The importance of language familiarity in global business e-negotiation

Hsiangchu Lai a, Wan-Jung Lin a,*, Gregory E. Kersten b

a Department of Information Management, National Sun Yat-sen University, No. 70, Lienhai Rd., Kaohsiung 80424, Taiwan, ROC
b Department of Decision Sciences and MIS, John Molson School of Business, Concordia University, 1455 De Maisonneuve Blvd. West, Montreal, Quebec, Canada, H3G 1M8

ARTICLE INFO

Article history:
Received 23 July 2009
Accepted 25 March 2010
Available online 2 April 2010

Keywords:
E-negotiation
Language familiarity
Linguistic distance
Media richness
Online dispute resolution

ABSTRACT

This study explores the influence of language familiarity on online persuasion behavior based on subjective measurements and objective actual negotiation behavior. It was designed to test whether negotiating in a non-native language decreases the negotiation self-efficacy, given that the increasing use of global e-marketplaces and popularity of international business trades make negotiation in a non-native language inevitable. An online experiment was conducted using a text-based asynchronous e-negotiation system, with two groups of subjects negotiating in native and non-native languages separately in purchasing negotiations. The analysis results show that language familiarity plays a critical role in inducing persuasion behavior in e-negotiations, with a higher language familiarity leading to higher language self-efficacy and negotiation self-efficacy. However, only negotiation self-efficacy affects e-negotiation communication efficiency and effectiveness, both of which increase online persuasion behavior. Based on actual negotiation behavior, the results show that non-native language negotiators are less active than native language negotiators in negotiations. However, the negotiation outcome did not differ significantly between the two groups, suggesting that the final outcome is also influenced by other factors. The results also showed that language familiarity has a greater effect on the buyer than on the seller.

1. Introduction

The movement of the world into a global e-business age due to technological and societal shifts has made international online negotiation inevitable. E-negotiation is the negotiation process of information exchange via electronic media (Bichler et al. 2003). It could be in the types of negotiation support systems, online dispute resolution, complaint handling, case appraisal, online mediation, online arbitration, etc. Tyler and Bretherton (2003) investigated 76 online dispute resolution sites, including: ADRonline and Complaint.com.au in Australia; Nova Forum and eResolution in Canada; Cybercourt, ECODIR, e-Mediator, and e-Settle.co.uk in Europe; and eNeutral, Cybersettle, JAMS, Mediation Arbitration Resolution Services (MARS), Online Resolution, WebMediate, SquareTrade, and SmartSettle in the USA. These resolution sites demonstrate the high demand for online services that facilitate conflict resolution, since they avoid time-consuming and costly business travel, and are efficient.

The president and CEO of SquareTrade pointed out that SquareTrade’s surveys indicate that the access and commitment to online dispute resolution is a key factor influencing consumer willingness to buy or bid on higher priced goods on eBay (Abernethy 2003). Furthermore, after participating in SquareTrade’s dispute resolution process, over 80% of buyers said that they would buy again from the marketplace or seller. Abernethy (2003) also reported that, as of mid-2003, SquareTrade handled over 50,000 new disputes a month and concurrently managed over 20,000 active cases. These statistics indicate that implementing online dispute resolution using websites such as SquareTrade is a popular method for assisting consumers who experience problems related to online transactions. Such problems often occur between participants in different cities or countries and in marketplaces where sellers are primarily small and medium-sized businesses. Although SquareTrade discontinued the dispute resolution service it provided for eBay in June 2008 due to eBay stopping the submission of feedback withdrawal notices, its past success indicates the high demand for online negotiation services. PayPal’s Resolution Center has replaced SquareTrade in providing online dispute resolution for eBay. Different from the PayPal system, the Smartsettle system is a generic tool for decision-makers with conflicting objectives, who wish to reach a formal agreement. This has led to Smartsettle being adopted in e-commerce and other applications, such as for resolving family issues, insurance issues, supply agreements, business mergers, and acquisitions.

The inevitability of international online negotiations brings the challenge of language differences, with negotiators from different countries possibly speaking different native languages. This can result in either one side or both sides having to use a non-native
Language in a negotiation. However, clear and accurate communication is the precondition for high-quality integrative negotiation (Lewicki et al. 2006). Since people generally find it easier to express themselves in their native language than in a non-native language, negotiating in a non-native language may decrease the communication ability and hence the negotiation performance. Hutchinson (2005) showed that a gap in language understanding can significantly hinder business development by reducing the ability of traders to develop cooperative relationships. The reason might be fairly obvious that language is vital in the case of transaction negotiation. Stanley et al. (1990) pointed out that customers like to be talked to in their own language. Being a seller, talking to customers in customers’ own language will reflect in greater sales volumes because of the quicker user acceptance, repeat orders and reference sales. It will also decrease vendors’ training costs, error cost and time wasted on non-productive tasks (Stanley et al. 1990).

The above arguments indicate that language ability affects the transaction performance for both buyer and seller. Thus, since negotiating in non-native languages via the Internet is becoming more common in the global e-business age, it is important to understand how language familiarity impacts negotiation behavior and performance.

Negotiation is a form of decision-making involving two or more agents who cannot make decisions independently, and hence concessions must be made to reach a compromise agreement (Kersten et al. 1991). Persuasion is commonly used by every negotiator to achieve an agreement that is closer to his or her expectations. However, persuasion ability varies with communication ability, and language plays an essential role in communication. Negotiating in a more familiar language makes it easier for negotiators to express themselves and understand their counterparts. Although many studies have investigated the effects of persuasion behavior on the likelihood of reaching negotiated agreements and their quality (Keough 1992, Pruitt and Carnevale 1993, De Dreu et al. 2000), none of them have explored how language ability influences persuasion behavior and performance.

Persuasion ability is influenced by both the actual words in a message and non-verbal communications such as eye movements, facial expressions, gestures, spatial relations, and visual displays, which can add information, emphasis, subtlety, and rapport (Carrell and Heavrin 2007). The availability of non-verbal communication improves the media richness. In general, media richness is lower when negotiating online than in the face-to-face situation (Daft et al. 1987). Since language is the fundamental tool of communication and online communication media has less richness, the importance of verbal language ability in online persuasion behavior increases in an e-negotiation context. In other words, if a negotiator has to use a non-native language in e-negotiations, his or her language ability becomes a critical factor in the negotiation behavior and performance.

International e-negotiation will continue to increase, which makes it worthwhile to understand how language familiarity influences the online persuasion behavior of a negotiator. If language familiarity affects the persuasion behavior, what are the intervening variables? Since language is the fundamental tool in negotiation communication, is the impact related to communication efficiency and communication effectiveness, and how are these factors related? To answer these questions, we conducted an experiment to investigate how language familiarity impacts persuasion behavior in e-negotiations. E-negotiation communications can now be performed using text, audio, and video, and these different media have different degrees of richness. Considering time differences across the world and the facilities required to implement e-negotiation, it is generally easier to adopt text-based asynchronous e-negotiation than text-based or audio- and video-based synchronous e-negotiation. In fact, most of the conflict resolution sites listed above employ text-based asynchronous systems. This study, therefore, chose text-based asynchronous e-negotiation as the research context. In addition, to elucidate the underlying cognitive processes, we also investigated the impact of language familiarity on objective negotiation behavior, such as the numbers of offers and messages, and the outcome performance.

This paper is organized as follows. Section 2 discusses the theoretical background and develops a series of hypotheses. Section 3 describes the research methodology including the experimental design and the questionnaire design. Section 4 and 5 present the data analysis and discussions. Finally, conclusions are drawn in Section 6.

2. Theory and hypotheses

2.1. Language familiarity and self-efficacy

Language plays an essential role as the most important communication tool in our daily lives, and it has been evolving continuously since ancient times. The thousands of different human languages and dialects that are used to deliver messages and to express thoughts and feelings have originated and developed in different cultures, regions, and countries. People are usually more comfortable in expressing themselves and understanding others when they use their own native language (also referred to as the mother language, first language, or mother tongue) in contrast to a non-native language (a foreign or second language). Prior research has pointed out that people often feel anxious when they use a non-native language (Horwitz et al. 1986, MacIntyre and Gardner 1991). Garcez (1992) investigated the negotiation behaviors of non-native and native English-speaking negotiators, and found that the style of a native language-speaking negotiator is more direct, locally coherent, and reiterated, whereas that of a non-native-speaking negotiator is more indirect, summatively coherent, and conversational. These findings indicate that the use of a non-native language not only changes people's mental state but also affects their communication performance and behavior.

Compared with the traditional face-to-face situation, online communication has less media richness and a lower social presence, which changes how users communicate (Short et al. 1976, Daft and Lengel 1983). Some studies have shown that the absence of non-verbal clues in the online environment increases social distance and the prevalence of task-oriented communication relative to social-oriented communication. Moreover, competitiveness and tough attitudes are more likely in an online context (Burgoon and Hale 1987, Walther 1996, Purdy et al. 2000, Thompson and Nadler 2002, Giordano et al. 2007). However, the need for efficient business processes in a competitive business environment makes it inevitable that negotiations will be conducted online. Since online communication media have less media richness, language ability is becoming more critical to conducting successful online negotiations.

Bandura (1986, p. 94) defines self-efficacy as “...people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances. It is concerned not with the skills one has but with judgments of what one can do with whatever skills one possesses". He pointed out that self-efficacy is a very important construct in social psychology because it refers to an individual's assessment of his or her capabilities to organize and perform a specific task. Self-efficacy is a broader construct that can be measured in various activities and situations (Bandura 1986). Over the past few decades, its effects on a highly diverse range of human behaviors have been considered, including sales performance (Barling and Beattie 1983), career development (Hackett and Betz 1981, Clement 1987), education (Shell et al.
1989), research productivity (Taylor et al. 1984), and computer usage (Compeau and Higgins 1995, Marakas et al. 1998). Regardless of the various definitions coming from the numerous studies, self-efficacy has two clear characteristics: (1) it is a strong predictor of the subsequent task-specific performance, and (2) it ultimately refers to what a person perceives their capabilities to be with regard to a specific task (Marakas et al. 1998).

Self-efficacy can be influenced by many factors, including performance accomplishments, vicarious experience, verbal persuasion, and emotional arousal (Bandura 1986). In the negotiation field, O’Connor and Arnold (2001) found that the self-efficacy of negotiators increases with their experience of successful negotiations, and decreases when negotiators have experienced failures. Morin and Latham (2000) also confirmed that receiving training in interpersonal communication skills significantly increased the self-efficacy of individuals. In other words, a person’s perception of his or her ability to perform a particular task can be influenced by past performance and experiences.

Most people do not have sufficient experience of using a non-native language in their daily lives and therefore will have less confidence when using a non-native language than when using their native language. In other words, a specific language, language self-efficacy will be higher for a native language speaker than for a non-native language speaker. Since negotiation involves two-way communication aimed at reaching a joint agreement that satisfies different needs or ideas (Acuff 2008), and language plays a key role in communication, negotiators generally consider that they are more able to negotiate in their native language. In other words, a negotiator with a higher language self-efficacy will have a higher negotiation self-efficacy. For these reasons, we propose the following hypotheses:

- **H1a (Effect of language usage on language self-efficacy):** A negotiator with higher language familiarity will have higher language self-efficacy in an e-negotiation.
- **H1b (Effect of language usage on negotiation self-efficacy):** A negotiator with higher language familiarity will have higher negotiation self-efficacy in an e-negotiation.
- **H2 (Effect of language self-efficacy on negotiation self-efficacy):** In an e-negotiation, negotiators with higher language self-efficacy will have higher negotiation self-efficacy.

2.2. Self-efficacy and e-negotiation communication performance

Communication is the major activity in negotiation, with the negotiation result being highly dependent on communication performance. Similar to the performance evaluations in many areas, the common constructs used to evaluate communication performance are efficiency and effectiveness, which are colloquially defined as “do the thing right” and “do the right thing”. Cleary (2004) formally defined communication efficiency as the time and money cost involved in sending a message, and communication effectiveness as the degree of correspondence between an idea or message initiated and intended by the sender and the message perceived and responded to by the receiver. Yuan et al. (2003) investigated e-negotiation communication efficiency in terms of the ease of use, information clarity, and response speed of the negotiation system, and e-negotiation communication effectiveness in terms of its expression power, memorability, and comfort. Lower language self-efficacy can hinder the expression power and memorability of exchanged messages. Therefore, the present study explores the effects of using native and non-native languages on the communication efficiency and effectiveness, where communication efficiency refers to the speed of and effort made responding and expressing one’s own feelings and opinions or understanding the counterpart’s feelings and opinions, and communication effectiveness refers to the accuracy of expressing one’s feelings and opinions or understanding the counterpart’s feelings and opinions.

Self-efficacy is defined as the extent to which a person believes that his or her capabilities to organize and execute courses of action are sufficient to attain a designated performance (Bandura 1986, Compeau and Higgins 1995). In other words, perceived self-efficacy is a type of forethought that critically influences future intentions. Obviously, the lower language self-efficacy of non-native speakers resulting from them having less experience in using the language makes it more difficult for them to express information clearly and to reply rapidly. Lewicki and Litterer (1985) also claimed that people can improve the accuracy of communication by questioning, active listening and reflecting, and role reversal. That is what the communication effectiveness means. The questioning and active listening and reflecting abilities are obviously related to language ability. Although those authors only claimed that language and communication effectiveness were related, we infer from their results that people with higher language self-efficacy can have more confidence and intentions to question and clarify what they have listened to, which will thereby improve their communication performance.

Language is the fundamental communication tool in negotiations, and it is even more critical in the e-negotiation context. Especially in text-based asynchronous e-negotiation, which lacks non-verbal cues, negotiators with higher language self-efficacy will have more confidence in their communication performance (i.e., their communication efficiency and effectiveness). Similarly, because e-communication is a major activity of e-negotiation, negotiators with higher negotiation self-efficacy are more likely to communicate efficiently and effectively during the online negotiation process. Therefore, we propose the following hypotheses:

- **H3a (Effect of language self-efficacy on e-negotiation communication efficiency):** In an e-negotiation, negotiators with higher language self-efficacy will have higher communication efficiency.
- **H3b (Effect of negotiation self-efficacy on e-negotiation communication efficiency):** In an e-negotiation, negotiators with higher negotiation self-efficacy will have higher communication efficiency.
- **H4a (Effect of language self-efficacy on e-negotiation communication effectiveness):** In an e-negotiation, negotiators with higher language self-efficacy will have higher communication effectiveness.
- **H4b (Effect of negotiation self-efficacy on e-negotiation communication effectiveness):** In an e-negotiation, negotiators with higher negotiation self-efficacy will have higher communication effectiveness.

Lewicki and Litterer (1985) claimed that an absence of feedback can hinder the communication accuracy. Butler (1999) also argued that the procedural efficiency of a negotiation process is significantly affected by the performance of the task. Thus, it can be concluded that higher e-negotiation communication efficiency results in higher e-negotiation communication effectiveness. Therefore, we propose the following hypothesis:

- **H5 (Effect of e-negotiation communication efficiency on e-negotiation communication effectiveness):** In an e-negotiation, negotiators with higher communication efficiency will have higher communication effectiveness.

2.3. Online communication performance and online persuasion behavior

Persuasion behavior lies at the heart of negotiation (Sycara 1990). Lewicki and Litterer (1985) defined persuasion as efforts...
designed to influence another person’s positions, perceptions, opinions, and attitudes. The goal of persuasion is to create leverage, unite the behavior of the parties, and guide the process toward solution convergence (Sycara 1990). This requires negotiators to negotiate using the correct arguments at the right time in order to convince their counterparts that what they offer is both valuable and reasonable. If negotiators perceive that they can communicate online more efficiently and more effectively, this might stimulate them to perform more online persuasion behavior. Therefore, we propose:

- **H6 (Effect of e-negotiation communication efficiency on online persuasion behavior):** In an e-negotiation, negotiators with higher communication efficiency will exhibit more persuasion behavior.
- **H7 (Effect of e-negotiation communication effectiveness on online persuasion behavior):** In an e-negotiation, negotiators with higher communication effectiveness will exhibit more persuasion behavior.

### 2.4. Research model

Since persuasion is crucial to a successful negotiation (Sycara 1990), it is worthwhile to elucidate how language familiarity influences online persuasion behavior, and this forms the main purpose of the present study. The research model based on Hypotheses 1–7 is shown in Fig. 1. The first concern is whether language familiarity affects language self-efficacy and negotiation self-efficacy. The second is whether higher language and negotiation self-efficacies of negotiators result in higher communication efficiency and effectiveness in e-negotiations. The third is whether the higher e-negotiation communication efficiency and effectiveness induce negotiators to perform more online persuasion behavior. In summary, we will investigate how language familiarity affects online persuasion behavior by examining language self-efficacy, negotiation self-efficacy, communication efficiency, and communication effectiveness in e-negotiations.

### 3. Research methodology

#### 3.1. Experimental design and data collection

The following two negotiation language groups were designed in order to manipulate the level of language familiarity: native language (Chinese) and non-native language (English). In order to avoid interference from cultural differences, all subjects were native Chinese speakers in Taiwan. There were two reasons for choosing English as the non-native language. First, English is one of the major languages commonly used in international communication. It is very common for people from different countries with a large linguistic distance to communicate in English. This choice therefore increases the external validity of the research findings. Second, almost all of our subjects choose English as their first foreign language, and so it was the best choice for implementing our experiment.

The negotiation scenario, role-play, and utility design were the same in both groups – the only difference was the language used in negotiations. The negotiation scenario was a tire trade involving a buyer and a seller. The issues comprised the unit price, payment terms, and delivery time, each of which had four options with different utilities. The final utility of each subject depended on the level of agreement on each issue (Table 1). If the subjects were unable to reach agreement, they were assigned the utility level of BATNA (best alternative to a negotiated agreement).

ANeGo, a Web-based negotiation system, was developed for this e-negotiation experiment. This system allows negotiators to negotiate with their counterparts asynchronously (see Fig. 2a and Fig. 2b). The native language group was asked to negotiate in written Chinese, while the non-native language group was only allowed to negotiate in written English. An “English-only” function was designed in the English version of ANeGo, which ensured that the entire negotiation process was conducted in English only.

The subjects were recruited online. Because the e-negotiation in the experiment was designed to be undertaken for 9 days and the subjects had to be paired before the experiment started, the subjects first had to commit to participating in the experiment by registering. All of the registered subjects were then paired into the roles of buyers and sellers. They were informed to start negotiation with their counterpart on a particular day, using ANeGo to negotiate anytime and anywhere for 9 days. In order to encourage subjects to participate seriously in the experiment, we designed an incentive mechanism based on both the final utility and luck of the negotiators. Only subjects who achieved a sufficiently high utility were candidates to receive substantial prizes (e.g., an iPod Nano and iPod Shuffle). After the winners of these prizes were confirmed, the other subjects were candidates for the remaining prizes such as convenience store coupons and memory-card readers. All of the prize winners were decided by lottery. This two-stage incentive mechanism ensured that everyone had a chance to get a prize as long as they finished the experiment, but only good performers had a chance to get a substantial prize.

#### 3.2. Questionnaire design

The questionnaire included the following five constructs based on the research model and hypotheses: language self-efficacy, negotiation self-efficacy, e-negotiation communication efficiency, e-negotiation communication effectiveness, and online persuasion behavior. All of the construct items were measured on a seven-point Likert scale. In order to ensure the face validity and content validity of the measurements, we initially developed the items based on previous validated literature. However, the fit of the measurements to the specific context of our research model was improved by revising some of the items and creating some new items (see Appendix).
Taking language and negotiation self-efficacy constructs as examples, the wide application area of self-efficacy resulted in highly diverse instrument types. Bandura (1986) pointed out that the overall dimensions of a self-efficacy measurement could be magnitude, strength, and generalizability. However, Lee and Bobko (1994) reported that there are five main methods of measuring self-efficacy. The most popular method is to measure the strength only, while the second one is to adopt magnitude measures only. The remaining methods are the combination strength and magnitude measurements, and even a single-item measurement (Lee and Bobko 1994). Such a wide diversity of measurements was also found through a meta-research study in the field of computer self-efficacy. Marakas et al. (1998) found that almost 50% of classified studies (19 out of 40) employed self-developed self-efficacy measurements, with the remaining studies using existing instruments with some modifications. Due to the lack of closely related studies, in the present study we referred to a few of the previous studies and also developed some measurements based on the most popular strength measurements.

This study used a total of 23 items. Subjects were asked to rate their strength of agreement on a seven-point Likert scale. Furthermore, in order to avoid problems of misunderstanding or incorrect translation, the developed questionnaire was presented in Chinese to both the native language and non-native language groups. All items in language self-efficacy and negotiation self-efficacy constructs had to be completed just prior to starting the e-negotiation, while the items in the other constructs had to be completed after finishing the experimental e-negotiation. To facilitate this, the questionnaire was completed online.

### 4. Data analysis and results

#### 4.1. Profiles of subjects

Initially 180 volunteer subjects were recruited, of which 125 subjects finished the negotiation and completed the questionnaire.

![Fig. 2a. Chinese platform for the native language group: read counterpart's message and offer.](image)

![Fig. 2b. English platform for the non-native language group: send message and offer.](image)
As mentioned earlier, the subjects had to register first before we arranged them into pairs of buyers and sellers. After all registered subjects had been paired, they were told to start the e-negotiation on a specific day for 9 days. This long experimental period required a significant commitment from the subjects, and although the design of the e-negotiations allowed the subjects to negotiate anytime and anywhere, 45 subjects dropped out for the following possible reasons: (1) registered for the experiment but did not show up during the e-negotiation period, (2) did not finish the experimental process completely, and (3) finished the entire experimental process but did not complete the questionnaire correctly (e.g., answers to all items were the same). The 45 subjects who dropped out comprised 19 people from the native language group and 26 from the non-native language group. It seems that there was a higher dropout rate and higher proposition of employed subjects in non-native language group. It could be because there were more students participating in the native language experiment, which resulted in fewer students participating in the non-native language experiment, which was held after the native language experiment. Another reason might be that the non-native speaker language experiment was held during the end of the semester.

The overall profiles of the final group of 125 subjects are presented in Table 2. They comprised 45 females and 80 males, with 73 subjects in the native language group and 52 in the non-native language group. The mean overall age was 29.1 years. 65 subjects were graduate students or senior undergraduates, while 60 subjects were employed. In general, the native language group submitted more offers and messages and get higher final utility than did the non-native language group. It seems that non-native language negotiators were less active in negotiations than native language negotiators due to the limited ability of using non-native language. On the other hand, negotiators with higher language familiarity were more active.

To ensure that the substantial difference in occupation distribution between the native language and non-native language groups did not reduce the validity of the analysis results, we compared the communication behavior and outcome between two occupation types: student and employee. The results are presented in Table 3. In the internal analysis we examined the difference between two occupations within the same group, and in the external analysis we examined the difference for the same occupation type between the native language and non-native language groups. The results reveal that the only difference between the students and employees in the internal and external analyses was a marginally significant difference in the number of messages submitted by students between the native language and non-native language groups. In other words, the students and employees exhibited similar negotiation behaviors, which might have been due to most of the student subjects being graduate students, and hence being sufficiently mature. This finding demonstrates that the difference in the distribution of occupation status between the native language and non-native language groups did not adversely affect the validity of the analysis results.

### 4.2. Measurement model

We applied exploratory factor analysis (EFA) to examine the validity and reliability of the measurements. Table 4 presents the results of the EFA as determined by SPSS, which reveals that all items had higher loadings on their own construct than on other constructs. This confirms conformity with a simple structure solution, with each variable having a single high loading on only one factor (Hair et al. 1998). The result also indicates the capability to discriminate between constructs.

Table 5 lists the values of Cronbach’s $\alpha$ (Cronbach 1951), which were used to assess the reliability of all scale items of the constructs. According to Kerlinger and Pedhazur (1973), the reliability is sufficiently high when Cronbach’s $\alpha$ is higher than 0.7, and hence our results indicate that all of the items and constructs were sufficiently reliable in our data analysis.

### 4.3. Hypothesis testing

#### 4.3.1. Effects of language familiarity on language and negotiation self-efficacies

H1a and H1b were examined using the independent-samples t-test. The results of t-tests used to assess the significance of differences between the two groups are summarized in Table 6, which reveals that language self-efficacy ($t = 6.72, p < 0.001$) and negotiation self-efficacy ($t = 5.31, p < 0.001$) were significantly higher in the native language group (6.05 and 6.09, respectively) than in the non-native language group (4.52 and 4.79, respectively). This confirms that negotiators exhibit higher language self-efficacy and negotiation self-efficacy when they negotiate in their native language. Therefore, H1a and H1b are supported by our research data.

#### 4.3.2. Effects of language and negotiation self-efficacies and e-negotiation communication performance on online persuasion behavior

We examined the mean difference of the dependent variable for each hypothesis by using quintile analysis to transform the independent variables into categorical variables. We first ranked the observations of each independent variable into order, and then we removed all of the observations within the middle 20% (third quintile group) before categorizing the top 40% and bottom 40% into the HIGH and LOW value groups, respectively. We removed the third quintile group when forming the LOW and HIGH categories in order to remove data that were marginally high and low. Moreover, the use of only two groups allowed the t-test rather than ANOVA to be used to examine H2–H7. Table 7 summarizes the results for group differences, which reveal that H2, H3b, H4b, H5, H6, and H7 were supported, with only H3a and H4a not being supported.

The analysis results indicated that a negotiator with higher language self-efficacy has higher negotiation self-efficacy (supporting H2). In turn, a negotiator with higher negotiation self-efficacy has higher e-negotiation communication efficiency (supporting H3b)
and e-negotiation communication effectiveness (supporting H4b), but this is not the case for a negotiator with higher language self-efficacy (H3a and H4a are not supported). In addition, a negotiator with higher communication efficiency also has higher communication effectiveness (supporting H5). Finally, a negotiator performs more online persuasion behavior when he or she has higher communication efficiency (supporting H6) and effectiveness (supporting H7).

The above analysis results indicate that when people negotiate in their native language, they will be more confident in using the language and in the overall negotiation. Furthermore, a higher negotiation self-efficacy but not a higher language self-efficacy will result in higher e-negotiation communication efficiency and effectiveness. Either higher communication efficiency or higher communication effectiveness will induce more online persuasion behavior. Negotiation self-efficacy is more critical than language self-efficacy in influencing online persuasion behavior. This result is consistent with Bandura’s (1989) statement that the predictive capability of a self-efficacy estimate is stronger and more accurate when it is determined by specific domain-linked measures rather than by general measures. The present study found that although language self-efficacy impacts negotiation self-efficacy, it does not significantly impact e-negotiation communication efficiency and effectiveness. On the other hand, negotiation self-efficacy impacts both e-negotiation communication efficiency and effectiveness, which in turn impact online persuasion behavior.

<table>
<thead>
<tr>
<th>Performance</th>
<th>Occupation</th>
<th>Native group (Chinese)</th>
<th>Non-native group (English)</th>
<th>Significance (external)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of offers</td>
<td>Student</td>
<td>3.10</td>
<td>2.20</td>
<td>0.280</td>
</tr>
<tr>
<td></td>
<td>Employee</td>
<td>2.62</td>
<td>2.13</td>
<td>0.169</td>
</tr>
<tr>
<td></td>
<td>Significance (internal)*</td>
<td>0.295</td>
<td>0.885</td>
<td></td>
</tr>
<tr>
<td>Number of messages</td>
<td>Student</td>
<td>3.97</td>
<td>2.20</td>
<td>0.090</td>
</tr>
<tr>
<td></td>
<td>Employee</td>
<td>3.85</td>
<td>2.68</td>
<td>0.212</td>
</tr>
<tr>
<td></td>
<td>Significance (internal)*</td>
<td>0.880</td>
<td>0.562</td>
<td></td>
</tr>
<tr>
<td>Utility</td>
<td>Student</td>
<td>3694.5</td>
<td>3582.0</td>
<td>0.545</td>
</tr>
<tr>
<td></td>
<td>Employee</td>
<td>3712.3</td>
<td>3681.9</td>
<td>0.774</td>
</tr>
<tr>
<td></td>
<td>Significance (internal)*</td>
<td>0.879</td>
<td>0.548</td>
<td></td>
</tr>
</tbody>
</table>

* \( p \leq 0.1. 

* \( t \)-test results for the difference between students and employees within the native language or non-native language group.

\( t \)-test results for the students’ or employees’ differences between the native language and non-native language groups.

Table 3
Descriptive statistics: students vs. employees.

Table 4
Exploratory factor analysis (EFA) results developed using SPSS.

<table>
<thead>
<tr>
<th>Construct (Number of Items)</th>
<th>Cronbach’s ( \alpha )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language self-efficacy (4)</td>
<td>0.972</td>
</tr>
<tr>
<td>Negotiation self-efficacy (4)</td>
<td>0.969</td>
</tr>
<tr>
<td>E-negotiation communication efficiency (6)</td>
<td>0.931</td>
</tr>
<tr>
<td>E-negotiation communication effectiveness (4)</td>
<td>0.914</td>
</tr>
<tr>
<td>Online persuasion behavior (5)</td>
<td>0.886</td>
</tr>
</tbody>
</table>

Table 5
Reliability results.

Table 6
Results of \( t \)-test of language and negotiation self-efficacies.

** \( p \leq 0.01. **
4.3.3. **Objective behavior and outcome analysis**

After examining H1–H7 based on subjective questionnaire-based measurements, we further objectively examined the actual behaviors and outcomes (i.e., the numbers of submitted offers and messages) and the final utility. We first examined differences between the native language and non-native language groups, and then those between buyers and sellers.

Table 8 lists the results of t-tests of differences between the native language and non-native language groups, which indicate significant differences in the submission behavior for offers \((p = 0.001)\) and messages \((p = 0.001)\). They indicated that native language negotiators submitted more offers and messages than non-native language negotiators, which indicates that negotiators with higher language familiarity are more active in negotiations. However, the final utility did not differ significantly between the two groups, which might be due to the final utility also being influenced by other factors such as the negotiator’s reservation value, BATNA, and negotiation strategy.

The results of t-tests of the differences between buyers and sellers are presented in Table 9, which reveals that the numbers of offers and messages submitted by buyers were significantly higher in the native language group than in the non-native language group. However, this was not the case for sellers. Table 9 indicates that negotiating in their native languages may make buyers more active and aggressive due to their better language efficacy. Moreover,

### Table 7

<table>
<thead>
<tr>
<th>Construct</th>
<th>Group</th>
<th>Mean</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2 Negotiation self-efficacy</td>
<td>Language self-efficacy: low</td>
<td>4.66</td>
<td><strong>-5.75</strong>*</td>
</tr>
<tr>
<td></td>
<td>Language self-efficacy: high</td>
<td>6.17</td>
<td></td>
</tr>
<tr>
<td>H3a E-negotiation communication efficiency</td>
<td>Language self-efficacy: low</td>
<td>5.10</td>
<td><strong>-1.50</strong>*</td>
</tr>
<tr>
<td></td>
<td>Language self-efficacy: high</td>
<td>5.44</td>
<td></td>
</tr>
<tr>
<td>H3b E-negotiation communication efficiency</td>
<td>Negotiation self-efficacy: low</td>
<td>5.01</td>
<td><strong>-2.71</strong>*</td>
</tr>
<tr>
<td></td>
<td>Negotiation self-efficacy: high</td>
<td>5.61</td>
<td></td>
</tr>
<tr>
<td>H4a E-negotiation communication effectiveness</td>
<td>Language self-efficacy: low</td>
<td>5.39</td>
<td><strong>-1.47</strong>*</td>
</tr>
<tr>
<td></td>
<td>Language self-efficacy: high</td>
<td>5.68</td>
<td></td>
</tr>
<tr>
<td>H4b E-negotiation communication effectiveness</td>
<td>Negotiation self-efficacy: low</td>
<td>5.28</td>
<td><strong>-3.16</strong>*</td>
</tr>
<tr>
<td></td>
<td>Negotiation self-efficacy: high</td>
<td>5.85</td>
<td></td>
</tr>
<tr>
<td>H5 E-negotiation communication effectiveness</td>
<td>Efficiency: low</td>
<td>4.88</td>
<td><strong>-8.34</strong>*</td>
</tr>
<tr>
<td></td>
<td>Efficiency: high</td>
<td>6.14</td>
<td></td>
</tr>
<tr>
<td>H6 Online persuasion behavior</td>
<td>Efficiency: low</td>
<td>4.92</td>
<td><strong>-5.57</strong>*</td>
</tr>
<tr>
<td></td>
<td>Effectiveness: low</td>
<td>4.82</td>
<td><strong>-6.07</strong>*</td>
</tr>
<tr>
<td>H7 Online persuasion behavior</td>
<td>Efficiency: high</td>
<td>5.86</td>
<td></td>
</tr>
</tbody>
</table>

**p < 0.01.***

### Table 8

<table>
<thead>
<tr>
<th>Construct</th>
<th>Native group (Chinese)</th>
<th>Non-native group (English)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of offers</td>
<td>3.01</td>
<td>2.13</td>
<td><strong>0.001</strong>*</td>
</tr>
<tr>
<td>Number of messages</td>
<td>3.95</td>
<td>2.63</td>
<td><strong>0.001</strong>*</td>
</tr>
<tr>
<td>Utility</td>
<td>3697.67</td>
<td>3672.31</td>
<td>0.704</td>
</tr>
</tbody>
</table>

**p < 0.01.***

### Table 9

<table>
<thead>
<tr>
<th>Role</th>
<th>Native group (Chinese)</th>
<th>Non-native group (English)</th>
<th>Significance (external)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of offers</td>
<td>Buyer</td>
<td>3.22</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td>Seller</td>
<td>2.68</td>
<td>2.26</td>
</tr>
<tr>
<td>Number of messages</td>
<td>Buyer</td>
<td>4.04</td>
<td>2.48</td>
</tr>
<tr>
<td></td>
<td>Seller</td>
<td>3.78</td>
<td>2.78</td>
</tr>
<tr>
<td>Utility</td>
<td>Buyer</td>
<td>3765.11</td>
<td>3676.00</td>
</tr>
<tr>
<td></td>
<td>Seller</td>
<td>3589.31</td>
<td>3668.89</td>
</tr>
</tbody>
</table>

**p < 0.1.***

### Table 9

Table 9 indicates that the buyer’s utility was higher than the seller’s utility in the native language group but not in the non-native language group. On the other hand, there was no difference in the final utility when negotiating in a non-native language. The buyer generally has a higher negotiation power, and such power might be supplemented by the higher language familiarity when negotiating in the native language.

### 5. Discussion

The analysis results confirm all of the study hypotheses except for H3a and H4a, which were based on cognitive measurements. This shows that there are significant differences in objective negotiation behavior, in terms of the numbers of submitted offers and messages. The results further indicate that language familiarity affects not only the negotiators’ perceptions but also their actual negotiation behavior. Regarding the cognitive measurements, first, the results reveal that the language familiarity influences the negotiators’ language self-efficacy and negotiation self-efficacy. In other words, if negotiators negotiate in their native language, they will have more confidence in using the language and negotiating. Furthermore, a negotiator with higher language self-efficacy will have higher negotiation self-efficacy. Second, the negotiation self-efficacy but not the language self-efficacy influences the communication efficiency and effectiveness, with a higher communication efficiency producing a higher communication effectiveness. Third, a higher communication efficiency and a higher communication effectiveness will result in more persuasion behavior.

The differences in the actual behaviors between the native language and non-native language groups are consistent with the results of hypothesis testing. Native language negotiators are more active in negotiations than are non-native language negotiators, but the final utility does not differ significantly between them. This could be due to the final utility being influenced by other factors such as the negotiator’s reservation value and negotiation strategy. The numbers of offers and messages submitted differed significantly between the native language and non-native language groups for buyers but not for sellers. The final utility differed significantly between buyers and sellers in the native language group but not in the non-native language group.

Four major findings can be concluded from the above analysis results. First, language familiarity plays a critical role in e-negotiation persuasion behavior, with negotiators with higher language...
familiarity performing more active negotiation behavior. Second, negotiation self-efficacy rather than language self-efficacy affects the communication performance that can induce persuasion behavior. Third, the final negotiation outcome is not dominated by the language familiarity. Finally, language familiarity is more critical to the buyer’s negotiation behavior than to that of the seller.

The analysis results have implications for both practice and academic research. First, since language familiarity plays a critical role in e-negotiation persuasion behavior, how to choose an appropriate negotiation language is very important in international e-negotiations. Obviously the native language is the best option, but alternatively the negotiator should choose the one with the smallest linguistic distance from his or her own native language. Linguistic distance is a measure of how much languages differ from each other (Chiswick and Miller 2004), and has been shown to greatly influence business trade. Hutchinson (2005) found that the amount of trading by the U.S. with another country has been lower when the official language of that country has a larger linguistic distance from English. The research findings may explain this, since a lower language familiarity will reduce the communication performance and hence also the negotiation persuasion behavior.

Second, since only the negotiation self-efficacy affects the negotiation communication performance, improving negotiation self-efficacy is more important than improving language self-efficacy for inducing persuasion behavior. Possible methods for improving negotiation self-efficacy include training on the use of e-negotiation systems and providing decision support to e-negotiation (e.g., the Inspire e-negotiation system allows people to practice negotiation online), since more experiences will provide negotiators with more confidence in e-negotiations. E-negotiation systems that teach negotiators about the “negotiation dance” or allow them to rank all possible alternative offers will give them more confidence in exchanging messages and offers. In fact, this can also improve communication efficiency and effectiveness because it makes it easier for the negotiators to determine the negotiation status and compare the alternatives, and therefore to submit messages and offers correctly and quickly.

Third, in addition to improving language familiarity, it is also important to pay attention to other factors that have an impact on the negotiation outcome. Since the negotiation outcome results from the dynamic interactions between the negotiators, it will be influenced by many factors such as the negotiators’ reservation value, BATNA, and negotiation strategy. Language familiarity is important because language usage is the fundamental skill in communication.

Fourth, the importance of language appears to vary with the position of negotiators in e-negotiations. The analysis results suggest that language familiarity plays a more important role for buyers, allowing them to exhibit more active behaviors when negotiating in their native language than in a non-native language. This also means that the negotiation outcome will be better for buyers than for sellers when they are negotiating in their native language.

Fifth, IT support should be developed that improves negotiation self-efficacy, communication efficiency, and communication effectiveness in order to induce persuasion behavior. For example, Schoop et al. (2003) developed Negoiist, which provides different message types for negotiators to increase the feedback speed and therefore improve the communication efficiency. Furthermore, as mentioned above, an e-negotiation system also can provide a decision support function to improve both communication efficiency and effectiveness. For example, Inspire provides a negotiator with an updated diagram of the “negotiation dance” (Kersten and Noronha 1999) during the negotiation process, which can help the negotiator to quickly judge the negotiation status and thus provide better responses.

Finally, this research was performed in a text-based asynchronous e-negotiation context. It is of interest to consider whether the analysis results would be the same for other e-negotiation contexts, such as text-plus-audio- or text-plus-audio-and video-based synchronous e-negotiation. Media richness theory indicates that the media richness is determined by four criteria: feedback immediacy, language variety, non-verbal cues, and personal focus (Daft and Lengel 1986). In general, a richer communication medium will allow more effective communication. Feedback immediacy will allow negotiators to exchange messages more quickly, and language variety and non-verbal cues will provide negotiators with more alternatives for expressing what they want to say. In other words, feedback immediacy will increase communication efficiency, and language variety and non-verbal cues will increase communication effectiveness. Furthermore, feedback immediacy may also increase communication effectiveness since it allows negotiators to make the communication clearer by increasing the speed of questioning, responding, and reflecting. On the other hand, language variety and non-verbal cues may also increase communication effectiveness since they make it easier for negotiators to express what they want to express or understand what their counterparts are trying to express. Therefore, a richer media will also improve the communication efficiency and effectiveness.

However, Yuan et al. (2003) argued that both text-plus-audio communication and text-plus-audio-and video-based communication were significantly better than text alone, but that the addition of video to text-and-audio-based communication not only did not significantly improve communication efficiency, effectiveness, or positive social-emotional communication, but actually distracted negotiators from focusing on the negotiation task. On the other hand, Lai et al. (2008) demonstrated that feedback immediacy has a positive effect on message clarity, deception-detection ability, and control ability, which in turn exert a positive effect on decision quality in e-negotiations employing instant messenger-like systems. However, the effect might be different for the relation between feedback immediacy and language familiarity. Poor language familiarity will impair the response ability due to the inability to provide immediate feedback. Therefore, whether the analysis results of this research can be applied to other e-negotiation contexts with different degrees of media richness needs to be investigated.

6. Conclusions

The increasing use of global e-marketplaces and popularity of international business trades make negotiating in non-native languages inevitable. Language is the basic tool in negotiation communication, and negotiating in a non-native language will hinder the language self-efficacy and negotiation self-efficacy due to the lower language familiarity. A previous study found that language influences business trade development (Hutchinson 2005), and the present study explored the influence of language familiarity on e-negotiation behavior in terms of online communication performance and online persuasion behavior. An e-negotiation experiment was conducted with two groups who used native and non-native languages separately in negotiations.

The analysis results show that language familiarity plays a critical role in inducing persuasion behavior in e-negotiations. Negotiators with higher language familiarity exhibit higher language self-efficacy and negotiation self-efficacy. Moreover, higher language self-efficacy will result in higher negotiation self-efficacy, but only negotiation self-efficacy affects both e-negotiation communication efficiency and effectiveness. Furthermore, communication efficiency affects communication effectiveness. Higher communication efficiency and effectiveness will induce more

...
online persuasion behavior. In addition to the analysis based on subjective measurements made using a questionnaire, we also objectively examined the actual behavior and outcomes; that is, the numbers of submitted offers and messages, and the final utility. In terms of the actual negotiation behavior, negotiators with higher language familiarity were more active in e-negotiations. However, the negotiation outcome did not differ significantly between native language and non-native language negotiators. This suggests that the negotiation outcome is also related to other factors such as the negotiator's reservation value and negotiation strategies, and the interaction process. Finally, the analysis also revealed that language familiarity has a greater effect on the buyer than on the seller.

The above research findings were obtained in an experiment performed in a text-based asynchronous e-negotiation context. Media richness theory states that richer media will improve the communication performance of negotiators, and this has been demonstrated previously (Purdy et al. 2000, Yuan et al. 2003, Lai et al. 2008). However, this conclusion may not be valid in the context of negotiating in a non-native language because language familiarity plays a critical role in e-negotiations, as mentioned above. The interaction between language familiarity and richness of communication media is a critical research issue because an understanding of this will help people to choose appropriate communication media based on the language used in e-negotiations. This also constitutes one of the limitations of the present research, since only the text-based asynchronous e-negotiation context was considered.

The second limitation is in language familiarity, which we manipulated by Chinese as a native language versus English as a non-native language. Chinese is a non-Indo-European language while English is an Indo-European language, and the linguistic distance theory indicates that the distance between English and Chinese is larger than for other combinations of languages, such as Chinese versus Japanese or English versus French (Chiswick and Miller 2004). The research findings may therefore not apply when using other languages. Furthermore, the perceived linguistic distance might differ with the subjects' language environment. English is the second foreign language taught in most schools, and it might be the only foreign language for some individuals. These people would have a higher language familiarity when using English than when using Japanese, even though Chinese has a smaller linguistic distance from Japanese than from English. In addition, the increasingly global e-business activities may mean that people will have to learn a third language in order to conduct international negotiations. In such a situation, language learning is impacted by factors additional to the linguistic distance from the native language (Cenoz et al. 2001), and hence these factors also have to be considered when choosing an appropriate negotiation language or when determining how to improve language familiarity. How to utilize IT to reduce the limitations of language familiarity in e-negotiations is another important research topic for future studies.

The third limitation is that the effect of language familiarity might be mediated by the different types of communication and decision support provided by e-negotiation systems and the degree of task complexity, which were not considered in this research. It is worthwhile to explore how information support can reduce the limitations of language familiarity and increase negotiation self-efficacy, communication efficiency, and communication effectiveness in the e-negotiation context. Finally, the experimental e-negotiation was performed over 9 days in asynchronous mode, and hence external interruptions might have influenced the results of the negotiation process. However, this is also the case for asynchronous e-negotiations in the real world. Indeed, it could be advantageous to adopt asynchronous e-negotiations since this would allow the negotiators to get help from others during the negotiation process.

**Acknowledgments**

An earlier version of this article was presented at the 2009 Hawaii International Conference on Systems Science. We thank the co-chairs of the Negotiation Support Systems Mini-Track, Tung Bui and Mel Shakun, and the anonymous reviewers at HICSS for their helpful comments. We benefited from value comments by the three reviewers, Byungtae Lee, Ting-Ping Liang and David Weber and input from the other participants at the conference. In addition, we appreciated Juliana Tsai and Shu-Chun Ho for recording comments for us during our presentation. Further, we thank Chris Westland and Rob Kauffman for their comments and suggestions, especially for the statistical methods, through the review process, as well as the anonymous reviewers at ECRA. Hsiangchu Lai acknowledges the support for this research from the National Science Council (Grant #96-2416-H-110-013-MY2) and the “Aim for the Top University Plan” of National Sun Yat-sen University and the Ministry of Education, and Taiwan, Republic of China. All errors and omissions are the sole responsibility of the authors.

**Appendix A. Summary of scale items**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Measures</th>
<th>Main references</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language self-efficacy</td>
<td>I consider it easy to read and understand English (Chinese) newspapers and magazines</td>
<td>Cheng and Yuh-show (2001), Coronado-Allegro (2006), and this study</td>
</tr>
<tr>
<td></td>
<td>I consider it easy to write English (Chinese) letters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I consider it easy to communicate well in text using English (Chinese)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall I consider it easy to read and write in English (Chinese)</td>
<td></td>
</tr>
<tr>
<td>Negotiation self-efficacy</td>
<td>I consider it easy to negotiate in English (Chinese)</td>
<td>Cheng and Yuh-show (2001) and this study</td>
</tr>
<tr>
<td></td>
<td>I consider that I have the ability to negotiate in English (Chinese)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I consider that I can negotiate in English (Chinese) fluently</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall I have confidence in negotiating in English (Chinese)</td>
<td></td>
</tr>
<tr>
<td>E-negotiation communication efficiency</td>
<td>I could respond to my counterpart rapidly during this negotiation</td>
<td>Dennis and Kinney (1998) and this study</td>
</tr>
<tr>
<td></td>
<td>I could respond to my counterpart easily during this negotiation</td>
<td></td>
</tr>
</tbody>
</table>
Appendix A (continued)

<table>
<thead>
<tr>
<th>Construct</th>
<th>Measures</th>
<th>Main references</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-negotiation communication effectiveness</td>
<td>I could express my opinions correctly during this negotiation</td>
<td>This study</td>
</tr>
<tr>
<td></td>
<td>I could express my opinions correctly during this negotiation</td>
<td>This study</td>
</tr>
<tr>
<td></td>
<td>I could understand the opinions of my counterpart correctly during this</td>
<td>This study</td>
</tr>
<tr>
<td></td>
<td>negotiation</td>
<td></td>
</tr>
<tr>
<td>Online persuasion behavior</td>
<td>I explained my reasons proactively</td>
<td>This study</td>
</tr>
<tr>
<td></td>
<td>I provided information proactively</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I persuaded my counterpart to accept my offers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I described the issues, goals, and priorities that concerned me</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I used persuasion during this negotiation</td>
<td></td>
</tr>
</tbody>
</table>

References


Garcez, P. M. Point-making styles in cross-cultural business negotiation: a microethnographic study. English for Specific Purposes, 12, 2, 1992, 103–120.


Shell, D. F., Murphy, C. C., and Bruning, R. H. Self-efficacy and outcome expectancy mechanisms in reading and writing achievement. *Journal of Educational Psychology*, 81, 1, 1989, 91–100.


