table 11 provides an overview of the total sample descriptive statistics, including the minimum, maximum, mean values and the standard deviations for all variables that will be further analyzed. The 0 and 1 results for the method, friends and deal can be explained by the fact that these were coded for easier data analysis, 0 stands respectively for face to face method, non-friends and no deal, while 1 stands for electronic method, friends and successful deal. All the word categories are shown as a percentage of the total word count of each negotiation transcript.

Looking at the data, one can notice that there are significant differences between the length of the conversations, both in terms of word count and duration.

Furthermore, when comparing the usage of the different pronouns, the highest rates are found in the exclusive pronouns, which include “I” (Mean 4.38), “You” (Mean 3.25) and the encoded company pronouns “CompanyPronoun” (Mean 2.24) and “ICombined” (Mean 6.61), while the inclusive pronoun “we” has a mean of only 1.63. Since the category “Self” includes both the inclusive and exclusive pronouns, its result is not of importance for this analysis.

Among the communication variables describing behavior, the most occurring one is the positive emotion with a mean of 3.30, followed by agreeable language (assent mean 2.74) and disagreeable language (negate mean 2.05). Negative emotions (mean 0.89), anger

(mean 0.18) and especially swear words (mean 0.03) rarely appear in the negotiation transcripts.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Wordcount	36	381.00	4566.00	1463.9167	1126.10183
Duration(min:sec)	36	7:13	46:23	29:24	13:30
I	36	2.25	8.05	4.3749	1.29960
We	36	.16	3.67	1.6339	.85015
Self	36	5.79	11.21	8.2489	1.40462
You	36	.32	8.17	3.2472	1.81903
CompanyPronoun	36	.00	4.94	2.2399	1.17555
ICombined	36	4.80	8.62	6.6147	1.04602
Negate	36	.65	4.39	2.0479	.90380
Assent	36	.41	6.80	2.7382	1.62387
Affect	36	2.10	7.31	4.1860	1.06861
Posemo	36	1.17	6.04	3.2997	.93815
Negemo	36	.00	2.40	.8858	.49018
Anger	36	.00	.58	.1801	.16345
Swear	36	.00	.35	.0269	.07003
Method	36	0	1	.50	.507
Friends	36	0	1	.39	.494
Deal	36	0	1	.69	.467

Table 11 Descriptive statistics overview

5.3. Hypothesis testing

5.3.1. Positive and negative emotions

The following word categories from the LIWC dictionary (2001) are included in the analysis of emotions:

- Affective processes (affect)
- Positive emotions (posemo)
- Negative emotions (negemo)
- Anger (anger)

Descriptive statistics

When comparing the means of face to face and electronic negotiations, in all four categories the expressed emotions are higher in electronic than in face to face negotiations (Table 12).

Descriptive Statistic

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Affect	FaceToFace	18	3.7069	.75992	.17912	3.3290	4.0848
	Electronic	18	4.6650	1.13474	.26746	4.1007	5.2293
	Total	36	4.1860	1.06861	.17810	3.8244	4.5475
Posemo	FaceToFace	18	3.0250	.78342	.18465	2.6354	3.4146
	Electronic	18	3.5744	1.01904	.24019	3.0677	4.0812
	Total	36	3.2997	.93815	.15636	2.9823	3.6171
Negemo	FaceToFace	18	.6814	.28554	.06730	.5394	.8234
	Electronic	18	1.0903	.56978	.13430	.8069	1.3736
	Total	36	.8858	.49018	.08170	.7200	1.0517
Anger	FaceToFace	18	.1503	.11446	.02698		
	Electronic	18	.2100	.20004	.04715		
	Total	36	.1801	.16345	.02724		

Table 12 Descriptive statistics: positive and negative emotions

Test of normality

The Shapiro-Wilk normality test is performed on all the selected variables in order to establish if these are normally distributed or not. As it can be seen in Table 13, affect, positive (posemo) and negative (negemo) emotions are normally distributed, while anger is not.

Tests of Normality

Variable	Method	Shapiro-Wilk		
		Statistic	df	Sig.
Affect	FaceToFace	.909	18	.083
	Electronic	.943	18	.330
Posemo	FaceToFace	.927	18	.170
	Electronic	.948	18	.394
Negemo	FaceToFace	.966	18	.728
	Electronic	.962	18	.632
Anger	FaceToFace	.913	18	**.097**
	Electronic	.873	18	**.020**

Table 13 Test of normality: positive and negative emotions

Analysis by communication method

When dividing the observations into two groups based on the communication method, affect, positive and negative emotions have a normal distribution and will be included into ANOVA tests. The following boxplots illustrate how the data is distributed in face to face and in electronic negotiations for the selected normally distributed variables. It is visible that the expressed emotions in all cases are higher in electronic negotiations.

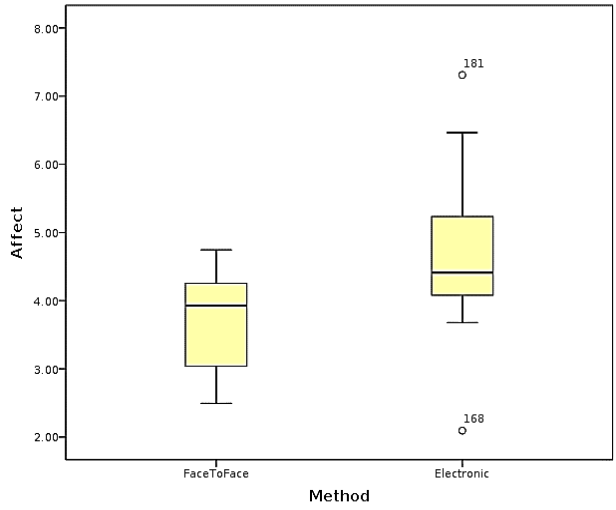

Figure 3 Boxplot: Affect and Method

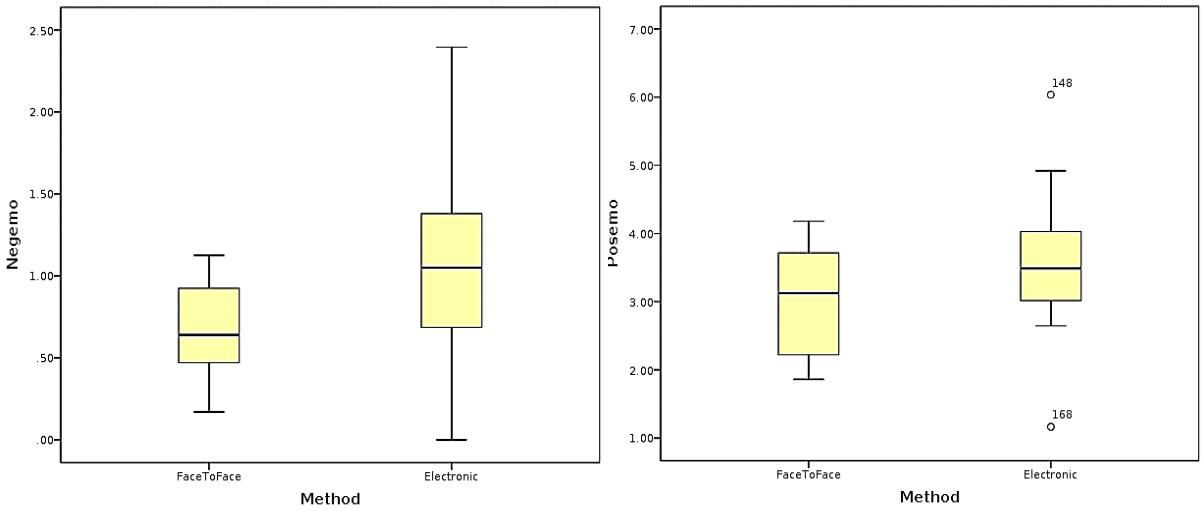

Figure 4 Boxplots: Positive & negative emotions and method

Test for significance

As a next step, the significance of the displayed differences between the electronic and face to face negotiations are examined. The ANOVA test is run for the normally distributed variables (Table 14) and for the non-normally distributed variable "anger" the Mann-Whitney U test (Table 15) is used.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Affect	Between Groups	8.261	1	8.261	8.858	**.005**
	Within Groups	31.707	34	.933		
	Total	39.968	35			
Posemo	Between Groups	2.717	1	2.717	3.289	.079
	Within Groups	28.087	34	.826		
	Total	30.804	35			
Negemo	Between Groups	1.505	1	1.505	7.409	**.010**
	Within Groups	6.905	34	.203		
	Total	8.410	35			

Table 14 ANOVA: affect, positive and negative emotions

Hypothesis Test Summary				
	Null Hypothesis	**Test**	**Sig.**	**Decision**
1	The distribution of *Anger* is the same across categories of Method.	Independent-Samples Mann-Whitney U Test	.673[1]	Retain the null hypothesis.
Asymptotic significances are displayed. The significance level is .05.				
[1]Exact significance is displayed for this test.				

Table 15 Mann-Whitney U Test: Anger

Results

For the category "Affect", there was a statistically significant difference between the face to face and the electronic group as determined by one-way ANOVA (F (1.34) = 8.858, p = 0.005), Mean FaceToFace 3.7, Electronic 4.7.

For the category "Negative emotions" (Negemo), there was a statistically significant difference between the Face to face and the electronic group as determined by one-way ANOVA (F (1.34) = 7.409, p = 0.10), Mean FaceToFace 0.684, Electronic 1.09.

The category "Positive emotions" (Posemo) shows a non-signficant (p = 0.079) difference of means: FaceToFace 3.03, Electronic 3.57.

For the category "Anger", the Mann-Whitney U Test showed no significant differences

Interpretation and hypotheses testing

The observations reveal a higher rate of affective emotions in electronic negotiation. There is a strong increase of words carrying negative emotional sentiment, and possibly some increase in positive emotional sentiments as well, but not statistically significant.

As a result of the tests, H1a could not be supported, but H1b was confirmed due to the statistical significance of category "Negative emotions".

5.3.2. Agreeable and negative language

The following word categories from the LIWC dictionary (2001) are included in the analysis of agreeable and negative language:

- Assents (assent)
- Negations (negate)
- Swear words (swear)

Descriptive statistics

When comparing the means of face to face and electronic negotiations, in the categories "Negations" (negate) and "Assents" (assent) the usage rates are higher in face to face than in electronic negotiations (Table 16). Words from the category "Swear words" (swear) are hardly used in both communication methods.

Descriptive statistics

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Negate	FaceToFace	18	2.4250	.95423	.22492	1.9505	2.8995
	Electronic	18	1.6708	.68563	.16161	1.3299	2.0118
	Total	36	2.0479	.90380	.15063	1.7421	2.3537
Assent	FaceToFace	18	3.8794	1.38905	.32740	3.1887	4.5702
	Electronic	18	1.5969	.86105	.20295	1.1688	2.0251
	Total	36	2.7382	1.62387	.27064	2.1888	3.2876
Swear	FaceToFace	18	.0164	.02920	.00688		
	Electronic	18	.0375	.09492	.02237		
	Total	36	.0269	.07003	.01167		

Table 16 Descriptive statistics: agreeable and negative language

Test of normality

The results of the Shapiro-Wilk normality test are presented in Table 17. As it can be seen, assent and negations are both normally distributed, while swear words are not normally distributed.

Tests of Normality

Variable	Method	Shapiro-Wilk		
		Statistic	df	Sig.
Assent	FaceToFace	.977	18	.912
	Electronic	.926	18	.164
Negate	FaceToFace	.961	18	.615
	Electronic	.969	18	.774
Swear	FaceToFace	.607	18	**.000**
	Electronic	.468	18	**.000**

Table 17 Test of normality: agreeable and negative language

Test for significance

As a next step, the significance of the displayed differences between the electronic and face to face negotiations are examined. The ANOVA test is run for the normally distributed variables (Table 18) and for the non-normally distributed variable "swear words" the Mann-Whitney U test (Table 19) is used.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Negate	Between Groups	5.119	1	5.119	7.415	**.010**
	Within Groups	23.471	34	.690		
	Total	28.590	35			
Assent	Between Groups	46.888	1	46.888	35.111	**.000**
	Within Groups	45.405	34	1.335		
	Total	92.293	35			

Table 18 ANOVA: assent and negation

Hypothesis Test Summary				
	Null Hypothesis	**Test**	**Sig.**	**Decision**
1	The distribution of Swear is the same across categories of Method.	Independent-Samples Mann-Whitney U Test	.743[1]	Retain the null hypothesis.
Asymptotic significances are displayed. The significance level is .05.				
[1]Exact significance is displayed for this test.				

Table 19 Mann-Whitney U Test: swear words

Results

For the category “Negate”, there was a statistically significant difference between the face to face and the electronic group as determined by one-way ANOVA (F (1.34) = 7.415, p = 0.010), Mean Face to face 2.4, Electronic 1.7.
For the category “Assent”, there was a statistically significant difference between the face to face and the electronic group as determined by one-way ANOVA (F (1.34) = 35.111, p = 0.000), Mean Face to face 3.9, Electronic 1.6.
The category “Swear” was not normally distributed and the Mann-Whitney U Test showed no significant differences between the communication methods.

Interpretation and hypotheses testing

The results show a higher usage rate of both assents and negations in face to face negotiations. The differences between the communication modes for these two categories are statistically significant. The category “swear words” did not show any significance, which was also expected due to the very low usage rates.

Having in mind these results, hypothesis H2a can be confirmed, however hypothesis H2b has to be rejected, as the findings showed the opposite result with statistical significance, namely, that the usage of negative language is higher in face to face negotiations.

5.3.3. Inclusive and exclusive pronouns

The inclusive and exclusive pronouns are defined by the following word categories from the LIWC dictionary (2001):

- I
- We
- You
- CompanyPronoun
- ICombined
- Pronoun

More specifically, the inclusive pronouns include the category “We”, while the exclusive pronouns include the categories “I”, “You”, “CompanyPronoun”, and “ICombined”.

Descriptive statistics

When comparing the means of face to face and electronic negotiations, the usage of pronouns in general is higher in electronic than in face to face negotiations (Table 20). Apart from the usage of Company pronouns, all the rest of the pronoun categories show higher rates of usage in electronic conversation. Thus, according to the means, both exclusive and inclusive pronouns are used more in electronic negotiations. This difference is also illustrated in the boxplots (Figure 5).

Descriptive statistics

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
I	FaceToFace	18	3.8689	1.16727	.27513	3.2884	4.4494
	Electronic	18	4.8808	1.25405	.29558	4.2572	5.5045
	Total	36	4.3749	1.29960	.21660	3.9351	4.8146
We	FaceToFace	18	1.3069	.74141	.17475	.9382	1.6756
	Electronic	18	1.9608	.84379	.19888	1.5412	2.3804
	Total	36	1.6339	.85015	.14169	1.3462	1.9215
You	FaceToFace	18	1.8164	1.15615	.27251		
	Electronic	18	4.6781	1.06783	.25169		
	Total	36	3.2472	1.81903	.30317		
CompanyPronoun	FaceToFace	18	2.4892	.99632	.23484	1.9937	2.9846
	Electronic	18	1.9906	1.31182	.30920	1.3382	2.6429
	Total	36	2.2399	1.17555	.19593	1.8421	2.6376
ICombined	FaceToFace	18	6.3581	.89236	.21033	5.9143	6.8018
	Electronic	18	6.8714	1.14755	.27048	6.3007	7.4421
	Total	36	6.6147	1.04602	.17434	6.2608	6.9686
Pronoun	FaceToFace	18	12.541944	1.6981410	.4002557	11.697479	13.386410
	Electronic	18	15.140556	1.3999379	.3299685	14.444383	15.836728
	Total	36	13.841250	2.0221253	.3370209	13.157061	14.525439

Table 20 Descriptive statistics: pronouns

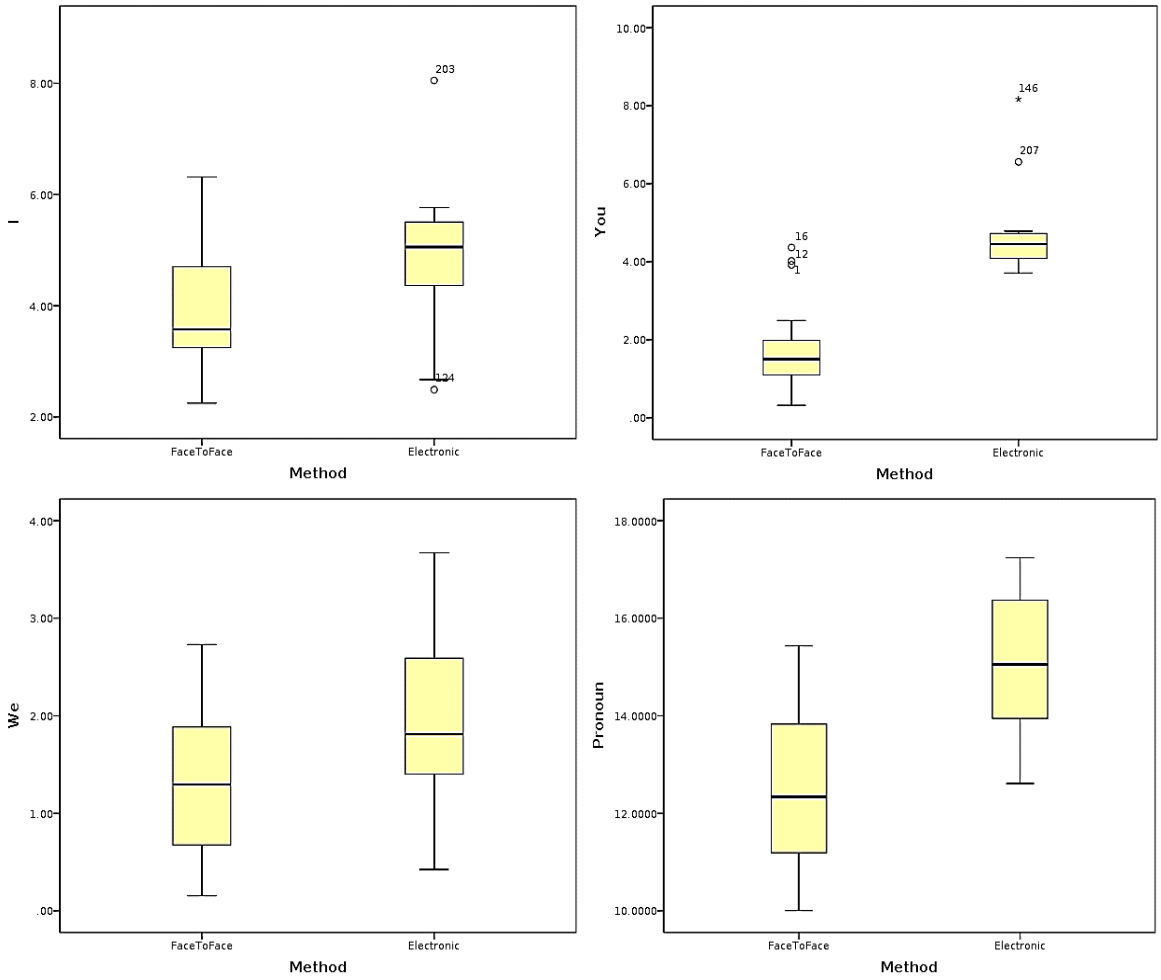

Figure 5 Boxplots: pronouns

Test of normality

The Shapiro-Wilk normality test is performed on all the selected variables in order to establish if these are normally distributed or not. As it can be seen in Table 21, only the pronoun category “You” is not normally distributed, the rest of the categories are normally distributed.

Tests of Normality

Variable	Method	Shapiro-Wilk		
		Statistic	df	Sig.
I	FaceToFace	.931	18	.206
	Electronic	.915	18	.105
We	FaceToFace	.968	18	.753
	Electronic	.982	18	.967
You	FaceToFace	.825	18	**.004**
	Electronic	.685	18	**.000**
CompanyPronoun	FaceToFace	.924	18	.151
	Electronic	.965	18	.710
ICombined	FaceToFace	.942	18	.314
	Electronic	.960	18	.610
Pronoun	FaceToFace	.955	18	.511
	Electronic	.954	18	.494

Table 21 Test of normality: pronouns

Test for significance

Furthermore, the significance of the displayed differences between the electronic and face to face negotiations are examined. The Mann-Whitney U test results for the non-normally distributed variable “You” is presented in Table 22 and the ANOVA results of the normally distributed pronoun are presented in Table 23.

Hypothesis Test Summary				
	Null Hypothesis	**Test**	**Sig.**	**Decision**
1	The distribution of **You** is the same across categories of Method.	Independent-Samples Mann-Whitney U Test	8.220E-8[1]	Reject the null hypothesis.
Asymptotic significances are displayed. The significance level is .05.				
[1]Exact significance is displayed for this test.				

Table 22 Mann-Whitney U test: you

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
I	Between Groups	9.216	1	9.216	6.280	**.017**
	Within Groups	49.898	34	1.468		
	Total	59.114	35			
We	Between Groups	3.848	1	3.848	6.100	**.019**
	Within Groups	21.448	34	.631		
	Total	25.297	35			
CompanyPronoun	Between Groups	2.238	1	2.238	1.649	.208
	Within Groups	46.130	34	1.357		
	Total	48.367	35			
ICombined	Between Groups	2.372	1	2.372	2.245	.143
	Within Groups	35.924	34	1.057		
	Total	38.295	35			
Pronoun	Between Groups	60.775	1	60.775	25.095	**.000**
	Within Groups	82.340	34	2.422		
	Total	143.115	35			

Table 23 ANOVA: pronouns

Results

For the category “I”, there was a statistically significant difference between the face to face and the electronic group as determined by one-way ANOVA (F (1,34) = 6.28, p = 0.017), Mean Face to face 3.9, Electronic 4.9.

For the category “We”, there was a statistically significant difference between the face to face and the electronic group as determined by one-way ANOVA (F (1,34) = 6.10 p = 0.019), Mean Face to face 1.3, Electronic 1.96.

The category “You” was not normally distributed and the Mann-Whitney U Test showed significant differences between the communication methods, Mean Face to face 1.8, Electronic 4.68.

For the overall category “Pronouns”, there was a statistically significant difference between the face to face and the electronic group as determined by one-way ANOVA (F (1,34) = 25.095, p = 0.000), Mean Face to face 12.54, Electronic 15.14.

Interpretation and hypotheses testing

The observations reveal a higher rate of both inclusive and exclusive pronouns in electronic negotiations compared to face to face negotiations. As a result of the tests, hypothesis H3a was confirmed, but hypothesis H3b is rejected.

5.3.4. Negotiation phases

To test the hypotheses regarding the negotiations phases (H4a, H4b, H4c) two sets of word categories were selected from the LIWC dictionary (2001):

- Positive set
    - Positive emotions (posemo)
    - Assent (asent)
    - Inclusive pronoun: We

- Negative set
    - Negative emotions (negemo)
    - Negations (negate)
    - Swear words (swear)
    - Exclusive pronoun: You

All the test are run several times for both category sets – once for the total number of negotiation cases of both communication modes, once only for the electronic negotiations, and once only for the face to face negotiations.

The result tables only for the first two rounds of tests with both communication modes will be included in this section. First, the positive set of categories will be analyzed and then also the negative set of categories will be tested. For the separate testing of electronic and face to face negotiations only the results will be reported. However, for further details, the test tables can be found in the Appendix.

Descriptive statistics: Positive set – both methods

When comparing the means of the first and the second phase, in all three categories the usage rate is higher in the second phase than in the first phase (Table 24).

Descriptive statistics

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
We	1.00	36	1.4944	.89194	.14866	1.1927	1.7962
	2.00	36	1.7733	1.11532	.18589	1.3960	2.1507
	Total	72	1.6339	1.01248	.11932	1.3960	1.8718
Assent	1.00	36	2.6297	1.57737	.26290	2.0960	3.1634
	2.00	36	2.8467	1.86155	.31026	2.2168	3.4765
	Total	72	2.7382	1.71661	.20230	2.3348	3.1416
Posemo	1.00	36	3.2044	1.12067	.18678	2.8253	3.5836
	2.00	36	3.3950	1.27693	.21282	2.9629	3.8271
	Total	72	3.2997	1.19670	.14103	3.0185	3.5809

Table 24 Descriptive statistics: phases - positive set - both methods

Test of normality: Positive set – both methods

The Shapiro-Wilk normality test showed significant levels for two categories: “Assent” and positive emotions “Posemo”, which means that they are not normally distributed (Table 25). The pronoun category “We” is, however, normally distributed.

Tests of Normality

		Shapiro-Wilk		
	Segment	Statistic	df	Sig.
We	1.00	.969	36	.408
	2.00	.970	36	.421
Assent	1.00	.940	36	**.049**
	2.00	.953	36	.132
Posemo	1.00	.978	36	.665
	2.00	.935	36	**.036**

Table 25 Test of normality: phases - positive set - both methods

Test for significance: Positive set – both methods

Furthermore, the significance of the displayed differences between the two phases is examined. The ANOVA results of the normally distributed category "We" are presented in Table 26, while the Mann-Whitney U test results for the non-normally distributed variables "Assent" and "Posemo" are shown in Table 27.

ANOVA - We

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.400	1	1.400	1.373	.245
Within Groups	71.383	70	1.020		
Total	72.783	71			

Table 26 ANOVA: phases - positive set - both methods - We

Hypothesis Test Summary				
	Null Hypothesis	**Test**	**Sig.**	**Decision**
1	The distribution of Assent is the same across categories of Segment.	Independent-Samples Mann-Whitney U Test	.748	Retain the null hypothesis.
2	The distribution of Posemo is the same across categories of Segment.	Independent-Samples Mann-Whitney U Test	.735	Retain the null hypothesis.
Asymptotic significances are displayed. The significance level is .05.				

Table 27 Mann-Whitney U Test: phases - positive set - both methods - Assent, Posemo

Results: Positive set – both methods

A one-way ANOVA showed no significantly different use between the segments for inclusive plural pronouns (We). Positive emotions (posemo) or Agreeable Language (Assent) were not normally distributed and the Mann-Whitney U Test showed no significant differences.

Interpretation and hypotheses testing

The observations reveal a higher rate of usage of all three positive categories – inclusive pronoun "We", positive emotions (posemo) – in the second phase of the negotiations as expected in the hypothesis H4b. However, none of the categories showed any statistical significance. Therefore, hypothesis H4b has to be rejected.

Descriptive statistics: Negative set – both methods

When comparing the means of the first and the second phase, in three of the categories, namely negations (negate), negative emotions (negemo) and swear words (swear) the usage rate is higher in the second phase than in the first phase (Table 28). Only the exclusive pronoun "You" shows higher usage rates in the first phase compared to the second.

Descriptive statistics

						95% Confidence Interval for Mean	
		N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound
You	1.00	36	3.3103	1.98904	.33151		
	2.00	36	3.1842	2.02803	.33800		
	Total	72	3.2472	1.99545	.23517		
Negate	1.00	36	1.9867	.96086	.16014	1.6616	2.3118
	2.00	36	2.1092	1.03486	.17248	1.7590	2.4593
	Total	72	2.0479	.99341	.11707	1.8145	2.2814
Negemo	1.00	36	.8781	.56332	.09389		
	2.00	36	.8936	.65697	.10950		
	Total	72	.8858	.60767	.07161		
Swear	1.00	36	.0258	.08320	.01387		
	2.00	36	.0281	.11647	.01941		
	Total	72	.0269	.10050	.01184		

Table 28 Descriptive statistics: phases - negative set - both methods

Test of normality: Negative set – both methods

The Shapiro-Wilk normality test is performed on all the selected variables and the results show that only the category "Negations" (negate) is normally distributed (Table 29). The

rest of the variables “You”, “Negative emotions” (negemo) and “Sear words” (swear) are not normally distributed.

Tests of Normality

		Shapiro-Wilk		
	Segment	Statistic	df	Sig.
You	1.00	.943	36	.062
	2.00	.920	36	**.012**
Negate	1.00	.951	36	.112
	2.00	.970	36	.433
Negemo	1.00	.955	36	.154
	2.00	.907	36	**.005**
Swear	1.00	.362	36	**.000**
	2.00	.256	36	**.000**

Table 29 Test of normality: phases - negative set - both methods

Test for significance: Negative set – both methods

Furthermore, the significance of the displayed differences between the first and the second phase is examined. The ANOVA results of the normally distributed variable “Negations” (negate) are presented in Table 30. The Mann-Whitney U test results for the non-normally distributed variable “You”, “Negative emotions” (negemo) and “Swear words” are shown in Table 31.

ANOVA - Negate

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.270	1	.270	.271	.604
Within Groups	69.797	70	.997		
Total	70.067	71			

Table 30 ANOVA: phases - negative set - negations

Hypothesis Test Summary				
	Null Hypothesis	**Test**	**Sig.**	**Decision**
1	The distribution of You is the same across categories of Segment.	Independent-Samples Mann-Whitney U Test	.719	Retain the null hypothesis.
2	The distribution of Negemo is the same across categories of Segment.	Independent-Samples Mann-Whitney U Test	.901	Retain the null hypothesis.
3	The distribution of Swear is the same across categories of Segment.	Independent-Samples Mann-Whitney U Test	.978	Retain the null hypothesis.
Asymptotic significances are displayed. The significance level is .05.				

Table 31 Mann-Whitney U Test: phases - negative set - you, negative emotions, swear words

Results: Negative set – both methods

All of the examined variables, including exclusive singular pronoun "You", "Negative emotions" (negemo), "Negations" (negate) and "Swear words" (swear), showed no significant differences.

Interpretation and hypotheses testing: both methods

The observations reveal a higher usage rate of negations (negate), negative emotions (negemo) and swear words (swear) in the second phase compared to the first one, which does not correspond to the expectations of hypothesis H4a. On the other hand, the usage of the exclusive pronoun "you" was higher in the first phase, which would be in accordance with the hypothesis H4a. Nevertheless, none of the variables showed statistical significance, therefore hypothesis H4a has to be rejected.

Results: Positive and negative set – electronic negotiations

The variables from the positive set were all normally distributed and showed higher rates of usage in the second phase of the negotiations. However, the one-way ANOVA showed no significantly different use between the segments for all the variables: the inclusive plural pronoun (We), positive emotions (posemo) or agreeable language (Assent).

The variables from the negative set were all normally distributed with the exception of "swear words". The usage rate of negative emotions (negemo) and negations (negate) was

higher in the second phase of electronic negotiations, while the usage of the exclusive pronoun “you” was more frequent in the first phase. However, none of the differences were found to be statistically significant.

Results: Positive and negative set – face to face negotiations

The variables from the positive set showed more frequent usage in the second phase than in the first phase. However, a one-way ANOVA showed no significantly different use between the segments in face to face negotiations for inclusive plural pronouns (We), positive emotions (posemo) or agreeable language (Assent).

The variables of the negative set negative emotions (negemo) and negations (negate) were normally distributed and showed higher usage rates in the second phase, but no significant differences in the ANOVA test. The other two variables, the exclusive pronoun “you” and swear words (swear) also were used more in the second phase. These were not normally distributed and the Mann-Whitney U Test showed no significant differences.

Interpretation and hypotheses testing

Since no significant differences between the two phases were found in neither of the communication modes, hypothesis H6c cannot be confirmed, therefore it is rejected.

5.3.5. Negotiation duration

The following categories are included in the analysis of negotiation duration:

- Time duration (calculated in seconds)
- Word count

Descriptive statistics

When comparing the duration of negotiations (Table 32), face to face negotiations take more than twice less time than electronic negotiations (face to face mean 1071.89 sec; electronic mean 2457.50 sec). At the same time, the word count is considerably higher in

face to face negotiations, with a mean of 2245 words compared to 682 words in electronic negotiations.

Descriptive statistics

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
						Lower Bound	Upper Bound		
Word count	FaceToFace	18	2245.39	1120.39	264.08	1688.23	2802.55	1205	4566
	Electronic	18	682.44	249.57	58.82	558.34	806.55	381	1356
	Total	36	1463.95	1126.10	187.68	1082.90	1844.93	381	4566
Duration in Sec	FaceToFace	18	1071.89	499.43	117.72	823.53	1320.25	433	2209
	Electronic	18	2457.50	293.86	69.26	2311.37	2603.63	1823	2783
	Total	36	1764.69	810.42	135.07	1490.49	2038.90	433	2783

Table 32 Descriptive statistics: negotiation duration

The following two boxplots illustrate the distribution of the results for both the duration in time and the word count in electronic and face to face negotiations (Figure 6).

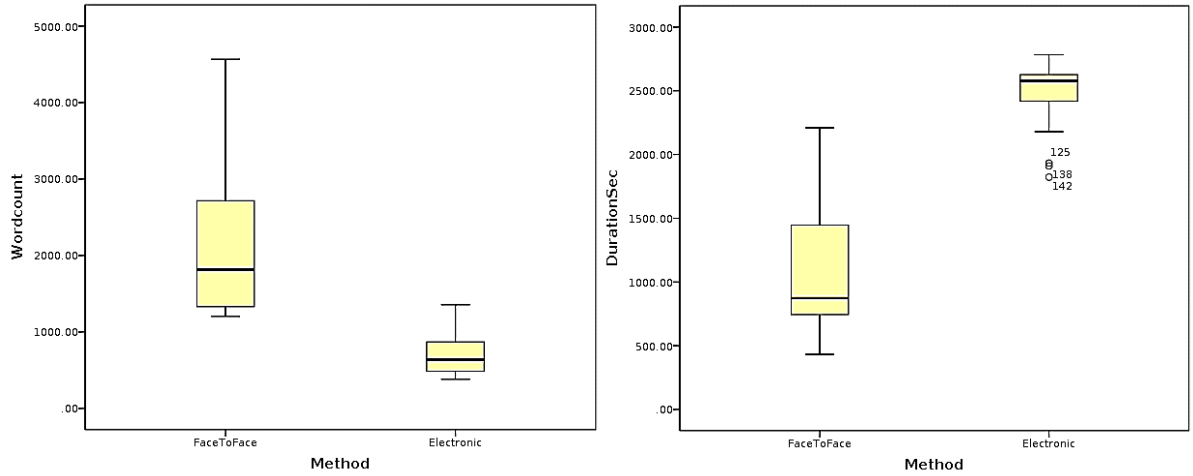

Figure 6 Boxplots: negotiation duration

Test of normality

The Shapiro-Wilk normality test is performed on the two variables "word count" and "duration" and it shows that both of them are not normally distributed (Table 33).

Tests of Normality

	Method	Shapiro-Wilk		
		Statistic	df	Sig.
Wordcount	FaceToFace	.828	18	**.004**
	Electronic	.867	18	**.016**
DurationSec	FaceToFace	.913	18	.098
	Electronic	.810	18	**.002**

Table 33 Test of normality: negotiation duration

Test for significance

Furthermore, the significance of the displayed differences between the electronic and face to face negotiations are examined. The Mann-Whitney U test results for the non-normally distributed variables "Word count" and "Duration" is presented in Table 34.

Hypothesis Test Summary				
	Null Hypothesis	**Test**	**Sig.**	**Decision**
1	The distribution of **Wordcount** is the same across categories of Method.	Independent-Samples Mann-Whitney U Test	0.000	Reject the null hypothesis.
2	The distribution of **DurationSec** is the same across categories of Method.	Independent-Samples Mann-Whitney U Test	0.000	Reject the null hypothesis.
Asymptotic significances are displayed. The significance level is .05.				
[1]Exact significance is displayed for this test.				

Table 34 Mann-Whitney U Test: negotiation duration

Results

Duration in seconds was not normally distributed and the Mann-Whitney U Test showed statistical significance for the differences that were observed in the descriptive statistics: mean Face to face 1072 seconds, mean Electronic 2457 seconds.

Word count was also not normally distributed and the Mann-Whitney U Test showed statistical significance for the observed differences as well: mean Face to face 2246 words, mean Electronic 682 words.

Interpretation and hypotheses testing

The observations reveal that as expected, electronic negotiations take much longer time than face to face negotiations, more than twice as much, while at the same time, they provide less information per minute, as was confirmed by the lower word count compared for face to face negotiations. These findings are in accordance with the theory and the expected hypothesis H5. As both of the results showed statistical significance, hypothesis H5 can be confirmed.

5.3.6. Interpersonal relationship

To test the hypotheses regarding the interpersonal relationship (H6a, H6b) again the already discussed two sets of word categories were selected, similar to the phase analysis:

- Positive set
    - Positive emotions (posemo)
    - Assent (asent)
    - Inclusive pronoun: We

- Negative set
    - Negative emotions (negemo)
    - Negations (negate)
    - Swear words (swear)
    - Exclusive pronoun: You

The tests are firstly run for the positive set of variables and then for the negative set across all negotiation cases, without distinguishing between communication modes, only between interpersonal relationship categories: friends and non-friends.

Descriptive statistics: positive set

When comparing the means of friends and non-friends, the usage rates of the inclusive pronoun “we” and the positive emotions (posemo) are higher in negotiations between non-

friends than in negotiations between friends (Table 35). On the other hand, words from the category “assent” were used more often between friends.

Descriptive statistics

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
We	Non-Friends	22	1.6725	.94448	.20136	1.2537	2.0913
	Friends	14	1.5732	.70599	.18868	1.1656	1.9808
	Total	36	1.6339	.85015	.14169	1.3462	1.9215
Posemo	Non-Friends	22	3.5366	.89257	.19030	3.1408	3.9323
	Friends	14	2.9275	.91566	.24472	2.3988	3.4562
	Total	36	3.2997	.93815	.15636	2.9823	3.6171
Assent	Non-Friends	22	2.6370	1.45054	.30926	1.9939	3.2802
	Friends	14	2.8971	1.91207	.51102	1.7931	4.0011
	Total	36	2.7382	1.62387	.27064	2.1888	3.2876

Table 35 Descriptive statistics: interpersonal relationship - positive set

Test of normality: positive set

The Shapiro-Wilk normality test was performed on all the selected variables and showed that all of them (we, posemo and assent) are normally distributed (Table 36).

Tests of Normality

		Shapiro-Wilk		
	Friends	Statistic	df	Sig.
We	Non-Friends	.954	22	.383
	Friends	.977	14	.956
Posemo	Non-Friends	.934	22	.150
	Friends	.961	14	.741
Assent	Non-Friends	.961	22	.514
	Friends	.903	14	.125

Table 36 Test of normality: interpersonal relationship - positive set

Test for significance: positive set

As a next step, the significance of the observed differences between friends and non-friends negotiations is examined. Since all the variables proved to have a normal distribution, the ANOVA test was run for all of them (Table 37).

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
We	Between Groups	.084	1	.084	.114	.738
	Within Groups	25.212	34	.742		
	Total	25.297	35			
Posemo	Between Groups	3.174	1	3.174	3.906	.056
	Within Groups	27.630	34	.813		
	Total	30.804	35			
Assent	Between Groups	.579	1	.579	.215	.646
	Within Groups	91.714	34	2.697		
	Total	92.293	35			

Table 37 ANOVA: interpersonal relationship - positive set

Results: positive set

No statistically significant differences were found between friends and non-friends negotiations for the positive set of variables - inclusive pronouns (we), agreeable language (assent) or positive emotions (posemo).

Interpretation and hypotheses testing

The observations reveal a higher usage rate of the inclusive pronoun “we” and the positive emotions (posemo) in negotiations between non-friends, which is the opposite of what was expected according to the hypothesis. On the other hand, the usage of agreeable language (assent) was indeed higher in negotiations between friends, as suggested by the hypothesis H6a. Nevertheless, the hypothesis H6a has to be rejected, as none of the variables showed statistically significant differences between friends and non-friends for this positive set.

Descriptive statistics: negative set

When comparing the means of friends and non-friends, the usage rates of the exclusive pronoun “you”, the negative emotions (negemo), the negations (negate) and the swear words (swear) are higher in negotiations between friends than in negotiations between non - friends (Table 38).

Descriptive statistics

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Negemo	Non-Friends	22	.8314	.48318	.10301		
	Friends	14	.9714	.50682	.13545		
	Total	36	.8858	.49018	.08170		
Negate	Non-Friends	22	1.9120	.78698	.16778	1.5631	2.2610
	Friends	14	2.2614	1.05756	.28265	1.6508	2.8720
	Total	36	2.0479	.90380	.15063	1.7421	2.3537
Swear	Non-Friends	22	.0168	.04856	.01035		
	Friends	14	.0429	.09460	.02528		
	Total	36	.0269	.07003	.01167		
You	Non-Friends	22	2.8468	1.82470	.38903		
	Friends	14	3.8764	1.68296	.44979		
	Total	36	3.2472	1.81903	.30317		

Table 38 Descriptive statistics: interpersonal relationship - negative set

The distribution of the results for negative emotions and the exclusive pronoun “you” are illustrated in the boxplots in Figure 7.

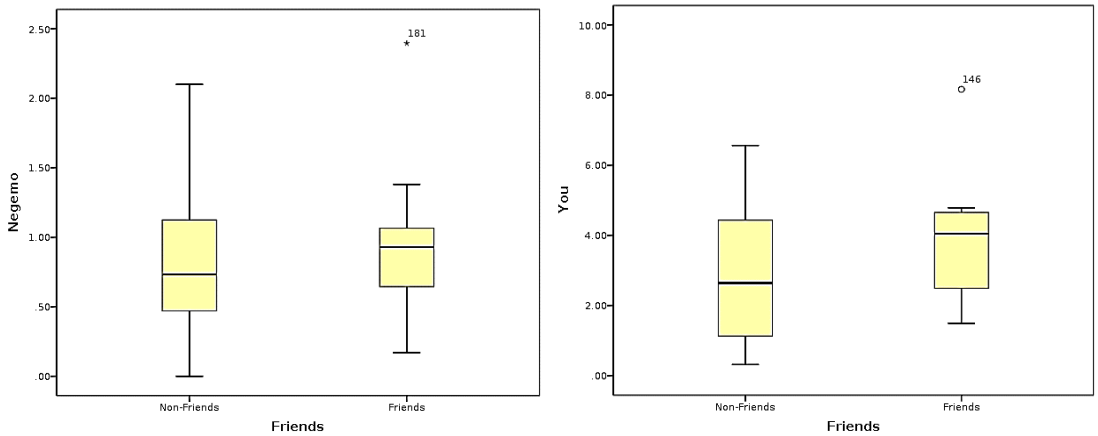

Figure 7 Boxplots: interpersonal relationship - negative emotions, you

Test of normality

The Shapiro-Wilk normality test is performed on all the selected variables and it shows that only the category "negations" (negate) is normally distributed. The rest of the variables, the pronoun "you", negative emotions (negemo) and swear words (swear) are not normally distributed. The results are shown in Table 39.

Tests of Normality

		Shapiro-Wilk		
	Friends	Statistic	df	Sig.
Negemo	Non-Friends	.956	22	.412
	Friends	.858	14	**.029**
Negate	Non-Friends	.967	22	.635
	Friends	.928	14	.289
Swear	Non-Friends	.409	22	**.000**
	Friends	.533	14	**.000**
You	Non-Friends	.867	22	**.007**
	Friends	.875	14	**.049**

Table 39 Test of normality: interpersonal relationship - negative set

Test for significance

As a next step, the significance of the observed differences between friends and non-friends negotiations is examined. Since only the category "negations" is normally distributed, the ANOVA test was run only for it (Table 40). For the other non-normally distributed variables, the Mann-Whitney U test was performed (Table 41).

ANOVA - Negate

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.044	1	1.044	1.289	.264
Within Groups	27.546	34	.810		
Total	28.590	35			

Table 40 ANOVA: interpersonal relationship - negative set - negations

Hypothesis Test Summary				
	Null Hypothesis	**Test**	**Sig.**	**Decision**
1	The distribution of **Negemo** is the same across categories of Method.	Independent-Samples Mann-Whitney U Test	**.010**[1]	Reject the null hypothesis.
2	The distribution of Swear is the same across categories of Method.	Independent-Samples Mann-Whitney U Test	.743[1]	Retain the null hypothesis.
3	The distribution of **You** is the same across categories of Method.	Independent-Samples Mann-Whitney U Test	**.000**	Reject the null hypothesis.
Asymptotic significances are displayed. The significance level is .05.				
[1]Exact significance is displayed for this test.				

Table 41 Mann-Whitney U Test: interpersonal relationships - negative set

Results: negative set

The category “Negative emotions” (negemo) was not normally distributed and the Mann-Whitney U Test showed significant differences between friends and non-friends negotiations, p=0.1, Mean Non-Friends 0.83, Friends 0.97.

The category of the exclusive pronoun “You” was not normally distributed and the Mann-Whitney U Test showed significant differences between friends and non-friends negotiations, p=0.00, Mean Non-Friends 2.85, Friends 3.88

The categories “Negations” (negate) and “Swear words” (swear) showed no statistically significant differences between friends and non-friends negotiations.

Interpretation and hypotheses testing

The observations reveal higher usage rates of all the variables from the negative set - the exclusive pronoun “you”, the negative emotions (negemo), the negations (negate) and the swear words (swear), in negotiations between friends than in negotiations between non-friends. This is exactly the opposite of what was expected as an outcome for hypothesis H6b. Furthermore, the variables for negative emotions (negemo) and the exclusive pronoun “you” showed to be statistically significant. Therefore, hypothesis H6b is rejected.

5.3.7. Negotiation outcome

To test the hypotheses regarding the negotiation outcome (H7a, H7b), the same two sets of word categories were selected, as for the analysis of negotiation phases and interpersonal relationships. The sets are as follows:

- Positive set
    - Positive emotions (posemo)
    - Assent (asent)
    - Inclusive pronoun: We

- Negative set
    - Negative emotions (negemo)
    - Negations (negate)
    - Swear words (swear)
    - Exclusive pronoun: You

To measure the influence of the usage of different word categories on negotiation outcomes, a logistic regression was performed for both predefined sets of categories. The test tables can be found in the Appendix, while here only the results will be discussed.

Results and hypothesis testing: positive set

Logistic regression was performed to determine a connection between the presence of positive emotions (posemo), agreeable language (assent), inclusive plural pronouns (we) and

the likelihood that negotiations lead to a positive outcome (deal). The logistic regression model was statistically significant, $X^2(3) = 16.515$, $p < 0.001$. The model explained 52% (Nagelkerke R^2) of the variance in outcome and correctly classified 80.6% of the cases. The increased presence of "agreeable language" was connected to a higher likelihood of a positive outcome, the rest of the variables were not statistically significant. Therefore, the hypothesis H7a can be only partially confirmed.

Results and hypothesis testing: negative set

A logistical regression was performed to determine a connection between the presence of negative emotions (negemo), disagreeable language (negate, swear), exclusive singular pronouns (you) and the likelihood that negotiations lead to a negative outcome (no deal). The logistic regression model was statistically significant, X2(4) = 14.931, p < 0.005. The model explained 48% (Nagelkerke R2) of the variance in outcome and correctly classified 83.3% of the cases. Increased presence of exclusive singular pronouns (you) was connected to a decreased likelihood of a positive outcome, the rest of the variables were not statistically significant. Therefore, the hypothesis H7b can be only partially confirmed.

The boxplots of the two variables that were found to have significant influence on the negotiation outcome are presented in Figure 8.

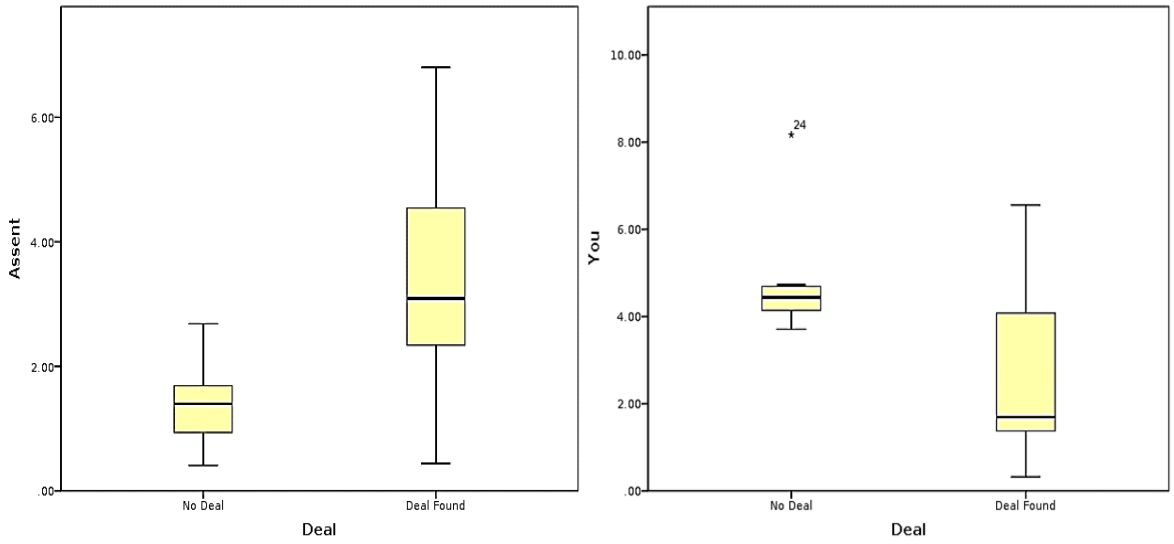

Figure 8 Boxplot: negotiation outcome - agreeable language and you

5.4. Hypotheses test results overview

1	**Positive and negative emotions**	**Test result**
H1a	*The usage rate of positive emotions is higher in electronic negotiations compared to face to face negotiations.*	*Rejected*
H1b	*The usage rate of negative emotions is higher in electronic negotiations compared to face to face negotiations.*	*Confirmed*
2	**Agreeable and negative language**	
H2a	*The usage rate of agreeable language is lower in electronic negotiations compared to face to face negotiations.*	*Confirmed*
H2b	*The usage rate of negative language is higher in electronic negotiations compared to face to face negotiations.*	*Rejected*
3	**Inclusive and exclusive pronouns**	
H3a	*The usage rate of exclusive singular pronouns is higher in electronic negotiations compared to face to face negotiations.*	*Confirmed*
H3b	*The usage rate of inclusive plural pronouns is lower in electronic negotiations compared to face to face negotiations.*	*Rejected*
4	**Negotiation phases**	
H4a	*The first phase is characterized by higher usage rates of the following variables compared to the second phase: a) Negative emotions; b) Negative language; c) Exclusive singular pronouns*	*Rejected*
H4b	*The second phase is characterized by higher usage rates of the following variables compared to the first phase: a) Positive emotions; b) Agreeable language; c) Inclusive plural pronouns.*	*Rejected*
H4c	*Hypotheses H4a and H4b are valid for both electronic and face to face negotiations.*	*Rejected*
5	**Negotiation duration**	
H5	*The duration of electronic negotiations is longer than that of face to face negotiations.*	*Confirmed*
6	**Interpersonal relationship**	
H6a	*Negotiations between friends are characterized by higher rates of the following variables compared to negotiations between non-friends: a) Positive emotions; b) Agreeable language; c) Inclusive plural pronouns.*	*Rejected*
H6b	*Negotiations between non-friends are characterized by higher rates of the following variables compared to negotiations between friends: a) Negative emotions; b) Negative language; c) Exclusive singular pronouns.*	*Rejected*
7	**Negotiation outcome**	
H7a	*Positive outcome correlates with high usage rates of a) Positive emotions; b)* ***Agreeable language****; c) Inclusive plural pronouns*	*Only partially Confirmed*
H7b	*Negative outcome correlates with high usage rates of a) Negative emotions; b) Negative language; c)* ***Exclusive singular pronouns***	*Only partially Confirmed*

Table 42 Hypotheses test results overview

6. DISCUSSION

6.1. Introduction

The last section of the thesis will offer a summary of the empirical findings and a discussion on the tested hypotheses. Furthermore, it will disclose the limitations of this study and offer ways of improvement for future research. The section will end with concluding final words.

6.2. Summary

This thesis examined the differences in the language usage in face to face and electronic negotiations. What distinguishes this work from other previous research, is that no human word encoding was done. Instead, text mining was performed with the software program LIWC. Apart from the effect of the communication mode on language usage, the influence of the negotiation phases, interpersonal relationship and negotiation duration were observed. Furthermore, the correlation between the usage of certain word categories and the negotiation outcome was analyzed.

When examining the differences in the usage of emotion words in face to face and electronic negotiations, this study found that there are significant differences. The results showed that participants in electronic negotiations use more affective emotion words compared to those in face to face negotiations. Particularly, when looking into the usage of negative emotion words, these proved to be significantly more used in electronic negotiations. The study observed also a higher usage of positive emotions in electronic negotiations, but it was not statistically significant. These results are in accordance with the findings of Moore and colleagues (1999), who also observed a higher usage rate of positive and negative emotions in computer-mediated negotiations compared to face to face negotiations. The higher frequency of emotional words in electronic negotiations might be explained by the lack of social cues. The usage of more emotional words might be an attempt to compensate for the missing non-verbal expressions that are present in face to face negotiations.

In addition to positive and negative emotions, the usage of agreeable and negative language in electronic and face to face negotiations was analyzed. Based on the literature (Hine et

al., 2009), it was expected to observe higher usage of negative language in electronic negotiations, because of the higher difficulty of establishing positive relationships online. However, the results of this empirical study showed higher usage of both negative and agreeable language in face to face negotiations.

A further word category that was analyzed is the pronouns. As discussed, these can be divided into inclusive and exclusive, depending on whether the counterpart is viewed as part of the group or an out-grouper (Scheibman, 2003). According to the literature (Hine et al., 2009), the usage of inclusive pronouns leads to more friendliness and closeness, while the usage of exclusive pronouns is connected to more aggressive and negative attitude. As it is harder to create a friendly atmosphere in an online setting, it was expected to have higher usage of exclusive pronouns in electronic negotiations and higher usage of inclusive pronouns in face to face negotiations. Nevertheless, the empirical data showed that the usage of both inclusive and exclusive pronouns was higher in electronic negotiations.

After analyzing the effects of the communication mode on the language usage, the thesis examined a few more factors that have an influence on the communication behavior, namely the negotiation phases, negotiation duration and interpersonal relationship.

The empirical study focused on the two-phase model of Walton (1969), which splits the negotiation into first differentiation phase and second integration phase. Based on the phase descriptions, it was expected to have higher usage of negatively loaded categories, such as negative emotions, negative language, exclusive pronouns, in the first phase and higher usage of positively loaded categories, such as positive emotions, agreeable language and inclusive pronouns, in the second phase. The results showed higher rates of all positive categories in the second phase as suggested in the literature. However, none of the variables showed statistical significance. The usage of the negative categories was found to be also higher in the second phase, as opposed to the expectations. Only the exclusive pronoun "you" from the selected categories was observed to have higher usage in the first phase. Nevertheless, again, none of the variables showed a significant difference between the two phases. The tests were done for both communication modes combined and then for each communication mode separately. However, in none of the cases statistically significant differences were found between the first and second phase.

Furthermore, the empirical study looked into the differences in duration between the electronic and face to face negotiations. The test results show that electronic negotiations take

more than twice as long as face to face negotiations. Moreover, participants in face to face negotiation manage to convey more information per minute, as proved by the higher word count compared to electronic negotiations. Both observations showed statistical significance. These results are in accordance with most of the literature (Galin, Gross & Gosalker, 2007; Purdy, Nye, & Balakrishnan, 2000), which explains these findings with the lack of social cues, the slower speed of typing compared to talking and the more limited information exchange.

Another factor, whose effects on the communication behavior were observed, is the interpersonal relationship between the negotiators. As observed in previous studies (Lewicki, Barry, Saunders, & Minton, 2003), participants with prior relationship are expected to be friendlier and thus use more positively loaded word categories, while non-friends are expected to use more negatively loaded word categories. However, the empirical results showed a higher usage rate of positive emotions and inclusive pronouns in negotiations between non-friends, which was surprising. Still, the usage of agreeable language was higher in negotiations between friends, as expected. Nevertheless, none of these variables showed significant differences. Another surprising finding was that the usage of negatively loaded word categories, such as negative emotions, negations, swear words and exclusive pronouns was higher in negotiations between friends. The word category negative emotions and exclusive pronouns showed significant differences. This observation might be explained by the higher expectations when starting a negotiation with a friend and the bigger disapointment of the unsatisfying offer afterwards. Furthermore, participants might more freely show their negative emotions in front of friends than in front of strangers, in which case people usually tend to be more formal.

In the end, the influence of the language usage on the outcome was examined. Previous findings (Hine et al., 2009) show that positively loaded words, such as positive emotions, agreeable language and inclusive pronouns have a positive effect on the outcome of the negotiation, while negatively loaded words, such as negative emotions, negations, exclusive pronouns, have a negative effect on the outcome. Out of the positive word categories, only the agreeable language (assent) showed to be significantly correlated to a positive outcome. On the other hand, out of the negative word categories, the usage of the exclusive pronoun “you” was significant and found to decrease the likelihood of a positive outcome. Although many word categories did not prove to be significant, the ones that did were in line with the previous findings in the literature.

6.3. Limitation and future research directions

There are several limitations to the empirical research of this thesis that need to be discussed.

First of all, the sample sizes of the two compared experiments are different, with 110 participants in the electronic negotiation Experiment 1 (Pesendorfer, Graf, & Koeszegi, 2007) and only 38 participants in the face to face negotiation Experiment 2, conducted by Pia Nüssel and myself (2015). While the computer-mediated negotiations were conducted within 3 days, as these could be run simultaneously with several participants' pairs, the face to face negotiations had to be recorded individually with each and every pair of negotiators and took much longer. For this reason the sample size of the face to face negotiations is considerably smaller. As stated earlier, for the empirical study a subsample of Experiment 1 was taken in order to make the two samples more comparable. However, this reduced substantially the tested sample and in some cases the small sample size might have altered the results. Therefore, it is suggested for future research to have this or a similar experiment rerun, but with larger data samples and discover if the results differ from the findings of this thesis.

Another limitation that needs to be emphasized is the difference in languages. The electronic negotiation Experiment 1 was conducted in English, while the face to face negotiation Experiment 2 was executed in German. The comparison between the two data samples was made possible thanks to the German dictionary for LIWC developed by Wolf and colleagues (2008). However, since the usage rate of various words was compared between the face to face and electronic negotiation modes, it is questionable if the found differences or similarities are only caused by the communication mode or also influenced by the difference of the languages. Replication of this empirical research, but with the negotiations of both communication modes conducted in the same language would give more reliable results.

Furthermore, one more limitation is the different setting in the two experiments with regards of time. While Experiment 1 had a time limit of 45 minutes, Experiment 2 had no specified time limit. Although the results show, that none of the negotiations in Experiment 2 needed longer than 37 minutes, the feeling of time pressure might have influenced the process and outcome of the negotiations. Therefore, it is suggested for future research to

have the same time setting for both communication modes in order to have data samples, which are more comparable.

Lastly, the analyzed data is from negotiations that took place in an experimental setting, without a real risk or outcome reward. For future research, it is suggested to analyze data from real negotiations or at least experimental negotiations in which participants get a reward, depending on their negotiated outcome. It would be interesting to see if there are significant differences between the experimental and real negotiations.

6.4. Conclusion

As the literature and in part this thesis have shown, the type of used words reveal a lot of information about their attitudes, intentions, goals, and limits, which is very valuable input during a negotiation. Observing the frequency of certain word categories and knowing what these mean for the negotiation strategy of the opponent or the negotiation outcome as a whole, can be very useful for negotiation practitioners. Having this knowledge will help a negotiator understand and shape the flow of the negotiation and reach the desired outcome. Therefore, further research into this topic that deepens this knowledge and enables its practical implementation would be certainly highly interesting for negotiators.

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Appendix

Test tables for the different phases in e-negotiations - Positive set

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
We	1.00	18	1.8506	1.01921	.24023	1.3437	2.3574
	2.00	18	2.0711	1.21060	.28534	1.4691	2.6731
	Total	36	1.9608	1.10856	.18476	1.5858	2.3359
Assent	1.00	18	1.5472	.84192	.19844	1.1285	1.9659
	2.00	18	1.6467	1.23315	.29066	1.0334	2.2599
	Total	36	1.5969	1.04184	.17364	1.2444	1.9495
Posemo	1.00	18	3.4194	1.25885	.29671	2.7934	4.0455
	2.00	18	3.7294	1.47771	.34830	2.9946	4.4643
	Total	36	3.5744	1.36200	.22700	3.1136	4.0353

Tests of Normality

		Shapiro-Wilk		
	Segment	Statistic	df	Sig.
We	1.00	.976	18	.895
	2.00	.980	18	.946
Assent	1.00	.911	18	.091
	2.00	.918	18	.118
Posemo	1.00	.970	18	.805
	2.00	.931	18	.199

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
We	Between Groups	.438	1	.438	.350	.558
	Within Groups	42.574	34	1.252		
	Total	43.011	35			
Assent	Between Groups	.089	1	.089	.080	.779
	Within Groups	37.901	34	1.115		
	Total	37.990	35			
Posemo	Between Groups	.865	1	.865	.459	.503
	Within Groups	64.062	34	1.884		
	Total	64.927	35			

Test tables for the different phases in e-negotiations - Negative set

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Negemo	1.00	18	1.0828	.69242	.16320	.7384	1.4271	.00	2.54
	2.00	18	1.0978	.80659	.19012	.6967	1.4989	.00	2.62
	Total	36	1.0903	.74090	.12348	.8396	1.3410	.00	2.62
Negate	1.00	18	1.6350	.78228	.18438	1.2460	2.0240	.43	3.45
	2.00	18	1.7067	.84702	.19965	1.2855	2.1279	.00	3.27
	Total	36	1.6708	.80438	.13406	1.3987	1.9430	.00	3.45
You	1.00	18	4.9311	1.28850	.30370	4.2904	5.5719	2.86	7.13
	2.00	18	4.4250	1.79311	.42264	3.5333	5.3167	2.07	9.20
	Total	36	4.6781	1.56011	.26002	4.1502	5.2059	2.07	9.20

Tests of Normality

	Segment	Shapiro-Wilk		
		Statistic	df	Sig.
Negemo	1.00	.973	18	.860
	2.00	.938	18	.266
Negate	1.00	.954	18	.492
	2.00	.985	18	.987
Swear	1.00	.380	18	.000
	2.00	.253	18	.000
You	1.00	.965	18	.695
	2.00	.900	18	.057

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Negemo	Between Groups	.002	1	.002	.004	.953
	Within Groups	19.211	34	.565		
	Total	19.213	35			
Negate	Between Groups	.046	1	.046	.070	.794
	Within Groups	22.600	34	.665		
	Total	22.646	35			
You	Between Groups	2.305	1	2.305	.946	.338
	Within Groups	82.883	34	2.438		
	Total	85.188	35			

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Swear is the same across categories of Segment.	Independent-Samples Mann-Whitney U Test	.815[1]	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

[1]Exact significance is displayed for this test.

Test tables for the different phases in Face to face negotiations - Negative set

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
You	1.00	18	1.6894	.96010	.22630	1.2120	2.1669
	2.00	18	1.9433	1.41140	.33267	1.2415	2.6452
	Total	36	1.8164	1.19661	.19943	1.4115	2.2213
Negate	1.00	18	2.3383	1.01339	.23886	1.8344	2.8423
	2.00	18	2.5117	1.06975	.25214	1.9797	3.0436
	Total	36	2.4250	1.03071	.17179	2.0763	2.7737
Negemo	1.00	18	.6733	.29177	.06877	.5282	.8184
	2.00	18	.6894	.38697	.09121	.4970	.8819
	Total	36	.6814	.33786	.05631	.5671	.7957
Swear	1.00	18	.0150	.03792	.00894	-.0039	.0339
	2.00	18	.0178	.03541	.00835	.0002	.0354
	Total	36	.0164	.03619	.00603	.0041	.0286

Tests of Normality

		Shapiro-Wilk		
	Segment	Statistic	df	Sig.
You	1.00	.909	18	**.081**
	2.00	.798	18	**.001**
Negate	1.00	.952	18	.451
	2.00	.949	18	.410
Negemo	1.00	.942	18	.317
	2.00	.943	18	.326
Swear	1.00	.470	18	**.000**
	2.00	.554	18	**.000**

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Negate	Between Groups	.270	1	.270	.249	.621
	Within Groups	36.912	34	1.086		
	Total	37.183	35			
Negemo	Between Groups	.002	1	.002	.020	.889
	Within Groups	3.993	34	.117		
	Total	3.995	35			

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of You is the same across categories of Segment.	Independent-Samples Mann-Whitney U Test	.963[1]	Retain the null hypothesis.
2	The distribution of Swear is the same across categories of Segment.	Independent-Samples Mann-Whitney U Test	.791[1]	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

[1]Exact significance is displayed for this test.

Test tables for the different phases in Face to face negotiations - Positive set

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
We	1.00	18	1.1383	.57497	.13552	.8524	1.4243
	2.00	18	1.4756	.95276	.22457	1.0018	1.9493
	Total	36	1.3069	.79418	.13236	1.0382	1.5757
Assent	1.00	18	3.7122	1.39006	.32764	3.0210	4.4035
	2.00	18	4.0467	1.60141	.37746	3.2503	4.8430
	Total	36	3.8794	1.48759	.24793	3.3761	4.3828
Posemo	1.00	18	2.9894	.95030	.22399	2.5169	3.4620
	2.00	18	3.0606	.96773	.22810	2.5793	3.5418
	Total	36	3.0250	.94594	.15766	2.7049	3.3451

Tests of Normality

		Shapiro-Wilk		
	Segment	Statistic	df	Sig.
We	1.00	.965	18	.710
	2.00	.966	18	.717
Assent	1.00	.944	18	.336
	2.00	.935	18	.240
Posemo	1.00	.957	18	.550
	2.00	.934	18	.232

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
We	Between Groups	1.023	1	1.023	1.653	.207
	Within Groups	21.052	34	.619		
	Total	22.075	35			
Assent	Between Groups	1.007	1	1.007	.448	.508
	Within Groups	76.445	34	2.248		
	Total	77.452	35			
Posemo	Between Groups	.046	1	.046	.049	.825
	Within Groups	31.273	34	.920		
	Total	31.318	35			

Test tables of the logistic regression for H7a

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	16.515	3	.001
	Block	16.515	3	.001
	Model	16.515	3	.001

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	27.801[a]	.368	.520

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Classification Table[a]

Observed			Predicted		
			Deal		Percentage Correct
			No Deal	Deal Found	
Step 1	Deal	No Deal	7	4	63.6
		Deal Found	3	22	88.0
	Overall Percentage				80.6

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	Posemo	-.503	.516	.951	1	.329	.605	.220	1.662
	Assent	1.481	.596	6.184	1	**.013**	4.398	1.368	14.131
	We	-.054	.617	.008	1	.931	.948	.283	3.179
	Constant	-.604	2.284	.070	1	.791	.547		

a. Variable(s) entered on step 1: Posemo, Assent, We.

Test tables of the logistic regression for H7b

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	14.931	4	.005
	Block	14.931	4	.005
	Model	14.931	4	.005

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	29.385[a]	.339	.480

a. stimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Classification Table[a]

	Observed		Predicted		
			Deal		
			No Deal	Deal Found	Percentage Correct
Step 1	Deal	No Deal	7	4	63.6
		Deal Found	2	23	92.0
	Overall Percentage				83.3

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	**You**	-.985	.420	5.492	1	**.019**	.373	.164	.851
	Negate	.896	.727	1.517	1	.218	2.449	.589	10.182
	Negemo	.956	.989	.936	1	.333	2.602	.375	18.066
	Swear	-2.090	7.782	.072	1	.788	.124	.000	520010.983
	Constant	2.030	2.072	.960	1	.327	7.614		

a. Variable(s) entered on step 1: You, Negate, Negemo, Swear.