Negotiation of meaning in synchronous computer-mediated communication (CMC): The role of online chat in second language vocabulary development

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Negotiation of meaning in synchronous computer-mediated communication (CMC):
The role of online chat in second language vocabulary development

by

Xuan Teng

A thesis submitted to the graduate faculty
In partial fulfillment of the requirements for the degree of

MASTER OF ARTS

Major: Teaching English as a Second Language/Applied Linguistics
(Computer-Assisted Language Learning)

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2010

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This experimental study investigates the effects of task-based synchronous computer-mediated communication (CMC) on learners’ negotiation of meaning during online chat sessions and on learners’ development in second language (L2) vocabulary. More specifically, this study attempts to address (a) whether a synchronous CMC task seeded with largely unknown vocabulary elicits a greater amount of negotiation than the amounts documented in prior CMC research, (b) How learners carry out computer-mediated negotiation in performing this task and, (c) whether these negotiation facilitate mutual comprehension and retention of the new lexical items. Data analyses and results based on the chat logs produced by 20 ESL learners collaborating on an information gap task through the Chat feature of the learning management system Moodle suggest that synchronous CMC tasks that aim for discussion over unfamiliar vocabulary triggered more negotiation between L2 learners. A detailed examination of these negotiated exchanges also indicates that the split nature of computer-mediated negotiation did not seem to affect the completeness of the negotiation routines that learners need to go through to gain a full understanding of the target vocabulary. However, the electronic medium in which negotiated interaction occurred was very likely to impact on the discourse features of negotiation of meaning. On the other hand, learners’ discussion of lexical problems appeared to promote their comprehension and retention of the target lexical items. Although variations in language complexity, successful task completion and L2 word recognition have been identified with learners at different levels of English proficiency, it is reasonable to assume that online chat, as a potential
pedagogical tool, can serve as an interactive platform for learners to communicate in a meaningful context, receive feedback and improve their interlanguage.
CHAPTER 1. INTRODUCTION

In the realm of computer-mediated communication (CMC), online chat has long been regarded as the “most interactive end of the CMC spectrum” for several reasons (Paramkas, 1999, p.17). First and foremost, as a form of synchronous or real-time CMC, online chat provides a platform for communication between humans via the instrumentality of computer technology, which has been claimed by many computer-assisted language learning (CALL) researchers to foster the interaction between nonnative speakers (NNS) and those between NNS and native speakers (NS) (e.g., Blake, 2000; Herring, 1996; Levy and Stockwell, 2006; Negretti, 1999; Tudini, 2003). In particular, online chat allows for a dynamic exchange of information virtually in real time where participants can read and respond to messages immediately. As such, compared with the traditional computer programs for second language (L2) learning, online chat has the benefit of creating authentic communication opportunities for L2 learners as it enables the active interaction with real live persons through cyberspace. Moreover, the synchronous nature of online chat ensures the participation of numerous people without the constraint of space, for messages can be sent from an individual to multiple recipients at the same time in the electronic medium. As a result, it can be used in both academic settings which consist of L2 learners and the teacher of a single class (closed chat sessions) and nonacademic settings in which L2 learners have access to an almost unlimited body of NS (open chat sessions). Additionally, during online chat exchanges, conversational partners may be more inclined to negotiate rather than consult other resources such as dictionaries in order to get their meaning across and resolve
communication breakdowns. Therefore, synchronous discussion can also increase the rate of information exchanges and the quantity of learner interaction (Paramkas, 1999). In a nutshell, the high level of interactivity inherent in online chat has been attracting much attention in CALL research for its potential application in the language classroom and contribution to L2 development.

1.1 Purpose of the Study

As Levy and Stockwell (2006) pointed out, theory is of utmost importance to CALL research in that it provides a position from which to view a problem and an inferential structure for analysis and interpretation. In synchronous CMC studies, the interaction account (IA) of second language acquisition (SLA), also known as interactionist theory, has been exploited to serve as the primary framework to investigate NNS-NNS or NS-NNS negotiation that occur in the chat environment. According to Smith (2005), the IA has suggested the many benefits that computer-mediated negotiated interaction have for L2 teaching and learning, including increased participation among students (Beauvois, 1992; Kelm, 1992; Kern, 1995; Warschauer, 1996), an increased quantity of learner output (Kelm, 1992; Chun, 1994; Ittzes-Abrams, 2003), and an increased quality of learner output (Kelm, 1992; Chun, 1994; Kern, 1995; Warschauer, 1996; Beauvois, 1998). Furthermore, as De la Fuente (2003) mentioned, the IA has recently been used in task-based CMC research and demonstrated the positive effects of learner output within the negotiation process on L2 vocabulary development. However, it is also true that there has been only a few synchronous CMC studies on the relationship between negotiated interaction and lexical acquisition even though communication impasse aroused by lexical confusion has been reported as the main
source of computer-mediated negotiation. This is complicated by the fact that only a handful of empirical studies (e.g., Ellis and He, 1999; De la Fuente, 2003) have used vocabulary tests to measure the extent to which computer-mediated negotiation contributes to learners’ lexical development. This study therefore aims to fill this gap by constructing an information gap task that is seeded with largely unknown words and by integrating an assessment of learners’ knowledge about these words after they accomplish this task. In examining the amount and nature of negotiation surrounding these target lexical items, the researcher of this study attempts to determine the usefulness of synchronous interaction in facilitating L2 vocabulary acquisition. Moreover, by taking a close look at the results of the assessment, the researcher is able to draw inferences about the possible role that computer-mediated negotiation plays in prompting mutual comprehension and L2 vocabulary retention.

**1.2 Research Questions**

The research questions driving this experimental study on task-based synchronous CMC are the following:

1. Does an information gap task seeded with largely unknown vocabulary elicit a greater amount of computer-mediated negotiation than the amounts documented in previous CMC studies?

2. How do learners carry out computer-mediated negotiation in performing this information gap task?

3. Do these computer-mediated negotiated exchanges facilitate mutual comprehension and retention of the target L2 lexical items?
This study tries to address the issues above by investigating the effect of certain vocabulary-focused, interactive, on-line learning tasks on (a) L2 performance, and (b) L2 vocabulary development of English learners.

1.3 Organization of the Study

The study consists of five chapters. Chapter 2 provides an overview of the prior synchronous CMC literature relevant for this study. Chapter 3 describes the methods and materials used in the study, including participants, data collection instruments and procedures as well as methods for data analysis. Chapter 4 presents and discusses the results for each of the three research questions. The last chapter, Chapter 5, concludes the study with the research findings, addresses the limitations and implications of the study, and provides suggestions for further research.
CHAPTER 2. LITERATURE REVIEW

Chapter 2 aims to provide a theoretical foundation for this study by reviewing the previous literature on synchronous CMC research. The chapter opens with an overview of the unique features of online chat discourse and their impact on L2 teaching and learning. The second section of the chapter introduces the interaction account (IA) of SLA that has been widely adopted by CALL researchers in directing synchronous CMC studies. The third section discusses the discourse model of negotiation of meaning in oral interaction. The last section is concerned with communication task features that also have considerable effects on task-based negotiated interaction in the CMC environment.

2.1 A Potential CALL Tool for L2 Teaching and Learning

As the name suggests, online chat is quite similar to ordinary conversation in which communication advances in a casual, informal style. Synchronous CMC requires learners to be online at the same time and also spend much less time editing their messages than they do in asynchronous CMC such as e-mail or discussion forums. Moreover, sending and receiving messages through the electronic medium bears a close resemblance to turn-taking in conversational exchanges. As a result, although online chat is text-based discussion, it displays many of the features that are more likely to be found in face-to-face communication. For example, synchronous discussion data show the functional uses of language in real-time communication such as requesting personal information, flirting, making assertions, challenging others, sarcasm and joking (Sotillo, 2000, Darhower, 2002). In addition, during
online chat, interlocutors can provide stress to words and phrases via italics or bolding and insert auxiliaries, modals and interjections to make the conversation flow smoothly (Weininger and Shield, 2003; Smith, 2003). Other similar features include negotiation approaches such as comprehension checks, clarification requests, confirmation checks, code-switching, self-corrects, requests, word invention, approximation, communication and compensatory strategies (Chun, 1994; Blake, 2000; Lee 2001; Smith, 2003; Levy and Stockwell, 2006). On the other hand, properties of online chat resembling written discourse involve the absence of intonation, the permanent record of discourse, the high lexical density, the use of punctuation and textual formatting in messages (Smith, 2003). The target language produced in real-time discussion has also been reported as being lexically and morphosyntactically more formal and complex than in spoken language (Kern, 1995; Warschauer, 1997). Since synchronous discussion is akin to written texts in terms of language complexity and resembles face-to-face discussion in light of function performed, it has been credited as an important bridge for transfer of communication skills from the written to the spoken domain (Chun, 1994).

However, as Levy and Stockwell (2006) pointed out, placing a computer between communicators affect the way in which a message is delivered, and therefore any discussion of CMC needs to take into account the impacts of computer on the communication that occurs through it as well as on the communication partners. Online chat, as a form of computer-mediated discussion, undoubtedly has its own characteristics that are different from oral and written discourse. First of all, the real-time interaction between learners requires them to process what they read on the screen promptly and respond to the messages they receive instantaneously, properly, and to the point. As a result, learners, when
communicating in a synchronous CMC environment, tend to use simplified registers including shorter sentences, simplified syntax, abbreviations, irregular spellings, and symbols and emoticons to express their feelings (Smith, 2003). Moreover, the anonymity that online chat tolerates often results in arbitrary openings and closings in synchronous interaction discourse and the bold, offensive, emotionally laden comments that might not be appropriate for classroom settings (Hawisher and Selfe, 1998; Murray, 2000; Smith, 2003; Levy and Stockwell, 2006). In addition, technological issues including the short time lag between the sender sending the message and the addressee receiving it and the design of most CMC interfaces which may allow only one message to traverse at a time can also have a considerable impact on CMC discourse, as has been evidenced in the prior literature as overlaps in turn-taking, disruption and discontinuity of messages, and the interweaving of many different topic strands (Beauvois, 1992; Negretti, 1999; Smith, 2003; Levy and Stockwell, 2006). Finally, the absence of visual cues, for example, facial expressions and body language in chat-based communication forces L2 learners to indicate non-understanding in a more explicit and straightforward manner such as “I don’t understand” or “what does it mean” coupled with a large amount of self-initiated repairs and corrections (Fernandez-Garcia and Martinez-Arbelaitz, 2002; Smith, 2008).

These unique features of online chat discourse, however, may or may not be beneficial for L2 teaching and learning. On a positive note, according to De la Fuente (2003), several task-based CMC studies conducted in instructional settings have shown the positive effects of real-time communication in promoting reading and writing outcomes (Tannacito, 1999), conversational communication skills (Chun, 1994; Kitade, 2000), oral proficiency (Payne and Whitney, 2002), morphosyntactic development (Pelletieri, 1999; Salaberry, 2000),
sociolinguistic competence (Chun, 1994), quality and quantity of learner output production (Kern, 1995; Beauvois, 1998; Kitade, 2000), amount and equality of participation (Chapelle, 1994; Chun, 1994; Kern, 1995; Beauvois, 1998), motivation and reduction of communication anxieties (Kern, 1995) and promotion of collaborative language learning (Warschauer, 1997; Kitade, 2000). On the downside, however, the time pressure on learners during chat sessions is likely to result in less concern for linguistic accuracy and complexity (Kern, 1995; Skehan, 1998; Sotillo, 2000), the relative freedom on the part of learners when engaging in a CMC activity may reduce or even compromise teacher control (Kern, 1995), the special characteristics of computer-mediated discussion may place a higher cognitive load upon learners (Skehan, 1998), NNS-NNS interaction in the chat rooms might propagate and reinforce non-target like language, in other words, the transmission of incorrect modifications between learners (Kern, 1995; Blake, 2000). Furthermore, the degree to which task-based CMC can provide the opportunity for target language use has been found to be closely associated with learners’ participation and sustainability in an activity (Levy and Stockwell, 2006). Due to the complexity of CMC discourse, the potential role of online chat in being facilitative for learners’ interlanguage development must be carefully examined within specific L2 teaching and learning contexts. More important, ESL teachers are obliged to assess the appropriateness of synchronous CMC for educational purposes until convincing cases have been made that its advantages can compensate for or outweigh its disadvantages. According to Chapelle’s (2000) criteria for CALL task appropriateness, the level to which a language learning task promotes beneficial focus on form is critical to CALL evaluation. And during online chat, learners’ attention to the target form has been considered to be closely
related to their negotiated interaction, as is often investigated within the framework of the interaction account (IA) of SLA.

2.2 The Interaction Account (IA) of SLA

According to the CMC literature, online chat has been used to create authentic communication opportunities in the language classroom since the 1980s (Zhao, 2003). Possibly due to the resemblance between synchronous CMC and written texts, early studies on this type of new communication technologies seemed to focus primarily on its strength in fostering learners’ development in the morphological and syntactical aspects of L2. For example, Kelm (1992) found that online chat was very effective in improving students’ linguistic accuracy since a large amount of certain grammatical errors that learners had habitually committed in his Portuguese class were reduced after they exchanged messages for a grammatical review in the computer-mediated discussion. In a similar study with first-year German students, Chun (1994) noticed that learners had better control over discourse management in synchronous computer-assisted class discussion than in normal classroom discussion since they made use of a wide range of communicative and discourse functions, including giving feedback, requesting clarification, and ending conversations to take the initiative to interact with each other. Additionally, Kern’s (1995) comparison of the target language produced by the same group of students during oral and electronic class discussion on French suggested that learners’ language output during the electronic chats was of an overall greater level of sophistication than in oral discussion, in terms of the range of its morphosyntactic features and the variety of discourse functions expressed. Warschauer’s (1996) research findings with small groups of ESL learners in the L2 classroom also indicated that the electronic interaction involved significantly more complex language than
the face-to-face discussion, and differences in complexity were especially pronounced in the lexical and syntactic areas.

These early studies on the effects of synchronous chat on L2 learning have provided valuable methodology and language data for the later research regarding task-based synchronous CMC. However, a majority of them seemed to lack quantitative analysis and a sound explanation of why learners had developed their grammatical competence via real time. In particular, they did not give a detailed account of how learners actually interacted in the chat rooms. More recent CMC studies, however, have shifted their attention to the chatting process and the semantic part of L2, and made use of the interaction account (IA) of SLA as the theoretical framework for data analysis. Originating from Krashen’s (1977, 1985) input hypothesis, the updated IA emphasizes the vital role of engaging in interpersonal oral interaction in which communication problems arise and are negotiated in fostering L2 development (Ellis, 2008; Long, 1996). According to this theory, the communication breakdown in the NNS-NNS or NS-NNS conversation is the ideal condition for the acquisition of the target language since it provides learners the opportunity to clarify the messages by negotiating with the interlocutor(s) and the interlocutor(s) the chance of making interactional adjustments to render the input comprehensible (Pica, 1991). The adjustments can in turn assist learners to notice linguistic forms in the modified input with their processing capacity (also known as “focus on form”) and then be converted by learners into intake, which contributes to the integration of the target language form into learners’ interlanguage (see Figure 2.1). This ongoing negotiation process also pushes learners to produce output to test out hypotheses about the target language grammar and refine their output according to the corrective feedback, which also facilitates L2 acquisition (Swain,
Figure 2.1. Gass’ model of second language acquisition (Ellis, 2008, p. 267).

1985; Swain and Lapkin, 1995). The IA emphasizes that oral interaction works by “connecting input, internal learner capacities, and output via selective attention” (Ellis, 2008, p. 257) and identifies the “conditions under which ideal input and interactions take place” (Chapelle, 1999, p.5). Because of the close resemblance that online chat bears to oral interaction, the IA has been proposed by a number of CALL researchers as an appropriate foundation for synchronous CMC research (e.g., Doughty, 1991; Liou, 1994; Chapelle, 1997, 1998, 1999) since it can serve as a base for interpreting real-time data and also provide CALL researchers “important questions, research methods, and an explanatory framework for studying second language learning” in the chat environment (Levy and Stockwell, 2006, p.113).

As if echoing the IA, more recent CMC literature on synchronous chat has looked specifically at the effects that synchronous negotiation has on input, feedback and output, and
a number of these explorations have been carried out with learners of Spanish. For example, Pellettieri’s (2000) research on task-based synchronous CMC with twenty intermediate-level classroom learners of Spanish revealed that network-based chats can foster negotiation of meaning and push learners to form-focused linguistic modifications, which ultimately facilitated mutual comprehension and successful communication. In addition, learners were provided more opportunities to incorporate the corrective feedback into their output. In a similar study that focused on L2 Spanish interlanguage, Blake (2000) described cases of incidental negotiation on the part of both parties involved in NNS-NNS and NNS-NS synchronous discussion, as well as the correction of production errors in response to both direct and indirect feedback. There were, however, large differences among the trigger of learners’ negotiation in this regard, and it was evident that lexical confusion stimulated the majority of negotiation. It also showed that well-designed tasks and network-based exchanges can promote learners’ attention to form and force output. Another example introduced by Fernandez-Garcia and Martinez-Arbelaitz (2002) provided an overview of the negotiation routines between NNS of Spanish in the discourse generated during synchronous discussion. Their findings suggested that to maintain the comprehensibility of messages, learners of Spanish followed Varonis and Gass’ (1985) oral negotiation model to resolve instances of non-understanding in the electronic medium. Although differing slightly from those documented in face-to-face communication, the computer-mediated negotiation fulfilled the need for discourse moves and resulted in interactional modifications that made the messages more explicit and the successful incorporation of the classroom learned formula.

Other online chat studies directed within the framework of IA include Kitade (2000), Sotillo (2000), Toyoda and Harrison (2002), De la Fuente (2003), Smith (2003, 2004, 2005),
Yuan (2003) and Tudini (2003), and evidence from these studies suggested that a positive relationship between computer-mediated negotiation and SLA continued to emerge in areas of comprehensible and contextualized interaction (Kitade, 2000), noticing linguistic errors that were often neglected by learners and teachers (Toyoda and Harrison, 2002), self-correction and repair strategies (Kitade, 2000; Yuan, 2003; Smith, 2008), implicit negative feedback (Iwasaki and Oliver, 2003), discourse functions (Sotillo, 2000), L2 vocabulary acquisition (De la Fuente, 2003), and L2 morphosyntactic development (Salaberry, 2000).

Interestingly enough, most of the computer-mediated negotiation derived from lexical confusion, for NNS-NNS and NS-NNS discussion alike. For example, Pellettieri’s (2000) analysis of learner chats indicated that over sixty percent of the negotiation in cyberspace was concerned with unknown lexical items, which was proportional to the negotiation patterns found in the oral conversation of NNS. The same amount of real-time discussion around L2 vocabulary has been reported by Blake (2000), Fernandez-Garcia and Martinez-Arbeiaiz (2002), Smith (2003) and Tudini (2003). On the other hand, syntactic and morphological negotiation appeared quite rare in the chat rooms except in some experimental studies (e.g., Salaberry, 2000), in part due to the relatively low communicative loads these aspects of the target language carry (Pellettieri, 2000).

Compared with face-to-face conversation, online chat can afford better opportunities for learners to benefit from interaction in terms of its own strengths. First and foremost, during synchronous discussion, learners are able to view their language as they produce it and thus they are more likely to monitor and edit their messages through the interface of the chat program. This written nature of computer-based discussion, as Smith (2003) pointed out, enabled learners to attend to and reflect upon the form and the content of the message while
preserving the conversational feel, flow, and the interactional features of verbal discussion. In the second place, the language generated through online chat serves as an indicator of learners’ genuine knowledge about L2, for the use of the “logging” capacity of most chat programs as the data collection instrument allows learners to document their L2 performance in a less invasive environment than the traditional procedure of recording their oral interaction (Smith, 2003). For example, Kelm (1992) attributed the significant progress in learners’ grammatical knowledge to the type of post-hoc analysis that had been recorded by synchronous computer networks and was more accessible for learners to review. Skehan (1998) also placed a high value on computer-mediated negotiation as an ideal mechanism by virtue of which learners can identify where their interlanguage was limited and needed to be improved. Tudini (2003) further suggested that the ability to print out learners’ chat logs was a useful monitoring and assessment tool for students studying at a distance since it can provide “a snapshot of learners’ interlanguage as it might occur in an oral setting” (p. 154). The last advantage is what Smith (2003) claimed as the most beneficial aspects of online chat, that is, the interval between reading and sending messages offers learners more processing time to make interactional modifications to their problematic utterances, though the “feel” of synchronous interaction resembles that of oral interaction. Other CALL researchers echoed his viewpoint by drawing an analogy between real-time communication and a forum where participants can engage in negotiation of meaning at their own pace (Warschauer, 1996) or by emphasizing the necessity of longer processing in helping learners notice the formal aspects of the target language (Schmidt, 2001).

Overall, the IA, together with its pedagogical manifestation, Instructed SLA, serves as a solid and robust theoretical foundation that can ideally direct the research on computer-
mediated negotiation. However, the higher cognitive load that synchronous CMC places on learners also led to the assumption of some CALL researchers that the negotiated interaction might be more suitable for higher proficiency learners (e.g., Skehan, 1998). On the other hand, the IA has been subject to a number of challenges. One of the major challenges this perspective has met with is that it only focuses on L2 learning as a quality or accomplishment of the individual while ignores the social contexts in which learner interaction occurs (Mitchell and Myles, 1998; Levy and Stockwell, 2006). Therefore, as Warschauer (1997) pointed out, the IA was not sufficient to account for how learners, when performing the classroom tasks, used language-related collaboration to become competent members of a speech community or social group, to gain important cultural knowledge or content matter, or to develop literacy skills or critical thinking skills. Moreover, the IA presumes that different types of communication tasks would have equal effects on negotiation and there exists a direct relationship between interactional modifications and L2 acquisition. Nevertheless, some of these limitations have been claimed to be partially resolved within other more encompassing conceptual frameworks, for example, the sociocultural perspective (e.g., Warschauer, 1997; Kitade, 2000), indicating a possible future trend of research in this field.

2.3 Negotiation of Meaning

Under the direction of IA, the definition of negotiation of meaning has become more explicit and comprehensive in recent synchronous CMC research. In SLA literature, however, there seemed to be some controversies over the scope of negotiation. Some SLA researchers slanted their interpretation of negotiation of meaning in favor of the semantic aspect of oral interaction. For instance, Ellis (2008) regarded negotiation as a kind of discourse
management strategies that can be exploited to address both communication and linguistic issues. Accordingly, he distinguished between negotiation of meaning and negotiation of form and described the different objects these two strategies were targeted at: while negotiation of form attempted to resolve the linguistic problem in the speech of a learner, negotiation of meaning was “the collaborative work which speakers undertake to achieve mutual understanding when there is some kind of communication problem” (p. 224). Pica (1994) held a quite similar standpoint as she viewed negotiation of meaning as the “modification and restructuring of interaction that occurs when learners and their interlocutors anticipate, perceive, or experience difficulties in message comprehensibility” (p. 495). More recent accounts for negotiation of meaning, on the other hand, have clearly included the grammatical aspect of the target language and affirmed its positive role in promoting learners’ L2 development. For example, Long (1996) defined negotiation of meaning as a process in which learners made adjustments to linguistic form, conversational structure, message content, or all three until an acceptable level of understanding was achieved. Swain (1995, 1998) attributed the positive role that negotiation of meaning played in promoting incidental acquisition of certain features of L2 to the condition in which learners attended to both the form of L2 features and the meaning they convey. Hegelheimer and Chapelle (2000) also suggested that the most useful interactions were those which helped learners comprehend the semantics and syntax of input. In particular, Chapelle (1998) elaborated on Gass’ (1997) SLA model by specifying the relationship between comprehended input and intake (see Figure 2.2), and central to her interpretation of negotiation was the discussion of both meaning and form:

Comprehension represents the hypothesis that understanding of the semantic
content of a message can be accomplished either with or without any comprehension of the syntax. Semantic comprehension is not expected to help in the acquisition of the syntactic system because it may be accomplished through the recognition of isolated lexical items and interpretation of non-linguistic cues. When comprehension takes place through a combination of semantic and syntactic processing, the linguistic characteristics of the input can become INTAKE, that is, comprehended language that holds the potential for developing the learners’ linguistic system. (p. 23)

It is most likely that the idea of emphasizing negotiation of meaning over negotiation of form derives from the fact that a majority of the negotiated interaction has been used to resolve lexical confusion; however, according to the statement above, it fails to account for learners’ growth in grammatical competence that has been observed in early CMC studies since learners need to comprehend both the semantic and the morphological or syntactical aspects of the target language to develop their L2 competence. This has been further confirmed by a number of recent CMC studies reporting that learners negotiated around all aspects of the discourse, including both meaning and form (e.g., Pellettieri, 2000; Blake, 2000; Toyoda and

Figure 2.2. Basic components in the SLA process in interactionist research (Chapelle, 1998, p.23).
Harrison, 2002; Smith, 2003). Therefore, it can be said that Chapelle’s (1998) definition of comprehension has delineated a more thorough and accurate picture of how negotiation of meaning can contribute to SLA.

Furthermore, computer-mediated negotiation may be more useful for lexical development in terms of the findings from recent CMC studies that focused on L2 vocabulary development. First of all, prior research has showed that learners most frequently negotiated lexical meaning during synchronous interaction (e.g., Blake, 2000; Smith, 2003). In addition, as De la Fuente (2003) noted, the fact that computer-mediated negotiation was text-based instead of oral-based discussion can enhance learners’ noticing, reflection, and focus on the form of the unfamiliar lexical items in the input. Finally, the negotiated interaction in the CMC environment was more likely to elicit what Swain (1985) termed pushed output (i.e., output that is precise, coherent, and appropriate) and the incorporation of feedback, which has been recounted by Chapelle (1998):

The output is an observable result of the (integration) process, but it is also considered an important contributor to linguistic development in at least two ways. First, producing linguistic output forces learners to use the syntactic system and therefore to develop this aspect of their ability. Second, it elicits subsequent input from interlocutors, some of which may contain indications of problems with the learner’s output which will result in the learner’s noticing aspects of the linguistic form, making new hypotheses, and producing more output. This process, referred to as negotiation of meaning, is believed to facilitate L2 development. (p. 23)
Here Chapelle pointed out the two conditions that were essential to the acquisition of L2 vocabulary. The first one echoed Swain’s (1985) assertion that learners may be forced to shift from semantic processing to syntactic processing of the target vocabulary when they were required to produce pushed output. In other words, output pushes learners to “process language more deeply” (Swain, 2000, p. 99). The second one was the fact that learners may reformulate their initial utterances upon receiving feedback on their attempts to communicate, which may help them recognize the gap in their interlanguage and also test out their hypotheses about comprehensibility or linguistic accuracy (Pica, 1994; Long, 1996; Ellis and He, 1999). Therefore, output can serve as a stage which allows learners to “rehearse new items in production” (Ellis and He 1999, p. 286), which has been suggested by some CALL researchers to be of great benefit to help learners advance in their L2 lexical knowledge (e.g., Ellis and He, 1999; De la Fuente, 2003, Smith, 2004).

In addition, more recent CMC research on computer-mediated negotiation has drawn on Varonis and Gass’ (1985) model which shows the discourse structure during the negotiation of meaning in conversation as the basis of data analysis. According to Varonis and Gass, the discourse of conversation advances in a linear fashion and can be represented by a horizontal line. When an instance of non-understanding occurs, speakers may engage in a series of exchanges with the purpose of resolving that particular breakdown in the conversation, which can be viewed as vertical sequences along the horizontal line (also known as a temporary “push down” away from the main line of discourse in the conversation). In addition, Varonis and Gass’s model spells out a negotiation routine which is made up of two parts: a “trigger” and a “resolution”. The “trigger” is defined as “an utterance or portion of an utterance on the part of the speaker which results in some
indication of non-understanding on the part of the hearer” (Fernandez-Garcia and Martinez-Arbelaitz, 2002, p. 281). The “resolution” consists of two primes: an “indicator”, an utterance on the part of the hearer to signal a non-understanding, and a “response”, an acknowledgement of the request for additional information. And an optional prime, reaction to the response, may tie up the routine and signal that the initiator is ready to pop back up to the main topic of the conversation (Varonis and Gass, 1985, see Table 2.1).

This negotiation routine has been widely employed in several experimental studies on task-based synchronous CMC and has been viewed to be very effective for conducting quantitative analysis of the language data preserved in the chat logs. Specifically, it has shown that the amount of negotiation in the electronic medium varies depending on L2 teaching and learning contexts. For example, negotiation of meaning comprised only a small fraction of the overall conversational turns in Blake’s (2000) study on the networked discussion produced by fifty intermediate L2 Spanish learners who performed a series of communication tasks (ranging from 0.3% to 3.8%) and in Tudini’s (2003) research on the live chat between intermediate learners of Italian and NS in collaborating on open ended tasks (9%); whereas Pellettieri (2000), Iwasaki and Oliver (2003), Smith (2003) were unanimous in coming to a conclusion that learners, when participating in synchronous CMC

<table>
<thead>
<tr>
<th>Utterance</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>NNS1: My father now is retire.</td>
<td>Trigger</td>
</tr>
<tr>
<td>NNS2: retire?</td>
<td>Indicator</td>
</tr>
<tr>
<td>NNS1: Yes.</td>
<td>Response</td>
</tr>
<tr>
<td>NNS2: Oh yeah.</td>
<td>Reaction to response</td>
</tr>
</tbody>
</table>

*Note. Based on Varonis and Gass, 1985, p. 75; Fernandez-Garcia and Martinez-Arbelaitz, 2002, p. 283*
tasks designed to facilitate computer-mediated negotiation, engaged in negotiated interaction in about one-third of their total turn-taking. Moreover, the real-time language produced in these CMC studies have provided further evidence that the trigger in the negotiation routine involved non-understanding that resulted from confusion as to vocabulary, syntax, morphology, discourse and content. And much similar to face-to-face communication, lexical problems and larger syntactic units were the main source of the trigger.

On the other hand, some CMC studies have also suggested that examples of negotiation routines in synchronous chat are quite different from the ones in face-to-face negotiation. For example, Fernandez-Garcia and Martinez-Arbeiaiz’s (2002) data analysis revealed the predominance of explicit ways of expressing non-understanding and the infrequency or absence of other types of indicators in oral interaction, which may be the result of written-based communication that was mediated by the chat program. Smith (2003) observed the *split negotiation routines* in which there was often a delay between the initial trigger and the indicator. In addition, the response only occurred after one or more repeat indicator some time later in the discourse, which might be influenced by the scrolling chat log through which computer-mediated negotiation took place. He also found that the negotiation routines in the CMC environment usually consisted of all the four components, as opposed to the often optional reaction to the response prime in spoken language. On the other hand, Negretti (1999) noticed that during computer-mediated negotiated interaction, turn-taking was by and large disrupted and discontinuous in that most of the response to a turn was unfilled and delayed and many adjacent pairs were intermingled temporally, which broke the flow typical of oral talk. Moreover, he discerned the large amount of motivation and commitment this temporal characteristic of synchronous chat required on the part of learners
since they were confronted with the challenges of both L2 and the CMC discourse. However, other CMC studies (e.g., Smith, 2005) also demonstrated that the complexity of computer-mediated negotiation routines seemed to have minor impact on learner involvement with the negotiated interaction, which can possibly be attributed to learners’ knowledge of CMC tools and the essential role that task features played in producing negotiation of meaning.

### 2.4 Task Features

Although there were a few CMC studies that focused on the NS-NNS negotiation occurring in public chat rooms with open-ended conversational tasks (e.g., Tudini, 2003), most of the existing chat research has been conducted on interaction between learners, with teacher supervision, often in task-based instructional settings. Therefore, a very important issue that has been raised in recent CMC literature is the importance of task design features for the quantity and quality of negotiation produced. According to Pica, Kanagy, and Falodun (1993), *interactional activity* and *communication goal* are the two major task features that are critical to the promotion of learner interaction in collaborating on communication tasks. In particular, interactional activity includes interactant roles, interactant relationship and interaction requirements, and communication goal involves goal orientation and outcome option. These features emphasize the extralinguistic characteristics of communication tasks and serve as indicators of opportunities for learners to experience comprehension of input, feedback on production and interlanguage modification. Therefore, in agreeing with Pica et al. (1993), Chapelle (1998) suggested an expanded SLA model which involved activity and goal as task features (see Figure 2.3). Compared with Gass’ model, this SLA model separates the observable language from learner knowledge and processes, and includes task features which are controlled by instructors or CALL designers as the conditions for negotiation of
meaning. As such, it provides a more inclusive theoretical base for task-based synchronous CMC studies since it adds to the IA “a means of expressing the task demands which influence psycholinguistic process and knowledge” (Chapelle, 1998, p.25).

Furthermore, Pica et al.’s (1993) communication task typology has posited four main categories of task features that would impact on negotiation of meaning: interactant relationship, interactional goal, communication goal, and outcome option. Interactant relationship indicates whether one or all participants are obliged to request and supply information. Interactional goal suggests whether interaction is mandatory or optional. Communication goal implies whether participants work collaboratively towards a convergent or joint goal, or work separately towards divergent or individual goals. Outcome option informs whether there is more or less than one outcome. The communication tasks that are most useful from the perspective of input, output and interaction are those in which “each
interactant holds a different portion of information which must be exchanged and
manipulated in order to reach the task outcome, both interactant are required to request and
supply information to each other, interactants have the same or convergent goals and only
one acceptable outcome is possible from their attempts to meet this goal” (Pica et al., 1993, p. 17). In addition, Pica et al. (1993) investigated the five major communication tasks that were
often used in the L2 classroom: jigsaw, information gap, problem-solving, decision-making,
and opinion exchange. Their findings suggested that jigsaw and information gap tasks in
which partners must provide each other with relevant information and converge on a single
outcome would be more effective in prompting negotiation of meaning than the rest of the
tasks (see Table 2.2).

Pica et al.’s (1993) typology has been supported by several CMC studies (e.g.,
Pellettieri, 2000; Blake, 2000; Smith, 2003). However, there are other variables that also
influence task usefulness for negotiation of meaning. For example, Pellettieri (2000)
mentioned that tasks should involve vocabulary beyond the repertoire of learners and ideas,
concepts, or items outside their real-world expectations in order to increase the quantity of
negotiation produced. Sauro (2001) pointed out that perceived task difficulty, task content,
the type of answer expected, familiarity with the task and acquaintance with the partner had a
greater impact on the need for negotiation of meaning than the specific task features. On the
other hand, Tudini (2003) put forward the idea that the investigation of computer-mediated
negotiation should include distance language courses as well. Her analysis of the chat
interaction between NNS of Italian in Australia and NS in Italy indicated that learners did in
fact negotiate for lexical and structural difficulties and modify their interlanguage when
engaged in open-ended conversational tasks with unfamiliar interlocutors. Since learners
Table 2.2. Features of five types of communication tasks (Based on Pica et al., 1993; adapted from Sauro 2001, p.11)

<table>
<thead>
<tr>
<th>Task Type</th>
<th>Interactant Relationship</th>
<th>Interactional Goal</th>
<th>Communication Goal</th>
<th>Outcome Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jigsaw</td>
<td>Both participants possess, request, and supply information.</td>
<td>Required</td>
<td>Convergent</td>
<td>One</td>
</tr>
<tr>
<td>Information Gap</td>
<td>Either participant possesses, requests, and supplies information.</td>
<td>Required</td>
<td>Convergent</td>
<td>One</td>
</tr>
<tr>
<td>Problem-Solving</td>
<td>Participants possess information, but may or may not request or supply it.</td>
<td>Optional</td>
<td>Convergent</td>
<td>One</td>
</tr>
<tr>
<td>Decision-Making</td>
<td>Participants possess information, but may or may not request or supply it.</td>
<td>Optional</td>
<td>Convergent</td>
<td>More than one</td>
</tr>
<tr>
<td>Opinion Exchange</td>
<td>Participants possess information, but may or may not request or supply it.</td>
<td>Optional</td>
<td>Not convergent</td>
<td>More or less than one</td>
</tr>
</tbody>
</table>

were motivated to negotiate with NS and received both implicit and explicit feedback possibly in a less emotionally stressful context than the classroom, it seemed online chat was very likely to facilitate SLA for distance learners.

As mentioned before, a large number of prior task-based synchronous CMC studies have focused on learners’ achievement in morphological and syntactical competence through computer-mediated negotiation. However, it is not quite clear how the negotiated interaction can help learners develop their lexical knowledge since there are only a few CMC studies that have been carried out with the goal of L2 vocabulary acquisition. This is compounded by the fact that the effects of learners’ proficiency levels on real-time communication have not
been fully investigated. Therefore, the amount and the nature of learners’ negotiation in performing a communication task that is seeded with largely unknown vocabulary during synchronous interaction have become the topic to be further explored in this study.
CHAPTER 3. METHODOLOGY

Chapter 3 elaborates on the data collection methods and materials for this study. First of all, it gives a description of the participants and their attitudes towards online chat. Second, the chapter accounts for the materials and procedures exploited in the data collection. The methods of data analysis for each of the three research questions proposed in Chapter 1 are discussed to conclude the chapter.

3.1 Participants

Online synchronous chat logs from 10 NNS-NNS dyads formed the database for this study (see Appendix F and G for sample transcripts). The participants consisted of 12 students in one section of ENGL 99L classes and 8 students in one section of ENGL 101D classes at Iowa State University (ISU). ENGL 99L is mainly aimed at international undergraduates who met the English proficiency requirement of ISU but still lacked sufficient capacity and skills to listen to academic lectures in an English medium university. Moreover, ENGL 99L participants were quite homogeneous with respect to their ages (ranging from 18 to 29, $M = 20.18$, $SD = 3.12$), native languages, cultural backgrounds, and literacy abilities since a majority of them were from China and were native speakers of Mandarin Chinese (with one Arabic-speaking learner and one Vietnamese-speaking learner). Most of them had been in the U.S. for less than a year and had learned English systematically, especially through reading and writing, in the high schools or colleges in China for several years. According to their responses to the questionnaire, vocabulary was regarded as one of
their weaknesses in using English for communication. ENGL 101D participants, on the other hand, were international graduate students who needed academic writing instructions to successfully perform a variety of graduate level composition tasks. They ranged in age from 23 to 30 (M = 25.75, SD = 2.60) and represented five countries and five languages (China/Chinese, Iran/Farsi, Korea/Korean, Turkey/Turkish, Vietnam/Vietnamese). They also reported a slightly longer duration of learning English and staying in the U.S than ENGL 99L participants. Interestingly enough, there seemed to be a discrepancy in their opinions about their knowledge of English vocabulary: half of the participants believed their lexical ability was their strength in communication and the other half thought it was one of the language

Table 3.1 ENGL 99L participants’ profiles

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Gender</th>
<th>Native language</th>
<th>Length of learning English (in months)</th>
<th>Duration in the U.S (in months)</th>
<th>TOEFL or IELTS scores</th>
<th>Hours per day having access to online chat</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>21</td>
<td>M</td>
<td>Vietnamese</td>
<td>10</td>
<td>10</td>
<td>IELTS 5.0</td>
<td>5</td>
</tr>
<tr>
<td>B</td>
<td>18</td>
<td>F</td>
<td>Chinese</td>
<td>0.5</td>
<td>7</td>
<td>IELTS 5.0</td>
<td>0.5</td>
</tr>
<tr>
<td>C</td>
<td>19</td>
<td>M</td>
<td>Chinese</td>
<td>5</td>
<td>3</td>
<td>IELTS 6.0</td>
<td>1</td>
</tr>
<tr>
<td>D</td>
<td>18</td>
<td>F</td>
<td>Chinese</td>
<td>10</td>
<td>9</td>
<td>IELTS 6.0</td>
<td>3</td>
</tr>
<tr>
<td>E</td>
<td>19</td>
<td>F</td>
<td>Chinese</td>
<td>7</td>
<td>12</td>
<td>IELTS 5.0</td>
<td>2</td>
</tr>
<tr>
<td>F</td>
<td>20</td>
<td>M</td>
<td>Chinese</td>
<td>5</td>
<td>4</td>
<td>IELTS 6.0</td>
<td>6</td>
</tr>
<tr>
<td>G</td>
<td>21</td>
<td>M</td>
<td>Chinese</td>
<td>8</td>
<td>24</td>
<td>IELTS 5.0</td>
<td>3</td>
</tr>
<tr>
<td>H</td>
<td>18</td>
<td>M</td>
<td>Chinese</td>
<td>11</td>
<td>24</td>
<td>N/A</td>
<td>1</td>
</tr>
<tr>
<td>I</td>
<td>20</td>
<td>M</td>
<td>Chinese</td>
<td>3</td>
<td>5</td>
<td>IELTS 6.0</td>
<td>3</td>
</tr>
<tr>
<td>J</td>
<td>19</td>
<td>F</td>
<td>Chinese</td>
<td>6</td>
<td>4</td>
<td>IELTS 5.0</td>
<td>4</td>
</tr>
<tr>
<td>K</td>
<td>N/A</td>
<td>F</td>
<td>Chinese</td>
<td>10</td>
<td>19</td>
<td>IBT 90</td>
<td>1</td>
</tr>
<tr>
<td>L</td>
<td>29</td>
<td>M</td>
<td>Arabic</td>
<td>6</td>
<td>12</td>
<td>PBT 517</td>
<td>1</td>
</tr>
</tbody>
</table>

| Mean        | 20.18 | 6.79 | 11.91 | 2.31 |
| SD          | 3.12  | 3.19 | 7.53  | 1.78 |

Note: IELTS=International English Language Testing System, TOEFL=Test of English as a Foreign Language, IBT= Internet Based TOEFL, PBT=Paper Based TOEFL, SD=Standard Deviation.
Table 3.2 ENGL 101D participants’ profiles

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Gender</th>
<th>Native language</th>
<th>Length of Learning English (in months)</th>
<th>Duration in the U.S (in months)</th>
<th>TOEFL or IELTS scores</th>
<th>Hours per day having access to online chat</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>23</td>
<td>M</td>
<td>Chinese</td>
<td>12</td>
<td>6</td>
<td>IBT 102</td>
<td>2</td>
</tr>
<tr>
<td>N</td>
<td>23</td>
<td>F</td>
<td>Chinese</td>
<td>10</td>
<td>9</td>
<td>IBT 99</td>
<td>4</td>
</tr>
<tr>
<td>O</td>
<td>24</td>
<td>F</td>
<td>Chinese</td>
<td>12</td>
<td>9</td>
<td>IBT 93</td>
<td>8</td>
</tr>
<tr>
<td>P</td>
<td>30</td>
<td>F</td>
<td>Korean</td>
<td>17</td>
<td>36</td>
<td>IBT 88</td>
<td>10</td>
</tr>
<tr>
<td>Q</td>
<td>29</td>
<td>M</td>
<td>Vietnamese</td>
<td>10</td>
<td>9</td>
<td>PBT 600</td>
<td>5</td>
</tr>
<tr>
<td>R</td>
<td>26</td>
<td>M</td>
<td>Farsi</td>
<td>5</td>
<td>6</td>
<td>PBT 553</td>
<td>14</td>
</tr>
<tr>
<td>S</td>
<td>25</td>
<td>F</td>
<td>Turkish</td>
<td>9</td>
<td>8</td>
<td>IBT 83</td>
<td>10</td>
</tr>
<tr>
<td>T</td>
<td>26</td>
<td>F</td>
<td>Korean</td>
<td>14</td>
<td>24</td>
<td>IBT 104</td>
<td>10</td>
</tr>
<tr>
<td>Average</td>
<td>25.75</td>
<td></td>
<td></td>
<td>11.13</td>
<td>13.38</td>
<td></td>
<td>7.88</td>
</tr>
<tr>
<td>SD</td>
<td>2.60</td>
<td></td>
<td></td>
<td>3.56</td>
<td>10.82</td>
<td></td>
<td>3.94</td>
</tr>
</tbody>
</table>

Note: IELTS=International English Language Testing System, TOEFL=Test of English as a Foreign Language, IBT= Internet Based TOEFL, PBT=Paper Based TOEFL, SD=Standard Deviation.

skills they needed most improvement. Moreover, based on their TOEFL or IELTS scores, ENGL 99L participants were for the most part intermediate learners and ENGL 101D participants were mainly advanced learners (see Table 3.1 and Table 3.2).

In addition, both groups of participants indicated their familiarity with computers and online chat in their responses to the questionnaire. The most popular chat programs were Goolge Talk (GTalk), Windows Live Messenger, Skype and QQ. The primary use of online chat was to contact parents, friends and classmates. The main language used for chat was their native languages. Most participants used computers for various purposes, including word processing, e-mail, entertainment and they reported a moderate typing ability (about 25-30 word per minute). The average hours per day that were accessible to online chat was 2.31 hours for ENGL 99L participants (SD = 1.78) and 7.88 hours for ENGL 101D.
participants (SD = 3.94). Such a significant difference in the length of daily access to chat was probably because the majority of ENGL 101D participants were assigned teaching or research duties and therefore had chat programs installed in their own computers and office computers. Whereas campus computer labs and dorm rooms seemed to be the only places that were available for ENGL 99L participants to carry out real-time communication. It is also important to note that although both groups of participants placed a high value on the convenience, efficiency, and low cost of synchronous CMC, overall ENGL 101D participants hold more conservative attitudes towards the appropriateness of chat language for English learning than ENGL 99L participants.

3.2 Materials

The main treatment task used for data collection in this study was an information-gap task. This task was designed within the framework of Pica, Kanagy, and Falodun’s (1993) communication task typology which distinguishes whether a task is a one-way or a two-way exchange of information, whether only one or both members of the pair have access to all the pertinent facts needed to find a solution, whether there exists a unique solution or multiple solutions and finally, whether the task requires that the participants reach some sort of agreement or convergence. Specifically, this information gap task simulated a real-life situation in which learners must use online chat to tell his or her friends the kitchen utensils he or she wanted to buy. Each participant worked with a task sheet (A or B) that contained the names and the images of the eight kitchen utensils that his or her partner did not have. The instructions on sheets A and B were identical. One partner needed to describe the appearance or the usage of the kitchen utensils he or she intended to buy to the other partner. However, instead of simply writing down the names, the partner who received the
descriptions was required to select the letters that stand for the correct kitchen utensils out of the twenty-six pictures in another task sheet (C or D). The images for the target kitchen utensils in sheet C or D were different from the ones in sheet A or B to ensure that participants were able to identify the images by drawing on their existing English proficiency rather than other factors such as colors or positions (see Appendix A). The sixteen target lexical items were chosen based on the results of a pretest that was administrated before the main treatment task. Those items that were least known by both groups of participants were seeded into the task. This information gap task echoed the task typology by assigning each participant a different portion of the information and by requiring them to request and supply the information needed to accomplish the task. The goal of singling out the target kitchen utensil images was convergent and there was only one possible outcome (the proper letters) for all the participants. Therefore, according to previous CMC studies, these task features were for the most part superior for promoting negotiated interaction (i.e., Blake, 2000). In addition, it can be postulated that most of the computer-mediated negotiation would be around these unfamiliar words since they were the targets of this task.

The online learning management system Moodle (Modular Object Oriented Dynamic Learning Environment) was used for synchronous chat in this study. It is licensed as open-source software and has been largely integrated into a wide range of courses offered by ISU. It enables instructors to deliver learning resources to students and create online activities to build richly collaborative learning communities around their subject matter. The chat rooms used by the participants were launched via the Chat feature of the system. They allowed participants to have real-time discussion via the Internet and required each participant to create a Moodle account using their real names to log into the chat rooms at a specific
During the chat sessions, participants were able to exchange information with each other by typing text in the text area at the bottom of the interface, and their messages appeared instantly on the interface with the time the messages were sent (see Figure 3.1). Participants can also use other features such as automatic scroll, emoticons, links, beeps to make chatting more engaging. On the right side of the interface, Moodle Chat lists the names of the participants and how long they have been in the chat rooms. After participants completed their tasks, Moodle Chat would automatically archive past chat sessions for the researcher to review. However, unlike the chat programs used in some previous CMC studies (e.g., Pellettieri, 2000, Smith, 2008), Moodle Chat does not provide online spell check or keep a record of learners’ editing their messages during synchronous discussion.
3.3 Procedures

The study consisted of three sections that were conducted on different days. All sections overlapped with participants’ scheduled computer lab sessions and were part of the regular class syllabus. During the first section, the investigator introduced the study to the learners and obtained their consent. The learners were informed that the goal of the study was to learn English vocabulary about kitchen utensils via online chat. Those learners who agreed to participate were asked to fill out a questionnaire regarding their demographic information and attitudes towards online chat (see Appendix D). They also took a pretest in which they were presented with 30 images of kitchen utensils and were required to write down the names and the usage of each kitchen utensil. All the participants responded to the test to the best of their knowledge without resorting to additional resources. After this introductory session, the investigator examined the data collected and selected the 16 lexical items for which at least eighty percent of the participants in both groups did not know the correct names (peeler, whisk, potato masher, cheese grater, mesh strainer, griddle, rolling pin, kettle, sauce pan, colander, spatula, scoop, tongs, kitchen scale, apron, and pizza cutter). In other words, the kitchen utensil items that were least known were selected for inclusion in the task.

The information gap task was administrated two days after the first section. As an initial step, the researcher set up a number of chat rooms in Moodle and ensured that all the participants had an online account that would enable them to access the course website. The accounts were created with participants’ real names so that they can perform the task using their genuine identities. However, the chat rooms were kept invisible to the participants until the instructions for the main treatment task were entirely delivered. The participants were randomly assigned to two groups: Partner A and Partner B, and each group had an equal
number of participants (6 learners per group for ENGL 99L participants and 4 learners per group for ENGL 101D participants, see Table 3.3). Each participant was placed in front of a computer and the two groups were visually separated in a way that the participants in Partner A were not able to see the computer screen of the participants in Partner B, and vice versa.

Upon the completion of assigning groups, the researcher handed out the task sheets A and C for Partner A, and B and D for Partner B. After listening to a brief explanation of the task, each participant in Partner A was allocated a partner in Partner B to do the task. The Moodle chat rooms were simultaneously made visible to all the participants to let each pair of partners negotiate the meaning of the lexical items in a single, private chat room. Prior to the main treatment task, the participants acquainted themselves with Moodle Chat by doing a warm-up activity in which they chatted to each other about their hometown, favourite foods, hobbies and plans for the day. The estimated time of completing the task was 20 minutes according to the length of negotiation over each new word documented in De la Fuente’s (2003) research. However, the actual time varied from 25 to 55 minutes depending on the participants’ pace. After the task was finished, all the chat logs were compiled and saved.

Tables 3.3 Dyads and partners in collaborating on the information gap task

<table>
<thead>
<tr>
<th>Participants</th>
<th>Dyads</th>
<th>Partner A Group</th>
<th>Partner B Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 99L Participants</td>
<td>Dyad1</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>Dyad2</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>Dyad3</td>
<td>E</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>Dyad4</td>
<td>G</td>
<td>H</td>
</tr>
<tr>
<td></td>
<td>Dyad5</td>
<td>I</td>
<td>J</td>
</tr>
<tr>
<td></td>
<td>Dyad6</td>
<td>K</td>
<td>L</td>
</tr>
<tr>
<td>ENGL 101D Participants</td>
<td>Dyad7</td>
<td>M</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>Dyad8</td>
<td>O</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Dyad9</td>
<td>Q</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>Dyad10</td>
<td>S</td>
<td>T</td>
</tr>
</tbody>
</table>
into Moodle Chat archives. To maximize the validity of data, the researcher emphasized that any form of dictionaries was not allowed in doing the task and ensured the clarity of instruction. Participants were reminded to use only English for chatting. After they completed the task, they were asked to log off the computer and respond to vocabulary test I for the purpose of assessing the immediate vocabulary retention (see Appendix B). They were also told not to review any of the vocabulary during the coming week. A follow-up survey and vocabulary test II were carried out one week after the main treatment task to obtain participants’ feedback on the task and examine their retention of the negotiated words (see Appendix C and E). Both vocabulary tests solely measured the participants’ ability to recognize rather than to produce the target lexical items since according to De la Fuente (2003), recognition tests require learners to mainly perform semantic processing and therefore are less cognitively demanding than production tests. Given the fact that it might be easier for participants to recognize the words discussed than to produce them, vocabulary test I and II were especially suitable for evaluating participants’ retention of the kitchen utensil vocabulary after negotiating about them for only less than an hour.

**3.4 Analysis**

Both qualitative and quantitative data were collected and analyzed to answer the three research questions. In particular, negotiated routines and total turns were identified from the chat logs to answer the first research question. To address the second research question, all turns involving negotiated interaction were closely investigated to find out the nature of computer-mediated negotiation. To determine the effectiveness of online chat on L2 vocabulary development, the scores of the information gap task, vocabulary test I and vocabulary II were calculated and compared. Due to the small number of participants in this
study, descriptive statistics rather than inferential statistics were employed for most of the quantitative analysis.

### 3.4.1 Research Question One

**Does an information gap task seeded with largely unknown vocabulary elicit a greater amount of computer-mediated negotiation than the amounts documented in previous CMC studies?**

Despite the fact that the use of printed chat logs for interpreting synchronous CMC data has been criticized by some CALL researchers as “relying on a static artifact to make claims about a dynamic process” (Smith 2008, p. 89), as the methodological industry standard, it still holds its value of providing some insight into learner-learner interaction within a CMC context. Therefore, in adhering to the methodology widely exploited in previous CMC studies (Pellettiere, 1999; Blake, 2000; Smith, 2003, Tudini, 2003), the analysis of participants’ chat logs in this study was mainly descriptive and focused on two aspects: the negotiation routines and the total turns. Specifically, according to Smith (2003) and Tudini (2003), a turn was counted each time there was a transfer of the “floor” from one participant to the other, regardless of its length. In addition, as Smith (2003) noted, turn-taking in the electronic medium should be approached in a way that takes into account the unique structure of CMC discourse, including multi-linear and associative topic development, the availability of only one communication channel for all participants at a time, and highly individualized keyboarding techniques. Echoing his viewpoint, instead of counting each line of the chat logs as one turn, the researcher viewed the disrupted turn adjacency in the following excerpt as six turns in total.
1. Q: I’m gonna buy peeler, whisk, potato masher, chesses grater, mesh strainer, griddle, kettle, and rolling pin.
   Q: but apparently I don’t have time to buy it. So could u buy them 4 me?
2. R: o, could you explain the utensils for me?
   R: because I am not very familiar with this utensil.
3. Q: oh what u want me to describe?
   Q: I can do that.
4. R: peeler, whisk, chesses greater, please.
5. Q: peeler, um this is for potato or carrot to peel the skin.
6. R: OK.

On the other hand, the negotiation routines were identified based on Varonis and Gass’s (1985) expanded negotiation model as the turns in which there is some overt indication of non-understanding that has the effect of “pushing down” the conversation and interrupt the main conversational flow. The non-understanding may result from a trigger (T) that involves unclear messages, unfamiliar lexical items, or misspellings, which provides speakers the opportunity of going through an indicator (I), a response (R) and an optional reaction to response (RR) to resolve the non-understanding and continue the conversation. (see Figure 3.2). A complete negotiation routine ought to include a trigger, an indicator and a response to the trigger. However, it is also possible that due to various factors, speakers may choose to halt the progression of negotiation at the indicator and thus yield an incomplete negotiation routine. Nevertheless, compared to spoken language, incomplete negotiation

<table>
<thead>
<tr>
<th>I want to buy</th>
<th>What peeler mean</th>
<th>it’s a tool for getting rid of the surface layer of fruit, such as apple</th>
<th>ok go to the next</th>
</tr>
</thead>
<tbody>
<tr>
<td>a peeler</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Triggers** ➔ **Indicators** ➔ **Responses** ➔ **Reactions to Response**

**Figure 3.2** The expanded model of computer-mediated negotiation (Adapted from Varonis and Gass, 1985, p. 81; Smith, 2003, p.43).
routines have been found quite rare in task-based CMC. In addition, the optional reaction to the response is by and large mandatory within the CMC context. Both complete (T, I, R or T, I, R, RR) and incomplete (T, I) negotiation routines were counted by the researcher to determine the amount of negotiated interaction triggered by the information task.

3.4.2 Research Question Two

How do learners carry out computer-mediated negotiation in performing the information gap task?

The investigation of the nature of computer-mediated negotiation mainly focuses on two areas: the language complexity and the discourse features of synchronous CMC. In particular, Type-Token Ratio (TTR) and Coordination Index (CI) would be analyzed to compare the language complexity of the two groups of participants. TTR is defined by the total number of different words divided by the total number of words. For example, the sentence “The pizza cutter cuts pizza” would have a TTR of 80% since there are four different types of words divided by five total words. According to Warschauer (1996), a higher TTR indicates greater complexity. CI is defined as the ratio of independent clause coordination, for example, for, and, nor, but, or, yet, and so, to the total number of combined clauses, that is, independent clause coordination plus dependent subordination such as that, which, and when. As Warschauer (1996) noted, CI is in general considered to be inversely proportional to complexity since “more advanced writers or speakers of a language usually use proportionally more subordination than do beginners” (p. 13).

Only those negotiated exchanges that surround lexical confusion were included and examined to explore the discourse features of synchronous CMC. Moreover, in looking at the
task-based synchronous CMC interaction among intermediate-level learners of English, Smith (2003) proposed an integrated approach of subcategorizing each prime of the negotiation routine according to the existing interactionist research (e.g., Bremmer, Broeder, Roberts, Simonot, and Vasseur, 1988; Rost and Ross, 1991; Pellettieri, 1999; Pica et al., 1999). His methodology provided a thorough analysis of learner-learner negotiation within the CMC discourse and thus would be useful for investigating the nature of computer-mediated negotiation routines in this study (see Table 3.4). In addition, each prime of the negotiation routine would be further examined in relation to the IA to account for input, feedback and output.

3.4.3 Research Question Three

Do these computer-mediated negotiated exchanges facilitate mutual comprehension and retention of the target L2 lexical items?

Both the information gap task and the two vocabulary tests were scored to measure the effects of computer-mediated negotiation on mutual understanding and target vocabulary retention. The scores for the information gap task were calculated to be the number of kitchen utensils images each participant was able to identify by providing the English letters that represent the correct images. The scores of vocabulary test I and vocabulary II were counted to be the number of target words each participant was able to match with the proper images. The maximum score for the information gap task was 8 and each selection of incorrect letters would result in the deduction of one point. In the two vocabulary tests, the minimum score was 0 points and the maximum score 16 points for all 16 target words. Slightly imperfect spellings (i.e., spatala instead of spatula) were considered correct for scoring purposes, while other more deviated answers were scored as 0.
Table 3.4 Definitions and examples of each subcategory of the negotiation primes

<table>
<thead>
<tr>
<th>Primes of the Negotiation Routine</th>
<th>Prime Subcategories</th>
<th>Definitions</th>
<th>Examples from the Chat logs</th>
</tr>
</thead>
</table>
| Triggers                         | Lexical             | The problematic utterance can be clearly linked to a specific lexical item. | A: *Does it have a circle in the middle?*  
B: *What is circle?* |
|                                  | Morphosyntactic     | The problematic utterance can be clearly attributed to a structural or grammatical construction. | O: *I need tongs.*  
P: *I can’t tell tongs is a single noun or plus?* |
| Discourse                        | The problematic utterance lacks general coherence of the discourse or conversation. | K: *Did you find it in the pictures?*  
L: *What do you need? I am lost…* |
| Content                          | The entire content of a previous message is not clear. | C: *I still got many blacks here.*  
D: *got blacks?* |
| Indicators                       | Global Strategies   | The respondent indicates non-understanding in a way that does not identify the trigger specifically. | The question (clarification request) “*What?*” or the statement “*I don’t understand.*” |
|                                  | Local Strategies    | The respondent explicitly identifies the trigger or indicates its precise location in the preceding discourse. | B: *next I want a tool that can try vegetables*  
A: *ok I am not sure when you mean try vegetables? Did you mean dry vegetables?* |
|                                  | Inferential Strategies | The respondent tests out hypotheses and in doing so indicate non-comprehension. | Q: *I need to buy something to separate water from rice*  
Q: *or from other food*  
R: *ok, you mean colander?* |

*Note.* Based on Smith, 2003, p. 43
### Table 3.4 (continued)

<table>
<thead>
<tr>
<th>Responses</th>
<th>Minimal</th>
<th>Stating an Inability to Respond</th>
<th>Reaction to the Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merely repeating the trigger or simply responding “yes” to the indication of non-understanding.</td>
<td>Being unable to resolve the problems in the trigger</td>
<td>An explicit statement of understanding</td>
<td></td>
</tr>
<tr>
<td>Repeating the Trigger with Lexical Modification to the Surrounding Texts</td>
<td>The respondent attempts to clarify his or her intended meaning, but does not address the fundamental problem signaled in the indicator prime. The length of the response utterance is about the same as the trigger.</td>
<td>“OK”, “Good”, or “I understand”.</td>
<td></td>
</tr>
<tr>
<td>Rephrasing or Elaboration</td>
<td>By rephrasing the prior utterance, the respondent may better illustrate the nature of the problematic lexical item, and by elaborating on the previous discourse, more contexts may be provided.</td>
<td>Learners comment explicitly on what the cause of the problem has been</td>
<td></td>
</tr>
</tbody>
</table>

| | Any response that provides no new information to the interlocutor and was a short, one or two-word response, for example, “yes”, “OK”, “I think so”. |
| | B: The thing I can cook rice and the tool I can roast bread |
| | A: Can you tell me that name of it? |
| | B: sorry, I wish I know |
| | E: The second one keeps the things from water. |
| | F: Apron? |
| | E: no, divides the objects and water |
| | K: I want to buy a peeler. |
| | L: what peeler mean |
| | K: it’s a tool for getting rid of the surface layer of fruit, such as apple |
| | L: ok, go to the next |
| | K: scoop has a meatal edge and red hand with small open at the end of the hand. |
| | L: is it used to catch the solid food or very hot food? |
| Task Appropriate Response | Utterances that are contextually relevant to the previous stretch of discourse and that implicitly show a degree of understanding of the target element. | O: Do you want to make dumplings yourself?  
O: then you need a rolling pin.  
P: a rolling pin?  
O: a tool used to make the clothes of the dumplings.  
P: we Chinese like eating dumplings.  
P: though it takes a lot of time and work. |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Testing Deductions        | Learners react to the recent input provided in the response phase and make certain inferences, testing out their current state of understanding regarding the original problematic utterance. | K: Next one is Cheese grater  
L: please describe it  
K: it is used for making cheese powder from block cheese  
L: did you mean the picture show a piece of chesses and the tool try to turn on that piece? |
CHAPTER 4. Results and Discussion

Chapter 4 presents the results of the data analysis exploited to address the three research questions proposed in Chapter 1. In particular, this chapter includes a discussion of the findings with regard to the amount and the nature of computer-mediated negotiation elicited by the information gap task in this study, and whether the negotiated interaction facilitates comprehension and lexical development.

4.1 Research Question One

Does an information gap task seeded with largely unknown vocabulary elicit a greater amount of computer-mediated negotiation than the amounts documented in previous CMC studies?

Table 4.1 and Table 4.2 show the number of negotiated routines, total turns and the ratio of turns involving negotiation to total turns for all dyads in collaborating on the information gap task. Based on the relative amount of negotiation that emerged during the task-based synchronous chat sessions, it is possible to infer the extent to which learners were confronted with real-time communication impasse and find a solution together. Both tables suggest that on average negotiated turns account for nearly half of the total turns generated by the 10 dyads, which far outnumbers the portion of computer-mediated negotiation documented in previous synchronous CMC studies (e.g., Pellettieri, 2000; Blake, 2000;
Table 4.1 Negotiation routines and total turns during task-based synchronous CMC by ENGL 99L participants

<table>
<thead>
<tr>
<th>Dyads</th>
<th>Negotiation Routines</th>
<th>Total Turns</th>
<th>Percentage of Turns Negotiated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dyad1</td>
<td>46</td>
<td>81</td>
<td>56.79%</td>
</tr>
<tr>
<td>Dyad2</td>
<td>28</td>
<td>48</td>
<td>58.33%</td>
</tr>
<tr>
<td>Dyad3</td>
<td>21</td>
<td>37</td>
<td>56.76%</td>
</tr>
<tr>
<td>Dyad4</td>
<td>46</td>
<td>89</td>
<td>51.69%</td>
</tr>
<tr>
<td>Dyad5</td>
<td>48</td>
<td>77</td>
<td>63.34%</td>
</tr>
<tr>
<td>Dyad6</td>
<td>40</td>
<td>65</td>
<td>61.54%</td>
</tr>
<tr>
<td>Total</td>
<td>229</td>
<td>397</td>
<td>57.68%</td>
</tr>
<tr>
<td>Mean</td>
<td>38.17</td>
<td>66.17</td>
<td>58.08%</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>11.14</td>
<td>20.20</td>
<td>4.10%</td>
</tr>
</tbody>
</table>

Table 4.2 Negotiation routines and total turns during task-based synchronous CMC by ENGL 101D participants

<table>
<thead>
<tr>
<th>Dyads</th>
<th>Negotiation Routines</th>
<th>Total Turns</th>
<th>Percentage of Turns Negotiated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dyad7</td>
<td>35</td>
<td>79</td>
<td>44.30%</td>
</tr>
<tr>
<td>Dyad8</td>
<td>16</td>
<td>52</td>
<td>30.77%</td>
</tr>
<tr>
<td>Dyad9</td>
<td>22</td>
<td>35</td>
<td>62.86%</td>
</tr>
<tr>
<td>Dyad10</td>
<td>14</td>
<td>20</td>
<td>70.00%</td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>206</td>
<td>49.03%</td>
</tr>
<tr>
<td>Mean</td>
<td>21.75</td>
<td>46.05</td>
<td>51.98%</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>9.46</td>
<td>25.30</td>
<td>17.81%</td>
</tr>
</tbody>
</table>

Iwasaki and Oliver, 2003; Smith, 2003 and Tusini, 2003). According to Smith (2003), this result indicates that participants, when engaging in CMC tasks designed to facilitate negotiation over new L2 vocabulary, dedicated themselves to negotiated interaction in about half of their total exchanges. The other half of their discourse was correspondingly used to maintain collaborative progression toward task completion. On the other hand, it is also noteworthy that there are noticeable variations in the quantity of negotiation produced by each dyad, ranging from 30% to 70%, which, in terms of the prior CMC literature, may be influenced by some other factors such as participants’ familiarity with the task and each other,
motivation for converging to the outcome, language proficiency or typing ability. A glimpse of the chat logs reveals that among these many factors, familiarity with the kitchen utensil items seemed to be a very important element that affected participants’ involvement with the negotiated interaction, which can be evidenced in the following excerpt:

S: I need to buy peeler, whisk, potato masher, cheese grater, mesh strainer, griddle, kettle, and rolling pin. do u need to any help to describe these things?
T: what is whisk
S: whisk: when u bake, u need to mix powder, eggs, and butter, right? it is used for that
T: sweet. what about griddle
S: griddle: it’s for grill something, like meat
S: it looks like a fan
S: bit square fan
T: does it have a handle
S: yes
T: ok got it done
S: oh nice

Both speakers in the excerpt above were advanced learners of English who achieved a relatively high accuracy rate of task completion. It is easy to see that N figured out that M might have difficulty identifying the long list of kitchen utensils she had just provided and therefore initiated the negotiation to help her partner out. However, instead of discussing the details of every lexical item, M wrapped up the task with the inquiry of the only two utensils he was not acquainted with. In other words, he successfully identified the rest of the kitchen utensils without the information regarding their appearance or usage from his partner. A possible explanation for this phenomenon might be M’s exploitation of his background knowledge of the target vocabulary or other resources, which ultimately reduced the urgency and necessity of negotiation. Nevertheless, it seems that information gap tasks seeded with new lexical items that are distant from learners’ repertoire of L2 can more easily draw their attention to the target form.
The strength of the information gap task in promoting negotiation can also be found in the distribution of trigger types across the negotiation routines. Table 4.3 shows that communication breakdown brought by lexical problems makes up more than 70% of all triggers produced by both groups of participants, which supports Pellettieri (2000), who found that lexical triggers accounted for 71% of all the trigger types in her data with a similar communication task. On the other hand, although the high percentages of lexical triggers in this study echoes the prevailing dominance of discussion on L2 vocabulary documented in the previous CMC literature, it is also noteworthy that lexical confusion regarding the kitchen utensils also seems to prompt slightly more negotiations between participants than the amounts reported by Smith (2003) (60%) and Tudini (2003) (49%), whereas morphosyntactic, discourse and content triggers occurred much less frequently than those documented in prior CMC research (e.g., Pellettieri, 2000; Smith, 2003; Tudini, 2003). The reason for such a difference can be twofold. First of all, during chat sessions, participants were able to resolve discourse problems such as the referent of a specific pronoun by reviewing the chat logs instead of directly asking their partners for clarification. In addition, the pressure of selecting the correct images of the kitchen utensils within a certain period of time pushed participants to focus mainly on the negotiation of the target vocabulary. Therefore they tended to request

Table 4.3 Percentage of trigger types per group of participants

<table>
<thead>
<tr>
<th>Trigger Type</th>
<th>ENGL 99L Participants</th>
<th>Percentage</th>
<th>ENGL 101D Participants</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lexical</td>
<td>38</td>
<td>76%</td>
<td>17</td>
<td>71%</td>
</tr>
<tr>
<td>Morphosyntactic</td>
<td>1</td>
<td>2%</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>Discourse</td>
<td>5</td>
<td>10%</td>
<td>5</td>
<td>21%</td>
</tr>
<tr>
<td>Content</td>
<td>6</td>
<td>12%</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100%</td>
<td>23</td>
<td>100%</td>
</tr>
</tbody>
</table>
assistance as to morphological or syntactical issues only when necessary. The written nature of CMC discourse can also provide participants adequate linguistic cues to overcome obstacles to comprehension. A typical example can be seen in the following excerpt:

L: the main part of the tool is made of mesh with very small holes
K: it is used for get rid of liquid or separated solid from liquid
L: the opening is circle shape
K: is it meat or plastic
L: metal
K: what the name?
L: mesh strainer
K: ok I get it

... L: In my picture, the pan is rectangular shape
K: is for dough making bread
L: I don’t think so
K: it meat, have a word on the handle
[80 lines of text]
L: no, it’s a pan

In this particular excerpt of learner chat, the case of L’s explicit corrective feedback on the typo “meat” was mainly morphosyntactic in nature. In the CMC environment this non-target form could only potentially result in non-understanding since L can easily discern this error and speculate about what the correct word might be based on the topic she and her partner were discussing about. Nonetheless, she did not appear to tolerate it and provided her partner, K, the target form “metal”. However, unlike the Spanish learners in Pellettieri’s (2000) study, K did not seem to show much interest in integrating L’s feedback into his output as he continued to use the non-target form of “metal” in his subsequent negotiation with L, although with a minor alternation to make it more target-like. Compared to the highly accurate forms of most kitchen utensil names, the abundant deviant spelling of some nouns, verbs, and adjectives by participants in synchronous discussion would most likely confirm
Sotillo’s (2000) observation that fluency or effective ongoing discourse, rather than syntactic complexity or accuracy, is facilitated via the mode of CMC. Since some errors participants had committed actually hindered mutual comprehension, this imbalanced attention to the target language may point to the downside of task-based CMC with an explicit goal of L2 vocabulary development.

On the other hand, task features can also result in the large amount of computer-mediated negotiation produced by the 10 dyads in this study. Although Pica et al.’s (2003) task typology was a critical factor in the mass production of negotiated interaction, what seemed more important, was the task-induced lexical saliency. Smith (2003) ascribed the inferiority of his jigsaw task to his decision-making task in eliciting computer-mediated negotiation to the fact that participants, when performing lexically infused jigsaw tasks, seemed to relegate the target lexical items to a level of secondary importance because they might perceive the target vocabulary as less salient for successful task completion. In other words, although his jigsaw task was designed in terms of Pica et al.’s (1993) criteria of activity and goal, it was not of utmost importance for learners to negotiate the meaning of all the unknown words to accomplish the task. However, in this study, the information gap task required each participant to describe the shape or usage of the kitchen utensil items to his or her partner, type in and write down the names, and identify them from a number of irrelevant pictures. Therefore, to get a correct shopping list, participants must negotiation over all aspects of the kitchen utensils to gather adequate information. This would undoubtedly place the target lexical items in the central position of the communication process, which in turn contributed to the semantic, syntactic and morphological saliency of the new vocabulary and increased learners’ exposure to the target form in a meaningful context.
4.2 Research Question Two

How do learners carry out computer-mediated negotiation in performing the information gap task?

Until now much of the data analysis has focused on the amount of computer-mediated negotiation elicited by task-based synchronous CMC. However, to unveil a more explicit and thorough picture of learner interaction in the chat environment, it is also essential to take an in-depth look at the discourse of the negotiated interaction. First of all, ENGL 99L participants were compared with ENGL 101D participants on two measures of language complexity, one lexical (type-token ratio) and one syntactic (coordination index) (see Table 4.4). Descriptive statistics suggested that the chat logs produced by ENGL 101D participants were lexically more compact than the ones produced by ENGL 99L participants. Differences were especially striking in the syntactic area, with 69.49% of the combined clauses created by ENGL 99L participants using coordination rather than the more complex subordination, compared to 50.86% of the combined clauses generated by ENGL 101D participants. Qualitative analysis also indicated that the dependent subordinations were more diverse in ENGL 101D participants’ negotiation. For example, in addition to the subordinations that were common to both groups of participants such as when, that, which, ENGL 101D participants also used if, then, since, as to organize their utterances. Therefore, on both measures, ENGL 101D participants made use of more complex language than ENGL 99L participants to collaborate on the task.
Table 4.4 Language complexity of ENGL 99L and ENGL 101D participants

<table>
<thead>
<tr>
<th>Participants</th>
<th>Type-Token-Ratio (TTR)</th>
<th>Coordination Index (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 99L</td>
<td>28.1%</td>
<td>69.49%</td>
</tr>
<tr>
<td>ENGL 101D</td>
<td>30.3%</td>
<td>50.86%</td>
</tr>
</tbody>
</table>

Another prominent feature of the computer-mediated negotiation in this study is what Smith (2003) mentioned as *split negotiation routines* in which there was often a delay, sometimes a long delay, between the initial trigger and the indicator since strict turn adjacency in synchronous CMC was for the most part absent. A representative sample can be found in the following conversation between two partners about the shopping items:

Q: need sauce pan, colander, spatula, scoop, tongs, kitchen scale, apron, pizza cutter <T>
   [29 lines of text]
   ...
R: what's tong? <I>
   [41 lines of text]
   ...
Q: tongs, used to pick something in the water, for example <R>
   [45 lines of text]
Q: yes
   ...
R: yeah. thank you <RR>
   [47 lines of text]

It is quite obvious from this excerpt that P’s denotation of failing to understand the word “tongs” is distant from Q’s initial utterance. As mentioned before, this significant time lag in the problematic utterance being questioned may derive from the availability of only one channel for communication during computer-mediated negotiated interaction and some other factors such as typing speed and the technological issues inherent in the chat program itself. However, such delays can be even more noticeable in task-based instructional settings, for the pressure of completing a CMC task within a limited class hour may drive learners to
deliver a greater amount of messages at a time. As such, even though the chat rooms allowed participants to process input and output more readily, it assigned them much more information to grapple with as well, which may often distract or disrupt turn-taking in the electronic medium. On the other hand, the text-based discussion allowed participants to refer back to the source of non-understanding with greater ease. As was evident in the excerpt above, it was very likely that P made use of the chat scroll to track down the missed information and found the word in question, which can often be difficult and laborious in oral interaction.

Moreover, Smith (2003) made the point that it was rare for a trigger to be ignored permanently in synchronous CMC. A glance at the explicit indications of non-understanding regarding the target lexical items confirms this statement by making it clear that the majority (95%) of the computer-mediated negotiation in this study progressed in accordance with the negotiation routine proposed by Varonis and Gass (1985). In other words, most of the negotiation consisted of a trigger, an indicator and a response (see Table 4.5). It is also important to note that a large number (84%) of the negotiation around the target vocabulary ended up with a reaction to the response. For example, a participant would usually express a confirmation or disaffirmation of finding the correct images after reading his or her partner’s

<table>
<thead>
<tr>
<th>Negotiation Stages</th>
<th>Total Number (Relative Percentage) of Negotiation Routines Terminating at This Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>T→I</td>
<td>3 (5%)</td>
</tr>
<tr>
<td>T→I→R</td>
<td>6 (11%)</td>
</tr>
<tr>
<td>T→I→R→RR</td>
<td>46 (84%)</td>
</tr>
<tr>
<td>Total</td>
<td>55 (100%)</td>
</tr>
</tbody>
</table>

Note. Based on Smith, 2003, p. 47
description. Compared to the arbitrariness of this prime in face-to-face negotiation, such a frequent occurrence of reactions to the response in computer-mediated negotiation echoes the findings in previous CMC studies (e.g., 84% in Pellettieri, 2000; 70% in Fidalgo-Eick, 2001; 82% in Smith, 2003) and suggests that the lexical trigger allowed participants to undergo a complete negotiation sequence before mutual comprehension can be achieved. On the other hand, as Smith (2003) indicated, the existence of abundant reactions to the response may result from the elimination of additional support for comprehension such as the paralinguistic and nonlinguistic messages that can be transmitted in conjunction with language to facilitate oral communication, which ultimately compelled participants to signal the resolving of communication breakdown by means of an explicit statement of understanding or non-understanding with solely written characters.

However, the split nature seemed to impact on the discourse structure of participants’ negotiation in a CMC environment. Table 4.6 illustrates the subcategories of the four primes in the negotiation routine and the percentages they account for in each prime. In general, the results confirm the frequency of each negotiation prime subcategory in Smith’s (2003) study and support Fernandez-Garcia and Martinez-Arbelaitz’s (2002) observation that some types of the primes used in computer-mediated negotiation differed from those documented in the oral medium. In particular, according to Smith (2003), the large amount of local strategies (82%) in the indicator prime reflected the imperative for directly and precisely signaling the puzzling utterance since the surrounding text which occupied the computer screen and the split negotiation routines would often render global strategies ambiguous. In addition, the relatively higher percentage of inferential strategies can be related to participants’ attempts to figure out the meaning of the target vocabulary based on their prior knowledge about the
Table 4.6 Occurrence of each negotiation prime subcategory

<table>
<thead>
<tr>
<th>Negotiation Prime</th>
<th>Prime Subcategory</th>
<th>Total Number (Relative Percentage of Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trigger</td>
<td>Lexical</td>
<td>55 (100%)</td>
</tr>
<tr>
<td>Indicator</td>
<td>Global Strategies</td>
<td>4 (7%)</td>
</tr>
<tr>
<td></td>
<td>Local Strategies</td>
<td>45 (82%)</td>
</tr>
<tr>
<td></td>
<td>Inferential Strategies</td>
<td>6 (11%)</td>
</tr>
<tr>
<td>Response</td>
<td>Minimal</td>
<td>2 (4%)</td>
</tr>
<tr>
<td></td>
<td>Stating an inability to respond</td>
<td>1 (2%)</td>
</tr>
<tr>
<td></td>
<td>Repeat Trigger with Lexical Modification</td>
<td>3 (6%)</td>
</tr>
<tr>
<td></td>
<td>Rephrasing/Elaboration</td>
<td>46 (88%)</td>
</tr>
<tr>
<td>Reaction to Response</td>
<td>Minimal</td>
<td>32 (70%)</td>
</tr>
<tr>
<td></td>
<td>Metalinguistic Talk</td>
<td>2 (4%)</td>
</tr>
<tr>
<td></td>
<td>Task Appropriate Response</td>
<td>3 (7%)</td>
</tr>
<tr>
<td></td>
<td>Testing Deductions</td>
<td>9 (19%)</td>
</tr>
</tbody>
</table>

Note. Adapted from Smith, 2003, p. 48

kitchen utensil items. Furthermore, as Smith (2003) pointed out, the low frequency of minimal response, stating an inability to respond, and repeating trigger with lexical modification in the response prime was justifiable in that they did not provide further information or address the fundamental issue underlying the trigger. Therefore, they were not very useful for clarifying the meaning of the target vocabulary. However, rephrasing or elaborating on the preceding discourse can specify the properties of the kitchen utensils or supplementing relevant contexts. Furthermore, from the IA perspective, in rephrasing or elaborating on the problematic utterances in the trigger, a participant made his or her input (e.g., the unknown lexical items) more comprehensible. The following excerpt can serve as an example:

O: I need a peeler, whisk, potato masher, cheese grater, mesh strainer, griddle, kettle, and rolling pin. <T>
P: yes.
P: Eight things altogether.
P: slow down....cheese grater? <I>
O: Yes, it is made with metal and it has holes on all four sides. <R>
P: done! <RR>

This excerpt illustrates the interaction through which participant O modified her input, the word “cheese grater”, by depicting what the kitchen utensil looks like. Obviously O’s partner P later found the proper item based on her own interpretation of the description. Interestingly, more convincing evidence of such interactionally modified input can be found in the participants’ answers to the question “which of the following do you think can best help you to identify the kitchen utensils” and the question “which of the following do you think can best help your partner to identify the kitchen utensils” in the survey. A quick scan of the responses to these two questions suggests that there was considerable overlap between what a participant and a participant’s partner considered as the most helpful information, which mirrors the important role that comprehensible input played in promoting mutual understanding.

In addition, as Smith (2003) suggested, the outnumbering of minimal reaction to the response such as “OK” or “Good” reflected participants’ willingness to pop back up to the main line of discourse, whereas task appropriate responses (TAR) and testing deductions (TD) served as the kind of reactions that signaled a heightened degree of learner involvement with the CMC task, which was also conducive to lexical development. Specifically, task appropriate responses in this study exhibited learners’ deeper understanding of the target kitchen utensil items by connecting and extending the prior stretch of discourse within the negotiation contexts. And an example of this type of reaction strategy can be presented in the excerpt below.

P: You know, I hate winter, I gain a lot of weight during the winter. So I wanna buy a
Kitchen Scale to weigh myself…<T>
P: I wanna keep track of my weight everyday~ sounds crazy, right?
P: Do u have a Kitchen Scale yet? I was wondering if we can buy together...
O: What does the kitchen scale look like? <I>
P: It has a round platform on the top. You can use it to measure the weight of vegetables, meat, or fruits. <R>
O: I was wondering if I can use a kitchen scale to weigh myself… <TAR><RR+>
P: I have a feeling that you probably can’t.
O: Yep. I think it can’t work either. There’s something written on the picture of the scale. It says maximum 3000g or something.

On the other hand, testing deductions are the utterances that participants utilized to verify their hypotheses about the kitchen utensil items, and the use of those reactions suggests learners’ initiative in carrying out further negotiation. The following excerpt demonstrates this point.

1. L: It is a flat pan with lower edge <T>
2. K: use for what <I>
3. L: I am not quite sure for the use <R>
4. L: In my picture, the pan is rectangular shape
5. K: is for dough making bread <RR-><TD><I>
6. L: I don’t think so <C->
7. K: is it meatl <RR2-><TD><I>
8. K: have a word on the handle
9. L: no, it’s a pan <C->
10. L: with flat bottom
11. L: and a handle
12. K: please describe more I can get it <RR3->
13. L: it is used on the oven <R2>
14. L: you can put food on it for cooking
15. K: have many circule? <RR4-><TD><I>
16. L: no, the main part of the pan is a piece of metal without holes <C->
17. L: it’s opening without lid
18. K: ok I get it <RR5+>

This excerpt shows the negotiated exchanges in which K expressed his idea about the kitchen utensil “griddle” that his partner was trying to describe. Smith (2003) distinguished between positive reaction to the response (RR+) and negative reaction to the response (RR-) and made the point that testing deductions were negative reactions in nature. As such, unlike the
affirmative reaction in line 18, K’s conjecture about the item being discussed in line 5, 7, and 15 was the negative reaction that indicated to L that he had an incomplete understanding of the target vocabulary, which often elicited feedback in the form of an explicit confirmation (C+) like “yes” or disconfirmation (C-) as “I don’t think so” in line 6 or a simple “no” in line 9 and 16. Also the disconfirmation was often accompanied by a second response (R2) involving additional information from the initiator of the lexical confusion, which can be presented as follows:

Q: i need to buy something to separate water from rice or from other food <R>
R: ok. you mean colander? <RR-><TD>
Q: no. it is like net <C-> <R2>
R: oh ok <RR2+>

K: I want to buy spatula <R>
L: could you describe that? <I>
K: it is use to move the soup or handle the food <R>
K: it look like open space in the lower part
L: is it like a hand holding together <RR-><TD>
K: no. It has straight line open in the center <C-><R2>
L: Ok <RR2+>
K: ok what is the next <C+>

A: peeler is for potato or what? <I>
B: potato <R>
A: so how about potato masher <RR-><TD>
B: it is different. it has some hole on it <C-><R2>
B: potato masher have some small hole
A: Got it <RR2+>
B: smart <C+>

Q: The sixth thing I want to buy is a bowl-shaped kitchen utensil with perforations for draining off liquids and rinsing food. <R>
R: does it have and handler? <RR-><TD>
Q: No, it has no handle <C->
R: no problem <RR+>
Q: it is bowled shaped, use for contained raw food without liquid <R2>

D: the 1st one is feeler <T>
C: A feeler? <I>
D: it has a metal head and plastic bottom <R>
C: its used to take the fruits outside stuff
C: peeler or feeler <RR-><TD->
D: peeler, sorry <C-><R2>
C: My bad spelling
C: lol <RR2+>

From the viewpoint of IA, the confirmation (C+) and disconfirmation (C-) in the previous excerpts were similar to the two types of linguistic evidence in Long’s (1996) interactional framework, namely positive evidence (when an interlocutor corrects an utterance by providing the correct form) and negative evidence (when the learner receives feedback on their incorrect output). As Swain (1985) noted, negative evidence can push learners to rephrase and correct their output, which allowed learners to attend both the form of L2 and the meaning they convey. Although in this study it was not very common that participants immediately incorporated the feedback on their utterances of the target vocabulary into the messages they produced afterwards, the importance of pushed output should not be underestimated since they were a good indication of incidental acquisition of certain features of L2 after the negotiated interaction (Swain, 1985; Ellis, 2000). This can be further illustrated by the following example:

O: I need a tongs <T>
P: I can’t tell tongs is a single noun or plus? <I>
P: a tong/tongs or a tongs?
O: I think it’s plural. Just tongs. <R>
P: so is it ok to say a tongs? <RR-><TD>
O: I don’t think so <C->
P: Alright. I need them. <RR+>
[Line 39]

... 
P: Ok. So do you want to check if you got all the utensils I need?
O: Yes.
P: I need tongs, a kitchen scale, scoop, spatula, sauce pan, apron, and pizza cutter. <OUTPUT> 
[Line77]
4.3 Research Question Three

Do these computer-mediated negotiated exchanges facilitate mutual comprehension and retention of the target L2 lexical items?

The negotiated interaction between participants seemed to have the merit of fostering mutual comprehension. According to Pellettieri (2000), an important, although indirect indication that computer-mediated negotiation contributed to understanding is the degree of learners’ successful task completion. In this study, the elimination of other factors that might give participants hints as to the images of the target kitchen utensils pushed participants into negotiating the meaning of the new vocabulary. Moreover, the explicit goal of singling out the correct images required participants to effectively communicate with and genuinely understand each other. Table 4.7 demonstrates that the 6 dyads in ENGL 99L group completed the task with between 50% and 100% accuracy (i.e., they chose the proper letters), with the average accuracy rate being 75% (SD = 13%). On the other hand, the accuracy rates of the 4 dyads in ENGL 101D group ranged from 63% to 100% (see Table 4.8), and on average, they collaborated on the task with 89% accuracy (SD = 14%). Since a majority of the negotiation routines were concerned with lexical problems, these high accuracy rates can be said to support Pellettieri’s (2000) conclusion that although discussion of the target vocabulary pushed learners down from the main line of discourse, they ultimately lead to “mutual comprehension, facilitating communication, and allowing for successful task completion” (p. 77). This advantage appeared to be perceived by the participants as well.
Table 4.7 Information gap task scores and accuracy rates of ENGL 99L participants

<table>
<thead>
<tr>
<th>Participant</th>
<th>Information Gap Task Score</th>
<th>Accuracy Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>50%</td>
</tr>
<tr>
<td>B</td>
<td>5</td>
<td>62.5%</td>
</tr>
<tr>
<td>C</td>
<td>7</td>
<td>87.5%</td>
</tr>
<tr>
<td>D</td>
<td>7</td>
<td>87.5%</td>
</tr>
<tr>
<td>E</td>
<td>6</td>
<td>75%</td>
</tr>
<tr>
<td>F</td>
<td>6</td>
<td>75%</td>
</tr>
<tr>
<td>G</td>
<td>6</td>
<td>75%</td>
</tr>
<tr>
<td>H</td>
<td>8</td>
<td>100%</td>
</tr>
<tr>
<td>I</td>
<td>6</td>
<td>75%</td>
</tr>
<tr>
<td>J</td>
<td>5</td>
<td>62.5%</td>
</tr>
<tr>
<td>K</td>
<td>6</td>
<td>75%</td>
</tr>
<tr>
<td>L</td>
<td>6</td>
<td>75%</td>
</tr>
<tr>
<td>Mean</td>
<td>6</td>
<td>75%</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.04</td>
<td>13%</td>
</tr>
</tbody>
</table>

Table 4.8 Information gap task scores and accuracy rates of ENGL 101D participants

<table>
<thead>
<tr>
<th>Participant</th>
<th>Information Gap Task Score</th>
<th>Accuracy Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>6</td>
<td>75%</td>
</tr>
<tr>
<td>N</td>
<td>8</td>
<td>100%</td>
</tr>
<tr>
<td>O</td>
<td>7</td>
<td>88%</td>
</tr>
<tr>
<td>P</td>
<td>8</td>
<td>100%</td>
</tr>
<tr>
<td>R</td>
<td>7</td>
<td>88%</td>
</tr>
<tr>
<td>S</td>
<td>8</td>
<td>100%</td>
</tr>
<tr>
<td>T</td>
<td>8</td>
<td>100%</td>
</tr>
<tr>
<td>Mean</td>
<td>7.13</td>
<td>89%</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.13</td>
<td>14%</td>
</tr>
</tbody>
</table>

since they mentioned in the survey that their partners’ description or explanation was “very helpful” or “somewhat helpful” for them make informed choices about the kitchen utensil items.

On the other hand, English proficiency also seems to impact on the two groups of participants’ level of successful task completion, as is evidenced by the following two excerpts.
G: keep the things from water
H: apron?
G: no
H: divide the objects and water
G: are you there?
H: so, for cleaning vegetable?
G: you need to guess the things on the paper which contain their names
H: is it a bowl with many holes?
G: it’s metal
G: not plastic
H: ok, I got it
H: this is mesh strainer, right
G: yes

Q: mesh strainer, it is the tool that can cook noodles. it has a lot of small whole so that you can drain water, but not the noodle
Q: it is used when u cook noodle, and when u dont need any water, but noodle,
R: does it have a handle?
Q: yes. it has a handle and also looks like a fishing net.
Q: anyway. did you get it?
R: I did
Q: oh nice, and i think i got the tongs. is it to grab something?

These two excerpts are included for the investigation of the effects of English proficiency on mutual understanding of the target vocabulary because they represent the typical language produced by ENL 99L participants (G and H) and ENGL 101D participants (Q and R). It is obvious that echoing the more complex language found in ENGL 101D participants’ chat logs, the more compact lexical items and more sophisticated syntactic structures used by Q in her description of “mesh strainer” helped her partner to fully grasp the information relevant to the task completion with greater efficiency, which in turn resulted in the fewer negotiation turn compared to the turns yielded by G and H. It is also important to note that unlike ENGL 101D participants, ENGL 99L participants were more inclined to describe the usage rather than the appearance of the kitchen utensils upon negotiating a new word, which is typical of G’s explanation. Although it could be true that the description of the usage may be lexically
and syntactically less difficult than the depiction of the appearance, to most participants in this study who might not have a thorough understanding of how to use the target kitchen utensils for cooking due to cultural factors, such preference might lead to miscommunication since they may misinterpret and thus misrepresent the usage. For example, a number of ENGL 99L participants selected the image of a cheese grater as the image of a potato masher. The analysis of the chat logs suggests that their partners were very likely to confuse grated cheese with potato stripes. However, this kind of mistakes barely occurred in ENGL 101D participants since it was common for them to negotiate over all the features of the kitchen utensils, including the appearance and the usage. Finally, the use of native languages, for example, Chinese characters, was more prevalent in ENGL 99L participants’ discussion. Although native languages can be quite helpful in tackling the communication breakdown in this study, they were the indicators of the gaps in learners’ interlanguage that needed to be resolved by further negotiation.

In addition, a comparison of the scores that both groups of participants gained in vocabulary test I and vocabulary test II reveals that computer-mediated negotiation also seemed to facilitate retention of the target lexical items. Table 4.9 and Table 4.10 show that although on the whole the average scores both groups of participants obtained one week after the main treatment task (vocabulary test II) are slightly lower than the immediate vocabulary retention test (vocabulary test I), the differences are subtle (1.14 points for ENGL 99L participants and 1.12 points for ENGL 101D participants). This is compounded by the fact that the majority of the participants exhibited no prior knowledge about the names of the target kitchen utensils in the pretest and some of the participants had an even higher score in vocabulary test II. Moreover, given the fact that almost all of the participants indicated in the
Table 4.9 ENGL 99L participants’ scores in pretest, vocabulary test I and vocabulary test II

<table>
<thead>
<tr>
<th>Participants</th>
<th>Pretest Score</th>
<th>Vocabulary Test I Score</th>
<th>Vocabulary Test II Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>D</td>
<td>2</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>E</td>
<td>0</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>F</td>
<td>1</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>G</td>
<td>2</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>H</td>
<td>0</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>I</td>
<td>0</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>J</td>
<td>0</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>K</td>
<td>1</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>L</td>
<td>1</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

Mean Standard Deviation
1.0 11.58 10.17
0.85 2.97 4.30

Table 4.10 ENGL 101D participants’ scores in pretest, vocabulary test I and vocabulary test II

<table>
<thead>
<tr>
<th>Participants</th>
<th>Pretest Score</th>
<th>Vocabulary Test I Score</th>
<th>Vocabulary Test II Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>2</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>N</td>
<td>1</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>O</td>
<td>1</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>P</td>
<td>1</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Q</td>
<td>2</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>R</td>
<td>0</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>S</td>
<td>1</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>T</td>
<td>2</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>

Mean Standard Deviation
1.25 15.25 14.13
0.71 1.49 2.42

survey that they had not reviewed any of the target words during the interval between the two vocabulary tests and they believed that the negotiated interaction they had with their partners were quite useful for them to recall the meaning and form of the target vocabulary, a tentative conclusion can be drawn from the test scores that computer-mediated negotiation
had the potential for learners’ retention of new lexical items. Such a positive effect of task-based synchronous CMC on L2 vocabulary development, according to Laufer and Hulstijn (2001) and Smith (2003), might be the result of a higher involvement load required by the information gap task on the part of the participants. On the other hand, the noticeable increase in the standard deviation of both groups of participants (1.33 points for ENGL 99L participants and 0.93 points for ENGL 101D participants) may indicate the enlarged individual difference in vocabulary retention after a certain period of time, which can also be related to the degree of learner involvement with computer-mediated negotiation.
CHAPTER 5. CONCLUSION

The results from this study suggest that computer-mediated negotiation occurred when learners were confronted with communication problems during task-based synchronous CMC interaction, as was evidenced by the findings that about half of the real-time discourse was dedicated to the turns that involved negotiation of meaning. Moreover, since largely unknown lexical items were embedded in the task and participants were informed that the goal of this study was lexical development, it is understandable that the majority of the computer-mediated negotiation surrounded the target words. Although Pica et al.’s (2003) task typology was a critical factor in the mass production of negotiated interaction, what seemed more important, was the task-induced lexical saliency.

In addition, the split nature of computer-mediated negotiation did not appear to have a considerable impact on the negotiation routines in the CMC environment, as the descriptive statistics from this study illustrate that most of the computer-mediated negotiation followed Varonis and Gass’ (1985) model and included a trigger, an indicator, a response and a reaction to the response. However, the split negotiation routines affected the negotiation discourse to a great extent, which can be seen from the dominance of local strategies in the indicator prime and the abundant use of rephrasing and elaboration to achieve mutual understanding. Furthermore, what Smith (2003) identified as task appropriate responses and testing deductions were also found in this study. They indicated a heightened level of learner involvement with the target lexical items and may facilitate L2 vocabulary development.
However, more research addressing this possibility is needed before any conclusion can be drawn.

Overall, the computer-mediated negotiation in this study echoes the interaction account of SLA. Specifically, the response to a trigger is where input was modified and became more comprehensible. The confirmation and disconfirmation to the reactions were similar to the positive and negative evidence, which may be incorporated by the participants into pushed output. Furthermore, the computer-mediated negotiation seemed to play a positive role in fostering comprehension and retention of new L2 vocabulary, as was supported by the degree of successful task completion and the subtle difference between the results of the two vocabulary tests. Although research findings of this study support the argument that task-based synchronous CMC might be more suitable for advanced learners, intermediate level learners still can still benefit from the exposure to the target language socially, lexically and syntactically through computer-mediated negotiation.

5.1 Implications

This task-based synchronous CMC study is concerned with the effects of communication tasks with an explicit goal of L2 vocabulary development on the amount and the nature of negotiated interaction in the CMC environment. The findings of this study have several implications for the research on the relationship between computer-mediated negotiation and lexical acquisition.

First and foremost, the results of this study suggest that participants needed to use computer-mediated negotiation to figure out the target items. However, even though participants were not able to distinguish the appearance of the kitchen utensils, they can rely
on their familiarity with the usage to identify the correct images. This echoes Vygotsky’s (1978) theory of the Zone of Proximal Development (ZPD) which posits that learners benefit most from tasks that are just beyond their individual capacities. Therefore, this CMC study can be tailored to different learners’ needs, for example, the laboratory equipment vocabulary for graduate teaching assistants in the chemistry or biology department, or the terminology of some basic shapes of geometry for students majoring in mathematics. Moreover, this study would be very effective in providing learners the opportunity of practicing describing objects. Through the computer-mediated negotiation, learners would be able to retain the terms in their disciplines and the basics of depicting objects.

Furthermore, as previous CMC studies suggested (e.g., Chun, 1994), the language that learners produced in the chat rooms can serve as a transition from written texts to oral presentations. Since chat logs have been viewed as a spontaneous, unedited, and genuine reflection of learners’ spoken discourse (e.g., Levy and Stockwell, 2006), it would be beneficial to have learners reflect upon the syntactic and semantic aspects of their language in the electronic medium. Since the CMC discourse is in general more complex and sophisticated than the oral discourse, the reflection of written-based utterances would possibly lead to the integration of more advanced expressions into learners’ impromptu speech, which may in turn improve their speaking fluency and accuracy.

Finally, as Tudini (2003) noted, the ability to print out chat logs is a useful monitoring and assessment tool for ESL learners and teachers. In this study, the existence of abundant non-target forms such as misspelled words, absence of articles, confusion of part of speech, and subject verb disagreement in the chat logs indicates the errors that learners might commit in writing and speaking. Therefore, it is of great necessity for ESL teachers to notice the error
patterns in the negotiated interaction and make pedagogical intervention accordingly. On the other hand, the effect of lexical saliency on eliciting computer-mediated negotiation can also shed light on the communication tasks that aim for syntactic or morphological development. In particular, ESL teachers can incorporate the CMC tasks that would arouse discussion on grammar. For example, students can be asked to compare an authentic product brochure that involves the introduction of various kitchen utensils in English with a “syntactically deficient” brochure that has been adapted by ESL teachers. In negotiating the differences between the two, L2 learners can notice the non-target form and revise the problematic one collaboratively. This kind of CMC activity can result in the correction of morphological and syntactical errors and foster learners’ awareness toward the target.

5.2 Limitations

Like previous CMC research, this study has its own limitations. First of all, any conclusion or generalization made in this study is hampered by the relatively small body of participants and the length of the information gap task. In addition, since the chat program in this study does show learners’ editing or revising their messages, it is impossible to see what happens during the message composition process. Moreover, there was only one week delay between the two vocabulary tests. However, in De la Fuente’s (2003) CMC study on lexical acquisition, a three-week time is the norm for measuring L2 vocabulary retention. It is quite likely that the high retention rates were in part due to the short interval between the two tests. Furthermore, as De la Fuente (2003) suggested, receptive and productive, oral and written measures should be included to assess the acquisition and retention of the target lexical items. Finally, it was rather intense for most of the participants to negotiate the meaning of sixteen lexical items, select the correct answers and respond to a vocabulary test in a less than one
hour class time. Their quality and quantity of negotiation might be affected by the pace of the task. This is partially supported by the fact that not much pushed output occurred during negotiated interaction in this study. According to De la Fuente (2003), the pushed output is essential to L2 vocabulary acquisition in the CMC environment. And most important, as some participants indicated in the survey, the scope of the target vocabulary was narrow since it solely focused on nouns that denote concrete items. Therefore, how to integrate words that express abstract concepts into task-based synchronous CMC is another issue that needs further explorations.

5.3 Suggestions for Further Research

Based on the findings of this study, further research on task-based synchronous CMC can address the limitations outlined as well as several other areas. Firstly, although the information gap task in this study was effective in promoting computer-mediated negotiation, it did not push learners to incorporate the target vocabulary into their L2 output very often. Part of the reason for this, as Pica et al. (1993) mentioned, is the fixed role that information gap tasks assigned to each participant. As a result, future research can follow Pica et al.’s (1993) direction and incorporate a modified information gap task in which the information-receiving participants are required to present information which needs to be confirmed or rejected by the original sender. The two partners can also alternate roles as information suppliers and requesters after they complete two parts of the task. It would be interesting to find out if adapting an information gap task into two-way flow of information exchange would result in more opportunities for interlanguage modification. In addition, other types of communication tasks that are believed to be less useful for prompting negotiated interaction
such as decision-making and opinion exchange can also be seeded with new L2 vocabulary to examine the role of lexical saliency in eliciting computer-mediated negotiation.

Moreover, similar to the limitations in De la Fuente’s (2003) CMC research, this study only looked at the effects of online chat on learners’ retention of the meaning of the target vocabulary. It would be questionable whether the negotiated interaction could be beneficial for the development of other aspects of learners’ lexical knowledge, for example, the acquisition of morphological features and syntactic functions. On the other hand, Smith (2004) made the point that it would be of great value to explore whether other classes of words such as verbs or adjectives can also be acquired in ways similar to those demonstrated in this study with concrete nouns. Another important topic that needs further investigation is whether participants’ gains in recognition of the new words would be commensurate with their receptive gains in the aural channel.

Finally, as mentioned earlier, one of the few criticisms that IA has received is that it is confined to the analysis of language per se. And echoing this statement, the IA was less than adequate to explain the relationship between learners’ involvement with the task and their lexical development in this study. Therefore, additional theories such as the sociocutural or activity theory can be integrated into further CMC research to give a more comprehensive account of the relationship between the degree of participation in online chat and SLA.
APPENDIX A. INFORMATION GAP TASK

Task Sheet A

Your Name: __________________

You have recently moved to a new apartment and you need some new kitchen utensils to cook food. However, you have become extremely busy these days because you are concentrating on your term paper. Therefore, you want your friend to get them for you. But your cell phone plan has expired and now the best way to contact your friend is through online chat. The computer you have access to supports only English for chat. Please tell your friend in English the names of the kitchen utensils you want him or her to buy. If he or she has problems understanding the names, please try to explain or describe them as much as you can. You have 20 minutes to go through the list and chat with your friend. Here is a list of what you need:

<table>
<thead>
<tr>
<th>Peeler</th>
<th>Whisk</th>
<th>Potato Masher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheese Grater</td>
<td>Griddle</td>
<td>Mesh Strainer</td>
</tr>
<tr>
<td>Rolling Pin</td>
<td>Kettle</td>
<td></td>
</tr>
</tbody>
</table>
Task Sheet A

Your Name: _________________

Your friend has recently moved to a new apartment and he or she needs some new kitchen utensils to cook food. However, he or she has become extremely busy these days because he or she has a term paper to write. Therefore, he or she wants you to get them for him or her. But his or her cell phone plan has expired and now the best way he or she can contact you is through online chat. The computer you have access to supports only English for chat. **Please select the kitchen utensils your friend needs from the pictures in task sheet C and write down the letters that represent these pictures after the numbers provided below.** If you have problems understanding the names of the kitchen utensils, please ask your friend to explain or describe them to you as much as you can. You have 20 minutes to chat with your friend and clarify what he or she wants to buy:

**Kitchen utensils to buy:**

1.

2.

3.

4.

5.

6.

7.

8.
Task Sheet B

Your Name: __________________

You have recently moved to a new apartment and you need some new kitchen utensils to cook food. However, you have become extremely busy these days because you are concentrating on your term paper. Therefore, you want your friend to get them for you. But your cell phone plan has expired and now the best way to contact your friend is through online chat. The computer you have access to supports only English for chat. Please tell your friend in English the names of the kitchen utensils you want him or her to buy. If he or she has problems understanding the names, please try to explain or describe them as much as you can. You have 20 minutes to go through the list and chat with your friend. Here is a list of what you need:

<table>
<thead>
<tr>
<th>Sauce Pan</th>
<th>Colander</th>
<th>Spatula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scoop</td>
<td>Tongs</td>
<td>Kitchen Scale</td>
</tr>
<tr>
<td>Apron</td>
<td>Pizza Cutter</td>
<td></td>
</tr>
</tbody>
</table>

- Sauce Pan
- Colander
- Spatula
- Scoop
- Tongs
- Kitchen Scale
- Apron
- Pizza Cutter
Task Sheet B

Your Name: ________________

Your friend has recently moved to a new apartment and he or she needs some new kitchen utensils to cook food. However, he or she has become extremely busy these days because he or she has a term paper to write. Therefore, he or she wants you to get them for him or her. But his or her cell phone plan has expired and now the best way he or she can contact you is through online chat. The computer you have access to supports only English for chat. **Please select the kitchen utensils your friend needs from the pictures in task sheet D and write down the letters that represent these pictures after the numbers provided below.** If you have problems understanding the names of the kitchen utensils, please ask your friend to explain or describe them to you as much as you can. You have 20 minutes to chat with your friend and clarify what he or she wants to buy:

**Kitchen utensils to buy:**

1. 

2. 

3. 

4. 

5. 

6. 

7. 

8.

*Note. Information gap task adapted from the main treatment activity used in Ju Young Lee’s thesis research, 2008*
### Task Sheet C

Please select the letters that represent the kitchen utensils your partner wants to buy.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>D</td>
<td>E</td>
<td>F</td>
</tr>
<tr>
<td>G</td>
<td>H</td>
<td>I</td>
</tr>
<tr>
<td>J</td>
<td>K</td>
<td>L</td>
</tr>
</tbody>
</table>

Partner A copy
<table>
<thead>
<tr>
<th>M</th>
<th>N</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td>P</td>
<td>Q</td>
<td>R</td>
</tr>
<tr>
<td><img src="image4.png" alt="Image" /></td>
<td><img src="image5.png" alt="Image" /></td>
<td><img src="image6.png" alt="Image" /></td>
</tr>
<tr>
<td>S</td>
<td>T</td>
<td>U</td>
</tr>
<tr>
<td><img src="image7.png" alt="Image" /></td>
<td><img src="image8.png" alt="Image" /></td>
<td><img src="image9.png" alt="Image" /></td>
</tr>
<tr>
<td>V</td>
<td>W</td>
<td>X</td>
</tr>
</tbody>
</table>

Partner A Copy
<table>
<thead>
<tr>
<th>Y</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image of Y" /></td>
<td><img src="image2.png" alt="Image of Z" /></td>
</tr>
</tbody>
</table>
Task Sheet D

Please select the letters that represent the kitchen utensils you partner wants to buy.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td><strong>B</strong></td>
<td><strong>C</strong></td>
</tr>
<tr>
<td><img src="imageA.jpg" alt="Image" /> potato masher</td>
<td><img src="imageB.jpg" alt="Image" /> grater</td>
<td><img src="imageC.jpg" alt="Image" /> slotted spoon</td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D</strong></td>
<td><strong>E</strong></td>
<td><strong>F</strong></td>
</tr>
<tr>
<td><img src="imageD.jpg" alt="Image" /> ice cream scoop</td>
<td><img src="imageE.jpg" alt="Image" /> scale</td>
<td><img src="imageF.jpg" alt="Image" /> saucepan</td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>G</strong></td>
<td><strong>H</strong></td>
<td><strong>I</strong></td>
</tr>
<tr>
<td><img src="imageG.jpg" alt="Image" /> can opener</td>
<td><img src="imageH.jpg" alt="Image" /> muffin tin</td>
<td><img src="imageI.jpg" alt="Image" /> tongs</td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>J</strong></td>
<td><strong>K</strong></td>
<td><strong>L</strong></td>
</tr>
<tr>
<td><img src="imageJ.jpg" alt="Image" /> kettle</td>
<td><img src="imageK.jpg" alt="Image" /> toaster</td>
<td><img src="imageL.jpg" alt="Image" /> apron</td>
</tr>
</tbody>
</table>

Partner B copy
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>N</td>
<td>O</td>
</tr>
<tr>
<td>P</td>
<td>Q</td>
<td>R</td>
</tr>
<tr>
<td>S</td>
<td>T</td>
<td>U</td>
</tr>
<tr>
<td>V</td>
<td>W</td>
<td>X</td>
</tr>
</tbody>
</table>

Partner B copy
Partner B copy
APPENDIX B. VOCABULARY TEST I

Your name___________________

Please select the correct names for the kitchen utensils below.

<table>
<thead>
<tr>
<th>Peeler</th>
<th>Potato Masher</th>
<th>Griddle</th>
<th>Tongs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whisk</td>
<td>Rolling Pin</td>
<td>Sauce Pan</td>
<td>Mesh Strainer</td>
</tr>
<tr>
<td>Kettle</td>
<td>Colander</td>
<td>Spatula</td>
<td>Pizza Cutter</td>
</tr>
<tr>
<td>Scoop</td>
<td>Apron</td>
<td>Kitchen Scale</td>
<td>Grater</td>
</tr>
</tbody>
</table>

1. ![Image](image1)
2. ![Image](image2)
3. ![Image](image3)
4. ![Image](image4)
5. ![Image](image5)
6. ![Image](image6)
7. ![Image](image7)
8. ![Image](image8)
9. ![Image](image9)
APPENDIX C. VOCABULARY TEST II

Your name___________________

Please select the correct names for the kitchen utensils below.

<table>
<thead>
<tr>
<th>Peeler</th>
<th>Potato Masher</th>
<th>Griddle</th>
<th>Tongs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whisk</td>
<td>Rolling Pin</td>
<td>Sauce Pan</td>
<td>Mesh Strainer</td>
</tr>
<tr>
<td>Kettle</td>
<td>Colander</td>
<td>Spatula</td>
<td>Pizza Cutter</td>
</tr>
<tr>
<td>Scoop</td>
<td>Apron</td>
<td>Scale</td>
<td>Grater</td>
</tr>
</tbody>
</table>

1. [Image of a digital scale]
2. [Image of tongs]
3. [Image of a pizza cutter]
4. [Image of a spatula]
5. [Image of an ice cream scoop]
6. [Image of a woman wearing an apron]
7. [Image of a colander]
8. [Image of a griddle]
9. [Image of a peeler]


<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10.</td>
<td>11.</td>
<td>12.</td>
</tr>
<tr>
<td>16.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NOTE: This is a questionnaire about your attitude towards online chat. Please circle one that best describe you experience of communicating with other people via the Internet. You answer will be essential in the analysis of the data and will greatly influence the results of the study. All the information you have provided will be kept confidential.

Your Name____________________________ (will not be used in any reproduction of data)

What is your age? ________ What is your gender? (       ) Male (     ) Female

What is your country of origin? _______________

What is your native language? _______________

What is your TOEFL or IELTS score? _______________

How many years have you studied English? ________years

How long have you been in the United States? ________years ________months

What is your major area of study at Iowa State University? _______________

What are your **STRENGTHS** in using English for communication? *(Check those that apply)*

- Vocabulary________
- Grammar________
- Pronunciation________
- Listening________
- Reading________
- Speaking________
- Writing________

What are your **WEAKNESSES** in using English for communication? *(Check those that apply)*

- Vocabulary________
- Grammar________
- Pronunciation________
- Listening________
- Reading________
- Speaking________
- Writing________
Please rate your typing ability:

Poor ___ Fair ___ Average (25-30 word per minute) ___ Good ___ Excellent (At least 60 word per minute) ___

Do you think your typing ability affects your communication with others during online chat? Why?

Please rate your knowledge of computers:

Poor ___ Fair ___ Average ___ Good ___ Excellent ___

Do you own a computer? __________

Where do you access the Internet? (Check all that apply).

<table>
<thead>
<tr>
<th>Y/N</th>
<th>Locations</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At campus computer labs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In dorm room</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In dorm computer facility</td>
<td></td>
</tr>
<tr>
<td></td>
<td>At the place where you live (if not a dorm)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>From friends’ computers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other (please specify)</td>
<td></td>
</tr>
</tbody>
</table>

On average, how many hours a day do you spend on online chat? _______

What is your main use of online chat? For leisure For study Other uses (Please specify) _______

Have you used computers to do the following things?

<table>
<thead>
<tr>
<th></th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word processing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-mail</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>World Wide Web</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online Chat Rooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Movies, Videos, Audios</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discussion lists/Newsgroups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instant Messaging (MSN, Yahoo messenger)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forum postings, Bulletin Board System (BBS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gaming</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please circle the following online chat programs that you have used for contacting other people:

AOL Instant Messenger  Google Talk  ICQ  Internet Relay Chat (IRC)  Paltalk
Multi-user Domain (MUD)  QQ  Skype  Windows Live Messenger  Yahoo! Messenger

How often do you use these online chat programs?

In what language?

With whom do you often chat?

What do you think are the advantages and disadvantages of communicating with other people via online chat?

Advantages

Disadvantages

Have you used a pseudonym (fake name) in online chat? _____

Why? ____________________________________________________________

Have you ever communicated with native speakers of English via online chat? If so, can you briefly explain the benefits and challenges of using English to interact with a native speaker in online chat?

Benefits

Challenges
Please rate each of the following questions.

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel chatting with families and friends online is similar to chatting with them in real life.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online chat is a good way to learn about American culture.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online chat gives me the opportunities to interact with native speakers of English and also use English for real communication.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think the incorrect use of English by non-native speakers during online chat will affect me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If I do not understand the people I am chatting with online, I will ask them for clarification rather than looking for other sources to resolve the problem.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel more comfortable and confident to interact with other people through online chat because it is easier than face-to-face communication.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I like to use abbreviations such as <em>lol</em> for <em>laugh out loud</em> and emotional icons such as 😊 in online chat to express my feelings.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe the language used in online chat is beneficial for learning English.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please elaborate on any of the above questions on the back side of this page. Any information you feel is relevant would be **greatly** appreciated.
NOTE: This is a survey about your attitude toward the online chat activity. Please select one that best describes you experience of communicating with other people via the Internet. You answer will be essential in the analysis of the data and will greatly influence the results of the study. All the information you have provided will be kept confidential.

1. Your name: ______________________________

2. Overall, how would you rate the difficulty level of the shopping list task:
   Very easy (  ) Easy (  ) Moderate (  ) Difficult (  ) Very difficult (  )
   Any other comments on the task? What do you like and dislike about it?

3. Overall, how would you rate the difficulty level of the kitchen utensil vocabulary:
   Very easy (  ) Easy (  ) Moderate (  ) Difficult (  ) Very difficult (  )
   Any other comments on the vocabulary? What do you like and dislike about it?

4. Overall, how would you rate the intelligibility of the pictures of the kitchen utensils:
   Poor (  ) Fair (  ) Average (  ) Good (  ) Excellent (  )
   Any other comments on the pictures? What do you like and dislike about them?

5. How would you rate Moodle chat?
   (  ) It is easy to use and it is fast
   (  ) It is not easy to use but it is fast
   (  ) It is easy to use but it is slow
   (  ) It is not easy to use and it is slow
   Any other comments about Moodle chat?

6. How would you describe your current knowledge of the kitchen utensil vocabulary?
   (  ) I can recognize and spell most of them correctly
   (  ) I can recognize them but I cannot spell most of them
   (  ) I can NOT recognize or spell most of them

7. To what extent do you think online chat helps you recall the meaning of the kitchen utensil vocabulary?
   (  ) Very helpful
   (  ) Somewhat helpful
8. To what extent do you think online chat helps you recall the **spelling** of the kitchen utensil vocabulary?
   (  ) Very helpful
   (  ) Somewhat helpful
   (  ) Not very helpful
   (  ) Not helpful at all

9. To what extent did your partner’s description or explanation help you **understand** the kitchen utensil vocabulary?
   (  ) Very helpful
   (  ) Somewhat helpful
   (  ) Not very helpful
   (  ) Not helpful at all

10. To what extent did your partner’s description or explanation help you **recall** the kitchen utensil vocabulary?
    (  ) Very helpful
    (  ) Somewhat helpful
    (  ) Not very helpful
    (  ) Not helpful at all

11. Which of the following do you think can best help YOU to identify the names of the kitchen utensils:
    (  ) The description of the outlook of the kitchen utensils
    (  ) The description of the usage of the kitchen utensils
    (  ) Your familiarity with the kitchen utensils

12. Which of the following do you think can best help YOUR PARTNER to identify the names of the kitchen utensils:
    (  ) The description of the outlook of the kitchen utensils
    (  ) The description of the usage of the kitchen utensils
    (  ) His or her familiarity with the kitchen utensils

13. What do you think are the **benefits** of using online chat to learn English vocabulary?

14. What do you think are the **difficulties** of using online chat to learn English vocabulary?
11:06 L has just entered this chat
11:06 K: hi
11:06 L: hi : )
11:06 K: start fist
11:06 L: Ok
11:08 L: I want to buy a peeler
11:09 K: what peeler mean
11:10 L: it’s a tool for getting rid of the surface layer of fruit, such as apple
11:10 K: ok go to the other
11:10 L: your turn
11:11 K: I want to buy spatula
11:11 L: could you describe that?
11:12 K: it is use to move the soup or handle the food
11:12 K: it look like open space in the lower part
11:12 L: is it like a hand holding together
11:13 K: no. It has straight line open in the center
11:14 L: Ok
11:14 K: ok what the next
11:14 L: next is whisk which for mixing eggs by hand
11:15 K: ok i get it
11:15 L: Ok go on
11:16 K: I will buy the Apron, which use to protect you clothes when you cook something
11:16 K: it red color
11:16 K: have S sign
11:17 L: I get it, we have different picture, the apron in my picture is white
11:17 K: oky chose the next
11:17 L: The next one is potato masher
11:19 L: a little hard to describe
11:19 K: oky I get it
11:19 L: it also has opening on the lower part
11:19 L: you already get it?
11:20 K: yes
11:20 L: good. next one
11:20 K: pizza cutter
11:20 K: it have wheel and hand to cut
11:20 L: I think I get it
11:21 K: oky it easy
11:21 L: Next one is Cheese grater
11:21 K: please describe’
11:22 L: it is used for making cheese powder from block cheese
11:23 K: did you man the picture show a piece of cheese and the tool try to turn on that piece
11:24 L: it is rectangular shape
11:24 L: I think so
11:24 L: it has a handle on the top
11:24 K: does it have circule in the middle
11:25 L: what is circule?
11:25 K: ok ok I get it
11:25 K: the next is Sauce pan which look like cooker rice
11:26 K: have a cover and handel from the top
11:26 L: Ok I get it
11:27 K: circle shape and the cover has a piece to handle it
11:27 L: haha, familiar with that, we make rice everyday
11:27 L: next one is mesh strainer
11:28 K: I don't make rice everyday because my wife not here
11:28 K: oky what nxt
11:28 L: you can make yourself
11:29 L: the main part of the tool is made of mesh with very small holes
11:29 L: it is used for get rid of liquid or separted solid from liquid
11:30 L: the opening is circle shape
11:30 K: is it meat or plastic
11:30 L: metal
11:31 K: what the name?
11:31 L: mesh strainer
11:31 K: ok I get it
11:32 K: next is the colander
11:32 K: it use for wash the vegetable some time meat from ...
11:33 K: Colander have many space region to separate water from that thing
11:33 L: Does the function of that similar to mesh strainer? but made of plastic
11:33 K: plastic
11:33 L: OK, I get it
11:34 L: Next one is griddle
11:34 K: oky next
11:34 L: It is a flat pan with lower edge
11:34 K: use for what
11:35 L: I am not quite sure for the use
11:35 L: In my picture, the pan is rectangular shape
11:36 K: is for dough making bread
11:36 L: I don’t think so
11:36 K: is it meatl
11:37 K: have a word on the handle
11:37 L: no, it’s a pan
11:38 L: with flat bottom
11:38 L: and a handle
11:38 K: please describe more I can get it
11:38 L: it is used on the oven
11:39 L: you can put food on it for cooking
11:39 K: have many circule
11:39 L: no, the main part of the pan is a piece of metal without holes
11:40 L: it’s opening without lid
11:40 K: ok I get it
11:40 L: : )
11:41 K: scoop have a meatal edage and red hand with small open at the end of the hand
11:42 K: use for transfer liquid or solid sometime
11:42 K: I think it is the mallset in thsahp you have
11:43 L: I think i get
11:43 K: Scoop
11:43 K: oky the next one
11:44 L: next one is kettle
11:44 L: for boiling water
11:45 L: it is use electricity
11:45 K: dose it have a worled in the bottom
11:45 K: with large handel
11:45 L: Yes
11:45 L: word AROMA labeled on the bottom
11:46 K: ok the next is Spagheti fork
11:46 K: it is black plastic with a holl in the middle lower part
11:47 K: it is look like many finger around a small holl in the middle
11:47 K: long hand
11:47 L: ok i get it
11:48 K: oky the last thing is tongs
11:48 L: next one is
11:48 L: Rolling Pin made of wood
11:48 K: use to catch the solid food or very hot food
11:48 L: it is used for making dough into sheet
11:49 K: oky I get it
11:49 L: good
11:49 K: the last one is tongs use to handl the solid food or very heat things
11:50 K: meatal
11:50 K: have tow arm
11:50 K: two arm with wide edge
11:50 L: ok
11:50 L: I get it
11:51 K: good we fished about rice how we can make realy I don,t nknow'
11:52 K: the way we make a rice in my country is different
11:52 L: just put one cup of rice and 1.5 cup to 2 cups of water in the rice cooker
11:53 K has left this chat
11:54 L has left this chat
08:07 O has just entered this chat
08:07 P: Hello~
08:07 O: Hi P~
08:07 P: How r u?
08:07 O: I’m doing great. How about you?
08:07 P: same here....
08:07 O: Great
08:08 P: This is great, It is Friday~
08:08 O: Yes!
08:09 P: Whether is warming up~ I wanna go outside to do some activities~
08:09 O: I know! Do you have plans for the weekend?
08:10 P: You know, I hate winter, I gain a lot of weight during the winter. So I wanna buy a kitchen Scale to weigh myself..
08:10 P: I wanna keep track of my weight everyday~ sounds crazy, right?
08:13 P: Do u have a Kitchen Scale yet? I was wondering if we can buy together...
08:13 O: What does the kitchen scale look like?
08:14 P: It has a round platform on the top. You can use it to measure the weight of vegetables, meat, or fruits.
08:14 P: I think I will fail. Since I really like icecream, I want a scoop..
08:14 P: R u still there?
08:15 O: yes, I’m still here! I got kitchen scale and ice cream scoop so far.
08:15 P: So do you have some stuff to buy?
08:16 O: Yes, I have lots. I need a peeler for peeling the skin off of vegetables and fruit.
08:16 P: I also want to buy a Pizza Cutter, I want to ask my friends over to my apartment to make pizza ourselves.
08:17 O: That’s a great idea!
08:17 P: Yes, a peeler makes life easier...
08:17 O: I know. Knives can be dangerous sometimes...
08:18 P: I want an apron, which can keep my clothes clean.
08:18 O: Ok. I got that.
08:19 O: I think we need a whick to mix wet ingredients and a potato masher to make mashed potatoes.
08:19 P: I still need to buy a Sauce Pan, a Spatula as well.
08:20 O: Those are definitely kitchen essentials!
08:20 O: Since we are getting a sauce pan, why do we also get a griddle to make pancakes?
08:20 P: a potato masher? is it used to peel potato?
08:21 O: Yikes. Why don’t we also get a griddle.
08:21 O: A potato masher is used to make mashed potatoes.
08:21 O: I guess a peeler is used to peel potatoes.
08:22 P: I am lost.. What is griddle?
08:23 O: It looks like a frying pan but it doesn’t have high sides. It’s square shaped and flat.
08:23 P: got it..
08:23 O: I think people usually make pancakes on griddles.
08:24 O: What else do you need to buy?
08:24 P: I need a tongs
08:24 P: I can’t tell tongs is a single noun or plus?
08:24 P: a tong/tongs or a tongs?
08:25 P: so is it ok to say a tongs?
08:25 O: I don’t think so
08:25 P: Alright, I need them.
08:25 P: and one more...a colander...
08:25 O: Ok. I’m going to need a rolling pin since I love to bake and a cheese grater as well.
08:25 P: I want to use it to wash vegetables and fruits.
08:25 O: Colander. Got it!
08:26 P: That is enough.
08:26 O: Ok. Lastly, I need a mesh strainer and a kettle.
08:27 O: I don’t think I’ll need the mesh strainer that often though...
08:27 P: I will need it.
08:27 O: Ok then!
08:28 P: Like if i cook some
08:28 P: dumplings??
08:28 O: To put the dumplings in boiling water?
08:28 P: put out of water
08:29 O: Or to fish them out of the boiling water!!
08:29 P: when I finish cooking.
08:29 P: Yes, that is what I mean.
08:29 O: I see.
08:29 P: how you make dumplings?
08:30 P: Do you want to make dumplings yourself?
08:30 P: then you need a tool..
08:30 O: Yes, sure.
08:31 O: What tool do I need?
08:31 P: a tool used to make the clothes of the dumplings.
08:31 P: I don’t know how to decrire these kind of stuff
08:31 O: Oh, maybe a rolling pin?
08:32 P: first you prepare the flour...yes
08:32 O: I’ve seen wanton wrappers at the grocery store.
08:32 P: we chinese like eating dumplings.
08:32 P: though it takes a lot of time and work.
08:33 O: Yes, Koreans like dumplings too!
08:33 P: You make me hungry right now.
08:33 O: Me too.
08:34 P: There is a thingamagia in the sheet which I don’t know.
08:34 O: Which thing?
08:34 P: It is kind of like a small scoop..
08:35 O: The ice cream scoop?
08:35 P: yes.
08:35 P: the smaller one also is a ice cream scoop?
08:36 O: The smaller one might be the potato peeler.
08:36 P: Tell you the truth, I am a terrible cook.
08:36 P: ok, got it.
08:37 O: I’m not very good at cooking either.
08:38 P: r we done?
08:38 O: I think so.
08:38 P: I was wondering if I can use a kitchen scale to weigh myself..
08:39 O: I have a feeling that you probably can’t...
08:39 P: I think it can’t work.
08:40 O: There’s something written on the picture of the scale. I think it says maximum 3000g or something.
08:41 P: We are busy with talking.
08:41 O: you wanna check the stuff I need?
08:41 P: kind of forgetting our mission.
08:42 O: I need a peeler, whisk, potato masher, cheese grater, mesh strainer, griddle, kettle, and rolling pin.
08:42 P: yes.
08:42 O: Eight things altogether.
08:43 P: slow down....cheese grater?
08:43 O: Yes, it is made with metal and it has holes on all four sides.
08:44 P: done!
08:44 O: Great!
08:44 P: Ok. So do you want to check if you got all the utensils I need?
08:44 O: Yes.
08:45 P: I need tongs, a kitchen scale, scoop, spatula, sauce pan, apron, and pizza cutter.
08:45 O: I got them all.
08:45 P: excellent!
08:45 P: See ya. I mushgo..
08:45 O: See you. Have a great weekend!
08:45 P: you too.
08:45 P has left this chat
08:46 O has left this chat
REFERENCES


ACKNOWLEDGEMENT

I would like to thank the members of my committee, Dr. Volker Hegelheimer, Dr. John Levis, and Dr. Julio Rodriguez, for their insight, encouragement, and useful advice. In particular, I would like to thank my major professor, Dr. Hegelheimer, for his guidance on my research and Dr. Levis and Dr. Rodriguez for their helpful feedback and expertise in the topic. Also I would like to express my gratitude to Dr. Carol Chapelle who gave me suggestions on the analysis of the data.

I am very grateful to my classmates who contributed their time, advice, and expertise to the study: Anne O’Bryan, Edna Lima, Ekaterina Shcherbakova, Hye Won Lee, Sarah Huffman, and Lei Zhang. In addition, I am deeply indebted to my parents, Jiuwu Teng and Tiantian Huang, for their unconditional love, support and understanding.

I would like to especially thank instructor Hee Sung (Grace) Jun for allowing me to collect data in her class. I would also like to thank all the students who engaged in the study. This thesis would not have been possible without their participation.