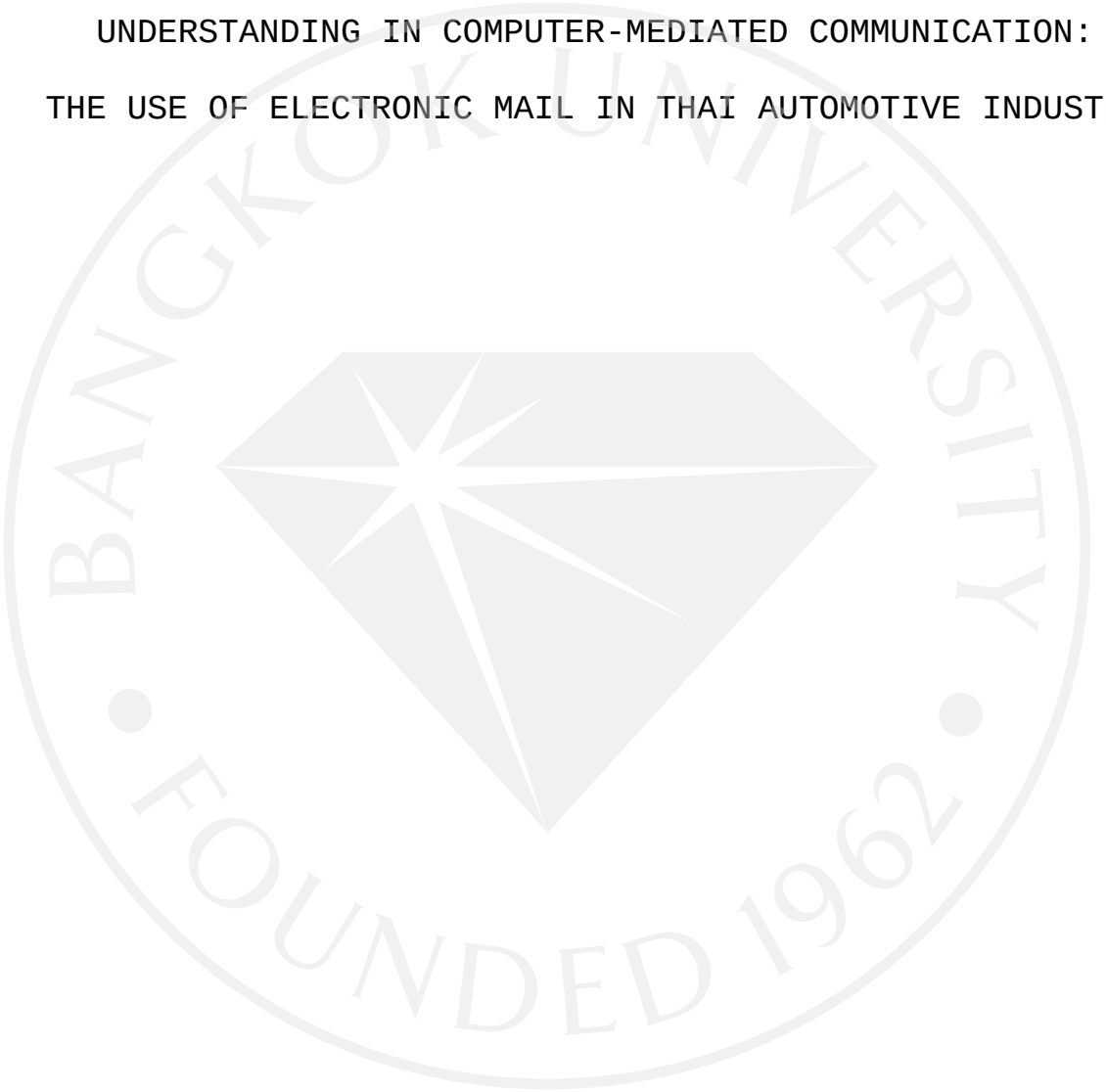
COMMUNICATION APPREHENSION AND PERCEPTIONS OF UNDERSTANDING IN COMPUTER-MEDIATED COMMUNICATION: THE USE OF ELECTRONIC MAIL IN THAI AUTOMOTIVE INDUSTRY



COMMUNICATION APPREHENSION AND PERCEPTIONS OF UNDERSTANDING IN COMPUTER-MEDIATED COMMUNICATION: THE USE OF ELECTRONIC MAIL IN THAI AUTOMOTIVE INDUSTRY

A Dissertation Presented to

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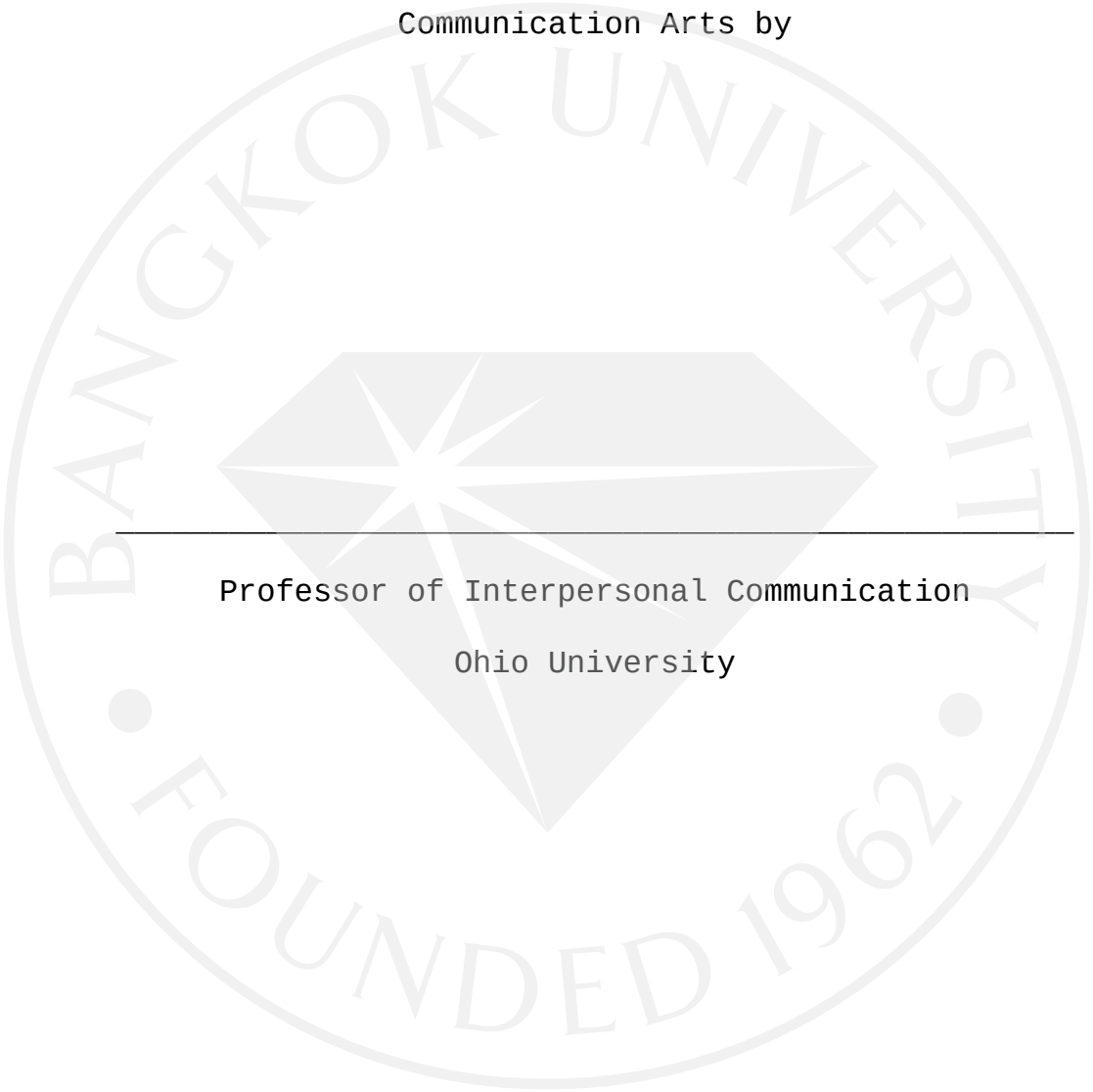

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ABSTRACT

Computer-mediated communication, especially electronic mail, is increasingly adopted as a new medium for both interpersonal and organizational communication. Messages are becoming interactive. Perceptions of understanding on electronic messages are important. Different levels of communication apprehension (CA) of people might create different perceptions of understanding from using e-mail. The purpose of this research was to study the perceptions of understanding or misunderstanding of different levels of communicatively apprehensive people in Thai automotive organizations when using e-mail versus face-to-face communication.

In this study, a multivariate analysis of variance (MANOVA), Pearson correlation, independent *t*-test, and through reference to the frequency distribution were used to test the research questions. Feelings of Understanding/Misunderstanding Scale (FUM) and Personal

Report of Communication Apprehension Scale (PRCA-24) along with additional questions posed were used as the instruments to examine the research questions.

Findings from two hundred subjects of nine automotive companies in Thailand revealed that when measuring the communication apprehension by employing PRCA-24 in Thai context, the dimensions should be regrouped as public speaking, negative feelings in communication, positive feelings in communication, and involvement in conversation. There was no significant difference between perceptions of understanding in e-mail versus face-to-face communication. Levels of CA did not create any significant relationship toward perceptions of understanding in e-mail communication. Prior experiences of using e-mail had not identified the perceptions of understanding of e-mail messages. The comments from seven interviewees demonstrated that people gradually reduced uncertainty feelings or circumstances on their use of e-mail, gained more information, and attentively learned new technologies. These situations will continuously lead to the acceptance and adoption of computer networking communication systems in the society.

Approved:_____

Signature of Advisor

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CHAPTER ONE

Introduction

Background of the Study

Information technologies are increasingly integrated into our daily lives. We are currently confronted with a large number of messages that come our way from both paper and electronic sources. Computer networking systems are the new medium in communication; media are becoming interactive. The spread of the Internet and computer-mediated communication are conceptualized as a social technology that gets people connected any time around the world. The Internet can be described as the large electronic network that links millions of computers worldwide (Karger & Levine, 1999). Information searches take a minute, and messages are sent in a second.

The Internet started in 1966 as an experimental computer communication network project of the U.S. Advanced Research Projects Agency (ARPA), Department of Defense (Hunter & Allen, 1992; Moore, 1994). The purpose of this network was to enable scientists in the United States to do military-related research that could be developed on secure computer systems. The goal of the developers of ARPANET, the original name of the system,

was to have “a system in which information could be stored anywhere in the system” (Hunter & Allen, 1992, p. 254). This computer network was renamed the “Internet” in 1983 (Santoro, 1994). Referring to the Federal Networking Council [FNC] (1995), the Internet refers to

> the global information system that 1) is logically linked together by a globally unique address space based on the Internet Protocol (IP) or its subsequent extensions/follow-ons; 2) is able to support communications using the Transmission Control Protocol/Internet Protocol (TCP/IP) suite or its subsequent extensions/follow-ons, and/or other IP-compatible protocols; and 3) provides, uses or makes accessible; either publicly or privately, high level services layered on the communications and related infrastructure described herein. (http://www.fnc.gov/Internet_res.html)

The major strength of the Internet is the creation and distribution of information. Some experts predicted that the Internet users would increase to 300 million people by the end of year 2000 (Holden, Rosenberg, & Weissman, 1996). Recently, there were 201 million users registered with Microsoft and 156 million users registered with Yahoo. These figures did not include

America Online users and users of other Internet service providers (Bangkok Business News, 2000).

Computer networks work in essentially the same way as a telephone network. Every computer on a network has a connection with other computers on the same network. The connection might be through twisted-pair wire, coaxial cable, fiber-optic cable, or some other means. Every computer on a network has a unique identification address, and every network also has its own unique identification address.

The adoption of computer technologies has a social impact and creates behavioral change. Computer-Mediated Communication (CMC) is now a popular phrase in electronic communication. CMC is a technology that uses a personal computer as the primary means for the communicative interaction between two or more people. Computer communications and electronic mail can be classified as recent innovations of technologies in interpersonal communication (William, Rice, & Rogers, 1988). CMC can help people connect with each other around the world. According to Walther (1996), “CMC is not being used to transmit only simple information between people, CMC could be used to coordinate emergency tasks among geographically dispersed individuals, and CMC grew from

simple relay systems into planned applications for group communication” (pp. 4-5). CMC will also help increase or even maintain personal relationships. CMC can increase the status or prestige of users and becomes a social symbol of a “high-tech” person.

Barnes and Greller (1994) defined CMC as including electronic mail (e-mail), computer conferencing, and interactive messaging. E-mail can be identified as a new method of interpersonal communication (William, Rice, & Rogers, 1988). E-mail is a useful communication tool in our society because both senders and receivers can transmit and respond to messages at any time and anywhere. The system of e-mail is to send, store, and retrieve messages at an electronic mail address through a computer network (Barnes & Greller, 1994). Nowadays, when people exchange business cards, they often look first at the e-mail address. E-mail is typically faster and more reliable than the U.S. Postal Service (Chesebro & Bonsall, 1989; Kerr & Hiltz, 1982). E-mail is accepted as the most effective way to communicate between two or more people, or among a group of people, especially in international organizations.

Computer conferencing is an electronic conference in which the discussion is in synchronous time and the

messages are interactive. The mechanism of a computer conference is to record and use a textual transcript of a group discussion over a length of time, by group members who can be in different places around the world and interact with the transcript at the specified time (Rice, 1984).

The development of the Internet in Thailand began in mid-1987 in academic institutions (Palasri, Huter, & Wenzel, 1999). In 1995, the usage had grown extensively from the academic realm to the general population especially in the commercial business sector. The Internet is currently popular in almost every region of Thailand. As of February 1998, more than 350,000 individuals in Thailand used the Internet (Trin & Thaweesak, 1998). Since then, the rate of Internet users has increased dramatically. By February 2000, the number of Internet users in Thailand had increased to one million (NITC Internet Policy Task Force, 2000).

The National Economic and Social Development Committee (1998) announced in the Mass Communication and Information Technology Development Plan for Human Resource and Social Development in Thailand (1999-2008) that the goal is to facilitate computer communication in all districts, and increase Internet usage to 20 percent

of the whole population. Thailand Development Research Institute (TDRI) forecasts that the number of Internet subscribers will increase to 3.2 million by the year 2004 (http://www.bangkokpost.com/yereview2000/internet.html). The National Electronics and Computer Technology Center (NECTEC) conducted research during September to October 2000, to establish a Thai Internet user profile. There were 2,507 persons participating in this study. The result indicated that e-mail was the most popular activity (37.3%) when connecting via the Internet. Engaging in chat room conversations or ICQ and web board discussions were ranked second (7.4%) and third (4.2%), respectively.

Purpose of the Study

The perception of being understood is very important because it is the extent to which a sender makes a receiver believe that his or her message has been correctly interpreted. In e-mail, people communicate with one another via a computer networking system; they can send messages interpersonally or in a group. There is no face-to-face in e-mail although people send messages to each other in synchronous time. To make people feel comfortable from the e-mail messages is very new in Thai organizations at this moment since the

computer networking system has operated as a communicative medium in Thailand for only a few years. Misunderstandings become an important issue in e-mail because nonverbal cues, which are an important part of the communication process (Lumsden & Lumsden, 1996), are more difficult to interpret.

Since there is no face-to-face when communicating via e-mail, the level of fear, anxiety, or shyness might be reduced. People might dare to express their own ideas or feelings through a computer networking system.

Communication apprehension (CA) is defined as “an individual’s level of fear or anxiety associated with either real or anticipated communication with another person or persons” (McCroskey, 1982, p. 9). Most Thais, a people with a high context culture, tend to have high CA in face-to-face communication. In a high context culture, most of the information is in the form of physical context or is internalized in the person (Hall, 1976). On the contrary, in a low context culture, messages will be clearly communicated, elaborated, and highly specific (Samovar & Porter, 1988). One study of CA in Thailand showed that the Thai sample displayed significantly higher overall CA scores and that the Thai sample also exhibited significantly higher CA scores

across group discussions, meetings, interpersonal conversations, and public speaking contexts (Knutson, Hwang, & Vivatananukul, 1995). Generally, people who have high anxiety or are shy in face-to-face communication will be highly apprehensive when communicating. On the contrary, people who have less or no anxiety or are not shy in face-to-face communication will be low apprehensive when communicating. There is a possibility that high CA persons might dare to express more ideas when communicating via e-mail.

The purpose of this research is to study the perceptions of being understood or misunderstood of different levels of communicatively apprehensive people in Thai automotive organizations when using e-mail versus engaging in face-to-face communication.

Organization of the Study

Since the Internet is used as a new medium in this digital world, e-mail works as an important tool in organizational communication. Because of high speed in sending and storing information, less time consumption in sending messages, and reduced expense due to increased efficiency, many companies have adopted e-mail as a major tool in organizational communication. Many industries in Thailand, such as telecommunication, consumer products,

finance and banking, automobile, and tourism, use e-mail as a new means for organizational communication. Each line of business has its own characteristics, especially in human resources and corporate culture because most businesses in Thailand were originally established as family operations. Each family has different techniques and styles to manage their company. The organizational development depends on the entrepreneur's vision. Over time, the Thai market has grown and developed. A lot of international companies became interested in investing in the Thai market. Some international companies have set up their own companies or branches in Thailand. Some have signed joint venture agreements with local businessmen.

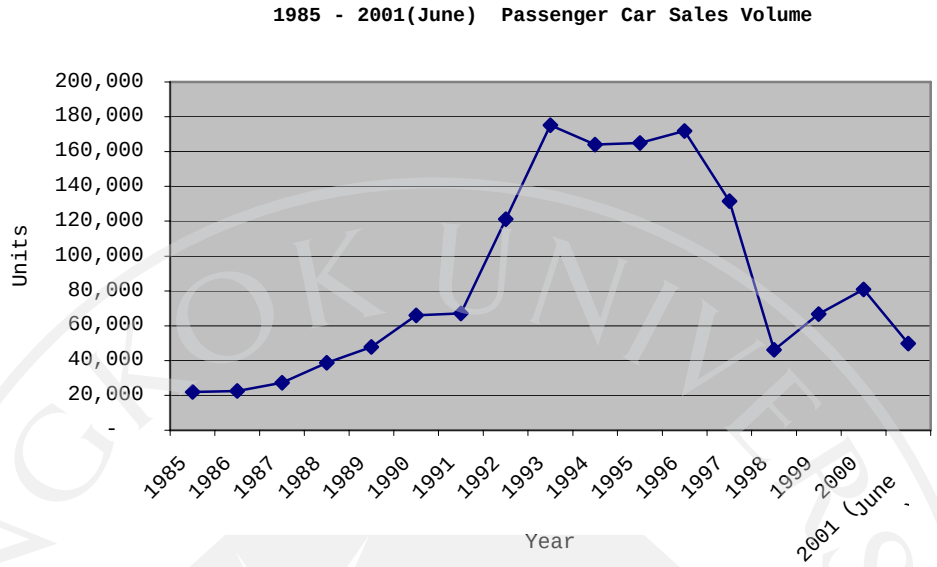
The automotive industry is one of the active markets in which international companies are interested in investing. The sales volume of both passenger cars and commercial vehicles had increased consecutively before the start of an economic downturn in 1997 (see Table 1 and Figure 1). The Thai automotive market was called "the Detroit of Asia" by the automobile manufacturers, especially those from the US and Germany (GM Car Magazine, 1996).

Table 1: Automobile sales volume

Year	Passenger Cars (Units)	Total Market (Units)
1985	22,032	N/A
1986	22,488	N/A
1987	27,302	N/A
1988	38,729	N/A
1989	47,701	N/A
1990	66,028	N/A
1991	67,114	N/A
1992	121,193	N/A
1993	175,091	N/A
1994	164,015	N/A
1995	164,987	N/A
1996	171,903	589,973
1997	131,491	363,701
1998	46,161	144,476
1999	66,630	218,194
2000	80,865	261,787
2001 (June)	49,693	140,065

(Mercedes-Benz Monthly Report)

Figure 1: Passenger car sales volume



Since the economic downturn in 1997, the Thai Baht has been devalued by forty-five percent. For example, one US dollar equaled twenty-five Thai Bahts before being devalued in 1997. On the 24th October 2001, the currency exchange rate was one US dollar to 44.93 Thai Bahts (Bangkok Bank). Foreign investors devoted the same amount of money to their investments but were returned with almost two times the profit as compared to the bubble boom situation present in 1996. Many parent companies, such as Mercedes-Benz and BMW, could not manage to negotiate joint businesses with local distributors, so they decided to invest by setting up their own companies. A lot of international companies, such as Audi and Volkswagen, entered joint venture

contracts with local distributors. Some manufacturers, such as General Motors and Ford, decided to enter the Thai market through direct investments, creating their own marketing opportunities (see Table 2).

Table 2: Ownership of automotive companies in Thailand

Brand	Past Ownership	Current Ownership
Toyota	Toyota Motors (Thailand)	Toyota Motors (Thailand)
Lexus	Lexus (Bangkok)	Lexus (Bangkok)
Honda	Honda Automobile (Thailand)	Honda Automobile (Thailand)
Isuzu	Tripetch Isuzu	Tripetch Isuzu
Nissan	Siam Nissan Sales	Siam Nissan Sales
Mitsubishi	MMC Sittipol	Joint Venture between Mitsubishi (Japan) and DaimlerChrysler
Mercedes-Benz	Thonburi Automotive Assembly Plant	DaimlerChrysler (Thailand)
Chrysler	Chrysler Sales and Services	DaimlerChrysler (Thailand)
Chevrolet	Wattana Auto Sales	General Motors (Thailand)
Opel	Pranakorn Yontrakarn	General Motors (Thailand)

Brand	Past Ownership	Current Ownership
Volvo	Swedish Motor Corp.	Volvo (Thailand)
Mazda	Kamol Sukosol Mazda	Ford Operations (Thailand)
Ford	Yontrakit Group	Ford Operations (Thailand)
BMW	Yontrakit Group	BMW (Thailand)
Audi	Yontrakit Group	Joint venture with Audi AG
Volkswagen	Yontrakit Group	Joint venture with Volkswagen AG
Peugeot	Yontrakit Group	Yontrakit Group

(Mercedes-Benz Monthly Report, August 2001)

After the international companies were set up, they brought new techniques of management and operations, especially in information technologies, management information system, and brand management, to be implemented in the Thai automotive market. E-mail is being used as the new medium for organizational communication and e-mail, sometimes replacing letters and memoranda. English is used as a medium language when communicating via e-mail between Thais and foreign officers among the Thai automotive companies.

Statement of the Problem

Since there are a lot of changes in the structure of Thai automotive companies, people in this industry learn and adopt new techniques of management and operations. E-mail has been identified as a new communication tool of value to people and to corporations worldwide. E-mail is involved in our daily lives. People increasingly accept e-mail as a new way to communicate with each other. They continuously learn how to use the Internet and e-mail. Learning takes place when people achieve rewards and avoid failure. Some people use e-mail to represent modern living and to avoid being outmoded. Some people learn to use e-mail because it is a fast, reliable, effective, and efficient communication method.

According to Health and Bryant's (1992) concept of social learning, "preferences for action grow, at least in part, out of internal standards and evaluative reactions to one's own ability to perform, to achieve rewards or to avoid punishment" (p. 136). Some people who have just started to use e-mail might observe those who have previously adopted e-mail in order to examine the advantages and disadvantages of using e-mail. Severin and Tankard (1988) explained that, "social learning theory recognizes that much human learning takes

place through watching other people model various behaviors" (p. 313). After people accept e-mail as a new mode of communication, their attitudes and behaviors toward communication can change. Waern (1987) found that "a user of a computer system needs a mental model for planning, problem solving, communicating ideas and stimulating creative thinking" (p. 275).

Thailand, as a high context country, has people who think carefully, speak considerately, and behave circumspectly. Thai people have high CA because of the cultural context. When e-mail is involved in Thai society, the perceptions of Thai people might change because there is no face-to-face communication when operating via computer networking systems. E-mail can help reduce CA. The seeming anonymity of and faceless nature of e-mail has the potential to reduce communication anxiety and shyness.

Research Questions

As stated previously, e-mail is currently classified as a new medium of communication. The Personal Report of Communication Apprehension (PRCA) shows that people who have high CA will speak less than those who have low CA in face-to-face interactions. Knutson et al. (1995) found that Thai people had high CA scores both overall

and across face-to-face communication contexts. A question that has yet to be explored, though, is whether a shift from face-to-face contexts to e-mail communication will mitigate the effects of CA and facilitate feelings of being understood. E-mail is generally used for two main purposes: working and personal use. The researcher has chosen to focus on a work environment of Thai automotive companies with questions about the perceptions of people who use e-mail as a tool in communicating with others. People who have a lot of experience in public speaking might have more opportunities to communicate with an audience and to create greater understanding about what they are trying to communicate. Do the people who have more time to spend in e-mail communication have a tendency to better understand the messages than those who have less time to spend? Is there any difference between the perception of understanding or misunderstanding of people engaged in face-to-face versus e-mail communication? Do high versus low CA employees experience similar or different levels of feeling understood versus misunderstood when using e-mail? From these general questions, the following research questions emerge:

RQ1: Is there a significant difference between perceptions of understanding or misunderstanding when using e-mail versus engaging in face-to-face communication?

RQ2: Is there a significant relationship between time spent in using e-mail and perceptions of understanding or misunderstanding of e-mail messages?

RQ3: In comparing personal versus work e-mail, are there any significant interactions between time spent in using e-mail and perceptions of understanding or misunderstanding when using e-mail?

RQ4: Is there a significant relationship between levels of communication apprehension and perceptions of understanding or misunderstanding when using e-mail?

RQ5: In e-mail communication, are there any significant interactions between time spent using e-mail, perceptions of understanding or misunderstanding, and high versus low CA?

Significance of the Study

This study examines the interactions between perceptions of understanding or misunderstanding and time spent in using e-mail as functions of high versus low CA and different purposes of e-mail use in the Thai

automotive industry. E-mail is a worldwide medium employed to get people connected and communicating via computer networking systems. Increasingly, universities are likely to use e-mail as an instructional or communicative tool in education. Many organizations, including automotive companies, use e-mail as an organizational communication tool to get staff, clients, and suppliers connected. People in general use e-mail to initiate, maintain, and develop their relationships (Schmitz & Fulk, 1991; Wright, 2000). E-mail can increase the degree of personal and social connectedness with others, by expanding the status set, the number of social participations, and the scope of social relationships (Kerr & Hiltz, 1982). There is a tendency for Thai people to use e-mail as a popular and effective communication method.

E-mail can strengthen relationships among the groups of people who use it. E-mail can create benefits for academic institutions. Teachers and students have increased opportunity for communication outside the classroom. Students who dare not to speak in the classroom might express their opinions in e-mail since there is no interactive, face-to-face communication.

E-mail can be considered as a new strategy for teaching some courses.

From a national perspective, if Thai people use e-mail, it could help reduce problems, especially traffic jams, because people will be less likely to go out, but they can still keep in contact and communicate with others via a networking system. A study of Kerr and Hiltz (1982) demonstrated that computerized communication could "reduce travel by replacing some face-to-face meetings and by providing a continuous link without the financial and human costs of travel" (p. 116). The consumption of petrol and transportation expenses will be likely to decrease. Some family problems might be decreased because parents can work from their homes, providing more time to take care of, keep, and develop relationships with their children.

E-mail is increasingly integrated into our daily lives. E-mail can be categorized as a new medium for both interpersonal and organizational communication. Since there is no face-to-face in e-mail interaction, people who have high in CA might feel more comfortable expressing their ideas via this computer networking system than those low in CA. This research will focus on the perceptions of being understood or misunderstood of

high versus low CA people, especially in the Thai automotive industry, when using e-mail versus face-to-face communication. E-mail can create a great difference for perceptions of being understood or misunderstood at the initial stage of adoption. After learning for a while, people might feel comfortable with the system. There is a possibility to perceive e-mail as a new method of organizational communication in Thailand. There is a tendency that e-mail could substitute for telephone calls and/or office memoranda in general circumstances.

Definition of Terms

Perceptions of understanding, or the feeling of being understood, refer to the individual's or communicator's assessment of his or her success or failure when attempting to communicate with another person (Cahn, 1981; Cahn & Frey, 1989). Perceived understanding is an important feeling that has an effect on interpersonal communication and relationships.

Computer-Mediated Communication (CMC) is defined as a technology that uses a personal computer as the primary means for communicative interaction between two or more people. According to Walther (1992), "computer-mediated communication is synchronous or asynchronous electronic mail and computer conferencing, by which senders encode

in text messages that are relayed from senders' computers to receivers' [computers]" (p. 52). CMC, in this study, focuses only on electronic mail (e-mail).

Barnes and Greller (1994) defined electronic mail (e-mail) as "a method of sending, storing, and retrieving electronic messages located at an electronic mail address through a computer network" (p. 131). E-mail is the primary communication vehicle for the information superhighway (Nantz & Drexel, 1995). E-mail can be used either in synchronous or asynchronous time depending on each situation.

Communication Apprehension (CA) is defined as "an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons" (McCroskey, 1982, p. 9). CA includes all modes of communication and is not limited to only talking. CA is analyzed as a trait. Trait might be tough to change but not impossible. Traitlike CA is viewed as "a relatively enduring, personality-type orientation toward a given mode of communication across a wide variety of contexts" (McCroskey, 1984, p. 16).

Summary Statement

This research focuses on the perceptions of understanding and misunderstanding when e-mail is used by

individuals who represent different levels of CA and when those individuals use e-mail for business versus personal reasons. The participants in this study are Thai people who have some experience in using e-mail and work with automotive organizations in Thailand. Other types of CMC, such as web board discussions, chat room conversations, computer conferences are not included in this study.

In this digital and information era, people are tending to increase their use of computer networking systems. Robson and Robson (1998) stated that communication using computer technology is likely to continue to increase. There is no boundary of information in e-mail usage. There is less nonverbal communication in e-mail. Thai people might be more likely to express their thoughts, ideas, or opinions via e-mail, though they are identified as a high CA people. People might have different ideas and objectives when using e-mail as a new method of communication.

The next chapter provides the necessary background of perceptions of understanding/misunderstanding, computer-mediated communication, electronic mail, and communication apprehension as the review of literature for this research.

CHAPTER TWO

Review of Literature

Introduction

This literature review provides information on three areas: perceptions of understanding/misunderstanding, computer-mediated communication including electronic mail, and communication apprehension.

Perceptions of Understanding/Misunderstanding

> I may not actually be able to see myself as others see me, but I am constantly supposing them to be seeing me in particular ways, and I am constantly acting in the light of the actual or supposed attitudes, opinions, needs, and so on the other has in respect of me. (Laing, Phillipson, & Lee, 1966, p. 4)

This concept is a framework for feelings of being understood or misunderstood. Laing et al. (1966) explained that, to understand a person's behavior, at least two persons must interact in a common situation. For example, imagine that A and B are interacting in a situation. A's behavior towards B is, in part, a function of B's experiences of A. A's experiences of B are also, in part, a function of B's behaviors toward A.

Cahn (1981) defined the perception of understanding or misunderstanding as “the communicator’s assessment of his success or failure when attempting to communicate with another person” (p. 1).

Laing et al. explained the concept of understanding as involving three different levels of perception. At the first level, persons A and B both have a direct perspective on or impression of each other. At the second level, persons A and B each have an impression or notion of their own image in the mind of the other person. Laing et al. referred to this as a “metaperspective.” At the third level, A and B both have an impression of the other person’s impression of them, or a meta-metaperspective. The perception of being understood or misunderstood can be measured by comparing one’s meta-metaperspective with his or her direct perspective (Cahn, 1983).

In order to understand the other’s perspective, a person needs some information about the person with whom he or she is interacting. Information is a central part of relationship development. When there is no information, there can be a lot of uncertainty. Uncertainty Reduction Theory (see Berger & Calabrese, 1975) deals with the way people gather information about

other people to reduce their uncertainty. Wood (1997) stated that “because uncertainty is very high in initial encounters, reducing it is important if the relationship is to progress” (p. 218). Uncertainty reduction is motivated by the need to know more about ourselves, others, and our social environment. Berger (1987) explained that uncertainty is a function of a person’s ability to predict and to explain the actions of other persons and of self. There is some evidence suggesting that perceptions of being understood or misunderstood are a factor in the development of interpersonal relationships (Cahn, 1983).

Cahn and Shulman (1984) developed the “Feelings of Understanding or Misunderstanding Scale” (FUM) to measure the perceptions of understanding or misunderstanding when communicating with people. The feelings of understanding or misunderstanding can vary dependent on the type of communication that is taking place. Face-to-face communication might or might not result in higher feelings of understanding than communicating via e-mail. In a field study of organizational electronic mail, Sproull and Kiesler (1986) found that, comparing face-to-face and e-mail communication, e-mail reduced social context cues and provided information that was relatively

self-absorbed, undifferentiated by status, uninhibited, and new to the communicators. The following question is asked to examine perceptions of understanding or misunderstanding between face-to-face and e-mail communication.

RQ1: Is there a significant difference between perceptions of understanding or misunderstanding when using e-mail versus engaging in face-to-face communication?

Cahn's (1983) study of the relative importance of perceived understanding in initial interactions and the development of interpersonal relationships revealed that people in the later stages of a relationship experience greater understanding when communicating than individuals in the initial stages of relationship development. When examining the perceptions of understanding as revealed in student evaluations of teachers, the students might very likely understand their teachers (Cahn, 1984). Perceived understanding is an important variable that affects a variety of perceptual processes and interpersonal relationships. Cahn and Frey (1989) studied the behavioral impressions of perceived understanding. Their research demonstrated that the behavioral impressions created by listeners and perceived by communicators are

associated with the communicators' perceived understanding. Cahn (1989) also studied the relationship of males and females in perceived understanding. Cahn's findings indicated that perceived understanding becomes more important later in the development of male-female mate relationships.

Cahn's research demonstrated that people understand the messages that other people send to them after relationships have developed for a period of time. When people communicate and interact during the initial stages of a relationship if they want to develop their relationship, they will strive to gain as much information as possible in order to know and understand the other party. Feelings of uncertainty should decrease as people learn more about each other.

To be skillful, people might need a period of time to practice their communication. People who have a good deal of experience in public speaking have more opportunities to communicate with audiences and to create greater understanding about what they are trying to communicate. There is a tentative relationship between experience and ability to communicate via public speaking. Walther (1993) studied impression development in computer-mediated interaction. He indicated that

people gradually developed impressions of their partners over a period of time, showing a linear increase in impression development that approximates the level of development found between face-to-face communicators. A study of CMC support demonstrated that time was an important factor that created satisfaction in computer-mediated environments since people who spent more time interacting with others through on-line communication could better compensate for the lack of nonverbal cues than those who were less familiar with the medium (Walther, 1996). As such, there is a possibility that time might create perceptions of understanding when using e-mail as a communicative medium. If people spend more time or have more experience in using e-mail, they might know how to select appropriate words, phrases, sentences, or emoticons to help their receivers better understand their messages. Since e-mail is a new method for communication, people might feel that there are some risks to using e-mail. They need a period of time to get comfortable with the system and reduce their feelings of uncertainty. People might have greater skill communicating via e-mail if they spent more time on the Internet or had more experience using e-mail.

The way people communicate in e-mail is different when compared to face-to-face communication. People develop their writing skills when using e-mail since e-mail involves written communication. Sometimes, receivers might misunderstand or misinterpret messages that are sent from e-mail. The following question was asked to examine whether there is a relationship between time spent in using e-mail and perceptions of understanding or misunderstanding of e-mail messages.

RQ2: Is there a significant relationship between time spent in using e-mail and perceptions of understanding or misunderstanding of e-mail messages?

Computer-Mediated Communication

Barnes and Greller (1994) defined computer-mediated communication (CMC) as occurring “when people use computer-networked systems to communicate to other people or to small groups of people” (p. 129). CMC includes electronic mail (e-mail), computer conferencing, computer bulletin boards, videotext systems, voice messaging, and related media (Rice, 1987). Rice and Rogers (1984) defined a computer-based communication system as a generic term for “electronic messaging or computer conferencing as well as for functions of more sophisticated knowledge worker augmentation systems” (p.

95). CMC has grown since its development in the early 1970s as a result of the diffusion of value-added networks and desktop terminals and the continuing reduction in computing costs. The most advanced network that links all computer-networked systems is the Internet which is a vast collection of business, government, and education networks. CMC helps people get connected easily, and create and maintain relationships from a distance. Malone and Rockart (1991) stated that computers and computer networks might be remembered not as technology used primarily to compute but as coordination technology. Walther (1992) suggested that the need for affiliation was one motive that explained why people chose CMC channels. In some situations, CMC helps people maintain their relationships as members of a community. For example, when a person studies abroad, using e-mail or engaging in chat room conversations with his or her friends in the home country will maintain his or her home affiliations.

McComb (1994) identified how CMC could be used to enhance student-teacher communication in a way that increased student responsibility and autonomy. He stated that learning was not transmitted from teachers to students, but took place in conversations among teachers

and students. CMC could facilitate learning by extending the boundaries of the classroom and supported caring relationships between instructors and students. CMC provides space for the entire class to meet, space for small groups to work together, and space for dyadic communication. CMC also provides instructors and students with online files of coursework. CMC creates the ability to communicate directly with a particular group within a larger class. Students find instructional CMC useful for seeking and providing information. CMC, as a new medium, can "contribute to a research heuristic frame for studying computer-mediated communication in instructional settings. CMC will increase its presence in education, especially on college and university campuses" (Kuehn, 1994, p. 173). Romm (1999) demonstrated that CMC developments are likely to change what we define as the learning environment and quality education, and redefine the boundaries of family and work, the role of adults in the education of children, and the entire experience of childhood as we know it today. A number of studies examining CMC have found that satisfying relationships can develop over time on the Internet (McCormick & McCormick, 1992; Parks & Floyd, 1996; Rice & Love, 1987; Walther, 1994; 1996; Walther &

Burgoon, 1992). Many problems, such as lack of nonverbal and contextual cues, can be solved by spending more time in the Internet (Matheson & Zanna, 1988; Rice & Love, 1987; Walther, 1994; 1996; Walther & Burgoon, 1992).

In organizations, CMC is not only used to process information about innovations but is also an innovation, in and of itself, that can be essential to organizational success (Rice, 1987). CMC can help users improve their control over information. In group decision making, "CMC can lead to greater accuracy of the decision, greater equity of participation by the members, greater variance of opinion, and fewer total words during the decision process" (Rice, 1987, p. 80). Through the development of computer programs, management teams can have access to more information needed for decision-making. CMC in an organization can help control work processes and facilitate employee relationship development. Oborne (1985) argued that technology influences employees' attitudes and behaviors, but those attitudes and behaviors were mediated by the way in which the technology was introduced. According to Lewis (1991), organizational communication scholars were interested in "how processes of communication technologies are used by organizations in controlling internal operations,

reducing uncertainty and equivocality, making decisions, projecting organizational identity, socializing members, and in maintaining links with the environment" (p. 202).

E-mail is one type of CMC which is widely used as a new communication tool in many organizations. E-mail is a generic term referring to "a class of messages transmitted and distributed through any computerized system used as a kind of postal service" (Chesebro & Bonsall, 1989, p. 98). These messages can be sent from person to person or person to group. In some circumstances, e-mail can help people to become more effective and efficient in their work performance. People in different organizations can have different purposes in using e-mail.

In a computer-mediated environment, language is very important because information is exchanged in conversational form or via textual messages. Adkins and Brashers (1995) argued that language was very important for the researcher studying computer-mediated interaction. Language style in communication will be focused both on sending and on receiving messages. Since there is less nonverbal communication in e-mail or as part of bulletin board discussions, the language used is

heightened in importance. People using CMC will not see the other's face or reaction.

The adoption of modern interactive communication technologies or computer-mediated communication influences not only procedures, requisite personnel skills, and capabilities in producing, storing, and manipulating information but also alters the type, frequency, and qualities of human communication that result from the use of technologies. Solomon (1990) stated that "concerning effects with computers, it is argued that the quality of effects with computer programs greatly depends on the setting in which the computer-related activity takes place, on the user's goals, and on his or her mindful engagement in the activity" (p. 26).

By using e-mail, a person can send any message to anyone around the world. By using e-mail, a person can check and respond to any message around the world. Bruhn (1995) supported that e-mail was like a letter that a sender wrote and would then transmit over telephone lines and the response might be returned quickly. E-mail can also be informal, like a phone call. E-mail is convenient, practical, and economical. E-mail allows people to write and send any message from home, office, school, a restaurant, etc.

Many organizations believe that e-mail can give a competitive advantage because it is fast, inexpensive, and not dependent on receiver availability. Nantz and Drexel (1995) stated that e-mail was widely accepted as a primary method for communicating electronically in organizations. Berge (1994) argued that "electronic discussion groups often serve as powerful tools in the retrieval and exchanging of information, bringing together persons with similar interests regardless of geographic distance or the time constraints dictated by face-to-face meetings" (p. 102). One study of employee attitudes regarding e-mail policies indicated that people who used e-mail most frequently have more favorable attitudes about it than less frequent users (Hacker, Townley, & Horton, 1998). This finding, combined with the fact that people differ in their purposes for using e-mail, leads to the following research question:

RQ3: In comparing personal versus work e-mail, are there any significant interactions between time spent in using e-mail and perceptions of understanding or misunderstanding when using e-mail?

Since e-mail is text-based and is sent in written language, nonverbal communication is limited. A set of visual signs, emoticons, have been developed to express

feelings in computer-mediated messages. Emoticons are icons used to express emotions. Emoticons are intended to reduce uncertainty in computer-mediated channels. Some of the most common emoticons are:

:) = I'm happy.

:(= I'm sad.

:s = I have mixed feelings.

8) = I'm wide awake.

:o = I'm surprised.

(:o = I'm very surprised.

:p = Pffft! (Sticking out the tongue.)

:9 = Yummy.

:/ = Humm.

:v = I'm chatting.

B) = I'm wearing my shades.

(Chesebro & Bonsall, 1989, p. 59)

When using e-mail as an instructional strategy in a classroom, Holm and Quatroche (1997) found that students enjoyed e-mail assignments and discovered that corresponding with someone off campus was informative, therapeutic, and a great way to share lesson ideas. E-mail can be used for impression management in organizations because the use of e-mail influences the development, maintenance, and distribution of power in

organizations (Kersten & Phillips, 1992). People in many fields increasingly accept e-mail as the fastest and most effective medium of communication. Gains (1999) stated that e-mail has become increasingly popular and important both in corporate and institutional environments.

Communication Apprehension

Though people want to communicate with others, they can be fearful, shy, or anxious while communicating. People who lack communication skills in different situations can experience great fear or anxiety. People who have high levels of anxiety when communicating in one particular situation can have low or no anxiety in other situations. Their interactions depend on the experiences they have in each context. When people are scared or shy, they might avoid communicating with others. McCroskey and Richmond (1982) defined shyness as “the tendency to be timid, reserved, and most specifically, talk less” (p. 460).

There are several reasons why a person might be shy: heredity, modeling, childhood reinforcement, and expectancy learning (McCroskey, 1982). Besides social interaction experiences, the tendency of people to talk a lot or a little can come from their heredity. The tendency of modeling comes from parents, peers, and other

significant persons. For example, if parents have low willingness to communicate, their children might learn that this is appropriate behavior and behave like their parents.

From the theory of reinforcement, the basic concept is that behavior that is reinforced will increase while behavior that is not reinforced will decline. If people are reinforced in their communication, they will communicate more. If they are not reinforced, they will communicate less.

According to expectancy learning, people learn from their experiences and expect to increase positive outcomes and avoid negative effects. They might communicate a lot or a little depending on the extent to which they anticipate specific outcomes from their communication efforts. Sometimes people are not shy to communicate, but they avoid communicating because they are skill deficient. In some cultures, quietness is a virtue. For example, in the Orient, silence is valued rather than feared or interpreted as shyness. Oliver (1971) argued that, for many reasons, silence in Asia has commonly been entirely acceptable, while silence in the West has generally been considered socially undesirable. In some contexts, being quiet might not mean that people

are shy or anxious in communicating; instead, being quiet or silent is the norm of their society.

According to McCroskey (1984), Communication Apprehension (CA) is an internal or cognitive state that comes from a fear of communicating with others. Not all quiet persons are communication apprehensive, but all communication apprehensive persons are quiet. From this concept, a person who has high CA will have low self-esteem in communicating and have a low level of willingness to communicate with other persons. Willingness to Communicate (WTC) is the general attitude of a person to talk with others. WTC and CA are closely related to each other. McCroskey (1997) demonstrated that the "WTC trait is an individual's predisposition to initiate communication with others" (p. 77). WTC is a personality-based predisposition that determines the degree to which people talk in a variety of contexts (Richmond & McCroskey, 1992). People who have high CA tend to have low WTC and vice versa.

Based on McCroskey's research in the area of CA, there are four forms of CA, each described by a continuum ranging from absence at one end of the continuum to presence at the other. The four-point continuums are: 1) traitlike CA, 2) context-based CA, 3) audience-based CA,

and 4) situational CA. McCroskey (1984) stated that "this continuum can be viewed as ranging from the extreme trait pole to the extreme state pole, although neither the pure trait nor pure state probably exists as a meaningful consideration" (pp. 15-16).

A true trait is something that cannot be changed. Traitlike CA is viewed as "a relatively enduring, personality-type orientation toward a given mode of communication across a wide variety of contexts" (McCroskey, 1984, p. 16). Richmond and McCroskey (1992) suggested that the Personal Report of Communication Apprehension (PRCA) is the best available measure of traitlike CA. The PRCA-24 is designed to measure how a person typically reacts to oral communication with others in different situations. The higher the score, the more apprehension a person generally feels about communicating.

Between 60 percent and 70 percent of the people who have completed the PRCA scale have scores ranging from 50 to 80 which means that they are in the normal range (McCroskey & Richmond, 1996). The PRCA has been proven to be a reliable and valid measure of the construct of oral communication apprehension (McCroskey, 1978). Levine and McCroskey (1990) demonstrated the reliability

of the PRCA-24. In their study, the total score correlated with the trait and outcome variables which confirmed the reliability of the scale. Biggers and Masterson (1984) supported that CA does have a claim to personality trait status. CA seems to be related to the oral communication component of situations because, in non-communication situations, high and low CA do not differ in emotional reactions. Biggers and Masterson (1984) argued that after doing a post-hoc analysis, the findings revealed the idea that CA is a trait. The causes of traitlike CA are heredity and environment. Children are born with certain personality predispositions, such as sociability. What happens in the child's environment will support the development of a tendency that he or she will carry over into later life.

Context-based CA is viewed as "a relatively enduring, personality-type orientation toward communication in a given type of context" (McCroskey, 1984, p. 16). This type of CA relates to generalized situations. People can experience high CA when communicating in one type of context, while experiencing low CA when communicating in another type of context. For example, a person might have high CA in public speaking but not in small group discussions.

Audience-based CA is the reaction of an individual to communicating with different people or groups across time. McCroskey (1984) defined audience-based CA as “a relatively enduring orientation toward communication with a given person or group of people” (p. 17). For example, when talking with a teacher, a person might have high CA while, when talking with a friend, he or she might not have any anxiety. Generally, the persons who can produce this kind of anxiety or fear might be a boss, the person’s father, or a teacher. It is quite normal to have high CA when communicating with these groups. The persons who have high CA have a tendency to be fearful or anxious in most situations.

Situational CA is viewed as “a transitory orientation toward communication with a given person or group of people. It is not viewed as personality-based, but rather as a response to the situational constraints generated by the other person or group” (McCroskey, 1984, p. 18). This kind of CA is the reaction of a person to communication with a specific person or group at a specific time. For example, a student might have low CA when asking a question about an assignment with his or her teacher outside the classroom, but he or she might have high CA if the teacher instructs him or her to meet

after class. McCroskey (1997) argued that situational CA is the most state-like of the types of CA. The cause of situational or state CA can vary from one person to another and from one context to another. Buss (1980) suggested that the major elements in situational CA are novelty, formality, subordinate status, conspicuousness, lack of familiarity, dissimilarity, and degree of attention from others. Novel situations can cause a person some anxiety because he or she might not know how to react or communicate in such situations. A formal situation will increase anxiety because that situation is not the norm; people do not want to communicate inappropriately. Subordinate status occurs when one person holds higher status than another. When a person feels more conspicuous, his or her anxiety level tends to be high. Being unfamiliar with or varying from the norms of the society or culture can make people uncomfortable. If there is hightened attention from other people, an individual's anxiety will increase.

Uncertainty makes people feel uncomfortable. In many cases, people will talk to gain information and learn more about each other. When they talk, they collect information about one another. Feelings of uncertainty will be reduced. Littlejohn (1996)

demonstrated that uncertainty reduction theory dealt with the ways we gather information about other people in order to reduce our feelings of uncertainty. The greater the uncertainty, the more the information. Wood (1997) suggested that a relationship might progress more smoothly when uncertainty is reduced at the initial stages. Berger (1987) stated that “uncertainty is a function of both the ability to predict and the ability to explain actions of other and of self” (p. 41). People tend to make an effort to resolve uncertain situations. Shy people might avoid communication and might not reduce their feelings of uncertainty, resulting in negative perceptions in the others’ minds. Talkative people tend to make positive perceptions from others. Richmond and McCroskey (1992) argued that “while these different perceptions might be altered as people get better acquainted, relationships are often terminated because of initial negative perceptions before the time needed to know one another has passed” (p. 68).

Kelly, Duran, and Zolten (2001) studied the effect of reticence on college students’ use of e-mail to communicate with faculty. The findings indicated that reticent and non-reticent students did not differ in their frequency of e-mail use, but reticent students had

greater comfort and ease in using e-mail as compared with oral communication. The reticent students also expressed a greater preference for using e-mail over speaking to faculty at their offices. Since there is no face-to-face interaction in e-mail communication, it is very likely that the different types of communicatively apprehensive people will experience less apprehension when using e-mail as their medium for communication.

There are many reasons why people communicate with one another. There are also many reasons why people communicate via CMC. The reasons might or might not be the same for different people. Motives for communication can depend on the extent to which people understand the reasons or advantages from using e-mail or the objectives for using mediated communication as opposed to face-to-face communication. A study focusing on CA and the effect of computer anxiety demonstrated that higher levels of CA were associated with a tendency for people to choose a CMC technology with its greater written component (see Rapp & Scott, 1999). Given the foregoing, the following research question is asked:

RQ4: Is there a significant relationship between levels of communication apprehension and perceptions of understanding or misunderstanding when using e-mail?

With respect to the above question, this research extends the study of the effects of CA on e-mail communication. The basic question of interest is whether there is a significant difference in the manner in which high CA's and low CA's interact as measured by time spent using e-mail and perceptions of understanding or misunderstanding. This interest leads to the following research question:

RQ5: In e-mail communication, are there any significant interactions between time spent using e-mail, perceptions of understanding or misunderstanding, and high versus low CA?

CA has important effects on the individual that are not observable in behavior (McCroskey, 1997). CA can be a trait or a state. McCroskey and Beatty (1984) studied CA and accumulated communication state anxiety experiences. Their results demonstrated that CA meets expectations based on the conceptualization of personality traits as accumulations of state anxiety experiences. A study of McCroskey and Beatty (1984) demonstrated that state anxiety responses significantly correlated with CA scores based on the PRCA-24. State anxiety is the logical outcome of CA (Beatty, Dobos, Balfantz, & Kuwabara, 1991). In trait theories,

“traitlike CA is an enduring tendency to be apprehensive about communication in a variety of settings, and individuals who suffer from this kind of fear may avoid all sorts of oral communication” (Littlejohn, 1996, p. 106). Though learning theory could explain some CA characteristics, McCroskey (1997) suggested that cognitive learning would be the best explanation. People create expectations about how interaction with others will turn out. When one’s expectations are accurate, his or her confidence will reduce any apprehensions because he or she experiences less uncertainty about future interactions. When expectations are wrong, he or she will lose confidence. Trait CA could be the result of repeated inaccurate expectations about communication situations. Richmond and McCroskey (1982) argued that “cognitive skills involve understanding the communication process and being able to make appropriate choices of what to communicate and what not to communicate depending on the context and situation” (pp. 80-81). Possession of behavioral and cognitive skills will not make a person an effective communicator if he or she does not want to be effective.

Richmond and McCroskey (1982) suggested three methods to help people reduce apprehension and anxiety

about communication: 1) systematic desensitization, 2) cognitive restructuring, and 3) skills training. Systematic desensitization is a behavior therapy originally developed by Wolpe (1958). There are two primary components. First, systematic desensitization involves teaching subjects the procedures for deep muscular relaxation. Second, systematic desensitization involves having the subjects visualize participating in a series of communication situations while in a state of deep relaxation. A study indicated that approximately 90 percent of the people who received this treatment reduce their levels of communication apprehension, and of those who entered the treatment as high communication apprehensives, 80 percent were no longer high apprehensives after treatment (Richmond & McCroskey, 1982). Cognitive restructuring is a thought or attitude-based process used to overcome CA. Since the problem of apprehension is cognitive in nature, the solution to this problem is to change the person's thinking about communication situations. This method of cognitive restructuring (Meichenbaum, 1976) evolved from an earlier method known as "relational-emotive therapy" (Ellis, 1962). In the treatment, a person is encouraged to identify any irrational beliefs about communication.

These beliefs will then be logically attacked so that the individual will change his or her way of thinking. The third method that can help people overcome CA is to provide training to improve communication skills.

Self-report might be the most widely employed approach to measure willingness to communicate, shyness, communication apprehension, and communication competence (McCroskey, 1997). Self-report measures are the most appropriate when they are used to assess perceptions that the respondent has no reason to feel fear reporting. Self-report measures are most commonly used to measure willingness to communicate and communication apprehension (McCroskey, 1997). The self-report instrument PRCA-24 has been used to measure CA of Thai and USA student samples. The findings revealed that the Thai sample displayed significantly higher overall CA scores than the USA sample, and the Thai sample also exhibited significantly higher CA scores across the contexts that were examined (Knutson et al., 1995).

People possessing different types of CA can also have different styles in writing. People who have high CA might not be apprehensive when expressing their ideas, opinions, or feelings in written communication. The purposes for using e-mail can lead to different feelings

of understanding. In job correspondence, there are some forms of words, phrases, and sentences that are used internationally. Different types of organizations might have different opportunities to use e-mail. Different people might also have different interests in using e-mail as a new medium for communication. This research studies the time spent in using e-mail and perceptions of understanding or misunderstanding from using e-mail in relationship to individuals possessing different types of CA, using e-mail for different reasons in Thai automotive industry.

In conclusion, the five research questions could be listed as follows:

RQ1: Is there a significant difference between perceptions of understanding or misunderstanding when using e-mail versus engaging in face-to-face communication?

RQ2: Is there a significant relationship between time spent in using e-mail and perceptions of understanding or misunderstanding of e-mail messages?

RQ3: In comparing personal versus work e-mail, are there any significant interactions between time spent in

using e-mail and perceptions of understanding or misunderstanding when using e-mail?

RQ4: Is there a significant relationship between levels of communication apprehension and perceptions of understanding or misunderstanding when using e-mail?

RQ5: In e-mail communication, are there any significant interactions between time spent using e-mail, perceptions of understanding or misunderstanding, and high versus low CA?

This chapter discussed the relevant literature and the theoretical framework regarding the perceptions of understanding/misunderstanding, computer-mediated communication including e-mail, time spent using the computer networking system, and communication apprehension. The research design and method for data collection and analysis will be explained in the next chapter to investigate and answer the research questions posed in this chapter.

CHAPTER THREE

Methodology

Research Design

This chapter presents information about the approach taken in answering the research questions just posed. The design of the investigation and the method for collecting and analyzing data are described. The variables, sample, instrumentation and data collection procedures are addressed.

A quantitative approach was selected for this research. Qualitative data was collected and examined after analyzing the quantitative data. By using both approaches, the qualitative research facilitates the quantitative research and vice versa. Punch (1998) suggested that

> quantitative data enable standardized, objective comparisons to be made, and the measurements of quantitative research permit overall descriptions of situations or phenomena in a systematic and comparable way; while qualitative data have a holism and richness, and are well able to deal with the complexity of social phenomena. (p. 242)

For the quantitative approach, a survey was employed. Surveys seek “factual information (background and biographical information, knowledge and behavioral information) and [can] also include measures of attitudes, values, opinions or beliefs” (Punch, 1998, p. 103). In this study, a medium-sized effect was assumed. According to Light, Singer, and Willet (1990), “medium-sized effects can be detected with a moderate-sized sample, usually between 100 and 200, depending upon the power you want” (p. 197). The confidence level (α) was set at .05, two-tailed test, for measuring significance.

For the qualitative portion of the research, interviews were conducted. Interviews constitute “a very good way of accessing people’s perceptions, meanings, definitions of situations and constructions of reality” (Punch, 1998, pp. 174-175). With the permission of the interviewees, the interviews were tape recorded. The tapes were destroyed after the research was completed.

Variables of the Study

There are four variables in this study: levels of CA, purposes of e-mail use, time spent in using e-mail, and perceptions of understanding or misunderstanding in using e-mail. The independent, or predictor, variables are levels of CA (high & low) and purposes of e-mail use

(work & personal). The dependent variables or the outcomes are time spent in using e-mail and perceptions of understanding or misunderstanding when using e-mail.

Subjects

Two hundred persons participated in this research. The subjects in this study are Thais who, at the time of the research, were working in a position with any automotive company in Thailand. To qualify for participation in the research, the subjects had to have some experience in using e-mail during the previous six months.

The questionnaires were distributed to subjects working in both Thai and international automotive companies (see Data Collection Procedures below). A cover letter explaining the nature of the study and the instructions for completing the scales were attached to each questionnaire. The cover letter and questionnaire were written both in English and in Thai to make the subjects more comfortable in completing the questionnaire.

Sampling Plan

The researcher contacted the human resources department in each automotive company in order to request assistance in questionnaire distribution. A responsible

officer in human resources department of each automotive company was asked to distribute the questionnaires to employees who had e-mail address and used e-mail during the past six months in a random manner. However, a purposive sample was obtained since the researcher could not know whether the responsible officer randomly distributed the questionnaires or not. All subjects were asked to complete the FUM and the PRCA scales along with answering the other questions posed. A response rate of 75.47 percent was anticipated from all distributed questionnaires.

Instrumentation

The questionnaire included the Feelings of Understanding/Misunderstanding Scale (FUM), Personal Report of Communication Apprehension (PRCA), and questions concerning purposes of e-mail use and time spent in using e-mail.

The Feelings of Understanding/Misunderstanding (FUM) Scale (see Appendix A), developed by Cahn and Shulman (1984), was used to measure perceptions of understanding or misunderstanding when using e-mail versus face-to-face communication. As part of developing this scale, Cahn and Shulman asked 224 respondents to identify adjectives descriptive of perceived understanding. These were then

Q-sorted by 182 persons. Ambiguous items were eliminated, leaving 16 items. Of the remaining items, 8 items focus on the perception of being understood, and another 8 items focus on the perception of being misunderstood.

There are 24 items on the FUM scale – 8 items to measure perceptions of feeling understood (FU), 8 items to measure perceptions of feeling misunderstood (FM), and 8 distractor items. Each of the items is assessed using a Likert-type scale that ranges from *very little* (1) to *very great* (5). FM scores are subtracted from FU scores, making the possible range of scores –40 (most misunderstood) to +40 (most understood).

The test-retest method was used to establish the reliability of this scale. The overall coefficient achieved was .90 with a Cronbach alpha of .89. There is some evidence of concurrent validity as well as criterion-related validity (Cahn & Shulman, 1984).

The Personal Report of Communication Apprehension (PRCA-24) (see Appendix B), developed by McCroskey (1982), was used to measure the level of CA. PRCA-20 is the original 20-item instrument and was developed in 1970. Two years later, PRCA-10 and PRCA-25 were developed as instruments that were specific to public

speaking. McCroskey (1978) had tested the reliability and validity of PRCA-25 as the construct for measuring oral communication apprehension. PRCA-24 would then be developed to measure an individual's shyness and anxiety with respect to communicating in four contexts: public speaking, speaking in large meetings, small groups discussion, and talking in dyads. McCroskey and Daly (1987) explained that "although a strong case was built for the validity of the earlier forms of the instrument, a new form was generated which included a balanced number of items for each of four contexts (PRCA-24)" (p. 151). To understand how much CA the Thai people had (especially people in the Thai automotive industry), the PRCA-24 was used to measure the level of CA in this study.

This instrument has been tested over time. Previous reports of internal reliability of this instrument have all exceeded .90 (McCroskey, 1970). In study by McCroskey and Daly (1987), the PRCA scale was used and the findings from using this instrument reported high inter-correlations and also high concurrent validity. The PRCA-24 was shown to be highly reliable, normally distributed, and applicable to a wide range of communicative contexts (Porter, 1981).

The PRCA scale consists of 24 items which ask respondents to indicate their feelings about communicating with other people. A Likert-type scale is used that ranges from *strongly agree* (1) to *strongly disagree* (5). Means and standard deviations for the dimensions of the scale in the original study were reported as follow: Group, mean = 15.4, s.d. = 4.8; Meeting, mean = 16.4, s.d. = 4.8; Interpersonal Conversations, mean = 14.5, s.d. = 4.2; Public, mean = 19.3, s.d. = 5.1; and Total Scores, mean = 65.6, s.d. = 15.3, respectively (McCroskey, Beatty, Kearney, & Plax, 1985; Richmond & McCroskey, 1992).

Both scales were translated into Thai by the researcher. The translated scales were then back translated into English and examined by three experts who graduated from the leading Thai university in the faculty of arts majoring in foreign languages. The original English version was compared with the back-translated version. Revisions were made in the Thai version to ensure equivalence of English and Thai meanings. The translated PRCA-24 scale was compared and adjusted with the previous research conducted by Knutson et al. (1995).

Questions concerning purposes of e-mail use, time spent in using e-mail, and demographic characteristics

were designed and asked in the questionnaire. The subjects selected the purposes of e-mail use between personal and/or work oriented, and then indicated the percentage of time they spent online for each purpose. Time spent in using e-mail was measured in minutes by averaging the time when the subjects logged on the system in one day.

Pilot Study

A pilot study was conducted in Bangkok to test the responses of the participants to the questions, determine the clarity of the questions and the clarity of the instructions, as well as the details of the format. The subjects for this research were Thai people who had some experience using e-mail and were currently working with automotive companies in Thailand.

Twenty-six subjects (50% males and 50% females) in an automotive company responded to the questionnaire and served as the pilot group. The response rate was 78.79%. The average age of the subjects was 31.27 years old. For educational background, 69.2% had their bachelor's degree and 30.8% had their master's degree. Regarding their position in their company, 11.5% were top management, 23.1% were in middle management level, 15.4% were supervisors, and 50% were staff members.

The reliability was .8486 for the face-to-face version of the FUM scale, .8531 for the e-mail version of the FUM scale, and .9230 for the PRCA-24 (see Tables 3 and 4).

Table 3: Reliability analysis of FUM (e-mail) scale for pilot study

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
E_SATISFY	75.6522	114.1462	.7596	.8365
E_RELAX	75.7391	126.0198	.0638	.8627
E_PLEASE*	75.5652	109.0751	.8481	.8303
E_GOOD	75.6957	112.6759	.7562	.8353
E_ACCEPT	75.8696	113.3004	.7226	.8365
E_COMFORT*	75.4348	116.8933	.6081	.8414
E_HAPPY	75.6522	118.7826	.5426	.8438
E_IMPORTANT	76.0000	116.2727	.7004	.8393
E_ANNOY*	74.7826	118.7233	.5681	.8433
E_UNCOMFORT	74.9565	120.5889	.4051	.8478
E_DISATISFY	74.7826	113.9051	.6719	.8381
E_INSECURE*	75.0870	116.3557	.5186	.8435
E_SAD	75.0435	127.7708	.0143	.8627
E_FAILURE	74.8696	117.5731	.5744	.8425
E_INCOMPLETE*	75.7826	118.3597	.3943	.8483
E_UNINTEREST	75.3043	117.2213	.5725	.8423
E_RELY	75.3913	114.1581	.6466	.8389
E_SHY*	77.3478	128.6008	-.0024	.8605
E_ENVY	76.4783	121.0791	.2498	.8548
E_ATTENTION	76.0435	111.6798	.6384	.8380
E_HUMBLE*	77.1304	137.2095	-.3914	.8724
E_HOSTILE	77.3478	140.6917	-.5801	.8757
E_COMPASSION	76.3913	119.0672	.4141	.8474
E_ASSERTIVE*	75.6522	120.4190	.5341	.8450

Reliability Coefficients 24 items

Alpha = .8531 Standardized item alpha = .8595

Remarks: * distractor items

Table 4: Reliability analysis of PRCA-24 scale for pilot study

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
1)*	62.4000	160.9167	.5479	.9204
2)	61.9600	152.2900	.8100	.9156
3)	62.1200	162.1100	.3873	.9224
4)	62.1200	161.8600	.3456	.9233
5)	61.2400	157.1900	.4218	.9230
6)	62.0800	158.4100	.5718	.9197
7)	61.8400	152.3900	.6782	.9175
8)	61.5200	151.1767	.7702	.9158
9)	61.3600	156.7400	.6507	.9185
10)	61.9200	150.1600	.7780	.9155
11)	61.5600	149.6733	.7254	.9164
12)	61.2800	159.0433	.5742	.9198
13)	62.0800	165.5767	.2017	.9252
14)	61.4400	157.6733	.4530	.9219
15)	62.2800	157.9600	.6349	.9189
16)	61.7200	158.5433	.6280	.9191
17)	61.4000	162.5833	.3138	.9238
18)	61.4400	158.4233	.4688	.9214
19)	61.5200	151.2600	.7664	.9159
20)	61.0400	155.5400	.5355	.9203
21)	61.0400	158.7067	.4780	.9212
22)	61.4000	152.1667	.7683	.9161
23)	61.5200	150.7600	.7192	.9166
24)	61.0800	163.4933	.2092	.9268

Reliability Coefficients 24 items

Alpha = .9230 Standardized item alpha = .9245

Remarks: * see Appendix B for PRCA-24 statement list

The mean FUM score for face-to-face communication was 16.34, with 11.0 for e-mail communication. The mean of the total PRCA-24 score was 64.32, while the group communication mean was 14.15, the meeting mean was 16.57,

the interpersonal conversation mean was 15.56, and the public speaking mean was 18.30.

The findings indicated an acceptable internal consistency in examining perceptions of understanding or misunderstanding of different types of communicatively apprehensive people in Thai automotive industry when communicating via e-mail versus face-to-face method.

Data Collection Procedures

Nine of the thirteen automotive companies contacted agreed to distribute questionnaires to their employees. Those nine companies are responsible for managing sales, marketing, and after-sales service functions for eighteen automotive brands in the Thai market (see Appendix E). Two hundred and sixty-five questionnaires were distributed to contact people with those nine companies during May to June, 2001. Contact people were the officers in the human resources department of each responding company who were assigned to assist in delivering and collecting questionnaires to the subjects who had the required qualifications. A cover letter explaining the nature of the study and the instructions for completing the scales was attached to each questionnaire. The cover letter was written in Thai to facilitate subject's understanding.

Two weeks after the questionnaires were distributed by the contact people, telephone calls were placed to follow up on unreturned questionnaires. All responses were treated as confidential.

Data Analysis Procedures

Before using the statistical analysis to examine research questions posed, principle component analysis or factor analysis was used to investigate the structure of the two instruments (i.e., the FUM scale and the PRCA-24 scale) when used in the Thai context. To determine a valid construct, the components with four or more loadings above .60 in absolute value are reliable regardless of sample size, and components with about 10 or more low (.40) loadings are reliable as long as sample size is greater than about 150 (Stevens, 1996).

The research questions in this study were examined by using multivariate analysis of variance (MANOVA), independent *t*-tests, Pearson correlation, and through reference to the frequency distribution. Time spent using e-mail and perceptions of understanding or misunderstanding were the dependent variables; types of CA and types of e-mail use were the independent variables (see Figure 3). According to Kerlinger (1986),

> multivariate analysis is a general term used to categorize a family of analytic methods whose chief characteristic is the simultaneous analysis of k independent variables and m dependent variables. Of all methods of analysis, multivariate methods are the most powerful and appropriate for scientific behavioral research. (p. 137)

The Statistical Package for the Social Sciences (SPSS/Windows version 10.0) program was used to analyze the data. Different methods of analysis were used depending on each research question.

Research question one asked whether there is a significant difference between perceptions of understanding or misunderstanding when using e-mail versus engaging in face-to-face communication. To analyze research question 1, an independent *t*-test was used. Harris (1998) stated that “an independent *t*-test is used to compare the means of two different groups of scores when no particular score in one group is in any way paired with a particular score in the other group” (p. 303).

Research question 2 called for an examination of the relationship between time spent using e-mail and perceptions of understanding or misunderstanding when

using e-mail. Research question 4 asked about the relationship between levels of CA and perceptions of understanding or misunderstanding when using e-mail. Pearson correlations were used to answer these two research questions.

One-way MANOVA was used to analyze research questions 3 and 5 since those research questions asked about the interaction between two dependent variables – time spent using e-mail and perceptions of understanding or misunderstanding in e-mail communication – and one independent variable – levels of CA or purposes of e-mail use. Stevens (1996) explained the assumptions for MANOVA as including that the observations are independent and the observations for the dependent variables follow a multivariate normal distribution in each group. To avoid risks associated with inflated error from using a one-way MANOVA twice (Steven, 1996), a two-way MANOVA was employed to examine research questions 3 and 5.

After analyzing the quantitative data, interviews were conducted to explore the opinions of the Thai people who worked with the participating automotive companies regarding their perceptions of understanding or misunderstanding when using e-mail versus face-to-face communication, levels of communication apprehension, time

spent using e-mail, and purposes of e-mail use. The interviews were conducted with seven interviewees from the sample group in this study. These interviewees were persons who use e-mail regularly. Their job positions were various as follows: a passenger car operations director, a sales manager, a personnel manager, an accounting and financial manager, a marketing research and planning supervisor, an internal auditor, and an executive secretary. Interview questions included “From your experiences, does the time spent in using e-mail create a greater perception of understanding in writing or reading e-mail? What does e-mail mean to you in terms of effective communication? How different do you feel when communicating with others when using e-mail versus face-to-face interaction?” (see Appendix F)

The findings from the quantitative data collection and the opinions from the interviews will be reported in the next chapter.

CHAPTER FOUR

Results

Introduction

This chapter presents the analyses of the data collected in this research. The analyses are organized into the following topics: (a) principle components analysis; (b) quantitative findings of the study; (c) qualitative findings of the study; and (d) conclusion.

Principle Components Analysis

The Feelings of Understanding/Misunderstanding Scale (FUM) and Personal Report of Communication Apprehension Scale (PRCA-24) were investigated by the use of a principle components analysis or factor analysis to investigate the validity of the instruments when employed in the Thai context. Factor analysis is employed to reduce problems associated with ambiguous loadings, multicollinearity, and correlated factors among predictors (Steven, 1996). Factor analysis also helps determine which items, if any, should be eliminated because of low common variance.

Feelings of Understanding/Misunderstanding Scale

The FUM was first examined by using principle components analysis with non-rotation. The finding

revealed that 18 of the 24 items of the FUM loaded on factor one (see Table 5).

Table 5: Component matrix for FUM scale

Item Statement	Component		Commonalities
	1	2	
1. Annoyance	.666	-.159	.603
2. Satisfaction	.723	.191	.628
3. Self-reliance*	.437	.002	.550
4. Discomfort	.706	-.240	.630
5. Relaxation	.589	.228	.543
6. Shyness*	-.551	.256	.506
7. Dissatisfaction	.544	-.346	.708
8. Please	.698	.268	.699
9. Enviousness*	.430	.569	.590
10. Insecurity	.510	-.393	.541
11. Good	.675	.361	.640
12. Attentiveness*	.635	.343	.558
13. Sadness	.557	-.439	.687
14. Acceptance	.603	.301	.523
15. Humbleness*	-.468	.442	.620
16. Failure	.450	-.422	.645
17. Comfortableness	.765	.141	.631
18. Hostility*	-.595	.530	.677
19. Incompleteness	.558	-.128	.459
20. Happiness	.611	.334	.496
21. Compassion*	.508	.285	.577
22. Uninterestingness	.658	-.265	.566
23. Importance	.209	.405	.630
24. Assertiveness*	.246	.435	.585

Extraction Method: Principal Component Analysis.
a. 2 components extracted.

Remarks: * distractor items

Varimax rotation was then employed in an effort to determine if a better fit existed between the data collected and the theoretical structure of the scale. The researcher found that feelings of misunderstanding loaded on factor one while feelings of understanding

loaded on factor two (see Table 6). The distractor items loaded on both factor one and two. When compared to the original findings, feelings of misunderstanding and feelings of understanding were loaded on different factors. Thus, this instrument can be used to examine perceptions of understanding or misunderstanding in the Thai context.

Table 6: Varimax rotation for FUM scale

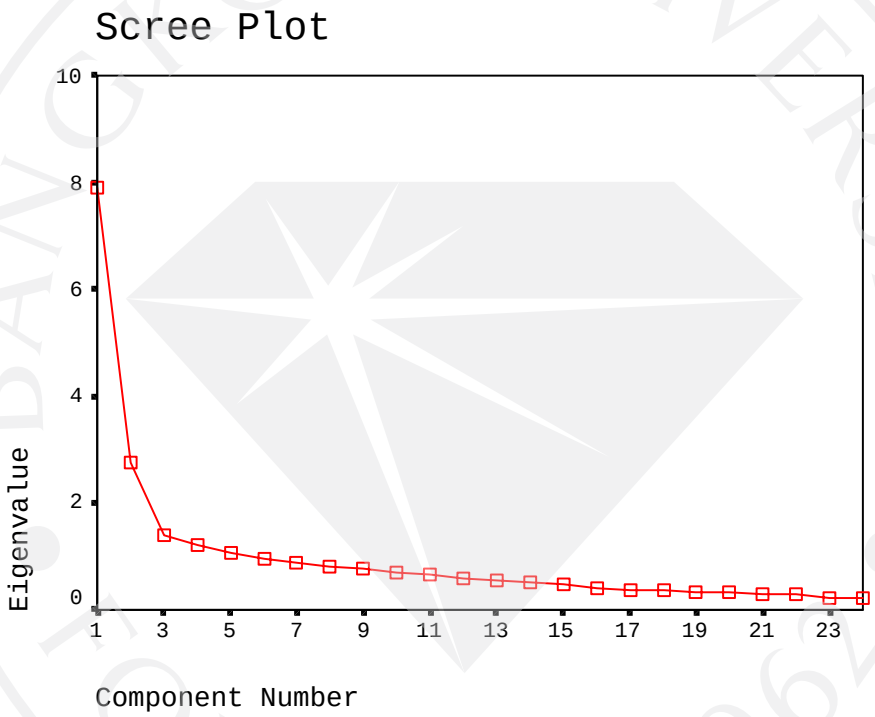
Item	Statement	Component	
		1	2
1.	Annoyance	**.593**	.344
4.	Discomfort	**.677**	.313
7.	Dissatisfaction	**.633**	.124
10.	Insecurity	**.641**	.006
13.	Sadness	**.707**	.006
16.	Failure	**.617**	.004
19.	Incompleteness	.493	.292
22.	Uninterestingness	**.659**	.261
2.	Satisfaction	.392	**.637**
5.	Relaxation	.270	.571
8.	Please	.321	**.676**
11.	Good	.240	**.727**
14.	Acceptance	.230	**.633**
17.	Comfortableness	.457	.629
20.	Happiness	.212	**.663**
23.	Importance	-.128	.437
3.	Self-reliance*	.299	.320
6.	Shyness*	-.575	-.194
9.	Enviousness*	-.007	**.709**
12.	Attentiveness*	.224	**.686**
15.	Humbleness*	**-.644**	-.000
18.	Hostility*	**-.796**	-.002
21.	Compassion*	.171	.557
24.	Assertiveness*	-.121	.485

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Eigenvalues	7.908	1.053
Pct. Of Variance	32.951	4.386
Cum. Pct.	32.951	59.548

Remarks: * distractor items

Figure 2: Scree plot of eigenvalues for FUM scale



Personal Report of Communication Apprehension Scale

The PRCA-24 was initially examined by performing a principle components analysis using non-rotation (see Table 7). Thirteen out of the 24 items loaded on factor one. King, Andersen, and Carlson (1988) tested the dimensionality of the PRCA-24 and found that the PRCA-24, in their study, was a unidimensional instrument.

Table 7: Component matrix for PRCA-24 scale

Item Statement	Component				Commonalities
	1	2	3	4	
1. I dislike participating in group discussions.	.476	.269	.000	-.304	.786
2. Generally, I am comfortable while participating in group discussions.	.405	.548	-.340	.142	.672
3. I am tense and nervous while participating in group discussions.	.618	.386	.134	-.220	.751
4. I like to get involved in group discussions.	.487	.308	-.161	-.331	.769
5. Engaging in a group discussion with new people makes me tense and nervous.	.664	.007	.007	.005	.580
6. I am calm and relaxed while participating in group discussions.	.577	.499	-.294	-.000	.676
7. Generally, I am nervous when I have to participate in a meeting.	.693	.001	.292	-.179	.742
8. Usually I am calm and relaxed while participating in meetings.	.631	.224	-.226	.240	.629
9. I am very calm and relaxed when I am called upon to express an opinion at a meeting.	.654	.002	-.263	.192	.615
10. I am afraid to express myself at meetings.	.650	-.006	.321	-.218	.727
11. Communicating at meetings usually makes me uncomfortable.	.645	.001	.346	-.174	.641

12. I am very relaxed when answering questions at a meeting.	.634	-.003	-.219	.119	.465
13. While participating in a conversation with a new acquaintance, I feel very nervous.	.495	.005	.464	.137	.641
14. I have no fear of speaking up in conversations.	.318	-.155	.206	.617	.813
15. Ordinarily I am very tense and nervous in conversation.	.566	.219	.455	-.005	.704
16. Ordinarily I am very calm and relaxed in conversations.	.533	.317	-.001	.103	.688
17. While conversing with a new acquaintance, I feel very relaxed.	.534	.000	-.142	.492	.686
18. I’m afraid to speak up in conversation.	.398	-.006	.484	.470	.737
19. I have no fear of giving a speech.	.680	-.286	-.292	-.002	.639
20. Certain parts of my body feel very tense and rigid while I am giving a speech.	.606	-.322	.002	-.208	.577
21. I feel relaxed while giving a speech.	.650	-.411	-.345	-.000	.756
22. My thoughts become confused and jumbled when I am giving a speech.	.589	-.419	.003	-.250	.654
23. I face the prospect of giving a speech with confidence.	.671	-.386	-.268	-.005	.683
24. While giving a speech, I get so nervous I forget	.554	-.508	-.003	-.004	.612

facts I really know.					

Extraction Method: Principal Component Analysis.
a. 4 components extracted.

The researcher then examined the scale by using principle components analysis with varimax rotation (see Table 8). The findings demonstrated that the items loaded differently from the original subscales. Items 19, 20, 21, 22, 23, and 24 loaded on factor one. Items 3, 7, 10, 11, 13, and 15 loaded on factor two. Items 2, 6, 8, 9, and 16 loaded on factor three. Items 14, 17, and 18 loaded on factor four. While the original PRCA-24 was intended to assess CA in four settings (public speaking, group discussion, meetings, and interpersonal conversations), the factor analysis for this study revealed four "new" groupings: public speaking (factor one), negative feelings in communication (factor two), positive feelings in communication (factor three), and involvement in conversation (factor four). The public speaking subscale was the only subscale that was similar to the original instrument.

Table 8: Varimax rotation for PRCA-24 scale

Item Statement	Component			
	1	2	3	4
12. I am very relaxed when answering questions at a meeting.	.468	.149	.436	.186
19. I have no fear of giving a speech.	**.720**	.127	.300	.007

20. Certain parts of my body feel very tense and rigid while I am giving a speech.	**.613**	.370	.004	.001
21. I feel relaxed while giving a speech.	**.804**	.003	.232	.009
22. My thoughts become confused and jumbled when I am giving a speech.	**.673**	.361	-.003	-.001
23. I face the prospect of giving a speech with confidence.	**.779**	.127	.213	.007
24. While giving a speech, I get so nervous I forget facts I really know.	**.710**	.198	-.004	.152
1. I dislike participating in group discussions.	.142	.442	.370	-.198
3. I am tense and nervous while participating in group discussions.	.008	**.605**	.469	-.006
5. Engaging in a group discussion with new people makes me tense and nervous.	.314	.419	.366	.218
7. Generally, I am nervous when I have to participate in a meeting.	.328	**.667**	.189	.101
10. I am afraid to express myself at meetings.	.355	**.661**	.009	.007
11. Communicating at meetings usually makes me uncomfortable.	.284	**.675**	.133	.114
13. While participating in a conversation with a new acquaintance, I feel very nervous.	.007	**.563**	.007	.392
15. Ordinarily I am very tense and nervous in conversations.	.003	**.704**	.196	.207
2. Generally, I am comfortable while participating in group discussions.	-.003	.004	**.772**	.002
4. I like to get involved in group discussions.	.184	.350	.481	-.283
6. I am calm and relaxed while participating in group discussions.	.108	.223	**.778**	-.004
8. Usually I am calm and	.273	.148	**.630**	.254

relaxed while participating in meetings.				
9. I am very calm and relaxed when I am called upon to express an opinion at a meeting.	.449	.112	.515	.233
16. Ordinarily I am very calm and relaxed in conversations.	.009	.313	**.511**	.166
14. I have no fear of speaking up in conversations.	.142	.005	.006	**.722**
17. While conversing with a new acquaintance, I feel very relaxed.	.300	.001	.435	.517
18. I'm afraid to speak up in conversations.	.004	.369	-.000	**.691**

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 9 iterations.

Eigenvalues	8.083	1.023
Pct. Of Variance	33.677	4.262
Cum. Pct.	33.677	69.120

As shown in Table 9, the mean for public speaking was 2.99, the mean for negative feelings in communication was 3.57, the mean for positive feelings in communication was 2.60, and the mean for involvement in conversation was 3.07. The higher the score, the higher the communication apprehension.

Positive feelings in communication (factor 3) had the lowest mean score, suggesting that Thai people are less anxious or shy when they have to talk about positive issues. Negative feelings (factor 2) had the highest mean score, suggesting that Thais feel more anxious or

shy when communicating about negative topics or feelings. Public speaking needs to be investigated in greater depth because the concept and action of public speaking in Thailand is different than in Western countries. Involvement in conversation (factor 4) needs to be examined again as the findings in this study do not offer a sufficiently compelling picture concerning Thai people's level of reticence when involved in conversations.

The factor analyses just reviewed support the argument that the dimensions of the PRCA-24, when being employed in Thailand, can be regrouped and renamed as public speaking, negative feelings in communication, positive feelings in communication, and involvement in conversation. These new dimensions could be seen as the focus on "emotional factors" when employed in Thailand instead of "different contexts" of the original findings.

Cahn and Shulman (1984) have suggested that there is some evidence of concurrent validity as well as criterion-related validity from using the FUM scale to examine the perception of feeling understood or misunderstood in communication. McCroskey and Daly (1987) also suggested that the PRCA scale was used and

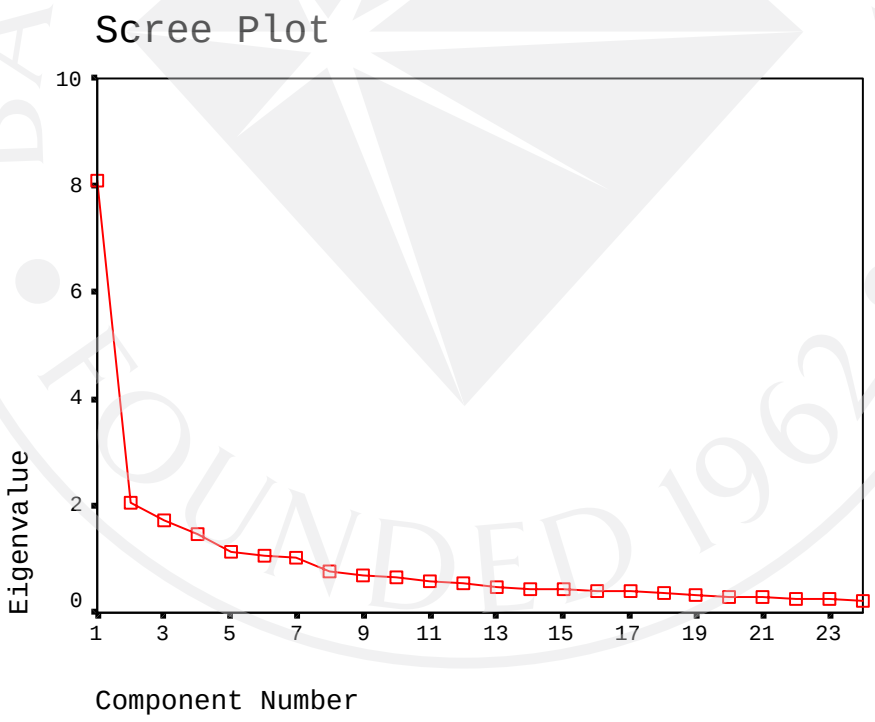
the findings from using this instrument reported high inter-correlations and also high concurrent validity.

Table 9: Findings of PRCA Scale from Factor Analysis

Statistics

		FACTOR1	FACTOR2	FACTOR3	FACTOR4
N	Valid	198	200	197	199
	Missing	2	0	3	1
Mean		**2.9993**	**3.5738**	**2.6007**	**3.0787**
Median		3.0000	3.6250	2.6667	3.0000
Mode		3.14	3.75	2.67	3.00
Std. Deviation		.3374	.6280	.5942	.4617

Figure 3: Scree plot of eigenvalues for PRCA-24 scale



Quantitative Findings of the Study

Two hundred and sixty five questionnaires were distributed to nine automotive companies in Thailand. Two hundred and seven questionnaires were returned. Of

those, two hundred questionnaires (n = 200) were completed (for a response rate of 75.47%). Those 200 questionnaires served as the sample group in this study. The nine automotive companies surveyed are responsible for managing sales, marketing, and after-sales service functions of eighteen brands (see Appendix E).

Regarding the respondents' sex, 46.5% are male and 53.0% are female (see Table 10). The average age was 30.77 years old. For educational background, 10.5% held certificates (less than bachelor degree), 65.0% had a bachelor's degree, and 23.5% had a master's degree (see Table 11). For brand category, 38.5% worked for European brands, 8.0% for US brands, 43.0% for Japanese brands, and 10.5% for others (see Table 12). Regarding their position in their company, over half of them (59.5%) worked as staff, 17.0% were supervisors, 19.5% held middle management positions, and .5% held top management positions (see Table 13). The average time that they reported using e-mail in one day was 81.25 minutes.

Table 10: Sex of respondents

	Sex	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	93	46.5	46.7	46.7
	Female	106	53.0	53.3	100.0
	Total	199	99.5	100.0	
Missing	99	1	.5		
Total		200	100.0		

Table 11: Educational background of respondents

	Degree	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certificate	21	10.5	10.6	10.6
	Bachelor	130	65.0	65.7	76.3
	Master	47	23.5	23.7	100.0
	Total	198	99.0	100.0	
Missing	99	2	1.0		
Total		200	100.0		

Table 12: Automobile category

	Brand	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Europe	77	38.5	38.5	38.5
	USA	16	8.0	8.0	46.5
	Japan	86	43.0	43.0	89.5
	Others	21	10.5	10.5	100.0
	Total	200	100.0	100.0	

Table 13: Job position of respondents

	Position	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Top Mgt.	1	.5	.5	.5
	Middle Mgt.	39	19.5	20.2	20.7
	Supervisor	34	17.0	17.6	38.3
	Staff	119	59.5	61.7	100.0
	Total	193	96.5	100.0	
Missing	99	7	3.5		
Total		200	100.0		

The reliability coefficients of the twenty-four items of the FUM scales for face-to-face and e-mail communication were .8086 and .7860, respectively (see Tables 14 and 15). The reliability analysis of the PRCA-24 was .9104 (see Table 16).

Table 14: Reliability analysis of FUM scale for face-to-face communication

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
F_SATISFY	81.3802	75.2212	.6573	.5832	.7869
F_RELAX	81.7552	76.6466	.5437	.4301	.7923
F_PLEASE*	81.4323	75.8069	.6630	.6387	.7876
F_GOOD	81.3438	77.1587	.6466	.5849	.7902
F_ACCEPT	81.3854	76.9083	.5929	.4775	.7910
F_COMFORT*	81.5000	74.0209	.7086	.6037	.7836
F_HAPPY	81.5104	77.3716	.5796	.5150	.7920
F_IMPORTANT	81.7188	80.9048	.2543	.2923	.8065
F_ANNOY*	81.0938	77.6037	.5539	.5198	.7930
F_UNCOMFORT	81.4531	76.3015	.5539	.5835	.7915
F_DISSATISFY	81.2708	79.2352	.3842	.4838	.8001
F_INSECURE*	81.5000	79.5707	.3101	.4035	.8039
F_SAD	81.1927	78.1354	.3888	.5414	.7998
F_FAIL	81.0104	81.3297	.2715	.4635	.8052
F_INCOMPLETE*	81.3646	77.4789	.4265	.3767	.7977
F_UNINTEREST	81.3750	77.6492	.5093	.5192	.7944
F_RELY	81.2865	80.7290	.3499	.2935	.8019
F_SHY*	82.7813	93.3446	-.4467	.4671	.8380
F_ENVY	81.5625	77.3783	.4440	.4693	.7968
F_ATTENTION	81.2240	77.0857	.6438	.5477	.7901
F_HUMBLE*	82.6927	91.7847	-.3296	.4042	.8377
F_HOSTILE	83.1458	93.8425	-.4526	.6015	.8403
F_COMPASSION	81.2656	77.9657	.4971	.4142	.7951
F_ASSERTIVE*	81.5104	81.1727	.2754	.3201	.8051

Reliability Coefficients 24 items

Alpha = .8086 Standardized item alpha = .8272

Remarks: * distractor items

Table 15: Reliability analysis of FUM scale for e-mail communication

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
E_SATISFY	76.7660	74.1481	.4116	.3806	.7741
E_RELAX	76.7340	72.4316	.4922	.4266	.7691
E_PLEASE*	76.6543	71.4253	.6451	.5141	.7626
E_GOOD	76.6755	70.3808	.6594	.5826	.7602
E_ACCEPT	76.9149	72.0569	.5883	.4590	.7653
E_COMFORT*	76.6755	71.0974	.6037	.4724	.7632
E_HAPPY	76.9681	72.4054	.5872	.5090	.7659
E_IMPORTANT	77.1915	75.0327	.3299	.3559	.7783
E_ANNOY*	76.2979	73.5792	.3900	.4149	.7748
E_UNCOMFORT	76.3670	73.1747	.4160	.3647	.7732
E_DISSATISFY	76.2713	74.8939	.3504	.4537	.7772
E_INSECURE*	76.5426	75.2335	.2893	.2888	.7806
E_SAD	76.1915	75.5567	.3240	.4056	.7786
E_FAIL	76.1862	76.6015	.2668	.4744	.7815
E_INCOMPLETE*	76.9681	74.0418	.3049	.2212	.7802
E_UNINTEREST	76.6755	74.1134	.4032	.3851	.7744
E_RELY	76.6862	72.6122	.4646	.4262	.7705
E_SHY*	78.4628	87.1697	-.3993	.4468	.8161
E_ENVY	77.4840	75.2671	.2530	.3693	.7833
E_ATTENTION	76.9255	71.3634	.5903	.4746	.7641
E_HUMBLE*	78.1383	86.4941	-.3622	.3261	.8143
E_HOSTILE	78.3511	86.8921	-.4164	.4536	.8133
E_COMPASSION	77.3670	72.3833	.4940	.4504	.7690
E_ASSERTIVE*	76.8670	74.8967	.3557	.2802	.7770

Reliability Coefficients 24 items

Alpha = .7860 Standardized item alpha = .7911

Remarks: * distractor items

Table 16: Reliability Analysis of PRCA-24 Scale

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
1)*	63.1495	153.1019	.4233	.4076	.9087
2)	62.6856	154.1441	.3531	.4934	.9100
3)	62.7474	148.6975	.5661	.5780	.9059
4)	63.0670	153.7727	.4329	.4376	.9085
5)	62.4485	146.7668	.6173	.5077	.9047
6)	62.6856	150.9317	.5255	.6321	.9068
7)	62.5876	145.9534	.6336	.5987	.9043
8)	62.4588	149.0061	.5796	.5427	.9057
9)	62.2577	148.5343	.5984	.5361	.9053
10)	62.9639	149.4132	.5972	.5576	.9054
11)	62.7474	147.9203	.5898	.5242	.9054
12)	62.2216	149.6449	.5734	.4937	.9059
13)	62.7320	150.7672	.4549	.4258	.9082
14)	62.1546	154.0381	.2936	.3528	.9119
15)	63.1495	152.6356	.5189	.5177	.9071
16)	62.7010	152.1485	.4766	.4143	.9077
17)	62.3144	150.9524	.4960	.4392	.9073
18)	62.4433	152.1030	.3733	.4087	.9102
19)	62.2887	145.0561	.6179	.5820	.9047
20)	62.0825	147.3921	.5520	.4753	.9062
21)	62.0103	148.5388	.5959	.6199	.9053
22)	62.3814	149.5429	.5314	.4774	.9066
23)	62.3093	148.1007	.6204	.6349	.9048
24)	62.1031	149.7302	.5006	.4737	.9073

Reliability Coefficients 24 items

Alpha = .9104 Standardized item alpha = .9112

Remarks: * see Appendix B for statement list in each item

The means scores for feelings of understanding in face-to-face communication and in e-mail messages were 11.66 and 10.28, respectively (see Table 17). The more positive the FUM score, the more one generally feels understood by others. These figures revealed that face-

to-face communication might make people feel understood more readily than communicating through e-mail.

Table 17: Report of PRCA-24 and FUM Scales

		PRCA	FUM face-to-face	FUM e-mail
N	Valid	193	194	192
	Missing	7	6	8
Mean		65.19	11.66	10.28
Median		66.00	12.00	10.00
Mode		75	10	12
Std. Deviation		12.99	8.60	7.86

When compared with the original PRCA-24 scale analysis, the means for the communication apprehension subscales in this study were 14.62 for group discussion, 16.18 for meeting, 15.96 for interpersonal conversation, and 18.29 for public speaking. The mean of total communication apprehension was 65.19 (see Table 10). The mean of the original findings reported means of 65.6 for total PRCA, 15.4 for group discussion, 16.4 for meeting, 14.5 for interpersonal conversation, and 19.3 for public speaking. In comparison with Western-base research, each of the means just reported, with the exception of the mean for interpersonal conversation, was lower.

The total CA of Thai people in this study was very similar to that reported in the original study (65.19 and 65.6). This finding revealed that levels of CA of Thai people, especially in Thai automotive industry, were not significantly different from those of Western people.

The range of PRCA-24 scores was 30 to 120. Approximately 53% (102 persons) of the participants were low CA and 47.15% (91 persons) were high CA. Regarding sex of the respondents, 52.69% (49 persons) of males were low CA and 47.31% (44 persons) of males were high CA. 53.54% (53 persons) of females were low CA and 46.46% (46 persons) of females were high CA. For educational background, 36.84% (7 persons) of the persons who held the certificate lower than bachelor's degree were low CA, while 63.16% (12 persons) of this group were high CA. 50.39% (64 persons) of the persons who held bachelor's degree were low CA and 49.61% (63 persons) of this group were high CA. 66.67% (30 persons) of the persons who held master's degree were low CA, while 33.33% (15 persons) of this group were high CA.

Research Question 1: Research question one asked whether there is a significant difference between perceptions of understanding or misunderstanding when using e-mail versus engaging in face-to-face communication. An independent *t*-test was used to examine this research question. The null hypothesis was not rejected. The finding revealed that there is no significant difference between perceptions of understanding or misunderstanding when using e-mail

versus face-to-face communication ($t_{1,2}$ = 1.143, .915; p > 0.05). Results are summarized in Table 18.

Table 18: Analysis of independent samples test between perceptions of understanding in e-mail versus face-to-face communication

Group Statistics

	Sex	N	Mean	Std. Deviation	Std. Error Mean
FUM face-to-face	Male	90	-1.3000	4.8423	.5104
	Female	103	-2.0680	4.4880	.4422
FUM e-mail	Male	89	-2.8989	4.3039	.4562
	Female	102	-3.5000	4.7131	.4667

Independent Samples Test

		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
FUM face-to-face	Equal variances assumed	**1.143**	191	**.254**	.7680	.6719
FUM e-mail	Equal variances assumed	**.915**	189	**.361**	.6011	.6567

Research Question 2: Research question two asked whether there is a significant relationship between time spent in using e-mail and perceptions of understanding or misunderstanding of e-mail messages. Pearson correlation was used to examine this research question. The null hypothesis was rejected. The finding revealed that there is a significant relationship between time spent in using e-mail and perceptions of understanding or misunderstanding of e-mail messages (r = .151, p < 0.042, see Table 19).

Although being significant at .05 level, the Pearson coefficient is very low (r = .151). The r square (r^2) is 0.0228. Thus, this finding revealed that time spent in using e-mail accounted very little for the variance of perceptions of understanding or misunderstanding of e-mail messages.

Table 19: Correlations between average time use per day and perceptions of understanding in e-mail

Descriptive Statistics

	Mean	Std. Deviation	N
Avg. time use per day	81.25	83.85	190
FUM e-mail	-3.2135	4.5142	192

Correlations

		Avg. time use per day	FUM e-mail
Avg. time use per day	Pearson Correlation	1.000	**.151**
	Sig. (2-tailed)	.	**.042**
	Sum of Squares and Cross-products	1328713.374	10048.725
	Covariance	7030.229	55.518
	N	190	182
FUM e-mail	Pearson Correlation	.151	1.000
	Sig. (2-tailed)	.042	.
	Sum of Squares and Cross-products	10048.725	3892.245
	Covariance	55.518	20.378
	N	182	192

* Correlation is significant at the 0.05 level (2-tailed).

Research Question 3: Research question three asked whether, in comparing personal versus work e-mail, there are any significant interactions between time spent in using e-mail and perceptions of understanding or misunderstanding. To examine the interactions of those variables, a multivariate analysis of variance (MANOVA) was used. Box's test of equality of covariance matrices revealed that there was no relationship ($p < 0.009$). The multivariate test was also not significant ($F_{(4,354)} = 1.581$, $p > .05$). The null hypothesis was not rejected. This finding revealed that, in comparing personal versus work e-mail, there was no significant interaction between time spent in using e-mail and perceptions of understanding or misunderstanding when using e-mail (see Table 20).

Table 20: Multivariate tests for the interaction between time spent using e-mail and perceptions of understanding in e-mail on purposes of e-mail use

Box's Test of Equality of Covariance Matrices

Box's M	17.815
F	**2.835**
Df1	6
Df2	9617.887
Sig.	**.009**

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept+PURPOSE

Multivariate Tests

Effect		F	Hypothesis df	Error df	Sig.	Observed Power
Intercept	Hotelling's Trace	63.146	2.000	178.000	.000	1.000
Purpose of e-mail use	Hotelling's Trace	**1.581**	4.000	354.000	**.179**	.487

a. Computed using alpha = .05
b. Exact statistic
c. The statistic is an upper bound on F that yields a lower bound on the significance level.
d. Design: Intercept+PURPOSE

Tests of Between-Subjects Effects

Source	Dependent Variable	df	F	Sig.	Partial Eta Squared	Observed Power
Corrected Model	Avg. time use per day	2	2.147	.120	.023	.436
	FUM e-mail	2	1.065	.347	.012	.235
Intercept	Avg. time use per day	1	59.979	.000	.251	1.000
	FUM e-mail	1	48.034	.000	.212	1.000
PURPOSE	Avg. time use per day	2	**2.147**	**.120**	.023	.436
	FUM e-mail	2	**1.065**	**.347**	.012	.235

a. Computed using alpha = .05
b. R Squared = .023 (Adjusted R Squared = .013)
c. R Squared = .012 (Adjusted R Squared = .001)

Research Question 4: Research question four asked whether there is a significant relationship between levels of communication apprehension and perceptions of understanding or misunderstanding when using e-mail. To examine the relationship between those two variables, a Pearson Correlation was used. The null hypothesis was not rejected. There was no significant relationship between levels of communication apprehension and

perceptions of understanding or misunderstanding when using e-mail (r = -.123, p > 0.05, see Table 21).

Table 21: Correlations between communication apprehension and perceptions of understanding in e-mail

Descriptive Statistics

	Mean	Std. Deviation	N
PRCA	74.3814	5.5101	194
FUM e-mail	-3.2135	4.5142	192

Correlations

		PRCA	FUM e-mail
PRCA	Pearson Correlation	1.000	**-.123**
	Sig. (2-tailed)	.	**.094**
	Sum of Squares and Cross-products	5859.773	-564.968
	Covariance	30.362	-3.054
	N	194	186
FUM e-mail	Pearson Correlation	-.123	1.000
	Sig. (2-tailed)	.094	.
	Sum of Squares and Cross-products	-564.968	3892.245
	Covariance	-3.054	20.378
	N	186	192

Research Question 5: Research question five asked whether, in e-mail communication, there are any significant interactions between time spent using e-mail, perceptions of understanding or misunderstanding, and high versus low CA. Multivariate analysis of variance (MANOVA) was used to examine this research question. Box's test was significant (p < 0.005), which revealed that there was no relationship. The null hypothesis was not rejected. There was no significant interaction between time spent in using e-mail, perceptions of

understanding or misunderstanding, and high versus low CA ($F_{(50,296)}$ = 1.106, p > 0.05, see Table 22).

Table 22: Multivariate tests for the interaction between time spent using e-mail and perceptions of understanding in e-mail on levels of communication apprehension

Box's Test of Equality of Covariance Matrices

Box's M	97.415
F	**1.598**
df1	51
df2	3331.415
Sig.	**.005**

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.
a. Design: Intercept+T_PRCA1

Multivariate Tests

Effect		F	Hypothesis df	Error df	Sig.	Observed Power
Intercept	Hotelling's Trace	64.038	2.000	149.000	.000	1.000
PRCA	Hotelling's Trace	**1.106**	50.000	296.000	**.301**	.979

a. Computed using alpha = .05
b. Exact statistic
c. The statistic is an upper bound on F that yields a lower bound on the significance level.
d. Design: Intercept+T_PRCA1

Tests of Between-Subjects Effects

Source	Dependent Variable	df	F	Sig.	Partial Eta Squared	Observed Power
Corrected Model	Avg. time use per day	25	1.354	.137	.184	.921
	FUM e-mail	25	.708	.843	.106	.585
Intercept	Avg. time use per day	1	74.434	.000	.332	1.000
	FUM e-mail	1	29.530	.000	.164	1.000
PRCA	Avg. time use per day	25	**1.354**	**.137**	.184	.921
	FUM e-mail	25	**.708**	**.843**	.106	.585

a. Computed using alpha = .05
b. R Squared = .184 (Adjusted R Squared = .048)
c. R Squared = .106 (Adjusted R Squared = -.044)

Research question 3 asked whether, in comparing personal versus work e-mail, there are any significant interactions between time spent in using e-mail and perceptions of understanding or misunderstanding when using e-mail. Research question 5 asked whether, in e-mail communication, there are any significant interactions between time spent using e-mail, perceptions of understanding or misunderstanding, and high versus low CA. To test these research questions and avoid risks associated with inflated error from using a one-way MANOVA twice (Steven, 1996), a two-way MANOVA was employed. The findings revealed that, in comparing personal versus work e-mail and high versus low CA, there was no significant interaction between time spent in using e-mail and perceptions of understanding or misunderstanding when using e-mail ($F_{(4,254)}$ = 1.195, $F_{(50,254)}$ = 1.127, p > .05, see Table 23).

Table 23: Two-way multivariate tests for purposes of e-mail use and levels of communication apprehension

Multivariate Tests

Effect		F	Hypothesis df	Error df	Sig.	Observed Power
Intercept	Hotelling's Trace	39.244	2.000	128.000	.000	1.000

PURPOSE	Hotelling's Trace	**1.195**	4.000	254.000	**.313**	.373
PRCA	Hotelling's Trace	**1.127**	50.000	254.000	**.274**	.979
PURPOSE * PRCA	Hotelling's Trace	1.084	38.000	254.000	.348	.939

a. Computed using alpha = .05
b. Exact statistic
c. The statistic is an upper bound on F that yields a lower bound on the significance level.
d. Design: Intercept + PURPOSE + PRCA + PURPOSE*PRCA

Tests of Between-Subjects Effects

Source	Dependent Variable	df	F	Sig.	Partial Eta Squared	Observed Power
Corrected Model	Avg. time use per day	46	1.196	.217	.299	.964
	E-mail FUM	46	1.018	.455	.266	.920
Intercept	Avg. time use per day	1	36.407	.000	.220	1.000
	E-mail FUM	1	29.090	.000	.184	1.000
PURPOSE	Avg. time use per day	2	**1.383**	**.255**	.021	.293
	E-mail FUM	2	**1.118**	**.330**	.017	.243
PRCA	Avg. time use per day	25	**1.355**	**.140**	.208	.915
	E-mail FUM	25	**.868**	**.647**	.144	.694
PURPOSE * PRCA	Avg. time use per day	19	.884	.603	.115	.624
	E-mail FUM	19	1.401	.137	.171	.870

a. Computed using alpha = .05
b. R Squared = .299 (Adjusted R Squared = .049)
c. R Squared = .266 (Adjusted R Squared = .005)

Regarding the comments of subjects on the open-ended question, eighty persons (40% of those responding) reported that they use e-mail as a medium of communication because of its speed. Seventy-four persons (37% of those responding) stated that e-mail was convenient and forty-eight persons (24% of those responding) reported using e-mail because of its

perceived cost advantages. Seventeen persons (8.5% of those responding) confirmed that all data they need to share can be sent via e-mail. Twelve persons (6% of those responding) reported that one of the advantages of e-mail was to connect with others from any place and at any time. Ten persons (5% of those responding) noted that e-mail, as a new technique for communication, made them look modernized and hi-tech. Eight persons (4% of those responding) reported using e-mail because of its perceived advantages as a documented form of communication. That is both the sender and the receiver can retain copies of the message sent; messages can be downloaded as hardcopies if desired; and the times associated with message transmission and reception can be documented.

Qualitative Findings of the Study

After analyzing the quantitative data, interviews were conducted to further explore each of the research questions. The interviewees were Thais who worked with the responding automotive companies. Seven persons agreed to be interviewed. The seven participants were a passenger car operations director, a sales manager, an accounting and financial manager, a personnel manager, a

marketing research and planning supervisor, an internal auditor, and an executive secretary.

General comments regarding the use of e-mail as a medium for organizational communication included the observation that e-mail is efficient and inexpensive. E-mail was also seen as an effective means of organizational communication.

From the point of view of the passenger car operations director, e-mail is a “quick form of communication.” He reported using e-mail for “more informal” than formal purposes. He stated that e-mail “saves time and saves a secretary.” People who have more experience using the Internet and e-mail feel “secure and confident” when using e-mail as a communication tool in the organization. People who have less experience might be “scared by the complexity”, but once they try the system, they realize that it is “not that difficult.” Regarding the feelings of understanding or misunderstanding when using e-mail versus face-to-face, he observed that “it depends on each circumstance.” People who lack self-confidence might view e-mail as “easier to get messages across” than people who have confidence. People who are not good at explaining their views might have time to think and craft messages that

are concise and more articulate. The advantages of face-to-face communication include that people can “create a mood on the receiving end,” and face-to-face has “tone and manner when communicating.” He noted that e-mail can be “impersonal.” For communication apprehension, he commented that “the problem was not communication apprehension, but ‘socializing apprehension’ because communication is a basic need of people.” He argued that high CA people might increasingly use e-mail when they want to communicate. Misunderstandings can be a problem with e-mail since we must communicate in the English language. For today’s e-mail, he thought that it was “just the first generation of e-mail and needed to be developed like the grid system.”

A sales manager revealed that any person who has experienced logging on and using the Internet or e-mail should be convinced of how easy it is to use this medium of organizational communication. People who have never used e-mail might need a period of time to get familiar with the program, but they will only need “just a short period.” He observed that “e-mail creates selling opportunities.” He described his experiences when he was trained in England. A lot of automobile sales came from e-mail communication. For communication apprehension,

“e-mail could help shy people to communicate and express their ideas to the others. Low CA people might not be comfortable in writing since they like to talk.” E-mail also “supports job effectiveness and efficiency.”

An accounting and financial manager observed that “perceived understanding between e-mail and face-to-face might not be different because it depends on each person and each circumstance.” E-mail might not help both high and low CA persons, but high CA persons could have more advantages from using e-mail than low CA persons.

A personnel manager revealed that people who have previous experience using e-mail might “take advantage from using e-mail as a new medium in organizational communication.” People who have just started using e-mail might “need a period of time to get used to it.” Even so, he thought that the time needed might be “only a week” to get familiar. Perceived understanding in messages might not be different between face-to-face and e-mail communication. Regarding communication apprehension, “extroverts might not be comfortable in writing,” so “the introvert might have an advantage when using e-mail over the extrovert.”

A marketing research and planning supervisor revealed that everyone in his company had to “check e-

mail every hour” because each business topic was sent via e-mail. E-mail “saves time when coordinating with people.” Every correspondence with the company head office and regional office is written and sent via e-mail. He noted that “perceptions of understanding when using written communication are different from perception of understanding when using oral communication.” Some jobs need to be “talked about and discussed.” E-mail has “more advantages for high CA than for low CA people” because high CA people can “completely present their ideas and information via the system.”

An internal auditor observed that “emoticons can be used to present the sender’s emotions and also make softer statements.” She argued that “perceptions of understanding in e-mail messages might be higher than face-to-face communication because senders might have enough time to think, conceptualize, and synthesize before sending, while face-to-face communication was interactive and real time.” Using e-mail might not be a problem for inexperienced users. The barriers or problems will come from language use, not from experience. With respect to communication apprehension, high CA persons might “express their opinions and feelings” via e-mail communication more effectively than

low CA persons. Low CA persons might prefer the ease and more nonverbally rich environment of face-to-face communication.

An executive secretary expressed the view that e-mail provided “more time to think and conceptualize ideas before sending any messages.” Feelings of understanding from face-to-face communication might be higher than with e-mail messages because people can “see both verbal and nonverbal cues.” E-mail might be more advantageous to the high CA persons than the low CA because the high CA could “write precisely and select the appropriate words and sentences to present their ideas and information.” Experiences from using e-mail might affect the person who had no experience in terms of “skills and advanced functions use.” Messages would not be the problem between persons who had experience or not, but “the problem is the language used.”

Conclusion

In conclusion, the findings from the quantitative portion of this research revealed that there was no significant difference between perceptions of understanding or misunderstanding when using e-mail versus face-to-face communication. There was no significant relationship between time spent in using e-

mail and perceptions of understanding or misunderstanding of e-mail messages. In personal and work e-mail, there was no significant interaction between time spent in using e-mail and perceptions of understanding or misunderstanding when using e-mail. There was no significant relationship between communication apprehension types and perceptions of understanding or misunderstanding when using e-mail. In e-mail communication, there was no significant interaction between time spent in using e-mail, perceptions of understanding or misunderstanding, and high and low CA.

The findings from interviewing seven participants supported the findings from quantitative part. After adopting e-mail as a new medium for organizational communication and gaining some experiences in using computer-mediated communication, the perceptions of understanding or misunderstanding when using e-mail versus engaging face-to-face communication might not be different. In an era of information technology, people gradually learn new technologies, continuously adopt, and finally accept new technologies as parts of their lives.

The next chapter will integrate the findings from both the quantitative and qualitative parts of the study. Limitations of this research and recommendations for

automotive industry as well as for future research will also be provided.

CHAPTER 5

Discussion

Introduction

The purpose of this research was to explore the relationship of communication apprehension to feelings of being understood or misunderstood when communicating via e-mail versus in a face-to-face environment. Chapter four presented the results of the statistical analyses of the data collected and views of the interviewees. This chapter integrates the findings from the quantitative and qualitative data collection in an effort to place this study in perspective by examining its limitations, offering conclusions, and recommendations for automotive industry as well as for future research.

Limitations of the Study

This study was an ex post facto (non-experimental research) investigation. Kerlinger (1986) stated that

> non-experimental research is systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulable. Inferences about relations among variables are made, without direct

intervention, from concomitant variation of independent and dependent variables. (p. 347)

In this study, communication apprehension was the independent variable. Communication apprehension is a trait-like personality characteristic. McCroskey (1984) demonstrated that trait-like personality variables, such as CA, extroversion, the introversion, are highly resistant to change. In ex post facto research, the control of the independent variable is not possible because ex post facto data are open to unknown sources of extra variance.

The scales used in this study were of the self-report variety. As such, the researcher does not control the respondents' view of each circumstance specified in the questionnaire. One comment from the interviewees was that, when they first used e-mail, they experienced a difference between their perceptions of being understood in e-mail versus face-to-face communication, but they could not recall those exact feelings as they responded to the questions that were posed.

Hall (1976) stated that, in a high context culture, most of information is in the form of physical context or is internalized in the person, while messages will be clearly communicated, elaborated, and highly specific in

a low context culture (Samovar & Porter, 1988). McCroskey (1982) stated that “the CA construct was developed within the general U.S. culture and most of the research concerning CA has been restricted to that culture” (p. 144).

Thailand is a high context culture. The Thai culture and context are different from those of western countries. To measure communication apprehension of Thais is not easy because many Thai traditional proverbs or metaphors are deeply rooted in the mind of most Thai people, such as “To hide one’s light under a bushel” or “Speech is silver, silence is golden.”

“To hide one’s light under bushel” means to be sharp inside the scabbard. “Speech is silver, silence is golden” means that, if you talk, you will get a small sum of money; if you remain silent, you will get a lot of gold. These kinds of proverbs are taught in primary school. Silence, on many occasions in the Thai context, is interpreted as politeness or humbleness. The behavior of speaking and presentation have to be considered with the culture, context, proverbs, and metaphors that are internalized in the ways of thinking of most Thai people.

The generalizability of this study is restricted to the Thai automotive industry. The findings do not,

necessarily, extend to other industries or other contexts where the relationship between CA and feelings of being understood versus misunderstood when communicating via e-mail versus face-to-face might be explored.

Surveys in this study tapped only respondents who were accessible and cooperative. The contact persons might have selected respondents who worked closely with them in a snowball manner. Some respondents were officially assigned by the department head to respond to the questionnaire.

Conclusion

The quantitative findings concerning research question one revealed that there was no significant difference between perceptions of understanding or misunderstanding when using e-mail versus engaging in face-to-face communication. However, one interviewee (who is passenger car operations director) expressed the view that perceptions of understanding or misunderstanding depend on individual circumstances. People who lack self-confidence might feel that it is more comfortable communicating via e-mail than through face-to-face conversations, while face-to-face interaction offers a communication environment in which

nonverbal cues can be used to facilitate the creation of a desired mood and/or tone.

A marketing research and planning supervisor commented that perceptions of understanding when using written communication are different from the perceptions associated with oral communication and some jobs need to be discussed personally. An internal auditor observed that perceptions of understanding when using e-mail to communicate might be higher than with face-to-face communication because senders might have time to think, conceptualize, and synthesize ideas prior to sending their messages. An executive secretary also agreed with the comment of an internal auditor that e-mail provides more time to think and conceptualize ideas before sending any messages, but she observed that communicators can see both verbal and nonverbal cues when they are in face-to-face communication which creates more understanding than e-mail.

These comments suggest that there is very little difference between the perceptions of understanding when using e-mail versus face-to-face communication. Thus, the potential for adopting e-mail as a primary means of organizational communication replacing written memoranda

or face-to-face interactions in many situations, is plausible.

When examining time spent in using e-mail and perceptions of understanding or misunderstanding, the quantitative findings revealed a significant relationship, but the Pearson coefficient was very low. One possible reason why the Pearson coefficient was so low was that the number of subjects might not have been large enough. But as recommended by Stevens (1996), the sample needed for a moderate-sized effect is at least 100 persons. Light et al. (1990) also commented that "medium-size effects can be detected with a moderate-sized sample, usually between 100 and 200, depending upon the power you want" (p. 197). Thus, to increase more subjects in a study might not always guarantee that one gets a better result.

The comments from the interviewees supported the quantitative finding that there was a significant relationship between time spent in using e-mail and perceptions of being understood. A passenger car operations director commented that people who have more experience using the Internet and e-mail feel more secure and confident than do less experienced persons when using e-mail as a communication tool in their organization. A

sales manager noted that people who have never used e-mail might need a period of time to get familiar with the program, while a personnel manager observed that people who have some experience using e-mail might have an advantage over people who have less experience employing e-mail as a medium of organizational communication. An executive secretary also argued that the person who has very little experience using e-mail might be at a disadvantage in terms of skills and advanced function use.

With respect to levels of communication apprehension and perceptions of understanding or misunderstanding when using e-mail, the quantitative findings revealed that there was no significant relationship. From the qualitative data, a passenger car operations director viewed that high CA people might increasingly use e-mail when they want to communicate. A sales manager expressed the belief that e-mail could help shy people to communicate and express their ideas to others, while low CA people might perceive face-to-face interactions as far more convenient and rich environments for communication than the written environment of e-mail. A personnel manager noted that extroverted persons might not be good in writing, so introverted persons might have advantages

in using e-mail. An accounting and financial manager demonstrated that high CA persons could have more advantages from using e-mail than low CA persons. A marketing research and planning supervisor commented that e-mail has more advantages for high CA as opposed to low CA because high CA people can completely present their ideas and information via e-mail. An internal auditor agreed with the idea that high CA people might express their opinions and feelings in e-mail messages more effectively than low CA people because low CA people might have uncomfortable writing problems. An executive secretary expressed the view that e-mail might be more advantageous to high CA persons because they could write precisely and select the appropriate words or sentences in order to present their ideas and information before sending their messages.

As stated in the “Social Learning Theory,” learning takes place when people achieve rewards and avoid failure. Uncertainty Reduction Theory (see Berger & Calabrese, 1975) suggested the way people gather information to reduce their uncertainty feelings. E-mail is globally accepted as a new communication tool in the era of information technology. People have increasingly learned and adopted e-mail as a communication medium in

their daily lives. After responding to e-mail for a period of time, people come to understand messages from e-mail as clear as they do face-to-face communication. They will not have uncertainty feeling when communicating via e-mail.

The findings from research question two revealed that time spent might affect the perceptions of understanding or misunderstanding of e-mail messages. People who have more time to use e-mail had a tendency to believe that they effectively use e-mail and understand e-mail messages. People in the business realm or people in academic institutions who use e-mail regularly will periodically check their e-mail boxes in order to receive information and not miss important messages. People who have just started using e-mail must get familiar with the program and respond to messages in order to reduce their feelings of uncertainty about e-mail use. As they use e-mail, they increase their abilities and comfort with the program. They develop more self-confidence in interacting via e-mail as a new medium of communication.

Recommendations for Automotive Industry

As suggested by Oborne (1985), technology influences employees' attitudes and behaviors. Those attitudes and behaviors mediate the way in which technology should be

introduced. E-mail can be categorized as a new medium for organizational communication in the Thai automotive industry. In some companies, e-mail addresses are assigned only to top and middle management levels. Most of the staff members do not have opportunities to use e-mail to contact other people on behalf of their companies since the company's e-mail addresses are limited. Thus, the preparation and introduction stage as well as training program of e-mail use as a new mode of communication on staff level are important. Lewis (1991) demonstrated that communication technologies were used by organizations in controlling internal operations, reducing uncertainty and equivocality, making decisions, projecting organizational identity, socializing members, and maintaining links with the environment.

From this study, the findings revealed that when using e-mail for a period of time, there was no difference between perceptions of understanding of e-mail messages and engaging in face-to-face communication. There was an effective evidence and strong support for top management of an automotive company to decide in investing the amount of money on upgrading or developing computer networking systems. The new technologies will help company save some operating expenses (i.e., petrol,

traveling, office supplies, etc.) and will also support customers or suppliers relationship management programs. Information technologies will create business, marketing, and selling opportunities to the company.

Recommendations for Future Research

On a broader view, this study can be seen as the first step in an attempt to identify the perceptions of understanding or misunderstanding in e-mail communication and the importance of e-mail use in Thai organizations. It is interesting to explore this concept and to examine people's perceptions of understanding of e-mail messages in Thai organizations as a whole, not limited to only one selected industry. Future studies should enlarge the sample from other industries in order to increase the generalizability of the findings. The perceptions of Thai university students would also be interesting since younger people increasingly adopt new technologies.

The findings from the principle component analysis of the PRCA-24 scale in the Thai context revealed the four "new" subscales or dimension – public speaking, negative feeling in communication, positive feeling in communication, and involvement in communication. The new subscales should be re-tested and developed because of some ambiguous loading from this study in order to

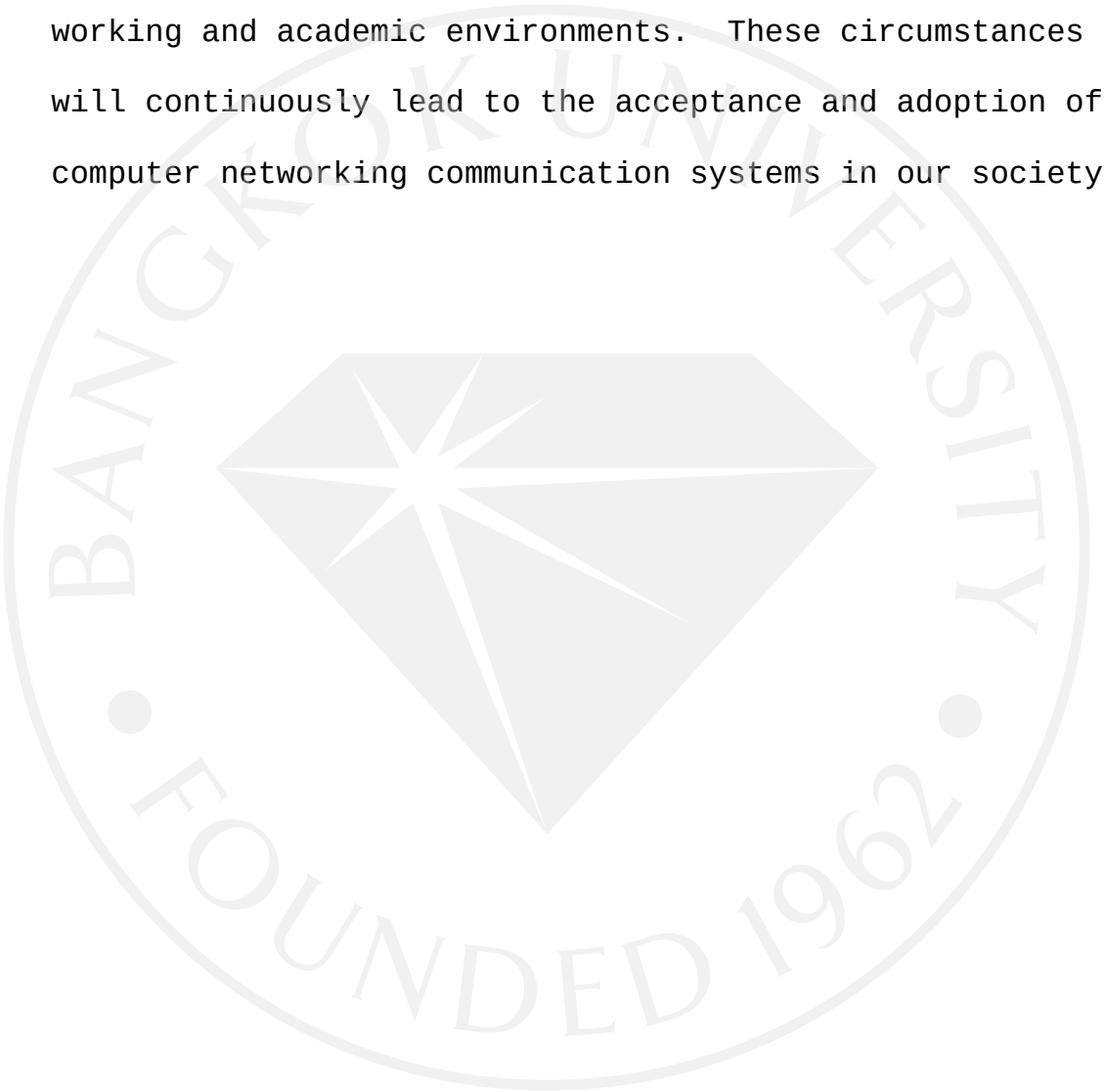
examine CA of Thai people or Asian people. The findings will construct the new instrument to investigate and measure CA of Thai people.

Writing apprehension (see Daly & Miller, 1975) in computer-mediated communication – e-mail messaging, chat room interactions, or web board discussions – of Thai people should also be explored in the future. Writing apprehension or writing anxiety is similar to CA; however, the apprehension experienced is with the written as opposed to the spoken word (Daly, 1978). In computer-mediated communication, writing skills are important when expressing ideas and feelings to others.

Finally, the findings of this research suggest that, after adopting e-mail as a means for organizational communication, there was no significant difference between the perceptions of being understood in e-mail versus face-to-face communication. Levels of communication apprehension might not create any relationship toward perceptions of being understood or misunderstood when using e-mail. Prior experiences in using e-mail had not identified the perceptions of being understood or misunderstood of e-mail messages. These results could be explained that Thai people, especially in Thai automotive industry, gradually admit and use e-

mail as a general means, as similar as face-to-face interactions for organizational communication.

Computer-mediated communication becomes reality in our daily lives and continues to be learned by both working and academic environments. These circumstances will continuously lead to the acceptance and adoption of computer networking communication systems in our society.



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APPENDIX A

Feelings of Understanding/Misunderstanding Scale

Feelings of Understanding/Misunderstanding Scale: Trait-General Version[1]

Instructions: Recall how you generally feel when talking with (or listening to) other people. The following terms refer to feelings that may be relevant when people attempt to make themselves understood by others. Please indicate the extent to which each term describes how you generally feel when and immediately after trying to make yourself understood by others. Respond to each term according to the following scale:

1.) Very little
2.) Little
3.) Some
4.) Great
5.) Very great

	By face-to-Face	By using e-mail
1. Annoyance		
2. Satisfaction		
3. Self-reliance		
4. Discomfort		
5. Relaxation		
6. Shyness		
7. Dissatisfaction		

[1] From Cahn, D. D. & Shulman, G. M. (1984).

	By face-to-Face	By using e-mail
8. Pleasure		
9. Enviousness		
10. Insecurity		
11. Good		
12. Attentiveness		
13. Sadness		
14. Acceptance		
15. Humbleness		
16. Failure		
17. Comfortableness		
18. Hostility		
19. Incompleteness		
20. Happiness		
21. Compassion		
22. Uninterestingness		
23. Importance		
24. Assertiveness		

Note. Beginning with Item 1, sum every third item (1, 4, 7, 10, 13, 16, 19, and 22) for the FM score; these feelings may be quantified as a single rating ranging from 8 to 40. Beginning with Item 2, sum every third item (2, 5, 8, 11, 14, 17, 20, and 23) for the FU score. Other items are distractors. To determine the FUM score,

subtract the FM score from the FU score. FUM may range from –32 to +32. The more positive the score, the more one generally feels understood by others.

APPENDIX B

Personal Report of Communication Apprehension Scale

Personal Report of Communication Apprehension (PRCA-24)[2]

DIRECTIONS: This instrument is composed of twenty-four statements concerning feelings about communicating with other people. Please indicate the degree to which each statement applies to you by marking whether you

(1) strongly agree,

(2) agree,

(3) are undecided,

(4) disagree, or

(5) strongly disagree.

Work quickly; record your first impression.

…… 1. I dislike participating in group discussions.

…… 2. Generally, I am comfortable while participating in group discussions.

…… 3. I am tense and nervous while participating in group discussions.

…… 4. I like to get involved in group discussions.

…… 5. Engaging in a group discussion with new people makes me tense and nervous.

…… 6. I am calm and relaxed while participating in group discussions.

…… 7. Generally, I am nervous when I have to participate in a meeting.

[2] From McCroskey, J. C. (1982)

…… 8. Usually I am calm and relaxed while participating in meetings.

…… 9. I am very calm and relaxed when I am called upon to express an opinion at a meeting.

…… 10. I am afraid to express myself at meetings.

…… 11. Communicating at meetings usually makes me uncomfortable.

…… 12. I am very relaxed when answering questions at a meeting.

…… 13. While participating in a conversation with a new acquaintance, I feel very nervous.

…… 14. I have no fear of speaking up in conversations.

…… 15. Ordinarily I am very tense and nervous in conversations.

…… 16. Ordinarily I am very calm and relaxed in conversations.

…… 17. While conversing with a new acquaintance, I feel very relaxed.

…… 18. I’m afraid to speak up in conversations.

…… 19. I have no fear of giving a speech.

…… 20. Certain parts of my body feel very tense and rigid while I am giving a speech.

…… 21. I feel relaxed while giving a speech.

…… 22. My thoughts become confused and jumbled when I am giving a speech.

…… 23. I face the prospect of giving a speech with confidence.

…… 24. While giving a speech, I get so nervous I forget facts I really know.

SCORING: The PRCA permits computation of one total score and four subscores. The subscores are related to communication apprehension in each of four common communication contexts: group discussions, meetings, interpersonal conversations, and public speaking. To compute your scores merely add or subtract your scores for each item as indicated below.

Subscore Desired	*Scoring Formula*
Group discussion	18 + scores for items 2, 4, and 6; - scores for items 1, 3, and 5.
Meetings	18 + scores for items 8, 9, and 12; - scores for items 7, 10, and 11.
Interpersonal conversations	18 + scores for items 14, 16, and 17; - scores for items 13, 15, and 18.

Public speaking	18 + scores for items 19, 21, and 23; - scores for items 20, 22, and 24.

To obtain your total score for the PRCA, simply add your four subscores together. Your score should range between 24 and 120. If your score is below 24 or above 120, you have made a mistake in computing the score.

Scores on the four contexts (groups, meetings, interpersonal conversations, and public speaking) can range from a low of 6 to a high of 30. Any score above 18 indicates some degree of apprehension. If your score is above 18 for the public speaking context, you are like the overwhelming majority of Americans.

NORMS FOR PRCA24

	Mean	*Standard Deviation*
For Total Score:	65.6	15.3
Group:	15.4	4.8
Meeting:	16.4	4.8
Dyad (Interpersonal):	14.5	4.2
Public:	19.3	5.1

APPENDIX C

English Cover Letter and Questionnaire

Bangkok University
Rama 4 Rd., Klong-Toey,
Bangkok, Thailand 10110

Ohio University
Lasher Hall, Athens,
Ohio, USA. 45701-2979

54 South Sathorn Rd., Yannawa,
Sathorn, Bangkok 10120

May 02, 2001

Dear Sir,

I am a doctoral student and currently working on my dissertation in a program conducted jointly by the School of Interpersonal Communication, Ohio University and the Graduate School, Bangkok University. The purpose of this research is to study the perceptions of different types of people toward communicating via electronic mail (e-mail) of automotive industry in Thailand. You are cordially invited to participate in this study by filling the attached questionnaire. Participation in this study is voluntary. Your responses will be most valuable. I would like to request you to correspond to the answer that best describes your opinion or your feeling as frankly as you can.

I can certify that your answers will be kept confidential. Analysis and discussion part of this study will be presented statistically and will not refer to any specific person. The success of this study depends on your kind cooperation and willingness to participate. Should you require any additional information, please contact me at danai_kristhanin@yahoo.com or call me at (02) 675-5371. Thank you very much.

Sincerely yours,

Luis Danai Kristhanin
Ph.D. Candidate

Questionnaire

Clarification: This questionnaire has no right or wrong answers. Please read each question carefully and provide a truthful response based on your own belief or experience. Your participation in this study is completely voluntary. Please do not put your name or any identification on the questionnaire. Your answers will be used for statistical analysis only and will be kept confidential. Please give your answer or response in the space provided. Thank you very much for your kind cooperation.

Part I:

1. Do you currently use electronic mail (e-mail)?

   ..... Yes ..... No

   If YES, in what year did you first use e-mail? .....

   If NO, you do not need to answer any other questions. It is very much appreciated if you could forward this questionnaire to a person who currently uses e-mail. Thank you very much.

2. On average, when you log on to e-mail during the work week (Monday through Friday), how long do you stay on the system? ..... minutes per time (on average)

3. Your purpose for e-mail use during the work week (Monday through Friday):

   ..... for working objectives

   ..... for personal use

   ..... both for working and personal use

4. If your purposes for e-mail use are both for working and personal use, how do you typically allocate your time for each objective?

…… % for working objectives

…… % for personal use

Part II:

Directions: **Work quickly; record your first impression.** This instrument is composed of twenty-four statements concerning **feelings about communicating face-to-face** with other people. Please indicate the degree to which each statement applies to you by marking (X) whether you:

1 = strongly agree
2 = agree
3 = are undecided
4 = disagree
5 = strongly disagree

Do you agree with the following statements?	1	2	3	4	5
1. I dislike participating in group discussions.					
2. Generally, I am comfortable while participating in group discussions.					
3. I am tense and nervous while participating in group discussions.					
4. I like to get involved in group discussions.					
5. Engaging in a group discussion with new people makes me tense and nervous.					

6. I am calm and relaxed while participating in group discussions.					
7. Generally, I am nervous when I have to participate in a meeting.					
8. Usually I am calm and relaxed while participating in meetings.					
9. I am very calm and relaxed when I am called upon to express an opinion at a meeting.					
10. I am afraid to express myself at meetings.					
11. Communicating at meetings usually makes me uncomfortable.					
12. I am very relaxed when answering questions at a meeting.					
13. While participating in a conversation with a new acquaintance, I feel very nervous.					
14. I have no fear of speaking up in conversations.					
15. Ordinarily I am very tense and nervous in conversations.					

16. Ordinarily I am very calm and relaxed in conversations.					
17. While conversing with a new acquaintance, I feel very relaxed.					
18. I'm afraid to speak up in conversations.					
19. I have no fear of giving a speech.					
20. Certain parts of my body feel very tense and rigid while I am giving a speech.					
21. I feel relaxed while giving a speech.					
22. My thoughts become confused and jumbled when I am giving a speech.					
23. I face the prospect of giving a speech with confidence.					
24. While giving a speech, I get so nervous I forget facts I really know.					

Part III:

Directions: Recall how you generally feel **when talking face-to-face** or **when using e-mail** with other people. The following terms refer to feelings that may be relevant when people attempt to make themselves understood by others. Please indicate the extent to which each term

describes how you generally feel when and immediately after trying to make yourself understood by others. Respond to each term according to the following scale:

1 = Very little
2 = Little
3 = Some
4 = Great
5 = Very great

How do you feel	when talking "face-to-face"?					when using "e-mail"?				
	1	2	3	4	5	1	2	3	4	5
1. Annoyed										
2. Satisfied										
3. Self-reliant										
4. Uncomfortable										
5. Relaxed										
6. Shy										
7. Dissatisfied										
8. Pleasure										
9. Envious										
10. Insecure										
11. Good										
12. Attentive										
13. Sad										
14. Acceptance										
15. Humble										
16. Failure										
17. Comfortable										
18. Hostility										
19. Incomplete										

20. Happy										
22. Uninteresting										
23. Importance										
24. Assertive										

Part IV:

1. Sex: ..... Male ..... Female
2. Birthdate (date/month/year): ...../...../.....
3. Nationality: .....
4. Highest level of education:
   ..... Lower than Bachelor Degree
   ..... Bachelor Degree
   ..... Master Degree
   ..... Doctoral Degree
5. Name of organization/company that you are working for:
   .....
6. Your job position: .....
7. Suggestions/comments regarding using e-mail as a communicative tool in organization:
   .....
   .....
   .....

APPENDIX D

Thai Cover Letter and Questionnaire

มหาวิทยาลัยกรุงเทพ
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กรุงเทพฯ 10110

Ohio University
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54 ซอยสาทร 13 ถนนสาทรใต้
ยานนาวา สาทร กรุงเทพฯ 10120

วันที่ 2 พฤษภาคม พ.ศ. 2544

เรื่อง ขอความอนุเคราะห์ในการแจกแบบสอบถามสำหรับการทำวิทยานิพนธ์

เรียน ท่านผู้จัดการ ที่นับถือ

สิ่งที่ส่งมาด้วย 1. ตัวอย่างแบบสอบถามจำนวน 1 ชุด
2. สำเนาบัตรประจำตัวนักศึกษา

กระผม นายดนัย คริสธานินทร์ เป็นนักศึกษาปริญญาเอก หลักสูตรนิเทศศาสตร์ สาขาการสื่อสารระหว่างบุคคล/การสื่อสารองค์กร (Interpersonal/Organizational Communication) ในโครงการความร่วมมือระหว่างมหาวิทยาลัยกรุงเทพ และมหาวิทยาลัยโอไฮโอ (Ohio University) ประเทศสหรัฐอเมริกา กระผมกำลังทำวิทยานิพนธ์เกี่ยวกับความเข้าใจในการสื่อสารโดยใช้ไปรษณีย์อิเล็กทรอนิกส์ (อีเมล) ของบุคลากรในอุตสาหกรรมรถยนต์ในประเทศไทย ในการนี้ กระผมใคร่ขอความอนุเคราะห์จากท่านในการแจกแบบสอบถามจำนวนประมาณ 50 ชุด สำหรับงานวิจัยแก่พนักงานในบริษัทของท่าน การตอบแบบสอบถามที่ส่งมาด้วยนี้จะใช้เวลาประมาณ 10-15 นาที ความร่วมมือจากพนักงานถือเป็นความสมัครใจ และคำตอบที่ได้รับจะมีความสำคัญอย่างยิ่งสำหรับงานวิจัยฉบับนี้

กระผมขอรับรองว่าคำตอบที่ได้รับจากแบบสอบถามจะถูกเก็บไว้เป็นความลับ และไม่มีผลเสียหายใด ๆ ทั้งต่อตัวผู้ตอบแบบสอบถามหรือต่อองค์กร การวิเคราะห์และการนำเสนอผลการวิจัยจะกระทำในภาพรวมโดยไม่มีการอ้างอิงถึงตัวบุคคลหรือองค์กรไม่ว่ากรณีใด ๆ ทั้งสิ้น หากท่านมีข้อสงสัยหรือต้องการรายละเอียดเพิ่มเติมประการใด กรุณาติดต่อ ได้ที่โทร. (02) 675-5371 หรือ danai_kristhanin@yahoo.com กระผมใคร่ขอขอบพระคุณในความอนุเคราะห์ของท่านล่วงหน้ามา ณ โอกาสนี้

ขอแสดงความนับถือ

(นายดนัย คริสธานินทร์)

มหาวิทยาลัยกรุงเทพ
ถนนพระราม 4 คลองเตย
กรุงเทพฯ 10110

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ยานนาวา สาทร กรุงเทพฯ 10120

วันที่ 2 พฤษภาคม พ.ศ. 2544

เรื่อง ขอความร่วมมือในการตอบแบบสอบถาม
เรียน ท่านผู้ตอบแบบสอบถาม ที่นับถือ

ผู้วิจัยเป็นนักศึกษาปริญญาเอก หลักสูตรนิเทศศาสตร์ ในโครงการความร่วมมือระหว่างมหาวิทยาลัยกรุงเทพ และมหาวิทยาลัยโอไฮโอ (Ohio University) ประเทศสหรัฐอเมริกา ผู้วิจัยกำลังทำวิทยานิพนธ์ซึ่งเป็นส่วนหนึ่งของการศึกษา ในการนี้ ผู้วิจัยใคร่ขอความร่วมมือจากท่านในการตอบแบบสอบถามสำหรับงานวิจัยเกี่ยวกับความเข้าใจในการสื่อสารโดยใช้ไปรษณีย์อิเล็กทรอนิกส์ (อีเมล) ของบุคลากรในอุตสาหกรรมรถยนต์ในประเทศไทย การตอบแบบสอบถามที่ส่งมาด้วยนี้จะใช้เวลาประมาณ 10-15 นาที ความร่วมมือจากท่านถือเป็น**ความสมัครใจ** และคำตอบของท่านมีความสำคัญอย่างยิ่งสำหรับงานวิจัยฉบับนี้ ผู้วิจัยใคร่ขอความกรุณาท่าน**ช่วยตอบแบบสอบถามทุกข้อ** โดยตอบให้**ตรงกับความเป็นจริง** มากที่สุด ทั้งนี้เพื่อให้ผลการวิจัยน่าเชื่อถือมากที่สุด

ผู้วิจัยขอรับรองว่าคำตอบที่ได้รับจากแบบสอบถามของท่านจะถูกเก็บไว้เป็น**ความลับ** และ**ไม่มีผลเสียหายใด ๆ** ทั้งต่อตัวท่านหรือองค์กรของท่าน การวิเคราะห์และการนำเสนอผลการวิจัยจะกระทำในภาพรวมโดยไม่มีการอ้างอิงถึงตัวบุคคลหรือองค์กรไม่ว่ากรณีใด ๆ ทั้งสิ้น ความสำเร็จของวิทยานิพนธ์ ฉบับนี้ขึ้นอยู่กับความร่วมมือในการตอบแบบสอบถามของท่าน หากมีข้อสงสัยประการใด กรุณาติดต่อได้ที่ (02) 675-5371 หรือ danai_kristhanin@yahoo.com ผู้วิจัยใคร่ขอขอบคุณในความร่วมมือด้วยดีของท่านมา ณ โอกาสนี้

ขอแสดงความนับถือ

(นายดนัย คริสธานินทร์)
ผู้วิจัย

แบบสอบถาม

คำแนะนำ: แบบสอบถามนี้ไม่มีคำตอบที่ถูกหรือผิด คำตอบที่ถูกต้องคือคำตอบที่ตรงกับความเชื่อ ความรู้สึก หรือประสบการณ์ของท่าน การตอบแบบสอบถามนี้ถือเป็นความสมัครใจ กรุณาทำเครื่องหมาย X หรือเติมข้อความในช่องว่างแต่ละข้อ คำตอบของท่านจะถูกนำไปใช้เพื่อประโยชน์ในการวิเคราะห์ผลทางสถิติเท่านั้น ผู้วิจัยขอขอบคุณเป็นอย่างสูงสำหรับความร่วมมือในการตอบแบบสอบถามฉบับนี้ *:)*

ส่วนที่ 1:

1. ใน 6 เดือนที่ผ่านมา ท่านได้ใช้ไปรษณีย์อิเล็กทรอนิกส์ (อีเมล) บ้างหรือไม่?
   ..... ใช้ (ดูข้อ 2 ก.)
   ..... ไม่ใช้ (ดูข้อ 2 ข.)
2. ก. ถ้าใน 6 เดือนที่ผ่านมา ท่าน**ได้ใช้อีเมล**ในการติดต่อสื่อสาร กรุณาระบุปีพ.ศ.ที่ท่านเริ่มใช้อีเมลเป็นครั้งแรก .....
   ข. ถ้าใน 6 เดือนที่ผ่านมา ท่าน**ไม่ได้ใช้อีเมล**ในการติดต่อสื่อสาร ท่านสามารถ**หยุดตอบ**แบบสอบถามฉบับนี้ได้ และหากเป็นไปได้ โปรดส่งแบบสอบถามนี้ไปยังบุคคลที่ท่านทราบว่าเขา/เธอได้ใช้อีเมลในการติดต่อสื่อสารในช่วงระยะ 6 เดือนที่ผ่านมา
3. จุดประสงค์ที่ท่านใช้อีเมลในการติดต่อสื่อสารในวันทำงาน (วันจันทร์ ถึงศุกร์)
   ..... เพื่อติดต่องานของบริษัท
   ..... เพื่อใช้ส่วนตัว
   ..... ทั้งสองอย่าง (เพื่อติดต่องานของบริษัท และเพื่อใช้ส่วนตัว)
   ..... อื่น ๆ โปรดระบุ .....
4. ถ้าท่านใช้อีเมลในการติดต่อสื่อสารเพื่อจุดประสงค์ในการติดต่องานของบริษัท เพื่อใช้ส่วนตัว และเพื่อจุดประสงค์อื่น ๆ ท่านใช้เวลาโดยเฉลี่ยอย่างไรสำหรับการติดต่อสื่อสารแต่ละจุดประสงค์ (เวลาโดยเฉลี่ยรวมกันได้ 100% ของทุกจุดประสงค์รวมกัน)
   ..... % สำหรับติดต่องานของบริษัท
   ..... % สำหรับใช้ส่วนตัว
   ..... % สำหรับใช้เพื่อจุดประสงค์อื่น ๆ
5. ท่านใช้เวลาโดยเฉลี่ยนานเท่าใดสำหรับการติดต่อสื่อสารทางอีเมลใน 1วัน (ทุกครั้งรวมกันใน 1 วัน)
   ..... นาที

ส่วนที่ 2:

ข้อแนะนำ: คำถามส่วนนี้ประกอบด้วยคำถาม 24 คำถาม เกี่ยวกับความรู้สึกของท่านในการสนทนากับผู้อื่นอย่างซึ่งหน้า (face-to-face communication) ข้อความต่าง ๆ จะมีความคล้ายคลึงกันแต่โปรดอย่ากังวลใน

ประเด็นนี้ ขอให้ท่านตอบอย่างรวดเร็วตามความรู้สึกแรกที่เกิดกับท่านเมื่อได้อ่านข้อความ โปรดใส่เครื่องหมาย X ลงในช่องว่างแต่ละข้อตามระดับความเห็นด้วยหรือไม่เห็นด้วย (1-5)

ท่านเห็นด้วยหรือไม่กับประโยคต่อไปนี้ ?	(1) เห็นด้วยอย่างมาก	(2) เห็นด้วย	(3) ตัดสินใจไม่ได้ว่ารู้สึกอย่างไร	(4) ไม่เห็นด้วย	(5) ไม่เห็นด้วยอย่างมาก
6. ฉันไม่ชอบมีส่วนร่วมในการอภิปรายกลุ่มย่อย					
7. โดยทั่ว ๆ ไป ฉันรู้สึกผ่อนคลายในขณะที่ร่วมอภิปรายกลุ่มย่อย					
8. ฉันรู้สึกเครียดและกังวลในขณะที่ร่วมอภิปรายกลุ่มย่อย					
9. ฉันชอบมีส่วนร่วมในการอภิปรายกลุ่มย่อย					
10. การเข้าร่วมอภิปรายกลุ่มย่อยกับคนที่ไม่รู้จักทำให้ฉันเครียดและกังวล					
11. ฉันรู้สึกผ่อนคลายและเป็นกันเองขณะที่ร่วมอภิปรายกลุ่มย่อย					
12. โดยทั่ว ๆ ไป ฉันรู้สึกกังวลเมื่อต้องมีส่วนร่วมในการประชุม					
13. โดยปกติ ฉันรู้สึกผ่อนคลายและเป็นกันเองขณะเข้าร่วมประชุม					
14. ฉันรู้สึกสงบและผ่อนคลาย เมื่อถูกขอให้แสดงความคิดเห็นในที่ประชุม					
15. ฉันกลัวที่จะแสดงความเห็นในที่ประชุม					
16. โดยปกติ การสื่อสารในที่ประชุมทำให้ฉันรู้สึกอึดอัด					
17. ฉันรู้สึกผ่อนคลายมาก ขณะตอบคำถามในที่ประชุม					
18. ฉันรู้สึกกังวลเป็นอย่างมาก เมื่อร่วมสนทนากับคนที่เพิ่งจะพบกัน					
19. ฉันไม่กลัวที่จะพูดขึ้นเสียงในการสนทนา					
20. โดยปกติ ฉันรู้สึกเครียดและกังวลเป็นอย่างมากในการสนทนา					
21. โดยปกติ ฉันรู้สึกสงบและผ่อนคลายเป็นอย่างมากในการสนทนา					

22. เมื่อสนทนากับคนที่เพิ่งรู้จัก ฉันรู้สึกผ่อนคลายเป็นอย่างมาก					
23. ฉันกลัวที่จะพูดขึ้นเสียงในการสนทนา					
24. ฉันไม่กลัวที่จะกล่าวสุนทรพจน์					
25. ฉันรู้สึกว่าร่างกายบางส่วนของฉันเกร็งและแข็งทื่อ ขณะกล่าวสุนทรพจน์					
26. ฉันรู้สึกผ่อนคลาย ขณะกล่าวสุนทรพจน์					
27. ความคิดของฉันสับสนและยุ่งเหยิง ขณะที่ฉันกล่าวสุนทรพจน์					
28. ฉันเผชิญหน้ากับการกล่าวสุนทรพจน์ที่จะมาถึงด้วยความมั่นใจ					
29. ขณะกล่าวสุนทรพจน์ ฉันกังวลว่าจะลืมข้อเท็จจริงต่าง ๆ ที่รู้					

ส่วนที่ 3:

ข้อแนะนำ: คำถามส่วนนี้สอบถามเกี่ยวกับความรู้สึกของท่านเมื่อได้พูดคุยกับ**บุคคลอื่นอย่างซึ่งหน้า** และเมื่อ**สื่อสารโดยใช้อีเมล** โปรดนึกถึงบุคคลใดบุคคลหนึ่งที่ท่านติดต่อสื่อสารด้วยตลอดระยะเวลาการตอบคำถามส่วนนี้ และระบุระดับความรู้สึกของท่านที่เกิดขึ้นเมื่อท่านพยายามสร้างความเข้าใจกับบุคคลนั้น ๆ (ระดับ 1-5)

1) น้อยที่สุด 2) น้อย 3) ปานกลาง 4) มาก 5) มากที่สุด

ตัวอย่าง: เมื่อท่านพูดคุยกันอย่างซึ่งหน้ากับเพื่อนร่วมงานคนหนึ่ง ท่านรู้สึกอึดอัดมากที่พยายามทำให้เขาเข้าใจท่าน กรุณาใส่เครื่องหมาย X ลงที่ช่องหมายเลข 4 ของการพูดคุยกันอย่างซึ่งหน้า เมื่อท่านรู้สึกอึดอัดเล็กน้อยเมื่อติดต่อสื่อสารโดยใช้อีเมลกับเขา โปรดใส่เครื่องหมาย X ลงที่ช่องหมายเลข 2 ของการสื่อสารโดยใช้อีเมล

30. บุคคลที่ท่านนึกถึงเมื่อติดต่อสื่อสาร (เป็นบุคคลคนเดียวกันทั้งแบบซึ่งหน้า และทางอีเมล)

…….. เพื่อนร่วมงาน …….. หัวหน้างาน …….. ลูกน้อง …….. อื่น ๆ โปรดระบุ ……

ท่านรู้สึกอย่างไร	เมื่อพูดคุยกันอย่างซึ่งหน้า ?					เมื่อสื่อสารโดยใช้อีเมล ?				
	1	2	3	4	5	1	2	3	4	5
31. ฉันรู้สึกรำคาญ										
32. ฉันรู้สึกพอใจ										
33. ฉันรู้สึกว่าฉันสามารถพึ่งตนเองได้										
34. ฉันรู้สึกอึดอัด										

35. ฉันรู้สึกผ่อนคลาย										
36. ฉันรู้สึกประหม่า										
37. ฉันรู้สึกไม่พอใจ										
38. ฉันรู้สึกยินดี										
39. ฉันรู้สึกผูกพัน										
40. ฉันรู้สึกไม่มั่นใจ										
41. ฉันรู้สึกดี										
42. ฉันรู้สึกใส่ใจ										
43. ฉันรู้สึกเศร้า										
44. ฉันรู้สึกว่าได้รับการยอมรับ										
45. ฉันรู้สึกว่าอยู่ในสถานภาพที่ไม่เท่าเทียมกับคู่สนทนา										
46. ฉันรู้สึกล้มเหลว										
47. ฉันรู้สึกสบายใจ										
48. ฉันรู้สึกเป็นปฏิปักษ์										
49. ฉันรู้สึกว่าไม่สามารถสื่อสารได้ครบถ้วนเท่าที่ต้องการ										
50. ฉันรู้สึกมีความสุข										
51. ฉันรู้สึกเข้าใจคู่สนทนา										
52. ฉันรู้สึกไม่น่าสนใจ										
53. ฉันรู้สึกสำคัญ										
54. ฉันยืนยันในความคิดเห็นของฉัน										

<u>ส่วนที่</u> 4:

55. เพศ: ..... ชาย ..... หญิง
56. วัน/เดือน/ปีเกิด: ...../...../.....
57. สัญชาติ: .....
58. การศึกษาสูงสุด: ..... ต่ำกว่าปริญญาตรี
..... ปริญญาตรี
..... ปริญญาโท
..... ปริญญาเอก

59. ชื่อบริษัท / องค์กรที่ท่านทำงานอยู่ในปัจจุบัน: .....
60. ตำแหน่งงานปัจจุบันของท่าน: .....
61. ความคิดเห็นของท่านเกี่ยวกับการสื่อสารทางอีเมล: .....
    .....
    .....

APPENDIX E

List of Participating Automotive Companies

List of Participating Automotive Companies

No.	Company	Brand
1	Thonburi Automotive Assembly Plant Co., Ltd.	Mercedes-Benz
2	DaimlerChrysler (Thailand) Co., Ltd.	Mercedes-Benz, Jeep, Chrysler
3	Ford Operations (Thailand) Co., Ltd.	Ford, Mazda
4	Lexus (Bangkok) Co., Ltd.	Lexus
5	MMC Sittipol Co., Ltd.	Mitsubishi
6	Siam Nissan Sales Co., Ltd.	Nissan
7	Toyota Motors (Thailand) Co., Ltd.	Toyota
8	Volvo Cars (Thailand) Co., Ltd.	Volvo
9	Yontrakit Group of Companies	Audi, Volkswagen, Rolls-Royce, Peugeot, Citroen, Seat, Kia, Skoda

APPENDIX F

Interview Protocol

Interview Questions

1. From your experiences, does the time spent in using e-mail create more perceptions of understanding in writing or reading e-mail? Why and how?
2. How does e-mail mean to you in terms of effective communication?
3. How different do you feel when communicating with others between using e-mail versus face-to-face interaction?
4. How do you think about high versus low communicatively apprehensive people and abilities to communicate via e-mail?
5. What are the problems from using e-mail as a new medium of communication in your organization?

APPENDIX G

Ohio University

Human Subject Consent Form

Bangkok University
Rama 4 Rd., Klong-Toey,
Bangkok, Thailand 10110

Ohio University
Lasher Hall, Athens,
Ohio, USA. 45701-2979

HUMAN SUBJECT CONSENT FORM

Title of Research: Perceptions of understanding in electronic mail (e-mail) communication of Thai automotive industry

Investigator: Mr. Luis Danai Kristhanin
Contact Information: 54 Sathorn 13, South Sathorn Road, Sathorn, Bangkok 10120 Thailand
Phone: 0-2675-5371
Fax: 0-2675-5370
E-mail: danai_kristhanin@yahoo.com, dk284900@ohio.edu

Advisor: Prof. Dr. Roger Aden
Department: School of Interpersonal Communication, Ohio University and Graduate School, Bangkok University

Federal and university regulations require us to obtain signed consent for participation in research involving human objects. After reading the statement below, please indicate your consent by signing this form.

Your participation in these interviews will assist in the preparation of a doctoral dissertation titled *"Perceptions of understanding in electronic mail (e-mail) communication of Thai automotive industry."* The dissertation studies the perception of understanding or misunderstanding of different types of communicatively apprehensive people when communicating in electronic mail of automotive organizations in Thailand. The estimated amount of time required for this interview is thirty minutes. Your confidentiality will be protected.

Bangkok University
Rama 4 Rd., Klong-Toey,
Bangkok, Thailand 10110

Ohio University
Lasher Hall, Athens,
Ohio, USA. 45701-2979

I certify that I have read and understand the statement of procedure and agree to participate as a subject in this specific research described therein. I can think of no risk to participate in this study. My comments regarding the research topic may help provide insight into the perception of understanding in e-mail communication by employees of automotive organizations in Thailand. I agree that risks to me have been explained to my satisfaction and I understand that no compensation is available from Ohio University and its employees for any injury resulting from my participation in this research. My participation in this research is given voluntarily. I understand that I may discontinue participation at any time without penalty or loss of any benefits to which I may otherwise be entitled. I certify that I am at least 18 years of age.

Signature: …… Signature: *Danai Kristhanin*

Name: …… Investigator: Danai Kristhanin

Date: …… Ohio University: Form IRB-2, April 1994