



**The effects of SCMC modality and task type on negotiation of meaning**

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**The effects of SCMC modality and task type on negotiation of meaning**

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## Abstract

Inspired by interactionist perspectives, this study investigates whether the patterns of negotiation of meaning among non-native speakers of English are affected by synchronous computer-mediated communication (SCMC) modality, task type and the interaction between the modality and task type. Sixteen upper-intermediate international graduate students worked in one of the eight dyads and carried out four 10–15 minute tasks via text chat and video-conferencing. Four tasks consisted of two decision-making tasks (convergent tasks) and two opinion exchange tasks (divergent tasks). The topics of the tasks and the sequence of the tasks was designed to be counterbalanced. A total of 7 hours, 10 minutes and 56 seconds of text chat scripts and video-conferencing transcripts were collected and coded based on five categories of negotiation strategies: clarification request, comprehension check, confirmation check, self-paraphrase and self-repair. Follow-up task perception questionnaires were employed to obtain feedback from the participants in terms of their attitude towards two SCMC media and task-based SCMC activity employed in the current study. The results revealed that the SCMC media, task types and their interactions had an impact on the patterns of negotiation of meaning among the participants. More importantly, distinct trajectories of learners' use of negotiation strategies and different numbers of words and turns were yielded according to the modalities, task types and the combination of communication mode and tasks.

## Chapter 1. Introduction

The advance of communication technology and the increasing use of computers have brought a new era to many second language education settings. In particular, computer-mediated communication (CMC) has received growing interest from SLA researchers in terms of its effectiveness for facilitating second language acquisition (SLA). Namely, CMC appears to help L2 learners to practice the target language by communicating with native speakers or other language learners without constraints of space and time (Yamada & Akahori, 2007). In addition, software and programs of synchronous computer-mediated communication (SCMC) such as real-time text-based chat and video-conferencing, have been widely exploited in foreign language classrooms (Sauro, 2001: 1). Given L2 learners' widespread use of the both SCMC modality (Mackey, 2012), text chat and video-conferencing have been advocated by many computer-assisted language learning (CALL) researchers as an effective tool for fostering learner interaction (e.g., Beauvois, 1992; Kelm, 1992; Kern, 1995; Warschauer, 1996; Blake, 2000; Levy & Stockwell, 2006; Smith, 2003a, 2003b; Lee, 2007 among others).

Many studies which examined both synchronous online communication modes (i.e., text chat and video-conferencing) claimed various benefits compared to traditional face-to-face interactions. First of all, L2 learners engaged in SCMC interactions generally showed more motivation and participation, due to its less stressful communication environment (Abrams, 2003; Beauvois, 1992; Chun, 1994; Jepson, 2005; Kelm, 1992; Kern, 1995; Warschauer, 1997). Furthermore, text chat induced learners to produce lexically and syntactically more complex output than face-to-face communication (Kelm, 1992; Chun, 1994; Kern, 1995;



Warschauer, 1996; Beauvois, 1998), making learners negotiate for meaning frequently (Smith, 2003a).

Despite the fact that text-based chat has many features in common with face-to-face conversation, (Blake 2000; Pelletieri 2000; Smith 2003a), communication via video-conferencing seems to be a much closer approximation of face-to-face interaction since learners can communicate not only orally but also visually using non-verbal and paralinguistic cues such as facial expressions and gestures (Gowan & Downs, 1994, cited in Jung & Jiang, 2012). In a study comparing the effectiveness of different types of digital and non-digital real-time communication, including video calls as the online equivalent of face-to-face communication, Yamada and Akahori (2007) reported that communication and comprehension through video calls was most successful because the participants felt reassured by the presence of their partner's image. Similarly, Yamada (2009) found that the availability of the counterpart's image during communication seemed to create an awareness of social presence, and enhance a more active and effective communication in an online L2 environment. (Zawaard & Bannink, 2014: 137–8).

In particular, one of the most important strengths of SCMC is that it provides an ideal arena of negotiated interaction, helping learners to receive plentiful input and feedback and produce modified or pushed output through negotiation (Chapelle, 2005; Gass, 1997; Gass & Mackey, 2007, 2012; Krashen, 1982, 1985; Long, 1983, 1996; Pica, 1987a, 1987b; Pica et al, 1989; Pica, Doughty, & Young, 1986; Pica, 1994; Swain, 1985, 1995, 2000, 2005; Varonis & Gass, 1985a, 1985b). In the interactionist perspectives, interactions through negotiation of meaning

“provide learners with feedback on their use of the target language and opportunities for them to draw learners’ attention to both message meaning and L2 form” (Pica, 1994: 507). Therefore, the need to negotiate for meaning pushes learners to make their output more comprehensible and it enhances their ‘noticing the gap’ in their interlanguage, which in turn results in intake of the input and learners’ interlanguage development (Schmidt, 1990, 1995, 2001).

Even though it seems obvious that synchronous text chat and video-conferencing can contribute to fostering negotiation of meaning and SLA, by themselves, they do not provide necessary and sufficient conditions. In order to make the most of this technology, appropriate communicative tasks must be designed and integrated within the SCMC learning environment to aid learners’ negotiated interaction. Although there has been research in terms of the effects of the task type on negotiation, the evidence is inconclusive. For example, Blake (2000) and Smith (2003a, 2003b) both investigated jigsaw tasks and decision-making tasks, but their findings were contradictory. Blake claimed that jigsaw tasks yielded greater incidence of negotiation, whereas Smith found that decision-making tasks elicited more negotiation than jigsaw tasks. These findings suggest that further research should be conducted to shed light on the precise relationship between task type and negotiation of meaning during synchronous computer-mediated interaction.

As mentioned above, many studies have explored L2 learner discourse in SCMC involving certain types of tasks in an effort to clarify its nature. However, much previous research has focused mainly on convergent tasks and yielded mixed results. Therefore, additional research

is needed to investigate the effects of SCMC modes and task types on both the quality and quantity of learners' production of meaning negotiation for establishing more comprehensive and informed basis regarding integrating tasks and technology.

### **1.1. Research Questions**

In response to the need for the further research mentioned above, this study examined the effects of two different types of SCMC (i.e., text chat and video-conferencing) and two task types (i.e., a convergent task and divergent task) as well as the correlation between the modality and task type on learners' negotiation of meaning. Therefore, this study asked three major questions. The first question focused on the effects of the two SCMC modalities on the negotiation of meaning strategies learners use. The second research question was concerned with whether task type influences learners' meaning negotiation. Finally, the third question asked whether there is a correlation between the SCMC media and task types with regard to promoting negotiation. Accordingly, the following three research questions were investigated:

- How do the patterns of negotiation of meaning in synchronous task-based one-to-one text-chat compare to those in one-to-one video-conferencing?
- How do the patterns of negotiation of meaning differ across convergent tasks and divergent tasks?
- Is there an interaction between the task types and modality?

## **1.2. Organization of the Study**

The study consists of five chapters. In Chapter 2, the prior SCMC literature relevant for this study is provided and discussed. Chapter 3 delineates the overall research procedure, including participants, task design, the process of data collection and the methods of analysis. Chapter 4 presents and discusses the results of the study quantitatively and qualitatively. Chapter 5 concludes with a summary of research findings, limitations and implications of this study, and suggestions for further research.

## **Chapter 2. Literature Review**

This chapter aims to review the theoretical and empirical studies on which the present study of task-based SCMC draws. The theoretical ideas in SLA literature on which the interactionist perspective is based will be discussed as well. The chapter then will explore the empirical research investigating the patterns of negotiation of meaning in two task-based synchronous online communication modes, text chat and video-conferencing. Finally, the literature exploring the effects of task type in SCMC will be presented.

### **2.1 Theoretical framework of the interactionist perspective on SLA**

The interactionist perspective on SLA has highlighted the interactional process between learners' internal mechanism and the linguistic environment (Long, 1996; Pica, 1994). Namely, it posits that the process enables learners to access comprehensible input and gain opportunities to produce modified output (Gass, 1997; Hatch, 1978; Long, 1981; Long, 1996; Pica, 1994). Therefore, it is essential to delve into related SLA literature supporting and illustrating the role of input and output as well as the fundamental mechanism between learner's cognitive factors (e.g., attention, noticing) and the L2 learning environment.

Interactionist perspectives are compatible with many established SLA theoretical ideas such as Comprehensible Input Hypothesis (Krashen, 1985), Interaction Hypothesis (Gass, 1997; Hatch, 1978; Long, 1981, 1985, 1991, 1996; Gass & Mackey, 2006; Pica, 1994), Comprehensible or Pushed Output Hypothesis (Swain, 1985, 1995, 2000, 2005), and the roles

of attention and noticing (Robinson, 1995; Schmidt, 1990; Tomlin & Villa, 1994). The importance of these factors in SLA has been verified by a number of previous researchers. Presumably, Ellis' (1999) broadly conceived perspective of interactionist SLA is a good starting point for applying the concepts of interactionist theory to computer-mediated L2 learning. Ellis (1999: 3) noted that interaction is generally "used to refer to the interpersonal activity that arises during face-to-face communication. However, it can also refer to the intrapersonal activity involved in mental processing".

### **2.1.1 Input and Comprehensible Input Hypothesis**

In language learning processes, input refers to the language data learners receive and utilize (Corder, 1967) and has been claimed to play a fundamental role for SLA. Current SLA theories also appear to agree on the necessity of input in language acquisition. In particular, according to Krashen's (1985) Comprehensible Input Hypothesis, language acquisition occurs only by receiving comprehensible input, which is slightly beyond learners' current stage ( $i+1$ ). Comprehensible input means "written or spoken information in the target language which the learner can comprehend" (Krashen, 1985; Gass, Mackey, & Pica, 1998, cited in Yamada and Akahori, 2007: 40). In relation to this, a number of interactionists have examined the interrelation of input, learners' internal language processing, and their linguistic environment. For example, in the input-interaction model, Gass (1997) claims that language input becomes more comprehensible and acceptable to learners by the modification of the input through interaction. That is, as part of the interaction, learners may modify the input to make it more comprehensible, and the modified input itself becomes a trigger again for the process of the modified interaction. In this view, input and learner interaction seem to be in complementary relation.

As mentioned above, it is certain that the interactionist perspective shares the notion with Krashen's Comprehensible Input Hypothesis (1982, 1985) that comprehensible input is one of the main requirements for SLA (Gass, 1997). However, interactionists emphasize the crucial role of learners' output in the language learning process as well. That is, while producing output, learners negotiate for meaning to make input more comprehensible, and it appears to result in modified interactions (Long, 1985; Pica, 1994). This cognitive process is, therefore, most likely to optimize SLA (Gass, 1997). This view is contrary to Krashen's (1985: 80) claim that "output is a result of acquisition, not its cause". However, his arguments have been criticized, largely for three issues. The first criticism claims that comprehensible input alone is not sufficient for acquisition, and learners' producing output on and devoting attention to linguistic forms are also needed for language development (Swain, 1985). Another criticism is that the notion of 'comprehensible input' is vague and not consistent (Gass, 1988; White, 1987). Thirdly, comprehension of input itself does not guarantee language acquisition. For example, Sharwood-Smith (1986) claims that the comprehensibility of input may not elicit learners' attention to form, resulting in the failure of complete intake of the input.

As mentioned above, Krashen's (1982, 1985) Comprehensible Input Hypothesis has been challenged by many SLA researchers (e.g., Gass, 1988; Lightbown, 1998; Schmidt & Frota, 1986; Schmidt, 1990; Swain, 1985; White, 1989). However, it is also true that interactionists have acknowledged the importance of comprehensible input for SLA. This point of view provoked an examination how learners' output becomes more comprehensible through interaction (Gass, 1997; Long, 1981, 1991, 1996; Pica, 1994; Swain, 1985, 1995).

### 2.1.2 Output Hypothesis

Interactionist perspectives view comprehensible input (Krashen, 1985) as a necessary but insufficient prerequisite for SLA (Larsen-Freeman & Long, 1991), claiming that sufficient opportunities for comprehensible input do not necessarily lead to successful acquisition of the target language (Swain, 1985). Swain's study (1985, 1995) of Canadian immersion classrooms confirmed that, despite learners' prolonged and ample exposure to the comprehensible input, the input alone did not result in learners' successful L2 acquisition. (Swain, 1985; Swain & Lapkin, 1995). More specifically, while the immersion students achieved native-like proficiency in their reading and listening comprehension abilities, they failed to acquire the same level of language competence in their oral and written production. Based on this observation, she concluded that the lack of opportunities to produce output hinders learners from developing native-like proficiency. She emphasized learners' engagement in producing output through which learners are pushed or stretched to make their output more intelligible (Swain, 1985, 1995; Swain & Lapkin, 1995). Thus, in contrast to Krashen's (1982, 1985) Comprehensible Input Hypothesis, Swain (1985, 1985) viewed output as a crucial part of the learning mechanism, not the result of it (Adams, 2003).

The premise that output plays a pivotal role in language learning processes, raised a question of exactly how output functions in the learning process to facilitate SLA. According to the Output Hypothesis (Swain, 1985, 1993, 1995, 1998), a learner's output has four functions: (a) through producing output, learners "notice a gap between what they can say and what they wish to convey" (Swain, 2005: 474), and, triggers linguistic modification to fill the gap (Pica et al., 1989; Swain, 1985; Swain & Lapkin, 1995, 2001); (b) output serves as a hypothesis that learners establish regarding the way the target language works and test it by producing



output (Swain, 1995); (c) learners' output induces learners to reflect their metalinguistic knowledge upon L2 forms consciously; and (d) provides more opportunities for producing output to develop learner's automaticity of the target language and their fluency.

As illustrated, Swain (1995: 126) affirmed that learners' output affords learners an in-depth process for the target language through learners' comparison between their current level of interlanguage and more adjacent target-like form, which fosters their awareness of the gap between them. Schmidt's Noticing Hypothesis (Schmidt, 1990, 1995, 2001, 2010; Schmidt & Frota, 1986) lends support to her claims, in the sense that learner's noticing may prompt learner's attention to linguistic form and enable the conversion of input to intake.

### **2.1.3 Attention and Noticing Hypothesis**

The interactionist perspective has noted the critical role of attention and awareness in language learning (Schmidt, 1990, 1995), claiming that "people learn about the things they attend to and do not learn much about the things they do not attend to" (Schmidt, 2001: 30). Much research seems to support a crucial role of awareness in the SLA process (Gass, 1997; Izumi, 2002, Robinson, 1995; Schmidt 1990, 1995, 2001 among others). In particular, in Noticing Hypothesis (1990, 1993, 1995) Schmidt (2012) argues that intake of input to learners' interlanguage systems should be preceded by the conscious attention to certain features of the target language and noticing the gap between their interlanguage and the target form (Schmidt, 1990; Schmidt & Frota, 1986). Mackey (2006: 408) also posits that "attention allows learners to notice a gap between what they produce/know and what is produced by the speakers". Robinson (1995: 296–7) defined noticing as "detection plus rehearsal in short-term

memory, prior to encoding in long-term memory”. In the same vein, a number of other researchers also have advocated the importance of Consciousness Raising (CR) activities facilitating L2 development (e.g., Fotos & Ellis, 1991; Long, 1988, 1991; Sharwood Smith, 1991, 1993, cited in Robinson, 1995: 284). However, there are also several researchers who have different opinions with regard to the beneficial effects of attention and awareness (Krashen 1985; VanPatten, 1988). For example, Tomlin and Villa (1994: 183) have argued the “dissociation between awareness and learning”, highlighting the role of detection among three distinct but interrelated elements: alertness, orientation, and detection.

Even though those arguments appear to differ in the extent to which noticing contributes to SLA, noticing seems to be viewed as one of the facilitative elements in SLA literature. In particular, Gass and Selinker (2001: 298) argue that noticing is the core of the Interaction Hypothesis. The fundamental question at this point is how learners’ noticing can be raised by the interaction. The empirical evidence of SLA research on noticing suggests that interactions, particularly, negotiated interactions seem to facilitate language learning by “connecting input, internal learner capacities, particularly selective attention, and output in productive ways” (Long, 1996: 451–2).

#### **2.1.4 Interaction Hypothesis and negotiation of meaning**

The interactionist perspective is largely based on the Interaction Hypothesis (Gass, 1997; Long, 1983, 1996), which claims that the interaction between learners’ internal mechanisms and the linguistic input and output is essential for language learning to occur. Interaction Hypothesis emphasizes learners’ engagement in a conversational interaction, in which they

may have to negotiate for meaning or modify input and output in order to tackle communication breakdown or to improve the quality of their discourse (Gass, 1997; Lee; 2006; Long, 1983, 1996; Swain, 1995). This modified interaction is likely to work as an ‘attention-drawing device’ to direct learners’ attention to a specific linguistic form (Swain & Lapkin, 1995: 372–3). In this vein, negotiated interaction seems to benefit L2 learners by prompting conversational adjustments and helping learners’ form-meaning mapping (Long, 1996; Pica, 1994, cited in Chapelle, 2005: 55). The claim does not, however, necessarily mean that negotiation of meaning directly leads to successful language learning. Rather, negotiation is viewed as an optimal linguistic environment where learners receive plenty of comprehensible input and are pushed to produce comprehensible output (Pica, 1994: 507).

For the reasons presented above, meaning negotiation has received much attention from many researchers (Gass & Varonis, 1985; Hatch, 1978; Long, 1981, 1983, 1985; Pica, Doughty, & Young, 1986; Pica, Young, & Doughty, 1987; Pica, 1994; Gass & Mackey, 2007, 2012). Pica (1994: 497) demonstrated that negotiation is “a process which a listener requests message clarification and confirmation and a speaker follows up these requests, often through repeating, elaborating, or simplifying the original message”. That is, the process of this negotiated interaction is very likely to elicit learners’ use of various types of negotiation of meaning strategies, such as comprehension checks, clarification requests and self-repairs (Gass, 1997; Varonis and Gass, 1985b). In this way, learners seem to be pushed to produce output that is more complete and accurate. Therefore, the more opportunities for meaning negotiation are more likely to entail successful second language acquisition (Ellis, 2003).

## **2.2 Negotiation of meaning in SCMC**

Negotiation is defined as “the modification and restructuring of interaction that occurs when learners and interlocutors anticipate, perceive or experience difficulties in message comprehensibility” (Pica, 1994: 494). However, negotiation of meaning is aiming at not only solving breakdown in communication but also producing more accurate and better modified output for a successful flow of interaction (Zaarrd & Bannink, 2014). Proponents of SCMC in second language learning have claimed that SCMC provides learners with large amounts of comprehensible input and output through negotiation of meaning (Blake, 2000; Pelletieri, 2000) and have compared the patterns and features of meaning negotiation in face-to-face and SCMC contexts.

### **2.2.1 Similarities and differences between face-to-face and SCMC**

Since SCMC is considered as an ideal arena for facilitating learner interaction and negotiation of meaning, its interaction and negotiation patterns are often compared with traditional face-to-face interaction in terms of their resemblance and differences. As in face-to-face communication, SCMC provides learners with comprehensible input and opportunities to produce comprehensible/modified output (Lee, 2002; Pelletieri, 2000; Smith, 2001). Because of its real-time nature, in which spoken or written messages are sent off within seconds, SCMC elicits many negotiation strategies, such as “comprehension checks, clarification requests, confirmation checks, use of the L1, self-corrections, [...] which are all compatible with face-to-face communication” (Levy & Stockwell, 2006: 89).

Even though SCMC and face-to-face communication have many features in common, there are differences between them as well. Moreover, some benefits of SCMC are even considered to be superior to face-to-face interaction. First of all, the most fundamental difference between synchronous text chat and face-to-face interaction is that text chat mode is non-visual and auditory (Levy & Stockwell, 2006: 89). Because of the reduced sensory nature of SCMC, understanding and non-understanding tend to be more explicit (Smith, 2003b). With regard to learners' participation, many SCMC studies have revealed that SCMC provides more participation than face-to-face interaction (Beauvois, 1992; Chun, 1994; Kelm, 1992; Kern, 1995). In text chat, learners tend to simplify their messages by employing abbreviations, emoticons and simplified syntax, etc. In particular, its discourse sequence is different from that of face-to-face interactions: in text chat, learners can send messages simultaneously to different interactants on different topics, whereas participants generally speak in turn on a single topic in face-to-face interactions (Doughty & Long, 2003, cited in Jepson, 2005: 81). As a result, the text chat environment may promote negotiation of meaning due to "breakdowns in communication related to topic incoherence" (Herring, 1999; Werry, 1996, cited in Jepson, 2005: 81).

With regard to the difference between video-conferencing and face-to-face interactions, a fundamental difference is that interaction via video-conferencing takes place online, even though it also includes visual and auditory interaction features similar to face-to-face conversations. Therefore, learners' performance is occasionally affected by the quality of internet connection (O'Malley et al., 1996). For example, when there is a technical issue, it is more likely to result in interfering with the successful flow of learners' conversations. Also, video-conferencing can impose a higher cognitive load because of the fact that the

participants are not physically co-present, hence, they need to “over-compensate by increasing the level of both verbal and non-verbal information” (O’Malley et al., 1996: 177).

### **2.2.2 Similarities and differences between text chat and video-conferencing**

The two online synchronous communication modes – video-conferencing and text chat – differ in some ways. The interaction in text chat is based on written texts that are typed, sent, and received in real-time (Smith, 2005: 34). The messages are reviewed and modified before they are delivered. These characteristics make interaction and turn-taking slower and more deliberate (Zwaard & Bannink, 2014: 138) than video-conferencing, which is based on spoken language exchanged far faster, in seconds. As a result, text-based communication often causes delayed negotiation sequences due to interactants’ review of the previous messages and their subsequent requests for resolution of any break in communication.

Video-conferencing, on the other hand, is naturally based on oral messages and the conversation is generally sequential and follows adjacent patterns, making interactants react immediately (Zwaard & Bannink, 2014: 138–9). Video-conferencing allows communicators to use both audio and visual information exchanges, including prosodic, paralinguistic, and non-verbal features of communication such as facial expressions and gestures. In text chat, on the other hand, intentional emotions are expressed through emoticons instead of oral and visual cues to offset its communicative limitation.

There are also similarities. Communication in both SCMC modalities is live, which means that messages are encoded and decoded during interaction instantly. Even though text chat is based on written text, it is still regarded as a speech-like modality because messages are sent back and forth during real-time communication.

### **2.2.3 Negotiation of meaning in task-based text-chat**

Many studies have explored negotiation of meaning in text-based SCMC and much has been written in favor of synchronous text chat (Levy & Stockwell, 2006: 89). During the real-time interaction of text chat through written messages with oral-like conversation, learners negotiate meaning by modifying input and output and responding to feedback (Jepson, 2005; Levy & Stockwell, 2006: 89). Much research has acknowledged the constructive benefits of text chat for negotiation of meaning.

Blake (2000) examined the interaction of Spanish learners engaged in a total of four task types over two semesters. In his study, jigsaw, decision-making, two-way and one-way information gap tasks were compared. The results showed that negotiation appeared to be 'task sensitive' and jigsaw tasks elicited the highest number of negotiations. Blake (2000) confirmed that the subjects noticed their errors and tried to correct them. Also, the participants showed high degree of task completion.

On the other hand, Smith's (2003a) study with 28 intermediate ESL learners in text chat using jigsaw and decision-making tasks yielded different results. He confirmed that learners

produced a significantly higher number of negotiations in the decision-making tasks than in the jigsaw tasks. In his serial research, Smith (2003b) further explored negotiated interactions in a task-based chat room in terms of the effects of task type on the degree of negotiation and how this negotiation in SCMC compared to face-to-face negotiation of meaning. The participants completed four communicative tasks, two jigsaw and two decision-making tasks. The results showed that learners negotiated for meaning in about one-third of their total turns and the amount of negotiation seemed to be shaped by task type; learner negotiations were significantly higher when engaged in the decision-making tasks than in the jigsaw tasks, which was contrary to the Blake's results (2000). The findings in both studies, however, showed that the negotiation patterns were similar to those in face-to-face communication.

Lee (2001) examined participants' communication strategy use in open-ended discussion tasks in text chat. A total of 298 communication strategies were identified, including requests for meaning, clarification, comprehension checks, and self-corrections, and the strategies were found to be facilitative to learners' producing modified utterances. The findings of Chun's (1994) study employing open-ended discussion tasks proved that text-based SCMC is an effective medium for fostering learners' use of negotiation strategies when a communication problem occurs during the tasks. Her study found that students deployed negotiation of meaning strategies, such as clarification and confirmation checks, to cope with a communication breakdown.

Fernández-García & Martínez-Arbeláiz (2002) examined the interaction of Spanish learners involved in open-ended discussion tasks and found that open-ended discussion tasks



facilitated similar negotiation of meaning just as in face-to-face interactions. The participants however, tended to express their non-understanding more explicitly due to the absence of non-verbal and paralinguistic cues.

#### **2.2.4 Negotiation of meaning in task-based video-conferencing**

Because of the highly sensory nature of video-conferencing, which permits non-verbal cues (e.g., facial expressions) and helps learners to have oral interaction spontaneously and quickly, it has emerged as an alternative to face-to-face interaction (Warschauer, 1996). Other CMC tools, such as text chat, cannot offer those features (O'Dowd, 2005, cited in Lee, 2007: 640). Many SCMS researchers have noted the communicative strength of video-conferencing and delved into its patterns of negotiation of meaning.

Lee (2007) investigated dyads of NS-NNS in two-way interactive tasks through video-conferencing. The students found that video-conferencing had a positive influence on developing their oral skills. Based on their experience during the study, students showed a positive attitude towards the compelling feature of video-conferencing, which allows them to “interact with authentic input in a way that is not feasible in a traditional classroom setting” (Lee, 2007: 640).

Yanguas (2010) compared negotiations for meaning in task-based audio, video CMC groups and traditional face-to-face communications. The researcher argued that the differences between three groups were due to the lack of visual contact. Yanguas (2010) showed that

audio and video modes were more facilitative to elicit interactional patterns, similar to those of face-to-face interactions. In the study comparing four types of SCMC (text chat with/without interlocutor's image, audio-, video-conferencing), Yamada and Akahori (2007) found that video-conferencing provided plenty of opportunities for meaning negotiation during which participants went through trial-and-error in an effort to modify their output. Particularly, it is worth noting that during the trial-and-error, “non-verbal behaviors such as nodding and laughing allowed subjects to relax and speak positively without frustration due to grammatical and lexical errors” (Yamada & Akahori, 2007: 55). Students interviewed in the study acknowledged the positive effect of video-conferencing in terms of helping them notice their pronunciation problems and grammatical errors. The study also concluded that the interactant’s image seems to influence interactional modification and negotiation of meaning.

Lee (2006) explored interaction through video-conferencing to see whether video-conferencing could be an alternative to face-to-face conversation in spoken language acquisition. The data revealed that video-conferencing resembled face-to-face communication and provide positive conditions for spoken language acquisition. However, the data also imply possible difficulties when video-conferencing is applied to language classrooms. In most cases, comprehension difficulty and frequent communication breakdowns in video-based interaction resulted in the excessive use of communication strategies. This excessive use of communication strategies can slow the flow of the conversation and discourage language learners from communicating in the target language.

Jung and Jiang (2012) investigated meaning negotiation occurred among NNS-NNS dyads of the same ethnic group and different ethnic groups in video-conferencing. The results confirmed that in the same ethnic groups, lexical errors and content triggered more meaning negotiation, while content and phonological errors did so in the different ethnic group settings. The same ethnic groups employed rephrasing and elaboration most frequently, whereas in different ethnic groups, half the responses were the explicit statement of understanding such as 'Ok', 'Good' or 'I understand' (Jung & Jiang, 2012: 253). The findings suggest that video-conferencing promotes learners' meaning negotiation. Above all, their study provided noticeable data regarding similarities and differences of meaning negotiation of the same ethnic and the different ethnic group in video-conferencing, which can be exploited in designing SCMC tasks via video-conferencing when students consist of different ethnic groups (Jung & Jiang, 2012: 266).

### **2.2.5 The effects of task type on negotiated interaction in SCMC**

In an attempt to uncover task effects on the task-based interaction of L2 learners, many comparisons have been made of various types of tasks to evaluate their relative effects on the degree and the patterns of learner interaction and negotiation of meaning. These comparisons include one-way and two-way tasks (e.g., Gass and Varonis, 1985; Long, 1981, 1983), information exchange (e.g., Doughty & Pica, 1986), and convergent and divergent tasks (e.g., Jackson, 2011; Smith, 2003a, 2003b).

Pica et al. (1993) determined the four task features which are most likely to lead to negotiation of meaning. Pica et al. (1993) claimed that because of the four conditions, both

interlocutors must actively participate and exchange information while ensuring that they understand one another in order to complete the task successfully. In instances where misunderstandings occur, the nature of the task induces negotiation. The four features are presented in Table 2.1.

**Table 2.1. Task features most likely to elicit negotiation of meaning (Pica et al., 1993, adapted from Sauro, 2001: 10)**

Categories	Task Features
<b>Interactant Relationship</b>	Each interactant holds a different portion of information which must be exchanged and manipulated in order to reach the task outcome.
<b>Interactional Goal</b>	Both interactants are required to request and supply this information to each other.
<b>Communication Goal</b>	Interactants have the same or convergent goals.
<b>Outcome Option</b>	Only one acceptable outcome is possible from their attempts to meet this goal.

The most widely used typology of task type is Pica et al.'s (1993) classification (see Table 2.2) and many SLA researchers have evaluated five communicative language learning tasks based on it. These tasks are jigsaw, information gap, problem-solving, decision-making, and opinion exchange. According to four characteristics detailed in Table 2.1, jigsaw tasks would be most conducive to the negotiation of meaning in the sense that both participants are required to request and supply information to arrive at the single solution collaboratively. Conversely, opinion-exchange tasks seem to be the least conducive to negotiation of meaning since students do not have a single convergent goal to achieve jointly, and do not need to negotiate a 'best answer' to reach a correct answer.

**Table 2.2. Features of five types of communication tasks (Pica et al., 1993; adapted from Sauro, 2001: 11)**

<b>Task type</b>	<b>Interactant relationship</b>	<b>Interactional Goal</b>	<b>Communication Goal</b>	<b>Outcome Option</b>
<b>Jigsaw</b>	Both participants possess, request, and supply information.	Required	Convergent	One
<b>Information Gap</b>	Either participant possesses, requests, and supplies information.	Required	Convergent	One
<b>Problem-solving</b>	Participants possess information, but may or may not request or supply it.	Optional	Convergent	One
<b>Decision-making</b>	Participants possess information, but may or may not request or supply it.	Optional	Convergent	More than one
<b>Opinion Exchange</b>	Participants possess information, but may or may not request or supply it.	Optional	Not convergent	More or less than one

Even though several CMC studies have lent support to Pica et al.'s (1993) taxonomy (e.g., Pellettieri, 2000; Blake, 2000), there has been also much research which yielded different results contradicting Pica et al.'s (1993) expectation with regard to the amount of negotiation of meaning. For example, Smith's (2003a) study comparing jigsaw and decision-making tasks in text chat provided the counterpart evidence for the amount of negotiation of meaning that learners negotiated at much higher percentage in the decision-making task. Other research such as Lee's (2008) examination of jigsaw and open-ended tasks, and Jackson's (2001) study on the different learner language production in convergent and divergent tasks also provided notable results. Lee (2008) found that learners used a higher percentage of self-repair in the divergent task than in the convergent tasks. Similarly, Jackson's study (2011) confirmed that there were 18% more words in the divergent task and both words per turns and clauses per c-unit were also greater in the divergent condition. In contrary to Pica et al.'s (1993) hypothesis, the divergent tasks in these studies yielded much higher negotiation of meaning among learners.

As can be observed, many studies were conducted drawing on Pica et al.'s (1993) typology. However, recent empirical studies have yielded mixed results with regard to the effects of task type on types and amount of meaning negotiation. It suggests that the taxonomy may need to be altered or expanded in order to be more applicable to SCMC learning environment. Therefore, the effects of task types need to be investigated more carefully to tackle the inconclusive results about which task type facilitates and induces greater meaning negotiation than others when conducted via SCMC medium.

### **2.3 Summary of Literature**

Studies concerning the effects of SCMC modality and task features on the negotiation of meaning clearly show that types of modality and tasks have facilitative aspects for negotiation of meaning and SLA. SCMC studies have revealed the facilitative features of SCMC for negotiation of meaning, such as providing equal participation environment, and the similarities of interaction with face-to-face conversation. However, as mentioned earlier, studies in the SCMS field have shown mixed results in terms of the effects of modality as well as the efficacy of different types of tasks, and fewer studies have attempted to bridge the gap between the interactionist theory of SLA and tasks which facilitate negotiation of meaning via a computer-mediated medium. Even though there has been some research to investigate the effects of video-conferencing, a majority of studies in SCMS are still limited to text-based SCMC and its comparison is mainly with face-to-face interactions. Particularly, to my knowledge there has been little research which compares synchronous text-based interactions with video-conferencing using convergent tasks and divergent tasks, as well as examining their correlation with the task types regarding L2 learners' negotiation of meaning. These limited research findings in SCMC cannot provide insight into the holistic patterns of meaning negotiation that have occurred in the process during which various tasks are carried out by two different media.

The prevalence of computer-mediated communication and a variety of software programs and applications which permit synchronous visual and oral communication have opened up another medium for SCMC tasks in the L2 classroom. This rapid advance of communication technology can help us to answer questions such as the relative effectiveness of the task-based SCMC to face-to-face interaction and the optimal combination of SCMS modality and

task types for SLA. Therefore, this study attempts to investigate how and to what extent learner's negotiation of meaning are influenced by SCMC modes (i.e., text chat and video-conferencing) and task types (i.e., convergent tasks and divergent tasks) as well as the effects of their interaction on the participants' use of negotiation strategies. Also, participants' perception towards the task-based SCMC setting implemented in the current study will be discussed in relation to implications and further research in task-based SCMC literature. In the following chapter, I will address the overall research procedure, including participants, task design, the process of data collection and analysis and the specific methods of analysis used for the current study.



## Chapter 3. Methodology

### 3.1 Participants

A total of 16 international graduate students (n=16, 10 females and 6 males) enrolled in a university located in London voluntarily participated in this study. All participants were NNS of English and their proficiency level in English was considered as upper-intermediate based on their results of the IELTS (M = 6.81, SD = .31), which they presented to meet the admission English proficiency requirement of the university. As for the students' background information, the students ranged in age from 26 to 40, with a mean of 32 (SD = 5.5). The participants represented four countries (China, Japan, Korea, and Taiwan) and were native speakers of Japanese, Korean, and Mandarin. Their average length of residence in the United Kingdom was eight months, with a range of between eight months and one year. Most reported having used text chat software and video-conferencing (e.g., *MSN messenger*, *Skype*) prior to the study. However, no one had previously experienced the video-conferencing interface *Google Hangout* employed in the current study. Each participant was randomly assigned to one of the eight dyads. Most of the dyads were of the same ethnicity (n = 12) and only two dyads (n = 4) consisted of two different ethnic groups such as Japanese–Korean and Chinese–Korean.

### 3.2 Task

A total of the eight dyads of NNS-NNS (n = 16) carried out four 10–15 minute tasks during the experiment (See Appendix B). The tasks were organized under four topics. Task A,

‘University applicants’, was adapted from Jackson (2011) and the scenario was that the participants in all dyads were the professors of the English language and education department of a well-reputed university in the U.K. Each dyad was required to work collaboratively to select the two most suitable candidates for their department based on four imaginary applicant profiles, which provided each candidate’s gender, nationality, educational background and a brief comment regarding their additional information such as motivation, English proficiency, and cultural background. Both subjects in the same dyad were given identical profiles and they were asked to reach an agreement on the selection of the most suitable two applicants out of four.

In the task B, ‘Mission to Mars’, students were leaders of the ‘Mission to Mars’ team, which aims to construct a human colony on the red planet on behalf of the world. As leaders of the team, the participants had to select two candidates considered most ideal for their team based on the four candidates’ profiles providing their gender, nationality, occupation, reasons for wanting to go to Mars, and brief descriptions of their background. The format of the task B was adapted from Jackson (2011) as well.

The scenario of task C, ‘Survival’ was that all subjects were sole survivors of a plane crash in snow-capped mountain. Based on the information of the four options such as clothes, food, lights, and tools, the participants were required to come to a joint decision regarding the selection of two items useful for their survival and escape.

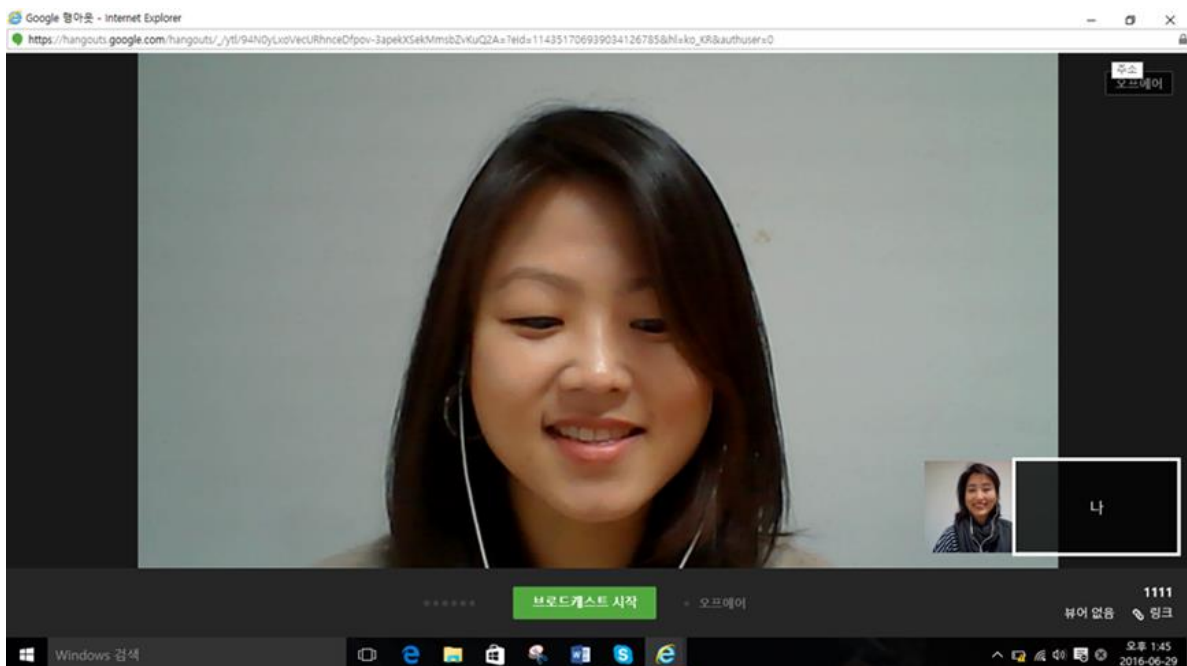
The design of task D, 'Funding' was adapted from Révész (2011). The imaginary context was that the participants were in charge of the budget department of a university in the U.K. The students were asked to finance four potential plans in their university and their task was to evaluate competing requests for funding and make judgments about their relative merits, and to allocate funds to the two most deserving plans. The potential plans were worth of support such as providing scholarships and accommodation for students from low-income households, and supported vocational education and employability training programs in their senior year for students suffering from the youth unemployment crisis.

Each task consisted of its convergent version and divergent version. The convergent task was a decision-making task which required the subjects to select two candidates (options) out of four candidates (options) with their partner, based on four imaginary profiles (information). In the convergent version, each dyad had to reach a consensus. On the other hand, the divergent task in the current study was an opinion exchange task which required participants to support two candidates (options) out of four, which were assigned in advance by the researcher. In the divergent tasks, participants had to keep refuting their partner's counterarguments, who was also given the other two candidates (options) in advance. To counterbalance the tasks across the dyads, half of the participants ( $n = 8$ ) were given candidates number 1 and 3, and the other half ( $n = 8$ ) were all given candidate number 2 and 4. That is, in one dyad, one must defend numbers 1 and 3, while his/her partner had to support numbers 2 and 4. However, students could request a change to the set of candidates if they thought they would perform better if they exchanged their assigned candidates with their partners. Participants did not need to reach an agreement in this version but they were asked to keep supporting their candidates for about 10 to 15 minutes.

In the experiment, the four tasks provided for the participants consisted of two convergent version tasks and two divergent version tasks. That is, a set of four tasks were two decision-making tasks and two opinion exchange tasks. Task contents and formats were modified and improved through one pilot study to be more debatable and counterbalanced.

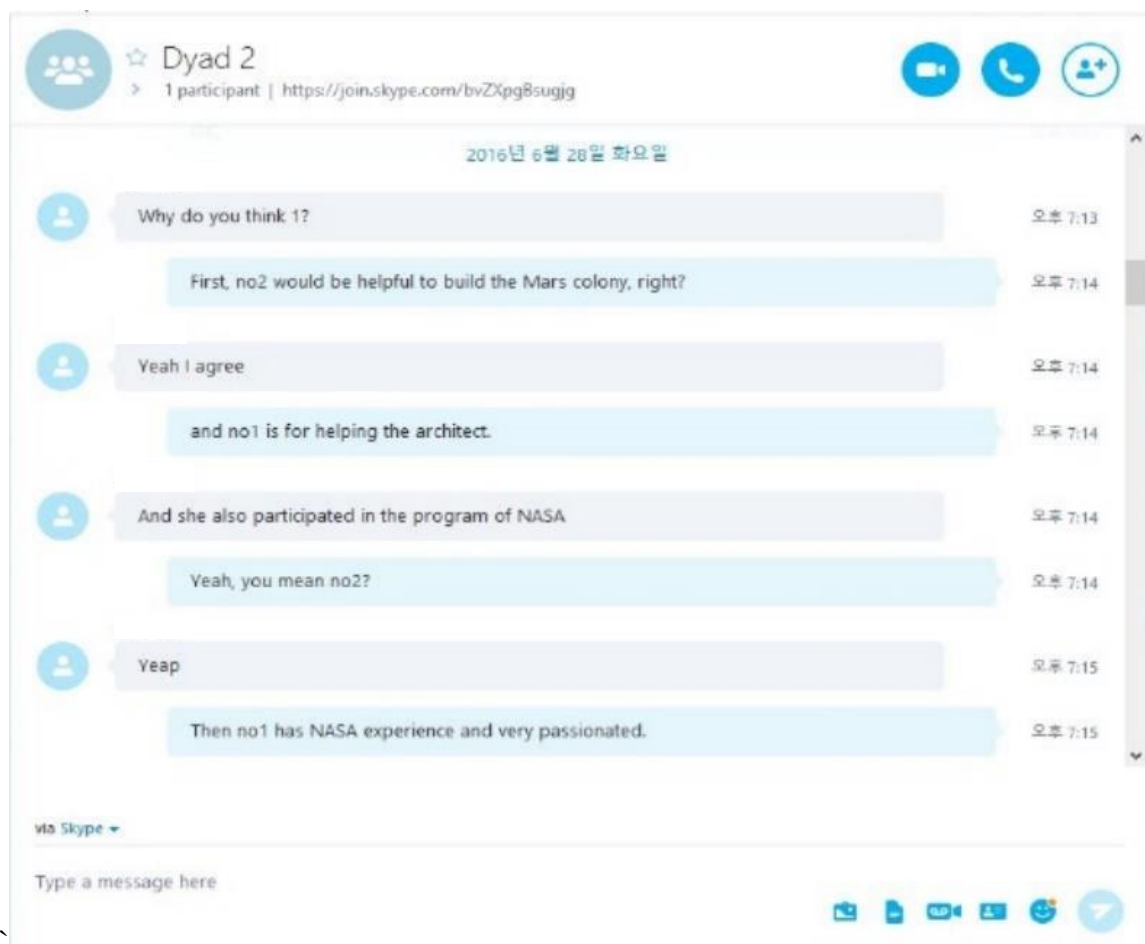
### 3.3 Software and Hardware

Two personal laptop computers with earphones and built-in web cams were set up in two separate rooms to log-in to video-conferencing at *Google Hangout* and text chats at *Skype*. All the laptops were connected to a LAN. The video-conferencing sessions were recorded with *Google Hangout*, a free, web-based video-conferencing program for transcriptions and analysis of non-linguistic features (e.g. gestures, body language, and facial expressions).



*Figure 3.1* Screen shot of the *Google Hangout* video-conferencing tool

The text chat sessions were conducted via *Skype*, a free, web-based chatting program. The *Skype* chat sessions were conducted through *Skype* accounts created especially for the current study. *Skype* automatically saved messages on the computer screen (including intervals of time between turn-taking) and then the messages were copied and pasted into a Microsoft Word document for transcription and later analysis.



**Figure 3.2** Screen shot of the *Skype* text chat tool

To compare the relative efficacy of two SCMC modes, the four tasks were divided into two; two tasks were performed through video-conferencing, the others via text chat. In other

words, each dyad needed to communicate through both modes of SCMC. The sequence and combination of the four tasks and the two modes were organized in a counterbalanced design.

### **3.4 Questionnaires**

Task perception questionnaires (see Appendix C) were included in the design to obtain information concerning the participants' perspectives on their subjective experiences in the all sessions. Specifically, in response to the first question in the questionnaires, participants were asked to rate, using 6-point scale, the usefulness and influence of each communication mode and how each compared to a traditional face-to-face communication environment. In the second question, subjects evaluated the task-based SCMC activity they were engaged in. To acquire more in-depth data, open-ended questions were also included.

### **3.5 Data Collection**

The data was collected through three methods: 16 video-conferencing sessions, 16 text chat sessions and the follow-up task perception questionnaires. First, 10–15 minutes of video-conferencing sessions ( $n = 16$ ) were recorded via *Google Hangout* and saved automatically on the researcher's You Tube channel, which was locked so that the researcher could access the recorded data for the later analysis. Second, the text chat sessions ( $n = 16$ ) via *Skype* were automatically saved and the saved text messages were then electronically copied and pasted in a Microsoft Word document for later analysis. Third, after finishing the final session of the experiment, the subjects were required to answer the task perception questionnaires on their thoughts and feelings about their experience in the experiment. The questions inquired about how two SCMC modalities (i.e., video-conferencing and text-based chat) compare to non-

digital face-to-face interactions. Also, the participants were asked to mention the advantages and disadvantages of the two SCMC modes. Finally, the students' perceptions towards the task-based SCMC activity were collected. All data were analyzed quantitatively and qualitatively.

The researcher informed the participants of the task instructions, the overall procedures of the experiment and their experiment dates via email prior to the experiment. Upon arriving at the lab, each pair attended a pre-task session which provided detailed information of the overall procedures and the tasks they needed to conduct. After that, one of the students in each dyad was moved to another room to conduct the experiment. As this experiment was about examining online interactions through computer-mediated medium, two students in the same dyad had to conduct their tasks online, while staying in separate rooms. They were then given a set of task sheets and allowed 20–25 minutes to read them and ask questions related to the tasks of the researcher in their rooms. This was to prevent them from discussing the task contents with each other face-to-face prior to the main sessions, which were to be performed online. The students did not need to operate any equipment during the experiment, since the author set it up in advance. Each session in the main phase lasted approximately 10–15 minutes. The mean time of video session was 12 minutes and the text chat was approximately 15 minutes (Mean = 14.86). The author was present outside of the rooms to monitor time-on-task and technical issues, but was not within hearing distance. After finishing the main sessions, the author asked participants to complete the follow-up task perception questionnaires (see Appendix B) in order to obtain feedback from them.

The participants were arranged in a such way that they would meet with the same partner to conduct the four tasks consecutively within a day. Each dyad's performance lasted for approximately one and a half hours including the pre-session, break time and the task perception questionnaires. The specific design and procedures of all sessions were as follows:

**Table. 3.1 The overall procedure of the experiment**

	<b>Dyad 1 / Dyad 5</b>	<b>Dyad 2 / Dyad 6</b>	<b>Dyad 3 / Dyad 7</b>	<b>Dyad 4 / Dyad 8</b>
<b>Pre-task session</b>	<ul style="list-style-type: none"> <li>● Overall explanation of the experiment (10 min)</li> <li>● Reading a set of task sheets (20–25 min)</li> </ul>			
<b>1<sup>st</sup> session</b>	Task A (ConT) + VC (10–15 min)	Task B (ConT) + TC (10–15 min)	Task C (DivT) + VC (10–15 min)	Topic D (DivT) + VC (10–15 min)
<b>2<sup>nd</sup> session</b>	Task B (DivT) + VC (10–15 min)	Task C (DivT) + TC (10–15 min)	Task D (ConT) + TC (10–15 min)	Topic A (ConT) + TC (10–15 min)
<b>3<sup>rd</sup> session</b>	Task C (ConT) + TC (10–15 min)	Task D (ConT) + VC (10–15 min)	Task A (DivT) + TC (10–15 min)	Topic B (DivT) +TC (10–15 min)
<b>4<sup>th</sup> session</b>	Task D (DivT) + TC (10–15 min)	Task A (DivT) + VC (10–15 min)	Topic B (ConT) + VC (10–15 min)	Topic C (ConT) + VC (10–15 min)
<b>Break time (5 min)</b>				
<b>Task perception questionnaires (10–15 min)</b>				

*(Note: ConT = Convergent task; DivT = Divergent task; TC = Text chat; VC = Video-conferencing)*



### 3.6 Data Analysis

The data from the 16 video-conferencing sessions and 16 text chat sessions were carefully examined to identify negotiation strategies. The recorded video-conferencing conversations were transcribed, and the total number of the negotiation strategy, discourse turns, and words were counted. The documented conversations of the text chat and video-conferencing sessions were analyzed with regard to the total number of negotiation of meaning strategies, words, turn-takings, and negotiation strategies per 100 words. Fillers and interjections were included in word counts, but emoticon usage in text chat was excluded. Also, misspellings such as 'to day' and abbreviations such as 'OMG' were counted as one word.

The instances of meaning negotiation strategy were analyzed as follows: First, the negotiation of meaning strategy was identified in the data. The term 'negotiation' can be defined as "the modification and restructuring of interaction that occurs when learners and interlocutors anticipate, perceive or experience difficulties in message comprehensibility" (Pica, 1994: 494). Once the negotiation of meaning strategies were identified, they were coded based on the following five categories: clarification requests, comprehension checks, confirmation checks, self-rephrases, and self-repairs. Definitions of these strategies are provided here:

Clarification requests are "any expression [...] designed to elicit clarification of the interlocutor's preceding utterance(s)" (Long, 1983: 137). Confirmation checks are "any expressions [...] immediately following an utterance by the interlocutor which are designed to elicit confirmation that the utterance has been correctly heard or understood by the speaker" (Long, 1983: 137). Comprehension checks are expressions used "to make sure the

message is understood” (Lee, 2002: 279) such as “Do you understand?”, “Do you know what I mean?” Self-repairs refer to expressions “to correct errors made on lexical items or grammatical structures” (Lee, 2002: 279). In the current study self-repairs include not only the corrections triggered by interlocutor’s questions or feedback but also types of repairs: “the speaker initiates adjustments to her or his own previous errors without assistance from the interlocutor” (Jepson, 2005: 86). Self-paraphrases are expressions used to make his or her previous messages more understandable to interlocutors by employing semantic repetition or changing the syntactic structure of their messages.

Table 3.2 shows some of the examples of these instances collected from the current study. Each example of incidence was underlined. To increase the reliability of the results, a second rater was selected for additional analysis of the incidence.

**Table. 3.2 The examples of negotiation of meaning strategies**

Types of negotiation of meaning strategies	Examples
1. Clarification request	<p>P4: Yeah, 'cause tuition fee is very, very expensive, but they offer quite a lot of the financial support as well.</p> <p>P3: Sorry? <u>What kind of support?</u></p>
2. Comprehension check	<p>P7: I think we, we'd better have some food, before we um, we get started to make a journey. <u>Do you know what I mean?</u></p> <p>P8: Mm-hum.</p>
3. Confirmation check	<p>P8: He seems to be a really good student, and that is why I think he needs some real teaching experience.</p> <p>P7: <u>You mean we can give him some teaching experience by accepting him this year?</u></p>
4. Self-paraphrase	<p>P8: Could you be more speci... speci... elaborate about his working experience?</p>
5. Self-repair	<p>P3: But we have to, like maintain... <u>the most big one...</u></p> <p>P3: <u>the biggest one!</u></p>

## **Chapter 4. Results and Discussion**

This chapter presents the quantitative and qualitative results of the three research questions in terms of the effects of the two SCMC modalities and, two task types and their interaction on the patterns of negotiation for meaning among learners. To answer the questions, the students' text chat scripts and transcriptions of the video-conferencing were analyzed to note the instances of negotiation strategies. The category of negotiation strategies used for analysis consisted of clarification request, comprehension check, confirmation check, self-paraphrase, and self-repair. This chapter has been divided into four individual sections, one for each research question and the final section for the results of the task perception questionnaires.

### **4.1. The effects of SCMC modality on the patterns of negotiation of meaning strategies**

The first research question asked if types of SCMC modality would impact the patterns of negotiation strategies employed by participants. For quantitative data, the number of negotiation of meaning strategies the students used was calculated and analyzed based on the category of negotiation strategies presented above. For qualitative analysis, the subjects' text chat and video-conferencing transcriptions were used for an in-depth examination of the participants' negotiated discourse in five negotiation strategies. For statistical analysis, the results were submitted to a paired samples t-test. It should be noted that none of the text chat scripts and transcriptions of the video-conferencing sessions have been corrected for spelling or grammatical errors.

#### 4.1.1 The total number of words in each SCMC mode

Table 4.1 demonstrates that the video-conferencing mode yielded a much higher number of words ( $n = 21,826$ ) than text chat ( $n = 8,504$ ). Results of a paired samples t-test in Table 4.2 confirmed a statistically significant difference in the number of words between the two modes ( $t = 11.016, p < .001$ ).

**Table 4.1 The total number of words in each modality (N=16)**

Modality	N of Words	M	SD
VC	21,826	1364.12	238.51
TC	8,504	531.5	135.35

(*Note: N= Number; TC= Text chat; VC= Video-conferencing*)

**Table 4.2 The significance of modality effects on the number of words in each modality (N=16)**

Modality	M	SD	Std. Error	<i>t</i>	<i>p</i> -value
VC - TC	832.63	302.33	75.58	11.016	.000

\*\*\* $p < .001$

#### 4.1.2 The total number of negotiation strategies in each SCMC mode

The frequency of negotiation strategies in video-conferencing was over three times greater than in text-chat (see Table 4.3), despite the mean time of the video-conferencing sessions being shorter (Mean = 12) than that of text chat (Mean = 14.86). Table 4.4 displays the results of a paired samples t-test which verified that the number of negotiation strategies in the two modes was significantly different ( $t = 18.497, p < .001$ ).

**Table 4.3 Number of negotiation of meaning strategies in each modality (N=16)**

Modality	NOM	M	SD
VC	203	12.687	2.358
TC	69	4.250	1.341

*(Note: NOM= Negotiation Of Meaning)*

**Table 4.4 The significance of modality effects on negotiation of meaning in each modality (N=16)**

Modality	M	SD	Std. Error	<i>t</i>	<i>p</i> -value
VC - TC	8.44	1.83	.456	18.497	.000

\*\*\* $p < .001$

### 4.1.3 The respective number of negotiation strategies in each SCMC mode

With regard to the respective number of negotiation of meaning strategies, as shown in Table 4.5 below, self-repair was the most frequent negotiation strategy in both modalities, used 54 and 26 times respectively. In the video-conferencing mode, self-paraphrase was the second most frequent strategy used ( $n = 46$ ). However, in text chat, confirmation check was the second most frequent strategy ( $n = 25$ ).

**Table 4.5 Frequency of negotiation of meaning strategies in each modality**

Type of NOM	VC	TC	Total
<b>Clarification request</b>	43 (21.1%)	10 (14%)	<b>53 (19.5%)</b>
<b>Comprehension check</b>	31 (15.3%)	8 (12%)	<b>39 (14.3%)</b>
<b>Confirmation check</b>	29 (14.7%)	25 (36%)	<b>54 (19.9%)</b>
<b>Self-paraphrase</b>	46 (23.4%)	0 (0%)	<b>46 (16.9%)</b>
<b>Self-repair</b>	54 (29%)	26 (38%)	<b>80 (29.4%)</b>
<b>Total</b>	<b>203 (100%)</b>	<b>69 (100%)</b>	<b>272 (100%)</b>

### 4.1.4 The ratio of negotiation strategies per 100 words in each modality

Since the number of words produced in video-conferencing was more than twice the number in text chat, the ratio of negotiation strategies per 100 words was also calculated to make the data standardized and comparable across the two modalities. The results of a paired samples t-test in Table 4.6 illustrate that there was a statistically significant difference between the two modalities ( $t = 2.788, p < .05$ ).

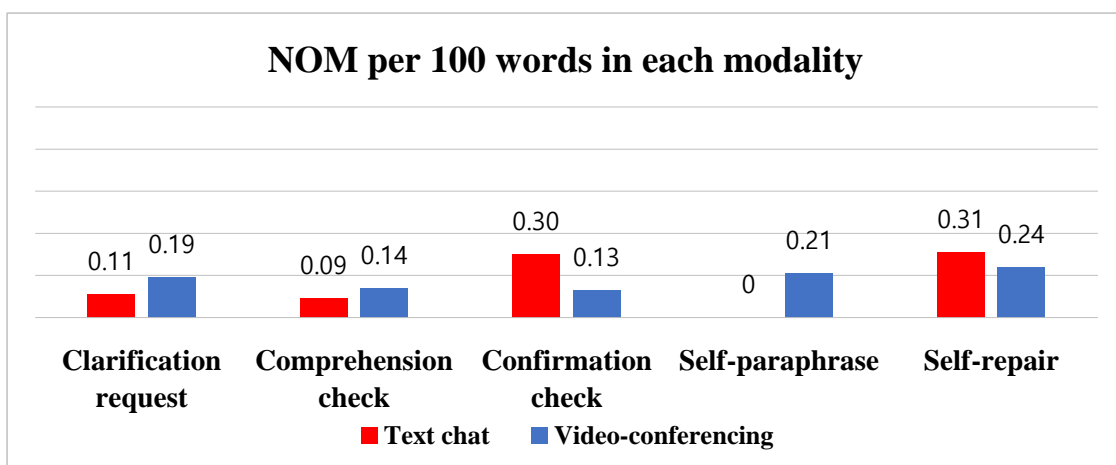
**Table 4.6 The significance of modality effects on negotiation strategies per 100 words in each modality (N=16)**

<b>Modality</b>	<b>M</b>	<b>SD</b>	<b>Std. Error</b>	<b><i>t</i></b>	<b><i>p</i>-value</b>
<b>VC - TC</b>	.010	.014	.003	2.788	.014

\* $p < .05$

The in-depth breakdown of negotiation strategies per 100 words in each mode has revealed a great range of differences across the two media (see Figures 4.1). In the category of clarification request, the percentage in video-conferencing was almost double that in text chat, 0.19% against 0.11%. Similar patterns were observed in the use of comprehension check strategy, with 0.14% in video-conferencing and 0.09% in text chat. Confirmation check was far more predominant in the text chat mode. The rate of confirmation check in text-chat (0.30%) was almost three times that of video-conferencing (0.13%). In terms of the use of self-paraphrase, learners did not use the strategy while conducting their tasks via text chat, while self-paraphrase accounted for 0.21% in the video-conferencing mode, resulting in the greatest difference between the two media. Self-repair was the largest proportion of negotiation strategy used in both modes (0.24% and 0.31%).





*Figure 4.1 Detailed NOM breakdown per 100 words in each modality*

#### 4.1.5 The total number of turns in each modality

Table 4.7 provides the number of turns across the two communication modes. The total number of turns was 1,638, which seemed to be shaped and influenced considerably by the mode of communication, as there were almost three times as many turn-takings in video-conferencing (1,156) than in text chat (482). As shown in Table 4.8, the effect of modality on the number of turns was found to be significant ( $t = 8.266, p < .001$ ).

**Table 4.7 The frequency of turns in each modality (N=16)**

Modality	NOT	M	SD
VC	1,156	72.25	30.13
TC	482	24.90	10.59

*(Note: NOT= Number Of Turns)*

**Table 4.8 The significance of modality effects on the number of turns in each modality (N=16)**

<b>Modality</b>	<b>M</b>	<b>SD</b>	<b>Std. Error</b>	<b><i>t</i></b>	<b><i>p</i>-value</b>
<b>VC - TC</b>	42.13	20.39	5.096	8.266	.000

\*\*\* $p < .001$

#### **4.1.6 The qualitative analysis of the patterns of negotiation of meaning in each SCMC mode**

First of all, for clarification requests, there were 43 cases (21.1%) in video-conferencing. As can be inferred from Excerpt 1, learners in video-conferencing requested clarification not only when they did not understand their partner's messages (lines 1-4) but also when there was a communication breakdown caused by a temporary disconnection of the internet (lines 5-8). Since the video-conferencing mode offered learners both audio and video channels, pronunciation and accents problems also triggered non-understanding and it seemed to prompt learners to correct their pronunciation. In particular, this trend was more prevalent when a dyad did not share the same L1 background (lines 9-12).

#### **Excerpt 1** Clarification requests (underlined)

(VC)

1. P4: Right. I do agree with that I think scholarship and housing is very important. But I think that is only for a few people, from the elected people...

2. P3: Mm, sorry. What do you mean? I don't understand.
3. P4: Yeah, so the scholarship and housing for very good selected people.
4. P3: Ah!
  
5. P2: The second one, yeah, the second one is their, their grade or yeah, so report, um...
6. P1: I can't hear you.
7. P2: Good evaluation record.
8. P1: Sorry, but I couldn't hear the last 5 or 6 seconds of your speech.
  
9. P4: Yeah, 'cause tuition fee is very, expensive, but they offer quite a lot of the **financial** (*with a strong accent*) support as well.
10. P3: Sorry? What kind of support?
11. P4: Financial support for students.
12. P3: Oh! So they give a lot of support?

*(Note: P = Participant)*

On the other hand, the participants asked clarification only 10 times (14%) in the text chat sessions. Presumably, the reason that learners showed less need for clarification in text chat was because the participants were able to review the previous messages they had exchanged

with their interlocutors, and it seemed to help them to clarify and comprehend their partners' intentions. In Excerpt 2, P1 was defending vocational education whilst her partner was supporting the scholarship policy. The example shows that P2 requested clarification because she did not find any relation between her partner's supporting reason and the options they were talking about. That is, in the text chat, it seems that the participants used clarification requests when they could not understand their interlocutors' meaning even after reading the previous exchanges.

**Excerpt 2** Clarification requests (underlined)

(TC)

1. P2: Getting a job is such a fundamental matter for students. Sometimes is a purpose of university education.
2. P1: But the more meaningful thing is to realize the justice.
3. P2: And in return, it influences the value of the university.
4. P1: Through education we can lessen the gap between the upper class and lower class.
5. P2: Sorry, I read your reason.... but is it related to plan 1 or 3?
6. P1: One of the most commom (*sic*) social problems resulted from disharmony between the rich and the poor
7. P1: Sorry for causing confusion
8. P1: I am talking 1
9. P1: about 1

10. P2: No problem. Thank you for clarifying.

In the sense that participants in text chat seemed to reread the previous messages to confirm their understanding, the subjects appeared to request more confirmation checks than clarification requests. A good example is provided in Excerpt 3. In line 1, P5 reread the previous messages to find out her partner's reason instead of requesting clarification. After that, P5 used the confirmation check strategy (line 2). The example successfully illustrates why there were more confirmation checks than clarification requests in the text-based interaction.

**Excerpt 3** Confirmation checks (underlined)

(TC)

1. P5: Ok. well... let me check your reason you mentioned above.
2. P5: Oh, so you are opting for # 1 and 4?
3. P6: Yes, I change my mind
4. P6: I would go for No 4

In the current study, clarification requests appeared to trigger learners' modification of their output for increasing comprehensibility of their utterances. An exchange between P3 and P4 in Excerpt 4 demonstrates the way that a clarification request encouraged P4 to elaborate on his previous utterance by modifying his message to be more comprehensible to sustain the

conversation (Pica et al., 1989).

**Excerpt 4** Clarification requests (underlined)

(VC)

1. P4: Ok. So...um, ok, the college has more, uh, equipment and, additional services for students that will be beneficial for, that would give, students and parents more, like feel comfortable...
2. P3: Mm-hum.
3. P4: Like to let have student life in the college.
4. P3: Have student life? I'm not sure.
5. P4: I mean the quality of the students' life will increase if the cafeteria, a lounge and toilet like counseling services is good.
6. P3: Ok... I see.
7. P4: Yeah, for like everybody and...
8. P3: They could be very good...
9. P4: Yeah, like satisfied with the college.

The episode in Excerpt 5 shows comprehension checks occurred in each modality. Comprehension checks in video-conferencing were mainly triggered (a) when judging from their partner's facial expressions or gestures, it seemed their partners did not understand what

they said (line 1-5) and (b) when there seemed to be a misunderstanding about the task content (line 7-19). In text chat, the students asked for comprehension checks when (c) there was a long pause between turns and (d) there was a misunderstanding caused by the task content as well. In Excerpt 5, a trigger refers to “the catalyst of a negotiation routine [...] including lexical/semantic, structural (morphological/syntactic), content- and task related, discourse, and pragmatic” (Smith, 2003a: 43, see Varonis & Gass, 1985; Smith, 2003a for model of negotiated interaction). The triggers in text chat tended to be noticed and responded to much more slowly than in video-conferencing because of its slow communication rate and the unavailability of other prosodic and paralinguistic features such as audio and visual cues. That is, the interval between the triggers and comprehension checks were longer in the text-based interaction than the oral conversation in video-conferencing.

**Excerpt 5** Triggers and Comprehension checks (underlined)

(VC) (a)

1. [00:28:27] P13: So, carrying the food is the little bit of heavy, so, um, from my kind of some medical information about how long human can cope with, without you know this food is ah, at least three, ah, two or three days human being can live without food.
2. [00:28:51] P14: Mm-hum.
3. [00:28:54] P13: But I think it would be the food is not, how to say?... Um, the most critical thing, because we can have food right now before starting. So why don't we have some food before stating walking?

4. [00:29:17] P14: Mm... ((resting her chin on her right hand)) → Trigger
5. [00:29:19] P13: You know what I mean? → Comprehension check (2 second after the trigger)
6. [00:29:20] P14: Hmm, sorry, but could you say that again?

*(Note: (( )) illustrates non-verbal behaviors.)*

(VC) (b)

7. [00:22:14] P3: Yes, she's linguistic majored and... she is a scholarship student, scholarship as you said before. Yes, the scholarship and then you told bilingual and she also has, she has both experience in U.S. and U.K., you know like English, major English using country experience in both countries.
8. [00:22:41] P4: Which one, which one? Which person?
9. [00:22:44] P3: I mean... Jessy Wang. → Trigger
10. [00:22:49] P4: Jessy? Jessy didn't go to the U.S. You got that? → Comprehension check (5 seconds after the trigger)
11. [00:22:54] P3: Oh, sorry, sorry, sorry. Yes, she is from U.K.

(TC) (c)

12. [00:43:38] P16: Alright. So now we are talking about the 'Mission to Mars' team.



13. [00:43:52] P15: yeh, as a leader

14. [00:44:23] P16: I think Crystal and Alex could be excellent leaders of the team.

15. [2 minutes' pause] → Trigger

16. [00:46:40] P16: hey, did u understand what i mean? → Comprehension check (After  
2 minutes' pause)

(TC) (d)

17. [00:49:42] P15: how can we handle some medical situations without him?

18. [00:50:04] P15: At least he will do that if he is paid for that.

19. [00:50:13] P16: Well, we always have a humanoid robot and a rich budget.

20. [00:50:30] P15: because the other purpose is money for him.

21. [00:50:43] P16: Yeah. Therefore, it is even more difficult to choose him as a leader.

→ Trigger

22. [00:50:51] P16: because his motivation is money.

23. [00:52:41] P15: but in this situation we are leaders. are we clear on that?

→ Comprehension check (2 minutes after the trigger)

24. [00:53:38] P16: Oh I see.

With regard to the number of self-paraphrases, it is notable that the self-paraphrase strategy was only found in the video-conferencing sessions. This result seems to be related to the features of the text chat mode in which messages need to be typed and, thus, the process is slower and far more deliberate than the oral interaction in video-conferencing. (Zwaard & Bannink, 2014: 138). As a result, the students did not have enough time to rephrase or paraphrase their messages unless the messages were not comprehended by their interactants. Excerpt 6 illustrates self-paraphrases in video-conferencing.

**Excerpt 6** Self-paraphrase (underlined)

(VC)

1. P10: I'm ready.
2. P9: I'm ready as well. Ok, we have four options and I'd like to choose two things, clothes and light. How about you? What would you choose first?
3. P9: Well, I'm not sure. I know I really want to get our clothes first because if I lose uh, lose, get too cold I mean that is, that I or they like am I being a person who is being in the situation? Yeah?
4. P10: Yeah!

Interestingly, the proportion of self-repair was the highest percentage of negotiation strategy in both SCMC modalities. The predominance of self-repair in text chat appears to be derived from the text chat's visual salience of utterances on the screen to promote linguistic awareness among learners (Smith, 2003b; Yamada, 2009; Yamada & Akahori, 2009).

According to Lee's (2002) study, such a display of learners' messages on screen elicited learners' awareness of self-correction (Carver & Scheier, 1981a, 1981b; Yamada & Akahori, 2009). That is, "learners focus on their utterances, recognize their mistakes, and try to repair them" (Yamada & Akahori, 2009: 18). In the same vein, a self-image in video-conferencing was very likely to promote self-correction as well. Self-repairs in both media were for fluency rather than accuracy. Even though learners corrected both grammatical and lexical errors, they corrected lexical mistakes far more than syntactical errors because it was rare that syntactical errors triggered non-understanding between the interlocutors in the current study. As Gass (1997) pointed out, during the information exchange, semantic comprehension usually precedes syntactic comprehension. In other words, learners need to understand the meaning of the message before focusing on linguistic features. This data is consistent with the results in Lee's (2002: 14) study, which found that compared with the lexical trigger, syntactical triggers were very few and learners did pay much more attention to comprehending their partner's message than to linguistic forms in conducting the tasks. More importantly, corrections made on lexical errors mainly occurred when the errors seemed to initiate non-understanding or misunderstanding (lines 1-4). Typical self-repairs in text chat are illustrated in Excerpt 7.

**Excerpt 7** Self-repair in text chat (underlined)

(TC)

1. P1: But there are scholarships outside of the school and social students can also benefit from the welfare system
2. P2: Eventually, helping students to get a job and be dependent can be more beneficial

than funding tuitions.

3. P2: Sorry, independent.
4. P2: Sorry i found a lot of typos, what i meant was 'students can also benefit from the social welfare system', not 'social students~'. Sorry about this!

Excerpt 8 shows the examples of self-repairs in video-conferencing. Because video-conferencing afforded learners enough time to correct themselves and rapid exchange similar to face-to-face interaction, self-repair occurred in almost every incidence of linguistic mistakes. In particular, self-repairs in the video-conferencing mode were made not only on lexical and grammatical errors but also on the pronunciation errors. As in the text chat mode, the emphasis was on fluency rather than on accuracy. Line 5 in Excerpt 8 is a good example of self-repair in which corrections were made both on pronunciation and lexical items.

**Excerpt 8** Self-repair in video-conferencing (underlined)

(VC)

1. P6: Ok, you got a point there but you know the sun [sen], the sun [sʌn] is going to set in two hours and I don't think that we are going to move forward... ah, farther even though we have the flashlight and I think it's time to maybe ah, 'cause you know even though with the flashlight if you just move we can have an accident.
2. P3: So... we can divide scholarship into really small pieces...so we can give as many students as we can.

3. P4: Oh!
4. P3: But we have to... like maintain... the most big, the biggest one!
5. P4: Mm... what, what the biggest one?
6. P3: I mean the amount of money...
7. P4: Oh, yeah.
  
8. P9: Right now, I mean in this, uh, in this stage that because our ranking cannot go up because our facility is quite bad. So, maybe we can spend some money on it as well instead of offering scholarship and housing.
9. P10: But if we offer scholarships, we can like umm, set, umm, like, get a lot of much, like high score students or highly talented students to get into our school and, and then we can next make our school's performance much better [beda]... better [betər].

#### **4.2 The effects of task type on the patterns of negotiation of meaning strategies**

The second research question was concerned with whether task type would affect the patterns of negotiation strategy use among the participants. The data provided below indicates that the patterns and amount of negotiation of meaning were shaped by the two task types. In addition, learners yielded different amounts of words according to the task type.

#### 4.2.1 The total number of negotiation strategies in each task type

Table 4.9 indicates that students' use of negotiation strategies was 30.5% higher in the divergent tasks than in the convergent tasks. The data from Table 4.9 were broken down according to task type and a paired samples t-test was performed to determine whether there was a notable statistical difference regarding task type effect. The results in Table 4.10 illustrate that the number of negotiation strategies in the two task types was significantly different ( $t = 4.282, p < .01$ ).

**Table 4.9 The total number of negotiation strategies in each task type (N=16)**

Task Type	NOM	M	SD
ConT	118	7.375	1.627
DivT	154	10.312	2.676

*(Note: NOM= Negotiation Of Meaning; ConT= Convergent task; DivT= Divergent task)*

**Table 4.10 The significance of task effects on the number of negotiation of meaning events in each task type (N=16)**

Task Type	M	SD	Std. Error	<i>t</i>	<i>p</i> -value
ConT - DivT	2.94	2.74	.685	4.282	.001

\*\*  $p < .01$

#### 4.2.2 The total number of words in each task type

In terms of the total number of words in each task type, Table 4.11 shows that the divergent tasks yielded a 15.9% higher number of words (16,280) than convergent tasks (14,050), albeit not a statistically significant difference (see Table 4.12).

**Table 4.11 The total number of words in each task type (N=16)**

<b>Task type</b>	<b>N of Words</b>	<b>M</b>	<b>SD</b>
<b>ConT</b>	14,050	870.25	322.0
<b>DivT</b>	16,280	1017.50	568.3

*(Note: N= Number)*

**Table 4.12 The significance of task effects on the number of words in each task type (N=16)**

<b>Task Type</b>	<b>M</b>	<b>SD</b>	<b>Std. Error</b>	<b>t</b>	<b>p-value</b>
<b>ConT - DivT</b>	147.25	303.01	75.75	1.944	.071

\*p <.05, \*\* p < .01, \*\*\*p < .001

In terms of the respective number of negotiation for meaning strategies, self-repair had the highest number of negotiation of meaning events (84 cases in total) and the number was greater in the divergent tasks (Table 4.13). These were in line with the findings in Lee's

(2008) study, which found a greater percentage of self-repair events in divergent tasks. As mentioned earlier, most self-repairs were made on incorrect lexical items rather than on syntactical errors. This may be due to the fact that the participants' main goal was successful task completion and it is most likely that they focused on comprehending each other's messages rather than attending to linguistic errors unless it impeded their progress towards task completion.

**Table 4.13 Frequency and relative percentage of negotiation strategies in each task type**

Type of NOM	ConT	DivT	Total
Clarification request	23 (19.4%)	23 (14.7%)	<b>46 (16.9%)</b>
Comprehension check	13 (11.2 %)	26 (17.2 %)	<b>39 (14.3%)</b>
Confirmation check	29 (24.5 %)	24 (15.7 %)	<b>53 (19.5%)</b>
Self-paraphrase	18 (15.3%)	32 (20.4 %)	<b>50 (18.4%)</b>
Self-repair	35 (29.6%)	49 (32%)	<b>84 (30.9%)</b>
<b>Total</b>	<b>118 (100%)</b>	<b>154 (100%)</b>	<b>272 (100%)</b>

#### 4.2.3 The total number of negotiation strategies per 100 words in each task type

The results of a paired samples t-test regarding the negotiation strategies per 100 words in Table 4.14 confirmed that there was a statistically significant difference between the two task types ( $t = 2.550, p < .05$ ).

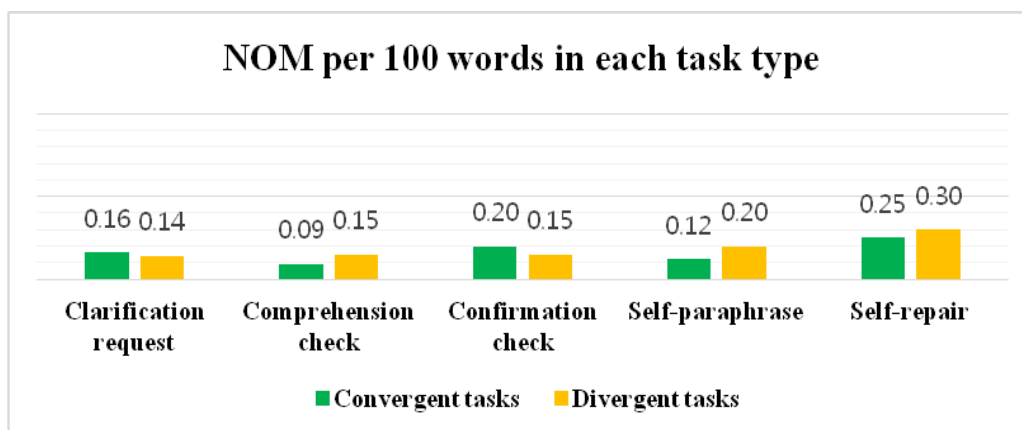


**Table 4.14 The significance of modality effects on negotiation strategies per 100 words in each task type (N=16)**

<b>Task type</b>	<b>M</b>	<b>SD</b>	<b>Std. Error</b>	<b><i>t</i></b>	<b><i>p</i>-value</b>
<b>ConT - DivT</b>	.010	.017	.0042	2.550	.022

\* $p < .05$

Figure 4.3 provides information about the ratio of negotiation strategies per 100 words of each task type. Even though the proportion of negotiation strategies appeared not to be vastly different across the two task types, it is worth noting that task types seemed to affect learners' use of different strategies in order to respond to different task requirements (Bialystok, 1981). First of all, the proportion of clarification request and confirmation check in the convergent tasks were higher than those of the divergent tasks. On the other hand, the percentage of comprehension check, self-paraphrase and self-repair were greater in the divergent tasks. These different patterns of preferred strategy use seemed to be related to the task requirements. In the convergent tasks, the nature of the tasks required them to yield a joint decision. Therefore, it might lead them to employ clarification requests and confirmation checks in order to get a better understanding about their interlocutor's thoughts. On the other hand, with regard to completing the divergent tasks, participants appeared to focus far more on delivering their own opinions rather than listening to their counterparts' opinions carefully since they did not have to yield a convergent outcome. As a result, it seems that the subjects preferred to check their partner's comprehension, and paraphrased and corrected themselves in order to make their utterances more intelligible to their partners.



*Figure 4.2 Detailed NOM breakdown per 100 words in each task type*

#### 4.2.4 The qualitative analysis of the patterns of negotiation of meaning in each task type

Based on the subjects' discourse in Excerpt 9, it can be inferred that the different number of words between two task types seemed to result from the different syntactic complexity across (a) the convergent tasks and (b) the divergent tasks. Given that learners produced more syntactically complex output in the divergent tasks, this finding suggests that divergent tasks appeared to encourage the students to produce greater output than the convergent tasks. This trend was more conspicuous in the video-conferencing mode.

#### **Excerpt 9** Different syntactic complexity across the two task types

(a) Convergent task (Task B 'Mission to Mars', choosing two candidates)

(TC)

1. P11: Who do you think the best participants?
2. P12: I think no.1 and 2

3. P12: how about you?

4. P11: Oh I thought 2 and 4

(VC)

5. P2: Who do you have in your mind?

6. P1: Um, my favorite one is number 3, Tom Anderson.

7. P2: Ok.

(b) Divergent task (Task B 'Mission to Mars', defending their own candidates)

(TC)

8. P8: which one do you prefer?

9. P7: first, i definitely prefer to choose no 1.

10. P7: When we look at all the options, no 1 is the most suitable candidate cuz human can't do anything without robots on Mars.

(VC)

11. P2: Um, from my side, I prefer number two and four...

12. P1: Ok. Let me tell you what, what is my thinking about the two applicants. The first, uh, the first one is number 2, and then she's an architect. Architect, they, uh, they only can draw pictures. They, don't build house. She cannot build anything.

### **4.3 The effects of interaction between the task type and modality**

The third research question was concerned with whether there would be an interaction between the task type and modality on learners' use of negotiation strategies. To address this question, the total number of words, turns, and the frequency of negotiation strategies were analyzed according to the four combination types (i.e., ConT + VC, ConT + TC, DivT + VC, and DivT + TC). The proportion of negotiation strategies per 100 words in each combination were calculated as well.

#### **4.3.1 The patterns of negotiation of meaning in each combination**

As illustrated in Table 4.15, the subjects took 1,638 turns and yielded 30,330 running words in total. They used 272 negotiation strategies and the rate of the raw number of negotiation strategies differed significantly across the four combination types, ranging from 13.5% to 42.7% to the whole incidence of negotiation for meaning. The ratio of negotiation strategies per 100 words ranged from 0.81% to 0.97% and the results of a repeated measures ANOVA found the significant effects of the combination type for the number of negotiation of meaning ( $p < .05$ ). Also, it is worth noting that the divergent tasks elicited greater numbers of negotiation strategy use in all combinations based on the negotiation strategies per 100 words. This is compelling evidence that the divergent tasks seem to be more prone to inducing negotiation of meaning than the convergent tasks.

**Table 4.15 Summary of the participants' interactions in each combination**

<b>Combination</b>	<b>N of words</b>	<b>N of turns</b>	<b>N of NOM</b>	<b>NOM per 100 words</b>
<b>Type 1</b> <b>(ConT + VC)</b>	9,346 (30.9%)	644 (39.3%)	76 (27.8%)	0.81
<b>Type 2</b> <b>(ConT + TC)</b>	4,704 (15.5%)	290 (17.7%)	43 (16%)	0.91
<b>Type 3</b> <b>(DivT + VC)</b>	12,480 (41.1%)	512 (31.3%)	116 (42.7%)	0.93
<b>Type 4</b> <b>(DivT + TC)</b>	3,800 (12.5%)	192 (11.7%)	37 (13.5%)	0.97
<b>Total</b>	<b>30,330</b> <b>(100%)</b>	<b>1,638</b> <b>(100%)</b>	<b>272</b> <b>(100%)</b>	-

#### **4.3.2 The total number of turns in each combination**

In terms of the task effects on the number of turns, the participants took more turns in the convergent tasks (934) than in the divergent tasks (704) in each mode, although the statistical differences were not significant (see Table 4.16). This result is compatible with Jackson's (2011) finding that there was a 30% higher number of turns in the convergent task than in the divergent task. This result implies that learners' patterns of turn-taking seem to be affected by task types rather than communication mode since in Jackson's (2011) study, both tasks were conducted via text chat.

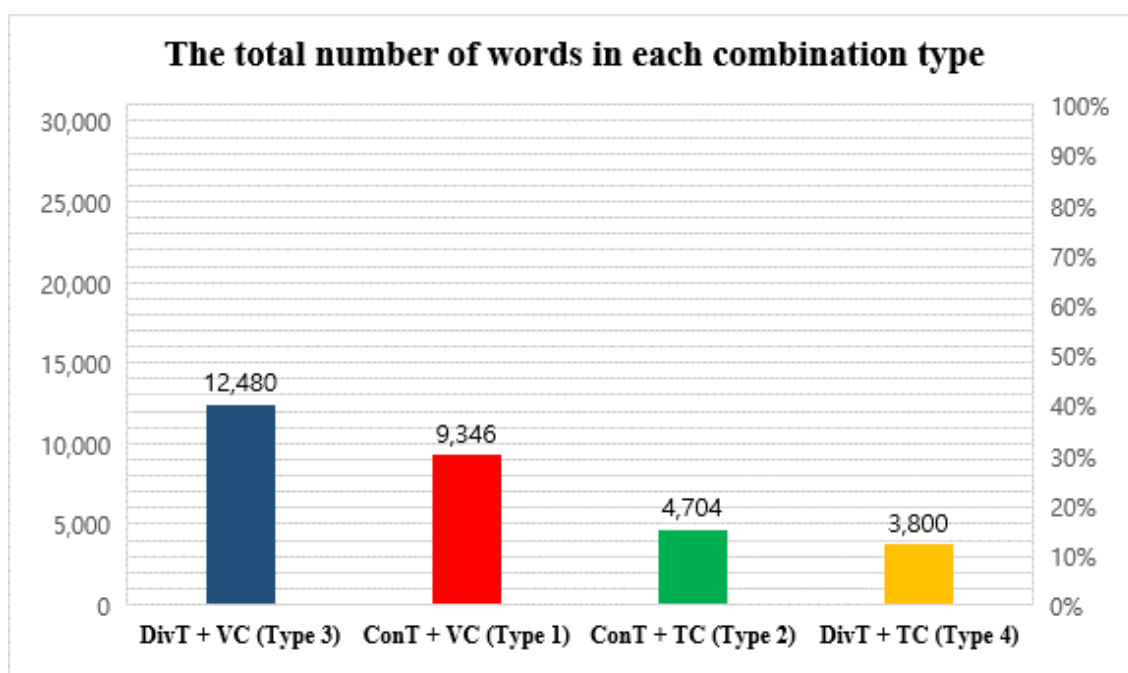
**Table 4.16 The significance of task effects on turns in each task type (N=16)**

Task Type	M	SD	Std. Error	<i>t</i>	<i>p</i> -value
ConT - DivT	14.375	29.46	7.366	1.951	.070

\* $p < .05$ , \*\*  $p < .01$ , \*\*\* $p < .001$

### 4.3.3 The total number of words in each combination

It is also noteworthy that the total number of words was influenced by the combination of the task type and modality. More specifically, as seen in Figure 4.3, there were more words in the divergent tasks when combined with video-conferencing. However, more words were yielded in the convergent tasks when the tasks were conducted via text chat. The results suggest that there seemed to be a certain interaction between the task types and communication modalities and it had an effect on the amount of learner output.



*Figure 4.3 The number of words in each combination type*

#### **4.4. Attitudes towards task-based online SCMC activity**

To investigate the students' attitudes towards task-based SCMC activity, follow-up task perception questionnaires were administered after the final session (See Appendix B). The participants were asked to rate on a 6-point scale, the usefulness and influence of each communication mode and the task-based SCMC activity they completed during the experiment. The questions were largely in two areas: a) the advantages and disadvantages of each medium and how two SCMC media compare to traditional face-to-face interaction, and b) how much they felt the task-based SCMC activity was beneficial to their English language development. To elicit more specific feedback from the students, open-ended questions were also included in the survey. The results revealed that the participants, on the whole, showed positive attitudes towards both text chat and video-conferencing. Most of the participants answered that they were able to communicate with their interlocutors in a less stressful environment, which helped them to concentrate more on the tasks and be willing to express their opinions actively. In addition, some participants mentioned it would be efficient to practice English both in terms of money and time.

##### **4.4.1 The advantages and disadvantages of text chat and video-conferencing**

In response to the request about the benefits of each medium and how the two media compared to traditional face-to-face interaction, participants responded very positively towards the use of both modalities. Some students mentioned that, since text chat afforded them enough time to prepare for thinking about what they would say to their partner, they found it very helpful in terms of reducing cognitive pressure and providing a more comfortable communication environment than video-conferencing or face-to-face

interactions. Similar comments were made concerning face-threatening issues. Even though the absence of their partner's image in text chat sometimes impeded their smooth online interaction, learners reported that the feature afforded them more opportunities to give their opinions willingly with a less concern about face-threatening. The finding seems to be confirmed by many SCMC studies which reveal that learners show more motivation and participation in SCMC settings due to a less face-threatening communication environment (Abrams, 2003; Beauvois, 1992; Chun, 1994; Jepson, 2005; Kelm, 1992; Kern, 1995; Warschauer, 1997). Most of the participants commented that text chat eased their comprehension of their partner's messages because they could continue to see the conversation by scrolling up and down, which enabled them to reread their exchanges. The comments conformed to the patterns of the participants' use of negotiation strategies. Based on the learners' comments, it also seemed to promote consciousness of grammatical and lexical items because of the visual evidence of their messages on the screen.

However, there were also some comments about the weaknesses of the text-based communication mode. Most of students mentioned that, because they could not use non-verbal behaviors during the text-based interaction, they found it difficult to convey their feelings or emotions to their partners. The most frequently mentioned disadvantage of text chat was that it was too deliberate and time-consuming to type in their messages while sustaining the conversation. As a result, they lost track of the conversation occasionally, and it even caused some misunderstanding. Another downside of text chat reported in the questionnaires was that the students sometimes doubted about whether they would be able to learn correct English, since some participants normally used slang or online colloquialisms (e.g., lol, OMG). In regards to L2 learning, many students rated video-conferencing higher



than text chat because they could not improve pronunciation or listening skills through text chat.

As for video-conferencing, many students commented on technological problems which disrupted their interaction. During the experiment, internet disconnection took place occasionally when the internet connection was temporarily poor, causing delays and disruption to the participants' on-going conversation. However, except for this technical issue, video-conferencing was rated higher than text chat in terms of improving listening, speaking and fluency, which most L2 learners greatly value. In particular, a majority of the participants were in favor of video-conferencing based on their experience, which was that they tried to elaborate and enunciate to make their messages more comprehensible and clear to their partners. The students also mentioned that, via video-conferencing it was much faster and easier to understand their interlocutors' messages since they were able to see their facial expressions and body movements and deliver their emotions easily. The reason for this can be supported the findings of Yamada's study (2009: 822), which claims that "social presence enhances the interaction between learners, which, in turn, affects learning performance".

#### **4.4.2 The benefits of task-based SCMC activity to language learning**

The second question asked, "How did you find the task-based SCMC activity to be beneficial to your English language development?" Participants commented from their own experience on the advantages and disadvantages of each medium relating to this issue. The participants perceived that the synchronous, online, task-based activity was facilitative for improving their English skills. Firstly, the students answered that they kept trying to focus on their

conversation since they had to complete the tasks collaboratively. Also, it made them negotiate for meaning more frequently to achieve mutual understanding for successful task completion. However, the participants commented that, unlike video-conferencing, in text-chatting such argumentative tasks would be difficult to manage within the limited time because typing is far more time-consuming than oral conversation. For example, some students admitted that the time allowed for the divergent tasks was not enough to discuss all the candidates and they had to end up discussing only some of candidates.

To recap, the results showed that a majority of the participants had positive attitudes towards both synchronous communications modes and perceived the modalities as an effective tool for L2 learning, commenting on the respective strengths of the two media. Even though the participants seemed to be in favor of video-conferencing for their English development, they also acknowledged both media's distinct facilitative features.

## **Chapter 5. Conclusion**

The main goal of this study was to investigate the effects of task-based SCMC modalities and task types as well as the correlation between the communication media and task types on the patterns of negotiation of meaning. The results demonstrated that the participants used various types of negotiation strategies, and the patterns and amount of negotiation strategies were influenced by those three factors, although the extent to which the factors affected learners' use of negotiation strategies differed. In this chapter, a summary of the results and their implications are presented. Finally, limitations observed in the current study and suggestions for future research are provided.

### **5.1. Conclusion and Implications of the study**

The main focus of the first question was to examine whether SCMC modality would affect the patterns of negotiation strategy use. Results confirmed that the types of SCMC media seem to have a significant effect on the participants' negotiation of meaning. First of all, video-conferencing elicited greater negotiation of meaning as well as more words and turn-takings than text chat. In video-conferencing, clarification request, self-paraphrase and self-repair were utilized most often because of the rapid exchange of oral messages and self-awareness. From the pedagogical perspective, video-conferencing seems to be highly conducive to raising learners' attention to pronunciation-related issues because it prompted the participants to correct their pronunciation frequently. On the other hand, the absence of non-verbal resources and the slower rate of communication of text chat resulted in a smaller number of incidences of negotiation of meaning. The predominance of video-conferencing in

fostering negotiation of meaning appears to result from the availability of audio and video channels, offering non-verbal devices and rapid discourse exchange similar to traditional face-to-face interactions. (Lee, 2002; Lee; 2006; Yamada & Akahori, 2007, 2009; Yamada, 2009; Yanguas, 2010). Therefore, based on the empirical results in SCMC that claim more opportunities for students to receive comprehensible input and produce modified output to facilitate SLA (Pellettieri, 1999; Smith, 2001, 2003; Warschauer, 1996), video-conferencing appears to be more beneficial to SLA.

More importantly, however, it should be noted that, according to the constraints and affordances of the two media, they elicited distinct trajectories of learners' use of negotiation strategies. More specifically, because of the absence of prosodic and paralinguistic cues and the written evidence of utterances on the screen (Carver & Scheier, 1981a, 1981b; Lee, 2002; Smith, 2003b; Yamada, 2009; Yamada & Akahori, 2009), learners preferred confirmation check and self-repair than the other strategies in text chat. On the other hand, in video-conferencing, clarification request, self-paraphrase and self-repair were utilized most often because of the presence of partner's and the learner's own images (Yamada & Akahori, 2007, 2009; Yamada, 2009), the availability of non-verbal devices and rapid exchange of oral messages similar to a real setting. Hence, these respective strengths of SCMC modality should be taken into account regarding learning goals when teachers and material developers desire to implement SCMC modes in order to maximize their effectiveness in language education settings.

Concerning the second research question, the results showed that the two task types have an impact on learners' negotiation of meaning. The divergent tasks yielded a greater number of negotiation of meaning events than in the convergent tasks. These results are consistent with Smith's (2003a) findings, which also found more negotiation of meaning in decision-making tasks than jigsaw tasks. More importantly, the participants produced syntactically more complex discourse in the divergent tasks than in the convergent tasks. In addition, the students showed different patterns of negotiation of meaning across the convergent tasks and divergent tasks. They used clarification request and confirmation check most often in the convergent tasks, while there was more comprehension check, self-paraphrase and self-repair in the divergent tasks.

These different patterns of preferred strategy use seemed to be related to the task requirements. In the convergent tasks, learners needed to reach an agreement and it seemed to lead them to employ confirmation checks and clarification requests in order to acquire a better understanding of their interlocutor's opinions. On the other hand, in the divergent tasks, participants appeared to focus on delivering their thoughts rather than paying much attention to their interlocutors' opinions since they did not have to yield a convergent outcome. As a result, the subjects preferred to check their partner's comprehension and paraphrased and repaired themselves to make their utterance more comprehensible to their partners. It is worth noting, therefore, that learners' use of negotiation strategy seems to be sensitive to task type (Blake, 2000): learners use different negotiation strategies in order to respond to different task requirements (Bialystok, 1981). The results suggest that more research should be conducted, including divergent tasks integrated with different experimental designs and participants in a variety of SCMC environments, to obtain more conclusive results regarding

the precise effects of task type. This is because most of the SCMC literature is focused on the comparison of convergent types of task, drawing only on Pica et al.'s (1993) task typology. That is, "when attempting to delineate the tasks that affect language learning, materials designers and practitioners would do well to include open-ended, opinion-exchange tasks using SCMC" (Collentine, 2010: 125, cited in Jackson, 2012).

The findings of the third research question indicate that the correlation between the modality and task type has an impact on negotiation of meaning. Importantly, the divergent tasks elicited greater numbers of negotiation strategy in all combinations based on the negotiation strategies per 100 words. The number of words yielded was also affected by the combination of the task type and modality. For example, the convergent tasks produced more words when the tasks were conducted via text chat. On the other hand, there were more words in the divergent tasks when the tasks were done through video-conferencing. Moreover, the total number of turns was shaped by the combination of the task type and modality. Therefore, when implementing task-based SCMC in practical environment, the effects of their interaction need to be taken into account according to the learning objectives to optimize L2 learners' language development in task-based SCMC context.

Finally, the participants' feedback from the task perception questionnaires indicates that a majority of the participants had positive attitudes towards both synchronous communications modes and they acknowledged the effectiveness of the two SCMC modalities as an effective tool for English learning. Overall, the participants seemed to be in favor of video-conferencing for their English development because of its similarity to face-to-face

interaction. It should be noted, however, they acknowledged both media's distinct facilitative features according to their communication preference and learning goals. It suggests that learners seem to benefit from task-based SCMC, if they are engaged in appropriate SCMC tasks designed to meet their learning styles and objectives.

In summary, this study offers compelling evidence that SCMC modality, task type and their interaction indeed have an impact on the patterns of negotiation of meaning and encourage L2 learners to deploy various types of negotiation strategies for the successful flow of communication. This finding complements the empirical evidence of other task-based SCMC studies which confirmed that task-based SCMC facilitates learners' negotiation of meaning and the negotiated interactions help learners to approximate to the target language (e.g., Beauvois, 1992; Blake, 2000; Chun, 1994; Kelm, 1992; Kern, 1995; Pelletieri, 2000; Smith, 2003a, 2003b; Warschauer, 1997). Therefore, SCMC, integrated with well-designed interactive tasks will become an optimal arena for enhancing learners' interlanguage development and communication competence by providing learners with plenty of comprehensible input and opportunities to generate output through negotiated interaction.

## **5.2. Limitations and Suggestions for future research**

This study provides the basis for potential of the exploitation of task-based SCMC which can be integrated with various types of tasks to contribute to L2 learners' language development. However, this study has limitations. First of all, the participants were 16 students and this sample size is not sufficient to generalize the results. For future investigations, researchers should include more participants to increase reliability and generalizability of the results.

Secondly, this study only employed five types of negotiation strategies to categorize and code the incidence of negotiation of meaning. It might not be comprehensive to examine the global and accurate patterns of negotiation of meaning among L2 learners. Therefore, future research would be able to obtain more precise data if it includes a wide variety of negotiation strategies for its analysis. Thirdly, the experiment time of each session should have been controlled more strictly. Even though the experiment time was controlled and measured by the researcher, there was a different length of time spent between the text chat and video-conferencing sessions. This might affect the number and amount of negotiation of meaning yielded by the participants. Therefore, either a more controlled experiment time, or using a pre-determined length of time for the data should be used in an effort to make all data comparable. Lastly, many of the participants mentioned that they felt some pressure due to the time limit (10–15 minutes). As I analyzed the data, I noticed that students were in a hurry to finish their tasks on time and did not negotiate as much as they could have done. This downside was observed in the student's comments in the questionnaires: they felt the given time was not enough to complete the tasks. Therefore, other studies with similar experiment design would get better results if there is enough time to allow learners to negotiate willingly without time pressure.



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## **APPENDIX A. DISSERTATION PROPOSAL**

### **UCL Institute of Education**

#### **Dissertation Proposal**

**Name: Yeonwoo Jung**

**Programme: MA in TESOL**

**Word count: 2313**

#### **1. Research Topic**

The effects of SCMC modality and task type on negotiation of meaning

#### **2. Background**

The rapid advance of communication technology, in particular, Synchronous Computer-Mediated Communication (SCMC) such as real-time text chat and video-conferencing, enables people to communicate without constraints of time and space. This facilitative features of SCMC modality have received a great deal of attention from many computer-assisted language learning (CALL) researchers and SCMC literature has explored how and to what extent the SCMC modality can foster second language or foreign language learners'

language learning. In particular, SCMC has been perceived as an optimal arena for promoting learners' negotiation of meaning and many researchers compared various type of tasks in SCMC settings in an attempt to find the optimal combination of SCMC mode and task type. However, there has been little empirical research to compare learners' use of negotiation strategy (e.g., clarification requests, comprehension checks and self-repair, etc.) in convergent and divergent tasks conducted via both text chat and video-conferencing. Therefore, the main purpose of this study is to investigate how and to what extent learner's negotiation of meaning would be influenced by SCMC modes (i.e., text chat and video-conferencing) and task types (i.e., convergent tasks and divergent tasks) as well as the effects of their interaction on the participants' use of negotiation strategies. Also, participants' perception towards the task-based SCMC setting implemented in the current study will be discussed for implications and further research in task-based SCMC literature.

### **3. Research Questions**

This study aims to examine the effects of two different types of SCMC, (i.e., text chat and video-conferencing) and two task types (i.e., a convergent task and divergent task). Also, the effects of the interaction between the modality and task type on learners' negotiation of meaning will be explored. Therefore, this study asks three major questions as follows:

- How do the patterns of negotiation of meaning in synchronous, task-based, one-to-one text-chat compare to those in one-to-one video-conferencing?
- How do the patterns of negotiation of meaning differ across convergent tasks and divergent tasks?
- Is there an interaction between the task types and modality?

## **4. Literature Review**

### **Theoretical framework of the interactionist perspective on SLA**

This dissertation is based on the interactionist perspective on SLA which emphasizes the interactional process between learners' internal mechanism and the linguistic environment (Long, 1996; Pica, 1994). Interactionist perspectives seem to be compatible with many established SLA theoretical ideas such as Comprehensible Input hypothesis (Krashen, 1985), Interaction hypothesis (Gass, 1997; Hatch, 1978; Long, 1981, 1985, 1991, 1996; Mackey & Gass, 2006; Pica, 1994), Comprehensible or pushed Output hypothesis (Swain, 1985, 1995, 2000, 2005), and roles of attention and noticing (Schmidt, 1990; Robinson, 1995; Tomlin & Villa, 1994). Therefore, these theoretical ideas will be presented and discussed in this dissertation.

### **Negotiation for meaning in task-based text-chat**

Many studies have explored negotiation of meaning in text-based SCMC and much has been written in favor of synchronous text chat (Levy & Stockwell, 2006: 89). Blake (2000) examined the interaction of Spanish learners engaged in a total of four task types over two semesters. In his study, jigsaw, decision-making, two-way and one-way information gap tasks were compared. The results showed that negotiation appeared to be 'task sensitive' and jigsaw tasks elicited the highest number of negotiations. Blake (2000) confirmed that the subjects noticed their errors and tried to correct them. Also, the participants showed a high degree of task completion.

On the other hand, Smith's (2003a) study of 28 intermediate ESL learners using text chat for jigsaw and decision-making tasks yielded different results. He confirmed that learners produced a significantly higher number of negotiation in the decision-making tasks than in the jigsaw tasks. In his serial research, Smith (2003b) further explored negotiated interactions in a task-based chat room with in terms of the effects of task type on the amount of negotiation and how this negotiation in SCMC compared to face-to face negotiation of meaning. The participants completed 4 communicative tasks, two jigsaw tasks and two decision-making tasks. The results showed that learners negotiated for meaning in about one-third of their total turns and the amount of negotiation seemed to be shaped by task type; Learners negotiated significantly higher when engaged in the decision-making tasks than in the jigsaw tasks, which was contrary to the results of Blake (2000).

### **Negotiation for meaning in task-based video-conferencing**

Because of the highly sensory nature of video-conferencing which permits non-verbal cues (e.g., facial expressions) and helps learners have oral interaction spontaneously and quickly, it has emerged as an alternative to face-to-face interaction (Warschauer, 1996), since other CMC tools, such as text chat, cannot offer those features (O'Dowd, 2005, cited in Lee, 2007: 640). Many SCMS researchers have noted this communicative strength of video-conferencing and delved into its own patterns of negotiation of meaning.

Yanguas (2010) compared negotiation for meaning in task-based audio, video CMC groups and traditional face-to-face communication. The researcher argued that the differences among three groups were due to the lack of visual contact. Yanguas (2010) showed that audio and

video modes allow more diverse interactional patterns similar to face-to-face interaction. In the study comparing four types of SCMC (text chat with/ without interlocutor's image, audio-, video-conferencing), Yamada and Akahori (2007) found that video-conferencing provided plenty of opportunities for meaning negotiation during which participants went through trial-and-error in an effort to modify their output. Particularly, it is worth noting that during the trial-and-error, non-verbal behaviors such as nodding and laughing helped them to speak more actively without worrying about grammatical and lexical errors (Yamada & Akahori, 2007: 55). Students interviewed in the study acknowledged the positive effect of video-conferencing in terms of helping them notice their pronunciation problems and grammatical errors. The study also concluded that interactant's image seems to influence in facilitating interactional modification and negotiation of meaning.

### **The effects of task type on negotiated interaction in SCMC**

Since the most widely used typology of task type is Pica et al.'s (1993) classification, many SLA researchers have evaluated five communicative language learning tasks based on it. These tasks are jigsaw, information gap, problem-solving, decision-making, and opinion exchange. According to four characteristics of most facilitative task would have defined by Pica et al. (1993), jigsaw tasks would be most conducive to the negotiation of meaning in the sense that both participants are required to request and provide information through to arrive at the one correct solution collaboratively. Conversely, opinion-exchange tasks seem to be the least conducive to negotiation of meaning since students do not have ONE convergent goal to achieve jointly and do not need to negotiate with a best answer to reach a correct answer. Since this study employ a decision-making tasks and opinion exchange task in the experiment, it seems to be relevant to draw on the taxonomy and evaluate how it fits well in the

synchronous computer assisted online interaction for the sake of the current study and creating a better online language learning environment

## **5. Methodology**

### **Participants**

A total of 16 international graduate students age from 26 to 40 enrolled in a university in London will voluntarily participate in this study. All participants are non-native speakers (NNS) of English and their proficiency level in English seems to be upper-intermediate based on their results of the IELTS, which they presented to meet the admission English proficiency requirement of the university. They are native speakers of Japanese, Korean and Mandarin.

### **Task**

Eight dyads of NNS-NNS ( $n = 16$ ) will be engaged in four 10 to 15 minute communicative tasks during the experiment. Each task consists of its convergent version and divergent version. The convergent task is a decision-making task that requires the subjects to select two out of four candidates (options) with their partner based on four imaginary profiles (sets of information). In the convergent version, each dyad must reach a consensus. On the other hand, the divergent task is an opinion exchange task which requires participants to support two candidates (options) out of four, which will be assigned to them in advance by the researcher. A set of four tasks provided for the participants will be two decision-making tasks and two opinion exchange tasks.



## **Software and Hardware**

The video-conferencing sessions will be recorded with *Google Hangout*, a free, web-based video-conferencing program for transcription and analysis of non-linguistic features (e.g. gestures, body language, and facial expressions). The text chat sessions will be conducted via *Skype*, a free, web-based chatting program. To compare the relative efficacy of two SCMC modes, the four tasks will be divided into two; two tasks performed through video-conferencing and the others via text chat. In other words, each dyad needs to complete their tasks through both SCMC media. The sequence and combination of the four tasks and the two modes will be organized in a counterbalanced design.

## **Questionnaires**

Task perception questionnaires will be administered to obtain in-depth and specific feedback from the participants regarding their attitude and opinion towards task-based SCMC activity they will experience during the experiment. Specifically, in response to the first question in the questionnaire, participants will be asked to rate on a 6-point scale in terms of usefulness and influence of each communication mode and how they compare to traditional face-to-face communication environment. In the second question, subjects will evaluate the task-based SCMC activity they were engaged in. To acquire more in-depth data, open-ended questions will be also included.

## **Data Collection**

Data will be collected through three methods: 16 video-conferencing sessions, 16 text chat

sessions and the follow-up task perception questionnaire. First, 10–15 minutes of video-conferencing sessions (n = 16) will be recorded via *Google Hangout* and saved automatically on the researcher’s You Tube channel, which is locked and only the researcher can access the recorded data for the later analysis. Second, the text chat sessions (n = 16) via *Skype* will be automatically saved and the saved text messages will be then electronically copied and pasted in a Microsoft Word document for later analysis. Third, after finishing the final session of the experiment, the subjects will be required to answer the task perception questionnaires about their experience in the experiment. The specific design and procedures of all sessions will be as follows:

**Table. 5.1 The overall procedure of the experiment**

	Dyad 1 / Dyad 5	Dyad 2 / Dyad 6	Dyad 3 / Dyad 7	Dyad 4 / Dyad 8
<b>Pre-task session</b>	<ul style="list-style-type: none"> <li>● Overall explanation of the experiment (10 min)</li> <li>● Reading a set of task sheets (20–25 min)</li> </ul>			
<b>1<sup>st</sup> session</b>	Task A (ConT) + VC (10–15 min)	Task B (ConT) + TC (10–15 min)	Task C (DivT) + VC (10–15 min)	Topic D (DivT) + VC (10–15 min)
<b>2<sup>nd</sup> session</b>	Task B (DivT) + VC (10–15 min)	Task C (DivT) + TC (10–15 min)	Task D (ConT) + TC (10–15 min)	Topic A (ConT) + TC (10–15 min)
<b>3<sup>rd</sup> session</b>	Task C (ConT) + TC (10–15 min)	Task D (ConT) + VC (10–15 min)	Task A (DivT) + TC (10–15 min)	Topic B (DivT) +TC (10–15 min)
<b>4<sup>th</sup> session</b>	Task D (DivT) + TC (10–15 min)	Task A (DivT) + VC (10–15 min)	Topic B (ConT) + VC (10–15 min)	Topic C (ConT) + VC (10–15 min)
<b>Break time (5 min)</b>				
<b>Task perception questionnaires (10–15 min)</b>				

(*Note: ConT = Convergent task; DivT = Divergent task; TC = Text chat; VC = Video-conferencing*)

## **Data Analysis**

The data from the 16 video-conferencing sessions and 16 text chat sessions will be coded to identify negotiation strategies. The recorded video-conferencing will be transcribed, and the total number of the negotiation strategy, discourse turns, and words will be calculated. The documented conversations of the text chat and video-conferencing sessions will be analyzed with regard to the total number of negotiation of meaning strategies, turn-takings, and words. Fillers and interjections will be included in word counts, but emoticon used in text chat will be excluded. Also, misspellings such as 'to day' and abbreviations such as 'OMG' will be counted as one word

## **6. Outcomes and Value**

Many SCMC studies have explored L2 learners' discourse in task-based SCMC involving certain types of tasks in an effort to clarify its own nature. However, much previous research has mainly focused on convergent tasks and yielded mixed results. Particularly, to my knowledge there has been little research which compares synchronous text-based interaction with video-conferencing using convergent tasks and divergent tasks, as well as examining the effects of the interaction of SCMC modes and task types on L2 learners' negotiation of meaning. Therefore, this study will contribute to the SCMC literature by uncovering the effects of SCMC modes and task types and their interaction quantitatively and qualitatively regarding learners' use of negotiation strategies.

## 7. Limitations and Ethical problems

First, only 16 students will participate in the study and this sample size is not sufficient to generalize the results. Secondly, negotiation strategies will be coded and analyzed by only five types of negotiation strategies. It might not be comprehensive enough to examine the global and precise patterns of negotiation of meaning among L2 learners. Finally, since the task design of this study is for experimental setting, the results may not be suitable to practical educational settings.

In terms of ethical issues, all the performance of the participants will be recorded for analysis. Furthermore, the recorded data of the video-conferencing sessions in *Google Hangout* will be uploaded to the researcher's YouTube account automatically. Even though the data will be set to be locked right after uploading on YouTube in advance, some participants might not be willing to be recorded during the experiment and share the data. To solve this problem, I will provide them with an information sheet stating that any data obtained from them will be kept confidential and their names will remain anonymous.

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## APPENDIX B. TASK SHEET

### Task 1 : Defending your two options for your survival

(Divergent version + Video-conferencing)

#### 1. Scenario:

- ✧ You and your partner are sole survivors of a plane crash. Your plane crashed on the snow-capped mountain.
- ✧ You only wear business suits since this is your business trip.
- ✧ It is winter and the sun sets in two hours. The temperature will drop to  $-30^{\circ}\text{C}$  at night.
- ✧ It takes at least two days to arrive at the nearest town.
- ✧ There is also a slim chance that you might be rescued by the mountain rescue team.

#### 2. Your task:

- You **MUST defend option 2&4** (Your partner will defend option 1&3).
- **Do your best to convince your partner of your opinion!**
- This time, you and your partner **DO NOT NEED TO reach an agreement about this issue.**
- Please **keep supporting your options for 10 minutes!**

1. Clothes	2. Food
Goose jumpers, winter boots	A three-day supply of food and water for two people

3. Light	4. Equipment
LED flash lights with extra batteries and flares	A local map, waterproof sleeping bag and a winter tent



## Task 2 : Choosing two plans in your college

(Convergent version + Text chat)

### 1. Scenario:

- ✧ You and your partner are in the budget department of a university.
- ✧ Both of you are now evaluating four potential plans in your college.
- ✧ However, you can allocate the budget only to the **TWO plans** considered most deserving due to the limited budget.

### 2. Your task:

- Based on the following information about the four plans, choose **TWO plans with your partner and give specific reasons for your choices.**
- This time, you and your partner **MUST reach an agreement about this issue.**

Plan #1 Scholarships and housing	Plan #2 Vocational education
<p><b>Reasons for requesting:</b> To provide scholarships and accommodation for students from a low-income household or displaying superior academic performance</p>	<p><b>Reasons for requesting:</b> To support vocational education and employability training programs for the students in their senior year suffering from the youth unemployment crisis</p>

Plan #3 Library	Plan #4 Welfare for Students
<p><b>Reason for requesting:</b> to purchase more volumes of the latest research and skills and to upgrade library system and language labs with state-of-the-art computers &amp; IT equipment</p>	<p><b>Reason for requesting:</b> to improve the university's practical and emotional welfare services for students such as a counselling service, assistance for academic matters and to renovate the student cafeteria, lounge and toilets</p>

### **Task 3 : Defending your two applicants to accept into the school**

**(Divergent version + Text chat)**

#### **1. Scenario:**

- ✧ You and your partner are professors in English language & Education department at a renowned university in the U.K.
- ✧ You are now interviewing **four applicants** applying for a postgraduate course in your department. They have proved to be qualified for the course.
- ✧ However, there are **only two vacancies** in the department.

#### **2. Your task:**

- You **MUST defend applicant 2&3** (Your partner will defend applicant 1&4).
- **Do your best to convince your partner of your opinion!**
- This time, you and your partner **DO NOT NEED TO reach an agreement about this issue**
- **Please keep supporting your applicants for 10 minutes!**
- 

<b>1. Name: Antonio Pérez (Male, Spain)</b>	<b>2. Name: Angela Lee (Female, U.S.)</b>
<ul style="list-style-type: none"> <li>● <b>Education:</b> Bachelor's degree in English and master's degree in education</li> <li>● <b>Comments:</b> <ol style="list-style-type: none"> <li>① A typical model student</li> <li>② IELTS band 9</li> <li>③ A scholarship holder for his undergraduate years but</li> <li>④ No teaching experience</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>● <b>Education:</b> Bachelor's degree in business management from Harvard University</li> <li>● <b>Comments:</b> <ol style="list-style-type: none"> <li>① A CEO of global education service provider</li> <li>② Korean-American (bilingual)</li> <li>③ She wants to open a branch in the U.K. and recruit talented classmates while studying here.</li> </ol> </li> </ul>

<b>3. Name: Tom Anderson (Male, U.K.)</b>	<b>4. Name: Jessy Wang (Female, Hong Kong)</b>
<ul style="list-style-type: none"> <li>● <b>Education:</b> Double major in English and Education</li> <li>● <b>Comments:</b> <ol style="list-style-type: none"> <li>① A very knowledgeable and skilled teacher</li> <li>② 10-year English teaching experience</li> <li>③ He won "The best English Teacher Award" from Department for Education of the U.K. in 2013, 2015.</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>● <b>Education:</b> Bachelor's degree in linguistics</li> <li>● <b>Comments:</b> <ol style="list-style-type: none"> <li>① A state scholarship student</li> <li>② Bilingual (Mandarin &amp; English)</li> <li>③ One-year experience of an exchange student in the U.K.</li> <li>④ Two-year English teaching experience</li> </ol> </li> </ul>

### **Task 4 : Choosing two applicants to go to Mars with you**

(Convergent version + Video-conferencing)

#### 1. Scenario:

- ✧ You and your partner are the leaders of “Mission to Mars” team, which aims to go to Mars and construct a human colony on behalf of the entire world.
- ✧ You have to select most suitable applicants to join your team and complete the mission.
- ✧ You are now interviewing **four applicants** considered most qualified for your team.  
However, there are only two vacancies.

#### 2. Your task

- Based on the four applicant profiles, choose **TWO applicants** with your partner and give **specific reasons for your choices**.
- This time, you and your partner **MUST reach an agreement about this issue**.

<b>1. Name: Crystal Wallace (Female, Canada)</b>	<b>2. Name: Jiwon Park (Female, South Korea)</b>
<ul style="list-style-type: none"> <li>● <b>Occupation:</b> a robot scientist</li> <li>● <b>Reason for wanting to go to Mars:</b> I want to be an explorer and pioneer at the forefront of history by being one of Mars’ first immigrants.</li> <li>● <b>Comments:</b> Highly adaptable, have developed practical humanoid robots for NASA for 3 years</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Occupation:</b> an architect</li> <li>● <b>Reason for wanting to go to Mars:</b> I am keen to discover and build a whole new life on Mars.</li> <li>● <b>Comments:</b> A world-famous architect, participated in the simulation program of NASA called ‘Construction on Mars’ for 2 years</li> </ul>
<b>3. Name: Alex Chen (Male, Taiwan)</b>	<b>4. Name: James Watson (Male, U.S.)</b>
<ul style="list-style-type: none"> <li>● <b>Occupation:</b> a CEO</li> <li>● <b>Reason for wanting to go to Mars:</b> I want to find some promising businesses to invest in on Mars.</li> <li>● <b>Comments:</b> If he joins your team, your team will receive sufficient funding from his company.</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Occupation:</b> a doctor</li> <li>● <b>Reason for wanting to go to Mars:</b> I just want to go to Mars for fun. Also, it appears to me that I can make a lot of money since I might be the only doctor on Mars.</li> <li>● <b>Comments:</b> Rather obstinate, enjoys extreme sports</li> </ul>

## APPENDIX C. QUESTIONNAIRE

### Task Perception Questionnaires

**Project Title:** The effects of SCMC modality and task type on negotiation of meaning

**Participant No.:** \_\_\_\_\_

#### 1. Direction:

This is a Task Perception Questionnaires regarding your experience in task-based SCMC activity. Please rate in the box that best indicates how much you agree or disagree with the statement. Thank you for your participation!

#### 2. Rating Scale:

<b>1 Strongly disagree</b>
<b>2 Disagree</b>
<b>3 Somewhat Disagree</b>
<b>4 Somewhat Agree</b>
<b>5 Agree</b>
<b>6 Strongly Agree</b>

**Q1. How did you feel about the two SCMC media you did today? What are the advantages and disadvantages of them compared to traditional face-to-face interaction?**

1. I was **more** afraid of making grammatical mistakes **than face-to face interaction.**

1	2	3	4	5	6
---	---	---	---	---	---

2. It was **more** difficult to understand my partner's meaning and intention **than face-to-face interaction.**

1	2	3	4	5	6
---	---	---	---	---	---

3. I tried to be **more** patient and wait until my partner finished speaking (typing) **than face-to-face interaction.**

1	2	3	4	5	6
---	---	---	---	---	---

4. I was **more** reluctant to ask about the meaning of the words, expressions and intentions of my partner when I couldn't understand **than face-to-face communication.**

1	2	3	4	5	6
---	---	---	---	---	---

5. I spoke (typed in) **more** online since I felt less emotional pressure **than face-to-face communication.**

1	2	3	4	5	6
---	---	---	---	---	---

6. I felt **more** confident when I spoke (typed in) online **than face-to-face interaction.**

1	2	3	4	5	6
---	---	---	---	---	---

7. I took part in the conversation **more** often since I felt comfortable during the online interaction.

1	2	3	4	5	6
---	---	---	---	---	---

8. I frequently requested repetitions and/or clear explanation.

1	2	3	4	5	6
---	---	---	---	---	---

9. I recognized my grammatical or lexical mistakes **more than face-to-face conversation.**

1	2	3	4	5	6
---	---	---	---	---	---

10. I felt **more** comfortable when I want to interrupt my partner's speaking **than face-to-face context.**

1	2	3	4	5	6
---	---	---	---	---	---

11. I tried to explain **more in detail** to make it clear **than face-to-face context.**

1	2	3	4	5	6
---	---	---	---	---	---

12. I spoke **more loudly than face-to-face conversation.**

1	2	3	4	5	6
---	---	---	---	---	---

13. I tried to speak **more** slowly **than face-to-face interaction**.

1	2	3	4	5	6
---	---	---	---	---	---

14. I tried to enunciated **more** clearly and distinctly **than face-to-face interaction**.

1	2	3	4	5	6
---	---	---	---	---	---

**Q2. How did you find the task-based SCMC activity to be beneficial to your English language development? What are the advantages and disadvantages of it?**

**1. I found it useful for my English learning.**

1	2	3	4	5	6
---	---	---	---	---	---

**2. The tasks were motivating since I had to do it collaboratively with my partner.**

1	2	3	4	5	6
---	---	---	---	---	---



**3. Even though the tasks were similar with the activity in traditional English classes, I enjoyed it more in a comfortable environment.**

1	2	3	4	5	6
---	---	---	---	---	---

**4. I enjoyed conducting the divergent tasks more than the convergent tasks.**

**(Reason: \_\_\_\_\_)**

1	2	3	4	5	6
---	---	---	---	---	---

**5. We had to keep negotiating to achieve mutual understanding in order to complete our tasks and it encouraged us to speak in English more.**

1	2	3	4	5	6
---	---	---	---	---	---

**6. The argumentative tasks were difficult to finish within the limited time.**

**(Reason: \_\_\_\_\_)**

1	2	3	4	5	6
---	---	---	---	---	---

**7. Conducting tasks online might be difficult for some students if they are not used to using text chat and video-conferencing interface.**

1	2	3	4	5	6
---	---	---	---	---	---

**8. Since first propriety was to complete the task, I spent most of my time to concentrated on writing my messages instead of looking at the screen.**

1	2	3	4	5	6
---	---	---	---	---	---

**9. What are the advantages and disadvantages of each SCMC modality?**

**Pros:** \_\_\_\_\_

**Cons:** \_\_\_\_\_

**10. What are the advantages and disadvantages of task-based SCMC activity?**

**Pros:** \_\_\_\_\_

**Cons:** \_\_\_\_\_

## APPENDIX D. TRANSCRIPT OF VIDEO-CONFERENCING

### Comparison between the convergent task and divergent task

**NOTE:** None of the text chat scripts and transcriptions of the video-conferencing sessions have been corrected for spelling or grammatical errors.

#### Transcript 1: The convergent version of Task D, 'Funding'

P4: Ok. Can you hear me?

P3: yes.

P4: Um... Ok.

P3: Ok.

P4: Shall we start?

P3: Yes!

P4: All right, oh, so... we are the budget department in the university...

P3: Mm-hum.

P4: And I am thinking about the, to collect, oh no, recruit the fund, yeah?

P3: Mm-hum.

P4: Hmm, which one would you like?

P3: I... would rather number 1 and number 3.

P4: Ok, so I gotta choose the 3 and 4.

P3: why?

P4: Well...that like I agree with the number 3...

P3: Mm-hum.

P4: Look at the library, it's very important for student life not only the students but also teachers and for their research, anything. And... well... oh yeah, so number 4... but that was what I think of the other number like a third one but I...

P3: Ah, ok.

P3: Mm...

P4: Ok. So...um, ok, the college has more, err, equipment and, additional services for students that will be beneficial for, that would give, students and parents more, like feel comfortable...

P3: Mm-hum.

P4: Like to let have student life in the college.

P3: Have student life? I'm not sure.

P4: I mean the quality of the student life will increase if the cafeteria, a lounge and toilet like counseling services is good

P3: Ok... I see.

P4: Yeah, for like everybody and...

P3: They could be very good...

P4: Yeah, like satisfied with the college.

P3: Yes.

P4: Mm.

P3: I agree with you, like number 3, because, library is kind of essential...thing that university have, you have.

P4: Mm-hum.

P3: Umm, I'd rather number one, because there's so many students who want to go to university but... don't have... enough money...

P4: Um, right.

P3: And we should give them a chance to study more.

P4: Yeah.

P3: Because you know definitely they have a strong will, to... for studying. I mean they will enthusiastically study because for getting a scholarship and if they got scholarship they would do more for getting another scholarship...And then, in terms of housing, um... long distance students will be struggle with housing fee. So, we should provide scholarship and housing I think.

P4: Right. I do agree with that I think scholarship and housing is very important. But I think that is only for a few people, from the elected people...

P3: Mm, sorry. What do you mean? I don't understand.

P4: Yeah, so the scholarship and housing for very good selected people.

P3: Ah!

P4: Yeah, but like for more students...

P3: Oh, I see! so that welfare is for everyone. Scholarships and housing is for limited...

P4: Limited people but quite a lot.

P3: Yeah, that's right... So what if we split, the scholarship into really small pieces?

P4: Sorry? Uh, yeah.

P3: Oh, sorry. Was it bad?

P4: Yeah, the connection was bad. No, no, no, it's not your fault.

P3: Oh ok, ok. it's just for internet connection.

P4: Yeah, yeah.

P3: Ok, so can I say that again that I told you that?

P4: Mm-hum, please.

P3: So... we can divide scholarship into really small pieces...so we can give as many students as we can.

P4: Oh!

P3: But we have to... like maintain... the most big one... the biggest one!

P4: Mm... what, what the biggest one?

P3: I mean the amount of money...

P4: Oh, yeah.

P3: Like full scholarship and then house half of the money scholarship like that...

P4: Mm, you mean...

P3: then we can... sorry?

P4: Yeah. So you mean the tuition fee is the biggest problem for students?

P3: Yes, that's right.

P4: Oh yeah, rather than other facilities.

P3: Yes, or we can give them like... a student who can get school scholarship cannot get like housing fee...

P4: Mm-hum.

P3: Like that... so, we can give them like, equally. Equal chance to everyone.

P4: Ok, Mm. All right.

P3: I think welfare is really important as well. But that, that was that third one I think.

P4: Yeah. but how about the, there is uh, some luxury people who has much money, rich family. The family want to send their children to a good school, which has like clean facilities...

P3: Mm-hum.

P4: Like um, a good cafeteria, like an another fashionable place, fashionable college, and those people would also donate to come the university later. What do you think?

P3: Ah, it could be.

P4: Yeah.

P3: So, but...

P4: No, yeah some luxury, luxury families would, they never come back for scholarship.

P3: Mm, okay. I understand.

P4: But some!

P3: Yeah, that's right, right. So, what if we can get a lot of...um, have... like a lot of very smart and bright students... for giving them scholarship... like so, if they can [gen], can, they can, even if they can go higher school, I mean the ranking...

P4: Good school? Mm-hum, Yap.

P3: Yes. good school, better school than us. But, we can... get them to our schools for giving, by giving them scholarship or housing fee.

P4: Mm

P3: And then, and then we, and the number three we... buy a lot of...

P4: All right, I couldn't hear, I didn't hear you.

P3: Oh, is it because of network

P4: No, because of the network.

P3: Ok so we can buy...

P4: Say again, please.

P3: Ok. So, we can get a lot of books using number 3, and then we can get smart and bright students from number 1. Mm, and our school's ranking will be better than last year.

P4: Oh, I see. The, then, then we can, uh, raise the tuition fee.

P3: Yes!



P4: And even if it's that expensive people want to come to our school.

P3: Yes, and I think we can get like government's support.

P4: I see. Oh, that's clever!

P3: Thank you.

P4: That's clever, yeah.

P3: Yeah, can you do number 1 and number 3?

P4: Yeah, I understand. Yeah, that this kind of system in the United States I think.

P3: Oh, yes, right, right.

P3: Yeah, 'cause tuition fee is very, very expensive, but they offer quite a lot of the financial support as well.

P3: Sorry? What kind of support?

P4: Financial support for students.

P3: Oh! So they give a lot of support?

P4: Yeah, some people pay the full tuition fee but non not so many, quite a few people pay themself... by themselves.

P3: Oh!

P4: And, yeah, quite a lot of good, like talented students came to, come to the school, come to the university for the, um, like scholarships.

P3: Oh, then many of brilliant or smart student...

P4: Exactly, exactly.

P3: But don't have a lot of money afford the University's fee will go to that school!

P4: Yeah. So finally...

P3: Mm-hum.

P4: University raise...

P3: Sorry, I can't hear you because of the networking thing.

P4: Ok, so consequently, the level of the university will raise. As good many, many good students came to school

P3: Oh, I see, I understand.

P4: That is because, yeah that you said.

P3: Okay then we can follow that kind of system.

P4: Tactics, yeah!

P3: Ha-ha, yes, ok, we agree.

P4: Ok we agree on one and three?

P3: Yes, 1 and 3. Cool!

P4: Ok.

P3: Ok.

**Transcript 2: The divergent version of Task A, 'University Applicants'**

P3: Can I start now, right?

P4: Ok, ok! Ok, so English language and the language education department. Professor!

P3: Mm-hum, hello, professor!

P4: Hi! Hi, professor!

P3: Good morning.

P4: Ha-ha, good morning. It's online meeting. Ok.

P3: So...

P4: You have two candidate students.

P3: Yeah, who do you want to pick?

P4: Ok, I gotta pick up a number two and three.

P3: Mm-hum.

P4: Um...

P3: The reason?

P4: Yeah, so... ah... so you know like number 3, Tom Anderson, is very suitable person for our group. Because he is very qualified teacher, he got the, got a the, the best teacher award two times.

P3: Yes, right! Amazing!

P4: Then, um, yeah, really amazing! He is very beneficial for our team. And the, Angela Lee [Ri], Lee! has a good, um, good passion...and... she has business and global

education, which... well, helpful our, like to coordinate with the...like a... business field with the education.

P3: Right.

P4: Yeah. And also she's, she graduated from Harvard University which is really famous and popular and prestigious college in the world.

P3: Yes!

P4: She is reliable.

P3: what do you think about her major? Her major is business management.

P4: Right. Well, exactly. That is a weak point of this first candidate, but err, but at least she has education experience in educational field, that would support that weakness of the, her bachelor's degree.

P3: Oh, you mean... education service provider experience?

P4: Yeah, and also she's, um, because she is an executive manager, she apply into her bachelor's knowledge into the educational field.

P3: Mm-hmm.

P4: which is quite useful and like cool, ah... kind of she master... she's intelligent anyway.

P3: Yeah, that's right.

P4: She can connect the field each other, together, that the management field and education field.

P3: Yes, but what do you think about number 1 and 4? Because I think number four is

really... nice participants.

P4: He is!

P3: Yes, he's linguistic majored and... he has scholarship student, scholarship as you said before. Yes. The scholarship and then you told bilingual and he also has, he has both experience in U.S. and U.K., you know like English, major English using country experience in both countries.

P4: Which one, which one? Which person?

P3: I mean... Jessy Wang.

P4: Jessy? But Jessy didn't go to the united states. You got that?

P3: Oh, sorry, sorry, sorry. Yes, she is from U.K. So experience of exchange students and she also has 2 years of experience, so she's really, I think she will be very...um... we can... see her progress. It will be really, really interesting because she have a lot of fundamental knowledges about, um, English language and education department things, so... it will be very happy for seeing her progress.

P4: Yeah, she must be commented because you got the scholarship and also the one the exchange student.

P3: Right, right.

P4: But, I think she, her experience of two years is a bit short.

P3: Short?

P4: Short.

P3: Oh, really?

P4: Yeah.

P3: Do you think so?

P4: Yeah.

P3: I think it is quite appropriate.

P4: It is not.

P3: Hmm, and in case of number 1, Antonio Perez, um, he has bachelor's and master's degree. He already have master's degree. This will be the second master degree?

P4: Uh-huh.

P3: And then...he also have IELTS band 9 and 9 is really difficult you know.

P4: Yeah, I it's almost like a native.

P3: Yes, and, and in terms of academy things, writing is really, really important you know.

P4: Yeah I know.

P3: Everything we think have to be shown in writing, so if she, if she, if she, he have IELTS band 9 score, he will be really, really good at writing, and he also have master's degree, so he have plenty of knowledge of our department. So, I think even if... even if he has no teaching experience that could be a short come but, I think he can overcome that and he can I can offer him like volunteering job or teaching assistance part-time job for experiencing teaching environment. So, our school offer that kind of students' welfare service and it will be ok for him.

P4: Hmm, yeah, I'd agree with that. Now the teaching experi...ah... a teaching assistant it's good idea that we can offer the applicant, the suggestion. I understand he's very

talented, he's very, uh, he must be smart, very smart...

P3: Yes.

P4: IELTS band 9. But, um, I just wonder if he, even if you can do everything by himself, if he has good effect for other students? That he had...

P3: You mean Antonio? I can't hear you!

P4: Antonio, yeah.

P3: Effect? Sorry, sorry. excuse me, excuse me...hey, hey! Sorry, excuse, sorry, excuse me for interrupting you. But, about 10, no, 5 seconds, I can't hear anything. Effect what?

P4: Ok, ok. So...

P3: Please say that again, please?

P4: Oh, if Antonio had the...like a good...effort...effects to the other like to cooperate with the other students... colleagues.

P3: Yes! I think so.

P4: ...Why?

P3: But, then, do you think number 2 or number 3 can cooperate with other students?

P4: Yeah, I think so.

P3: Why?

P4: Number 2, Lee, she also has a working experience and she's looking for the, like looking for the people to recruit in her like, servi...company, in educational field, which is good for other people and she's looking at the other, um, she has such kinda view

looking at people. That will be efficient to the others.

P3: Hmm.

P4: And I think she has the communicative skills, which means, communication skills, sorry. Yeah. To, um... brush up like engage other students into the, our majoring area, like majoring topic. And number three Tom Anderson has of course he has, he's very good talented person and had a good experience and he has knowledge. He has good managing, management skills at school, in our department as well.

P3: But it's different with cooperating with peer colleagues. So what if he is really competitive? He's very good teacher but he's really competitive person by himself so... Yes, maybe, if he won two times of best teacher award he will be very, um, ambitious peop... person. So that means is really... yes... So let's not think about their like personality because, yes I think about their career things.

P4: Career, so you think about career better, more?

P3: Yes, career and future, dream kind of like that?

P4: Hmm...

P3: Yes... we don't know about their personality so we can't make, we can't decide whether he can cooperate with each other well or not because in case of Angela as well, even if she is a CEO, but she could be really bossy, bossy CEO.

P4: Possible.

P3: Yeah! So let's not think about their personality or their characteristics and let's not assume that and that what if we just think about their career and backgrounds things?

P4: But in terms of the future, Angela Lee has like a clear future vision to apply into the



knowledge of the education and language, English language to her field.

P3: Yes, right.

P4: And Tom Anderson of course, he's a good teacher and he's gonna, he might continue to work after that or I don't know if he's gonna change the career path to the researcher, but either way he would contribute to our field any way.

P3: Mm. Yes, I agree. But I think we should put our, um, point on more academic things but not for practical things, so like university is the place for...um, for learning and teaching for future education, not for business things or practical things, vocational education. So I think it can be very strength but it can be a weakness of her as well because her major was business management.

P4: Hi, sorry for interrupting you here, I didn't I couldn't hear you.

P3: Oh, ah, okay, okay, I will say that again. So Angela's future dream and her background of majoring in business management can be both strength and weakness as well at the same time. Because it could be um, good, um, if I follow your, like your explanation or your opinion. But if I think conversely or different, different point of view, um, we should more concentrate on academic things and academic results. Because we are, um, higher educational institute, we are very renowned university, so we have to put more focus on research things and we should, um, we should raise more, more researchers. I mean, academic researchers I think. So...um... can you talk about it later to think about more and...

P4: What? Which one?

P3: Can we talk about it later because we don't need to reach an agreement about this

issue.

P4: Yap!

## APPENDIX E. SCRIPT OF TEXT CHAT

### Comparison between the convergent task and divergent task

**NOTE:** None of the text chat scripts and transcriptions of the video-conferencing sessions have been corrected for spelling or grammatical errors.

#### Script 1: The convergent version of Task B, 'Mission to Mars'

[7:12:08] P11: Can we start?

[7:12:14] P12: hi

[7:12:16] P11: hello

[7:12:31] P12: OK

[7:12:53] P11: Who do you think the best participants?

[7:13:10] P12: I think no.1 and 2

[7:13:16] P12: how about you?

[7:13:25] P11: Oh I thought 2 and 4

[7:13:31] P12: OK,

[7:13:32] P11: Why do you think 1?

[7:14:12] P12: First, no2 would be helpful to build the Mars colony, right?

[7:14:19] P11: Yeah I agree

[7:14:40] P12: and no1 is for helping the architect.

[7:14:42] P11: And she also participated in the program of NASA

[7:14:57] P12: Yeah, you mean no2?

[7:15:02] P11: Yeap

[7:15:20] P12: Then no1 has NASA experience and very passionate.

[7:15:28] P11: That's true

[7:15:38] P12: how do you think?

[7:16:27] P11: Actually I chose 2 at first. And then between 1 and 4. I chose 4

[7:16:32] P11: I mean

[7:16:43] P12: yeah

[7:16:56] P11: Number 1 and 4 are both really helpful for making colony

[7:17:31] P11: I think 1's advantage is high motivation

[7:17:43] P12: I agree.

[7:18:21] P11: 4's advantage is that he is a doctor. So... even if another one is ill, he can give

emergency operation or...something like that

[7:18:51] P12: That's right. At the very beginning, I also chose no4 but because medical

knowledge is essential.

[7:19:14] P11: Yeah.... so im still can't choose between them

[7:19:29] P12: But he might misunderstand the purpose of the project.

[7:19:38] P11: Why do you think so?

[7:19:53] P12: He just want to go to Mars for FUN.

[7:20:22] P12: And he's thinking to have a new business on Mars as a doctor.

[7:20:36] P11: Oh... yeah

[7:20:38] P11: right

[7:20:49] P11: I think 1 would be better for this project

[7:20:50] P12: Even if someone become ill, will he helpful?

[7:20:58] P11: I agree

[7:21:02] P12: yeah, that's what I thought.

[7:21:08] P11: Maybe he will not care about that

[7:21:20] P11: cuz it will not helpful for his MONEY

[7:21:25] P12: No, he won't.

[7:21:37] P11: Ok..! Then, number 2 and 4.

[7:21:39] P11: Is it right?

[7:21:43] P12: Right, he might ask money for the project.

[7:21:53] P11: Yeah I agree with u

[7:21:55] P12: OK, we got an agreement.

[7:21:58] P11: Ok!

[7:22:00] P12: Thank you.

[7:22:11] P11: Thank you!^^

[7:24:43] P12: sorry no.1 and 2?

[7:25:35] P11: Right! I made mistake!

[7:26:09] P11: I misread the number!

[7:26:11] P11: Sorry

[7:26:20] P12: Yeah, that means you agreed with me.

[7:27:17] P11: Yes right

[7:27:29] P12: It might be OK

[7:27:42] P11: Yes, right thank you for noticing me about that problem

**Script 2: The divergent version of Task C, 'Survival'**

[7:27:55] P12: So, next one?

[7:27:56] P11: Task2

[7:28:02] P12: OK task 2

[7:28:25] P12: So in the snow mountain...

[7:28:43] P12: we are only survivor.

[7:28:51] P11: Yeah....

[7:29:04] P11: I think 1 and 3 will be needed

[7:29:19] P12: OK, my opinion is 2 and 4

[7:29:34] P12: Tell me your reason.

[7:29:36] P11: But don't you think we need clothes?

[7:29:58] P11: Most of people die because of low body temperature

[7:30:24] P12: Right, but if we can stau in the winter tent?

[7:30:37] P12: We can keep our bodies warm.

[7:30:54] P11: But it said "there is a SLIM chance" for being rescued

[7:31:15] P11: And we just have three-day supply.....

[7:31:34] P11: But anyway,.... I think we will die before we can eat all food.....

[7:31:44] P11: It's too cold.....

[7:31:49] P11: isn't it?

[7:31:52] P11: haha

[7:31:59] P12: The food gives us heat as well.

[7:32:30] P11: Less than goose jumpers i think.....

[7:32:37] P12: And we can walk in day time.

[7:32:43] P11: walk?

[7:32:45] P11: Why?

[7:33:12] P12: Night time staying in the tent and daytime to go out for nearest town.

[7:33:19] P12: how is it?

[7:33:27] P11: without clothes?!

[7:33:36] P11: we just wear suits

[7:33:40] P11: It's freezing

[7:33:43] P12: If we walk in daytime we don't need light.

[7:33:59] P12: Well, suits.

[7:34:02] P11: Yes I understand but if we walk in this outfit

[7:34:10] P12: yeah

[7:34:16] P11: We cannot be survive

[7:34:29] P12: ...Right

[7:35:15] P11: I think water is really important for surviving but we can survive without food

for couple of days

[7:35:23] P11: And in case of water..

[7:35:24] P12: Ah

[7:35:30] P11: we can just eat snow!

[7:35:35] P12: yeah

[7:35:57] P12: So get cloth and go down to the nearest town.

[7:36:03] P12: Is it your idea?

[7:36:09] P11: Yeah!

[7:36:38] P11: day and night all the way walk and then we can get there in two days

[7:36:41] P12: As soo nas possibe...

[7:36:52] P11: you mean as soon as possible?



[7:36:55] P12: Possibe.

[7:37:09] P11: Yeah... I think it will work

[7:37:36] P12: Sorry, mystype. that is the quickest way to get to the town.

[7:37:41] P12: I agree.

[7:38:22] P11: Yeah let's get clothes and light and go to the nearest town asap

[7:38:39] P11: What do you think ?

[7:38:40] P12: All right.

[7:38:49] P11: Ok!

[7:39:01] P12: We reached an agreement.

[7:39:05] P11: I think so