Chapter XVII
Interactional Modifications in Internet Chatting

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ABSTRACT

Studies in computer-mediated communication (CMC) have shown that it has the potential to provide opportunities for ESL learners to actively participate in communication using the target language, to notice inter-language gaps in their language production, and to negotiate meaning by the use of interactional modifications (IMs). The use of certain types of communication tasks also seems to play an important role in how to increase the quantity and quality of interactions among learners. Such a role is believed to affect the effectiveness of language acquisition. This chapter reports the findings of a study that investigates Internet chatting interactions between 28 college-level Indonesian non-native speakers (NNSs) of English using two different communicative language tasks, a jigsaw task and a decision-making task, which are believed to facilitate language acquisition. The main aim of this chapter is to discuss how the differences in tasks may generate different frequencies and types of IMs, as well as the possibilities of employing the results of the study in a classroom environment.

INTRODUCTION

In recent years, the growth of the Internet and the availability of various computer programs that facilitate online communication have been utilized to facilitate language production of second/foreign language learners. Studies on computer-mediated communication (CMC)

(Blake, 2000; Fernández-García & Martínez-Arbelaiz, 2002; Freiermuth, 2001; Kitade, 2000; Lee, 2002; Smith, 2004; Tudini, 2003) show that this form of communication has the potential to provide opportunities for ESL learners to actively participate in communicating using the target language, to notice inter-language gaps in their language production, and to negotiate meaning.

The studies also indicate that these results have a positive influence on the acquisition of the target language. In addition to the types of interactional modifications (IMs) that the learners use in the negotiation of meaning, the use of certain types of communication tasks seems to play an important role in how to increase the quantity and quality of interactions among learners as suggested by Gass and Varonis (1985) and Pica, Kanagy, and Falodun (1993). Such a role is believed to affect the effectiveness of language acquisition.

In addition to providing L2 practice, the Internet also provides opportunities for the learners to expand the use of the target language outside the classroom setting, and connects them with either native speakers (NS) or other non-native speakers (NNS) who are learning the target language. This real-life setting enables the learners to practice producing the authentic language. It has been noted that although many Indonesians receive many years of formal English instruction in junior and senior high school, there is very little opportunity for them to comprehend or produce the language as it is used in day-to-day or academic situations. The accessibility of the Internet through Internet cafes in various cities in Indonesia at affordable costs (see UNDP–APDIP, 2002) creates opportunities for students to communicate with the rest of the world using international languages like English and expand the scope of English learning within and outside the classroom setting.

By considering the positive results of studies on the effect of CMC interactions on L2 production as well as the growth and popularity of Internet usage in Indonesia, this study focuses on comparing certain communication tasks for IMs, which have been shown to promote L2 acquisition. In particular, this study compares two L2 communication tasks, namely jigsaw and decision-making tasks, conducted in NNS-NNS dyad interactions between Indonesian students studying English as a foreign language. The study aims to focus on three issues: (1) the frequency of each interactional modification used by subjects when engaged in the jigsaw and decision-making tasks in synchronous CMC, (2) whether different tasks influence the frequency of IMs used, and (3) the motives and factors involved in using IMs in the tasks.

It is hoped that by focusing on certain aspects of IMs, communication tasks, and dyad combination, this study may contribute some ideas about how to make use of Internet technology to supplement and expand face-to-face classroom communication materials to authentic day-to-day English in Indonesia or other countries with similar situations.

LITERATURE REVIEW

Negotiation of Meaning and its Potentials for Language Acquisition

The process of negotiation of meaning starts when there is a communication blockage in an interaction between two interlocutors. When one interlocutor poses a question or comment, or gives a look indicating that he or she does not understand the other interlocutor's previous message, it implies that the other interlocutor has not successfully conveyed his or her message and a communication blockage has occurred. The other interlocutor, in response to this blockage, may choose several different types of IMs to make his or her message more comprehensible to his or her interaction partner.

Gass and Varonis (1982, 1985) proposed a model of negotiation of meaning to describe the process. There are four components in the model: a Trigger (T), an Indicator (I), a Response (R), and a Reaction to the Response (RR). This model was specifically designed to describe the interactions in NNS-NNS discourse.

The positive influence of interactions in facilitating second language acquisition in face-to-face/non-CMC settings has been widely discussed. Long (1996, cited in Gass & Selinker, 2001, p. 294) proposed the idea of the *interaction*

hypothesis, in which negotiation of meaning that triggers interactional modifications facilitates acquisition in a way that it intertwines "input, internal learners capacities, particularly selective attention, and output in productive ways." Pica (1994) is supportive of Long's position that negotiation can make input more comprehensible for learners, help them modify their own output, and provide opportunities for them to edit their target language (L2) production, particularly in form and meaning (p. 520).

In terms of the use of interaction by non-native speakers of English, a study by Gass and Varonis (1985) suggests that NNS-NNS dyads "offer NNSs the greatest opportunity to receive comprehensible input and produce comprehensible output through negotiation" (p. 161). Swain (1985), in her study of grammatical acquisition through negotiation of meaning, and Smith (2004), with his study of the relationship between lexical item acquisition and interactional modifications, also reported the positive influence of such negotiation of meaning in interactions.

In a CMC environment, several studies have been conducted to explore and investigate the nature of interaction. Kitade (2000) found in her study of Internet chatting of 12 Japanese learners that the opportunities to interact, to negotiate meaning, and to learn collaboratively provide ideal conditions for acquiring a second language. A similar conclusion is also suggested in studies by Fernández-García & Martínez-Arbelaiz (2002), Lee (2002), Kotter (2003), Tudini (2003), Smith (2004), Jepson (2005), and Lai and Zhao (2006), particularly in the ability of CMC to provide opportunities to engage in a meaningful interaction that is positive for second language acquisition. The results of the studies by Lee (2002) and Kotter (2003) confirm the potential of such IMs to develop learners' language competence. The data in Lee's study confirms that the use of IMs as interactive strategies assists learners to comprehend input and output, and she suggested that it might promote L2 learning or help improve learners'

language skills. Although the results in Kotter's study did not allow any firm conclusions about the effects of learners' engagements in the negotiation of meaning on the development of learners' L2 competence, it shows that the abundance of IMs promoted noticeable language production during interactions, and that there is a difference in frequencies of IMs in CMC and face-to-face environments, possibly due to a number of medium-specific factors (spoken vs. Internet-based communications). Specifically related to the issue of learners noticing their language production, the study of Lai and Zhao (2006) asserts that text-based online chatting promotes more than face-to-face conversations, especially in terms of learners' recognition of their own linguistic mistakes.

The results of studies by Kitade (2000) and Tudini (2003) indicate that lexical and structural difficulties in the learners' interactions trigger most negotiations. The study that Smith (2004) conducted investigated the correlation between the negotiated interactions and lexical acquisitions in NNS-NNS discourse within a CMC environment. His findings showed that his subjects retained impressive short- and middle-term lexical gains of previously unknown words. This finding is particularly supportive of the claim that interactions in a CMC environment: (a) provide an environment for learners to negotiate meanings successfully, and (b) trigger the attention of learners in the form of their language production, which are both considered to have positive effects on the acquisition of a new language (Pica, 1994; Long, 1996, cited in Gass & Selinker, 2001).

Categorization of Interactional Modifications

Gass and Selinker (2001) listed three forms of IMs which Long (1980, cited in Gass & Selinker, 2001) found to be used in conversations involving NNSs. These three forms are confirmation check, clarification request, and comprehension check.

In addition to these forms of IMs, Long (1981) noticed other ways of overcoming problems during interactions between NS-NNS. He found that NSs will likely simplify and shorten the conversation topics when they need to communicate with NNS, drop a topic altogether when communication breakdowns occur, ask lots of questions, give imperatives, use many of the clarification devices to follow up the misunderstanding, as well as repeat, restate, and decompose the topics into several sub-topics—all in an effort to avoid communication breakdowns or assist understanding in communicating with NNSs.

In a CMC environment, Lee (2002) explores and compares the types of IMs in a CMC environment with the ones in a face-to-face environment. The results of her study show the categorizations of modification devices used in a CMC environment, which consists of nine categories of modification devices (comprehension check, confirmation check, clarification check, request for help, self-correction, use of English, topic shift, use of approximation, and use of keyboard symbols as discourse markers). The results of the study also show that the participants of the study used communication devices similar to those observed during face-to-face communication in previous studies.

A more recent study that also presents a categorization of IMs is a study by Kotter (2003) on collaborative projects between English and German learners in a synchronous CMC environment. One of the results of his study is the development of a "more coherent classificatory system" of IMs based on previous work in the field of interaction, which consists of seven categories: confirmation check, clarification request, comprehension check, recast (implicit error correction), overt indication of understanding, overt indication of agreement, and overt indication of non-agreement.

This study uses the categorization of IMs that is a combination of a list of IMs analyzed in two studies on Internet chatting, one by Lee (2002) and the other by Kotter (2003). The studies were selected because those studies were conducted specifically in a CMC environment and generally expanded the forms of modifications that were found in a face-to-face environment (such as studies by Gass & Selinker, 2001; Duff, 1986).

Tasks that Promote Interaction Modifications

In a face-to-face environment, Pica, Kanagy, and Falodun (1993) reviewed some empirical studies on the different communication tasks that have shown to have significant roles in promoting interactions among learners based on their features. They also suggest how different tasks can be used for research and teaching purposes. They argue that in terms of pedagogical purposes, based on different task features, the different tasks can be selected for more effective language learning for certain learners, certain situations, and certain learning goals. In terms of research purposes, different tasks can be used to acquire samples and evidence of certain language production features to promote interactions, which in the end support second language acquisition. Similarly, Chapelle (2003) argues that the aim of L2 task research is to explain tasks in such a way that they can help teachers and researchers select and build tasks that will bring the desired results when they are used in research studies or in classes.

Based on the relationship between interlocutors and the requirements for communicating the information to achieve the goals of the task, Pica et al. (1993) categorize communication tasks into five types: jigsaw, information-gap, problem solving, decision making, and opinion exchange tasks. They also discussed the relationship between interlocutors; the roles of the interlocutors as the holder, the requester, or the supplier of information, and their relationship; the requirements for interaction in the task: whether interaction is required (+) or not to meet the goal of the task; the orientation of the goal or whether the interlocutors share the same goal (+ convergent) or not; and the possible

outcome generated from the task or whether it is possible for the interlocutors to have one (1) or more outcomes (1+) in the completion of the task. They also illustrate that each task has a different level of effectiveness in providing learners with environments and activities in which they can collaborate toward comprehension, feedback, and inter-language modifications. By changing one of the elements in the category, teachers can adjust the level of effectiveness in providing opportunities for students to interact in seeking comprehensible input and modify their output for communication according to the needs of the learners in learning and the classroom situation.

Comparing Tasks

In a review of previous empirical studies in second language acquisition regarding communication tasks in a language-learning classroom, Pica et al. (1993) suggest that different task types are expected to have different degrees of effectiveness in classroom language learning. Based on the research findings that focus on task types, they expect that "jigsaw and informational-gap tasks would provide the greatest opportunity for students to interact in seeking comprehensible input, so they can modify their output for communication" (p. 31). Contrasting these types of tasks with traditional classroom interaction in which students have limited time to practice speaking, the tasks maximize their opportunities to use the target language through the process of comprehending, negotiating, and modifying the information that they have. These tasks also enable them to use the target language in a more authentic situation where they are required to communicate and interact to achieve the communication goal.

Numerous studies in the field of system sciences have been conducted to explore the differences in technology (CMC vs. face-to-face interaction) in group work and its effect on task effectiveness. The focus of these studies is mostly related to the use of Group System Support (GSS) in collaborative activities. Group System Support is defined by Salo and Gustafsson (2004) as the use of a multi-user computer environment that is designed to support collaborative work.

Abad, Castellá, Cuenca, and Navarro (2002) mentioned in their literature review that many studies indicate the different processes that groups went through due to the different types of technology used in the interaction. The main findings of these studies suggest that groups that communicate electronically focus more on activities related to the task than groups that communicate face-to-face, take more time in completing the task, and have more problems to reach a consensus; also, electronic interaction enables the group members to participate equally in the task. Further, they found in the study by McGrath and Hollingshead (1994) that the technology interacts with the type of task the group has to carry out. In this study, it was found that computer-supported groups had a higher quality level on idea generation tasks, whereas face-to-face groups had a higher quality level in intellective and negotiation tasks. They also found in the study by McGrath and Berdahl (1998) that, as time passes, the group acquires experience in using the medium, adapting to its objective characteristics and developing new strategies for carrying out the task.

In terms of strategies in carrying out the task, Condon and Cech (1996) found that participants in both the face-to-face and computer-mediated discourses seemed to depend on the routine decisions and other common routine structures such as adjacency pairs. Differences between the two discourses occurred primarily in use of discourse management strategies. The participants in the computer-mediated discourse eliminated unnecessary elaborations and repetitions, and they dedicated more linguistic forms to orientation and other managerial functions. In contrast, participants in the face-to-face discourse relied on discourse markers and short oriented phrases to perform much of this work. Their results are

also consistent with those of McGrath and Hollingshead (1994) that CMC provides opportunities for participants to focus on more efficient decision making.

Another study that compares face-to-face communication with computer-supported communication in group work is a study by Fjermestad and Hiltz (1998), who summarize and analyze 100 experiments that compared the use of GSS (in which the subjects were in a multi-user computer environment and used computer-mediated communication to work collaboratively) to a face-to-face communication mode. The results suggest that the use of computer-mediated communication improves decision quality, depth of analysis, equality of participation, and overall satisfaction compared with the face-to-face method. Consistent with previous studies, in terms of tasks, their conclusion suggests that GSS (in which the subjects were using computer-mediated communication) is highly effective in decision-making types of tasks, whereas the face-to-face method is more positive for idea generation types of tasks.

Based on the review of Pica et al. (1993), two studies on the CMC environment compared the use of certain tasks. Blake (2000), who used jigsaw, information-gap, and decision-making tasks, examined the suggestion that jigsaw and information-gap tasks are superior to other types of tasks. Using 50 NNS students involved in CMC activities, the findings of this study confirmed the previous study findings that jigsaw tasks proved superior to other types of tasks (e.g., information gap, decision-making, opinion tasks) to stimulate the students to focus on form or to focus on the gaps of their inter-language production as Pica et al. had predicted. However, the same cannot be said of information gap tasks.

Contrary to previous studies, the results of a study by Sauro (2001), which compared the use of two tasks, namely jigsaw and decision-making tasks in four NS-NNS dyads, show that the jigsaw task did not lead to a greater number

of interaction modifications. Nevertheless, this study found from the participants' feedback that the task difficulty, content, the types of answers expected, and task familiarity contribute to the need for negotiation.

MAIN FOCUS

Purpose of Study

This study examines Internet chatting interactions between 28 college-level Indonesian non-native speakers (NNSs) of English using two different communicative language tasks, a jigsaw task, and a decision-making task, which are believed to facilitate language acquisition, and how the differences in tasks may generate different frequencies and types of IMs. The selection of these two tasks is based on a study of Pica et al. (1993), who expected that jigsaw and information-gap tasks would provide the greatest opportunity for students to interact and focus on their input comprehension and output production, and that decision-making tasks are more effective than opinion-exchange tasks, due to the greater number of turns and questions generated during the tasks. In a CMC environment, the selection of these two tasks is based on a study by Blake (2000), who used jigsaw, information-gap, and decision-making tasks to test the claim by Pica et al. (1993), and Sauro (2001), who compared the use of jigsaw and decision-making tasks. The findings of these two studies are considered contrary to each other. Blake's findings confirmed the previous study that jigsaw tasks are more conducive in providing a stimulus for helping the students to pay attention to the gaps in their inter-language production compared to other types of tasks (e.g., information gap, decision-making, and opinion tasks), while Sauro's findings showed that the jigsaw task did not lead to a greater number of interaction modifications. Rather, Sauro's findings asserted that the decision-making task was easier to comprehend

and complete than the jigsaw task. This study, therefore, is in nature similar to Sauro's study, but focuses on the use of the two tasks in a CMC environment among NNSs in Indonesia. The use of different subjects may generate different results compared to those previous studies.

Setting of the Research

Tasks

The tasks employed in this study were taken from several previous studies, keeping in mind the characteristics of jigsaw and decision-making tasks as outlined by Pica et al. (1993). For the jigsaw task, the activity selected was a picture story, very much like that described by Pica, Lin-coln-Potter, Paninos, and Linnell (1996). In this task, each interlocutor in the dyad was given five different pictures (taken from Choe, 2000), each describing an event in a story. The goal was to create a complete story in a certain limited period of time. For the decision-making task, the activity selected was Desert Island from Duff (1986). In this task, the interlocutors in each dyad had to agree on certain items to be brought to a desert island in order to survive after a shipwreck. Both activities correspond to the characteristics of their task type as outlined by Pica et al. (1993).

Categorization of IMs

This study used the categorization of IMs that were selected and adapted from a list of IMs

Table 1. Categorization of IMs

	Interactional Modification Type	Definitions of IM
1.	Confirmation check (Kotter)	A speaker's attempt to confirm that he has understood an utterance via the (partial) paraphrase (as opposed to repetition, see below) of this turn, which can simply be answered with Yes or No.
2.	Clarification request (Kotter)	An explicit demand for an elaboration or a reformulation of an idea, which "requires a rerun of the troublesome utterance" in question.
3.	Comprehension check (Kotter)	A speaker's attempt to prompt another speaker to acknowledge that he has understood a particular utterance.
4.	Repetition (Kotter)	The repetition, in isolation, of part of or an entire erroneous or otherwise problematic utterance.
5.	Self-correction (Lee)	To correct errors made on lexical items or grammatical structure.
6.	Other-correction/recast (Kotter)	A form-focused partner-related target-like reformulation of all or part of an incorrect utterance.
7.	Overt indication of understanding (Kotter)	An overt indication that a speaker has understood a particular message.
8.	Over indication of agreement (Kotter)	An overt indication that a speaker agrees with what his partner said.
9.	Overt indication of non-agreement (Kotter)	An overt indication that a speaker does not agree with what his partner said.
10.	Use of Indonesian (adaptation, Lee)	To use Indonesian to substitute words or ideas in English.
11.	Use of keyboard symbols as discourse markers (Lee)	To signal for uncertainty or to confirm an idea or agreement.

analyzed in two studies on Internet chatting, one by Lee (2002) and the other by Kotter (2003) (presented in Table 1). The only modification to the categorization was the use of the native language. The use of English to substitute words or ideas in Spanish by Lee was changed to the use of Indonesian or other languages to substitute for words and ideas in English to reflect the native language background of the subjects.

Participants

The participants in this study are limited to EFL students of Indonesian nationality at the college level. All of the subjects of this study were recruited from students of the English Department of Satya Wacana Christian University, Salatiga, Indonesia, and their involvement in this study was on a voluntary basis. Table 2 summarizes the background of the subjects in terms of language and computer usage.

Methods of Data Collection and Analysis

The data collection was conducted in a computer lab at Satya Wacana Christian University. The computers in the lab meet the minimum requirement of running MSN Messenger, an Internet messaging service provided by Microsoft Network, which is the chatting software selected for this study. Each subject was given an anonymous login for the chatting software. Each subject was then paired with another subject based on his or her English proficiency background.

The data collection was conducted in two sessions of different tasks in two separate days with a 24-hour interval in between. So on one day, half of the subjects did the jigsaw task, while the other half worked on the decision-making task. On the following day they swapped tasks.

In the first session of each data collection round, each subject was given a login name and was then sent to his or her designated computer table. The subjects in each dyad were separated

Table 2. Summary of subjects' background

Number of subjects	28	
Gender	Male	5
	Female	23
Age	19-28 years old	
Native language	Indonesian	22
	Javanese	2
	Both	4
English language proficiency: all received six years of English grammar in high school	+ 2 years (college, intensive English)	11
	+ 3 years (college, intensive English)	6
	+ 4 years or more (college, intensive English)	11
Hours of computer usage/day	0-1 hours	5
	2-4 hours	12
	5-8 hours	10
	more than 8 hours	3
Internet chatting software user	Yes	27
	No	1

from each other by at least two rows to ensure that they would only communicate through the IM software. Each subject was also required to fill in the pre-task questionnaire. After that, the subjects were engaged in tasks specified for their dyad. In the jigsaw task, each subject in a dyad was given five random pictures. In the decision-making task, the subjects reviewed a Web site that provided the instructions for the task. In each task, the subjects were given 15 minutes to review the pictures (in the jigsaw task) or the situation (in the decision-making task). Then they were allowed 60 minutes to complete the task. On the following day, upon completion of the tasks, the subjects filled out a post-task questionnaire.

This study elicited both qualitative and quantitative data. The qualitative data was taken from the pre-task questionnaires, which dealt with subjects' background, and from the post-task questionnaires, which inquired about the subjects' motives in producing IMs, the factors involved in their production of IMs, and their experience in doing the tasks in dyads.

The quantitative data was taken from the transcripts of the chatting conversations of 14 dyads (recorded by the chatting software). The number of words and turns that subjects produced and the frequency of IM occurrences in the transcript were tagged and calculated by two raters. The inter-rater reliability was 95.91%. A paired t-test was also done to provide a finer calculation on the significant differences of the frequencies of IM occurrences between the two tasks.

SUMMARY OF FINDINGS

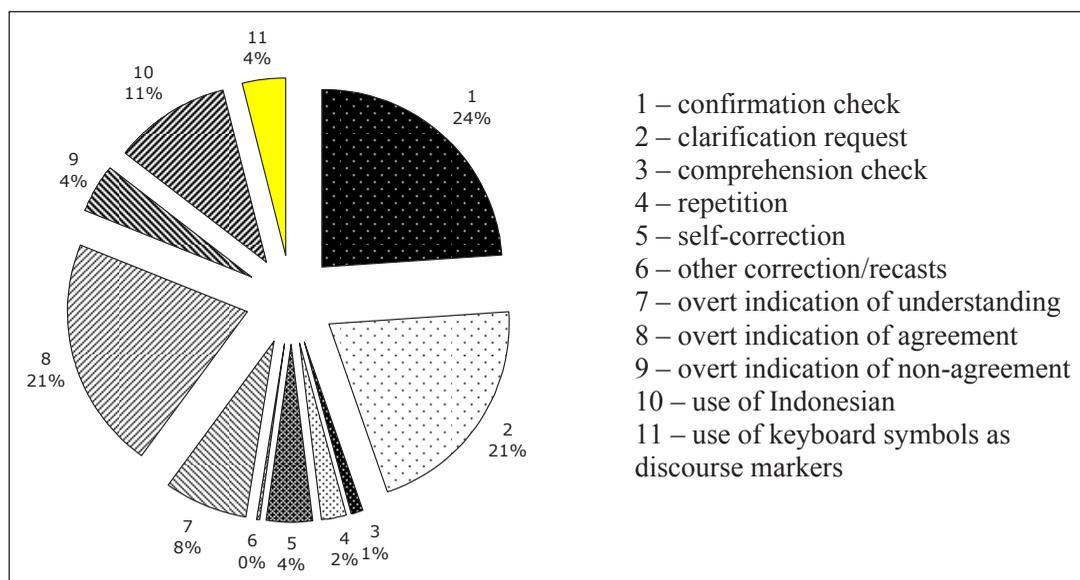The three specific research questions posed in this study are:

1. What is the frequency of each interactional modification used by subjects when engaged in the jigsaw and decision-making tasks (hereinafter referred to as JST and DMT respectively) in synchronous CMC?

2. Do the different task types (JST vs. DMT) generate different frequencies for the interactional modification types?

3. What are the motives behind the interactional modifications used? What factors are involved in using different interactional modifications?

First, in order to answer the question about IM type of frequency in research questions 2 and 3, it is necessary to provide an overview of the amount of language produced in each task. The results of the total word production analysis in each task showed that the JST produced more words than the DMT (15,138 words vs. 12,323 words respectively). The analysis of average word production per turn in each task had similar results. A paired t-test analysis confirmed that difference was statistically significant for total word production in each task (t=2.800654, df=13, p<0.05). One explanation for this difference was the difference in the giving and sharing of information in each task. Subjects may have produced more words in the JST because it involved providing elaborate descriptions of pictures. It is thus reasonable to expect more word production in the JST.

On the contrary, the results of total turns for each task shows that the DMT produced more turns than the JST (236.3571 vs. 213.3571 average number of turns per dyad respectively). A paired t-test analysis, however, did not confirm that the difference was statistically significant for total turn production in each task (t=1.31774, df=13, p<0.05). One explanation for this finding was the nature of interaction in the DMT, which emphasizes argumentation and giving rationales in selecting certain items. Thus, it is possible that the flow of turn-taking was more frequent. In terms of total turn production, the results of this study are similar to Sauro's study (2001), in which there is no significant difference in the average total turn production in the two tasks. It is possible that the differences in the tasks themselves account for the differences in the results of the study.

Figure 1. The percentage of each IM in both tasks

1 – confirmation check
2 – clarification request
3 – comprehension check
4 – repetition
5 – self-correction
6 – other correction/recasts
7 – overt indication of understanding
8 – overt indication of agreement
9 – overt indication of non-agreement
10 – use of Indonesian
11 – use of keyboard symbols as discourse markers

Overall Frequency and Types of Interactional Modifications

The study's first research question investigated the frequency and the type of IMs that occurred in both tasks combined. Confirmation checks occurred the most frequently, followed by overt indications of agreement and clarification requests. Although the use of Indonesian to replace ideas or words in English occurred quite frequently, this IM type was not considered as notable since it occurred as a result of an idiosyncrasy of one dyad. Figure 1 presents the percentage of each IM in both tasks.

Comparison of Interactional Modification Production in each Task

The second research question broke down the production of IMs according to both tasks and dyads. This analysis was done to determine whether or not there was a difference between the two tasks in producing IMs and the consistency in usage across the dyads.

IM Production by Task

The results of IM production by task suggest that the DMT generates more occurrences of each IM. For five IM types, there were large differences in frequency between the two tasks. These five IMs with notable differences include clarification requests, overt indications of agreement, the use of Indonesian, confirmation checks, overt indications of understanding, and overt indications of non-agreement. Table 3 presents the frequency of IMs in each task.

The difference in the total number of clarification requests for the two tasks was 109, which was the greatest among the IM types. This result is similar to the results of a study by Jepson (2005) which shows that clarification types of requests are used more often than other repair moves. However, an analysis of the transcript reveals no clear and conclusive explanation why such a difference in frequency exists. Both tasks permitted the partners to clarify certain information supplied by one interlocutor. The difference is in the typical wh– questions produced in each task. In the JST, clarification requests typically

Table 3. Frequency of IMs in each task (n = 14)

	IM	Jigsaw	Decision Making	Difference	
1	Clarification request	77	186	109	(DMT)
2	Overt indication of agreement	84	180	96	(DMT)
3	Use of Indonesian	104	31	-73	(JST)
4	Confirmation check	126	172	46	(DMT)
5	Overt indication of understanding	67	29	-38	(JST)
6	Overt indication of non-agreement	15	39	24	(DMT)
7	Self-correction	23	31	8	(DMT)
8	Use of keyboard symbols as discourse markers	26	21	-5	(JST)
9	Repetition	11	16	5	(DMT)
10	Comprehension check	9	5	-4	(JST)
11	Other-correction/recast	1	0	-1	(JST)
	Total	543	710	167	(DMT)

took the form of wh–questions that dealt with the picture description, usually "what" and "where" questions. In the DMT, the typical wh– question involved the use of "why" questions, aimed to test and evaluate one interlocutor's arguments to select certain items from the list.

In the case of overt indication of agreement, which had the second highest difference in frequency between the two tasks, the goal of the task is to agree on certain items to be selected, so it was reasonable if agreement occurred more frequently in DMT than in JST. This explanation may also be applicable for differences in frequency for overt indications of non-agreement. In the JST, although both subjects needed to agree on the relationship of the events, this was only half of the requirement of the task. In this case, the nature of the task activities resulted in differences in the frequency of occurrences of overt indications of agreement and non-agreement.

It is interesting to note that although the number of frequency differences between the two tasks was the third highest for the IMs involving the use of Indonesian for expressing ideas or words

between the tasks, such differences may be considered idiosyncratic because they were the result of a great number of occurrences of this IM type in dyad 05-25 (92 occurrences) when doing the JST. In other dyads, the average frequency of this type of IM was only 0.92 (in the JST, excluding dyad 05-25) and 2.21 (in the DMT). A closer inspection of the transcript reveals that one of the subjects in this dyad experienced frequent network problems, which led the dyad members to decide not to use English in the last 38 minutes of their conversation, for fear of running out of time and not being able to complete the task.

The IM with the fourth greatest difference in frequency between the two tasks was confirmation checks. The table indicates that confirmation check occurred more frequently in the DMT. A closer inspection of the transcript revealed that most of the confirmation checks that occurred in the DMT had three functions: (1) to confirm the selection of certain items on the list, (2) to indirectly disagree with a partner's argument about a selected item or about the logic of the other subject in selecting certain items on the list, or (3)

to defend one's position in selecting certain items. Since agreement in choosing certain items is the goal of this task, such agreement is instrumental to the success of a dyad in doing the task, and it was important that both subjects in the dyad agreed on individual items. The conversation in Dyad 9-29 below illustrates the occurrences of confirmation checks and their various functions (no alterations on the transcript; all misspellings are originally produced by the subjects):

1. Subject29: i thought
2. Subject29: frozen meat, dried vegetables, and cannes beans
3. Subject29: we can get calories from meat
4. Subject29: protein from vegetables
5. Subject29: carbohidrat from beans
6. Subject09: I thought of frozen meat also
7. Subject09: wow, you are a health expert!
8. Subject29: okay
9. Subject29: and?
10. Subject09: but don't you think we can get fresh vegetables from the island? (*Indirect disagreement/function 2*)
11. Subject09: anf fresh fruits? (*Indirect disagreement/function 2*)
12. Subject29: o yes
13. Subject29: you are right
14. Subject09: so we don't really need dried vegetables nad fruits? (*Confirmation check/function 1*)
15. Subject29: i never thought it before
16. Subject09: and
17. Subject09: so?
18. Subject29: so we need dried soup instead ya? (*Position defense/function 3*)
19. Subject09: frozen meat
20. Subject09: do you agree dry soup? (*Confirmation/function 1*)
21. Subject29: frozen meat, dry soup, and…

In lines 10 and 11, Subject 09 signaled her disagreement of the selection of dried vegetables as Subject 29 suggested in line 2, but instead of

directly disagreeing with this selection by using an overt indication of non-agreement, she chose to indicate the disagreement by presenting an argument of the availability of similar vegetables and fruits in a fresh condition on the island. Once Subject 29 agreed to remove dried vegetables from the selection (lines 12 and 13), Subject 09 confirmed Subject 29's decision once again (line 14), indirectly suggested another item to be selected—that is, dried soup (line 18)—and then inquired again twice (lines 18, 20) if the selection of dried soup was confirmed and agreed upon. As can be seen from the transcript, in order to agree on one item (i.e., dried soup), Subject 09 needed to confirm her partner's agreement more than once. This may be an explanation for why there are more occurrences of confirmation checks in the DMT.

In the JST, the occurrences of confirmation checks were not as frequent as the ones in the DMT; moreover, they were usually for the purpose of confirming understanding and or correlation of one subject's opinion about a picture that his or her partner had. Once this was confirmed, the conversation could proceed to another topic. Sometimes, when there was no correlation, the interlocutor would solicit another confirmation check to further check on the details of the pictures. In the conversation of Dyad 4-24 below, the subjects used confirmation checks to test their assumptions about the correlation between their individual pictures (no alterations on the transcript; all misspellings are originally produced by the subjects):

22. Subject04: mine is the one with many people walking up the hill
23. Subject04: carrying their luggage
24. Subject24: if so, let me check..
25. Subject24: the hill is very narrow?? (*Confirmation check*)
26. Subject04: yup an dvery steep also
27. Subject24: with some trees (leaves) in the sides? (*Confirmation check*)

28. Subject04: Yeah
29. Subject04: mine is almost on the top of the hill
30. Subject24: great then
31. Subject24: well, in mine, there's a grandpa pointing down to a village (from the hill)
32. Subject04: my other one is a man looking at a map, i suppose

From this transcript, the process of using confirmation check (lines 25 and 27) to confirm the relationship between the pictures held by the subjects was not as lengthy as in the DMT. Once the assumed understanding of the relationship among the pictures was confirmed (lines 26 and 28) by Subject 04, Subject 24 clearly signaled her understanding (line 30) and added information about her picture (line 31). After that, Subject 04 proceeded to the next picture that she had. There were also a few occurrences of confirmation checks in the JST to confirm the assumed motive of the actors in the pictures. Again, once this assumption was confirmed, the conversation usually proceeded to the next topic. Since understanding the pictures and their connection is only part of the goal of the JST, it may be safe to say that the different goals of the tasks contributed to the differences in frequency for the confirmation checks in the tasks.

In the case of overt indications of understanding, the nature of the tasks seems to contribute to the differences in frequency occurrences for this type of IM. The JST requires one interlocutor to describe the pictures that he or she has. Therefore, it is necessary for the other interlocutor to signal his or her understanding of the pictorial description by providing an overt indication of understanding in order to avoid communication blocks. The description of a picture could include an explanation of a lexical item, an event, or a relationship between events.

In the DMT, since both interlocutors held the same kind of information, there was no need to understand another interlocutor's information to complete the task. Common occurrences of overt indications of understanding occurred, like when one interlocutor needed to understand the reasoning of another interlocutor in choosing a certain item to be brought to the island or when they signaled lexical comprehension (for instance, on a description or explanation of an item).

IM Production by Task for each Dyad

In regards to IM production in each dyad, both the results of the descriptive statistical analysis and the inferential statistical test suggested that there is a statistically significant difference between the two tasks in generating IMs in each dyad. Table 4 shows the IM production in each dyad for both of the tasks and reveals that the decision task generated more IM production in 11 out of the 14 dyads. The comparison of IM averages for the jigsaw and DMTs yielded a significant difference (t=3.35003, df =12, p<0.05). Specifically, similar to a previous study by Sauro (2001), the results indicate that the dyads produced more IMs in the DMT.

Taking into account the experiences of the subjects as reflected in their answers on the post-task questionnaires, 23 out of 28 subjects considered the JST to be more difficult than the DMT. Some reasons why this task is considered more difficult by the subjects are the requirements of the task, quality of the pictures, time limitation in doing the task, the medium that the task had to be done in (e.g., written vs. spoken), frequent occurrences of misunderstandings between partners, English proficiency level, and personal preference of the type of tasks. From this answer, it can be assumed that if the JST was truly difficult, greater IM production should be expected in the JST than in the DMT. However, the comparison of IM production frequency in the two tasks does not support this assumption. Although the subjects felt that the JST was more difficult than the DMT, this perception of difficulty level was not reflected in the production of IMs.

Table 4. Total IM production per dyad

Dyad	Jigsaw	Decision Making	Difference	
19-39	27	77	50	(DMT)
9-29	19	66	47	(DMT)
16-36	61	94	33	(DMT)
3-23	27	57	30	(DMT)
15-35	21	47	26	(DMT)
7-27	39	65	26	(DMT)
14-34	30	50	20	(DMT)
8-28	36	47	11	(DMT)
6-26	3	11	8	(DMT)
17-37	38	45	7	(DMT)
2-22	23	30	7	(DMT)
12-32	43	37	-6	(JST)
4-24	58	52	-6	(JST)
5-25	118	32	-86	(JST)
Average per Dyad	32.69231	52.15385		(DMT)

In sum, there are several explanations for the differences in IM frequency of the two tasks: (1) the nature and the requirements of the task (whether it is the kind of task that requires a pictorial description or an argumentative conversation), (2) the need to supply information when requested, and (3) idiosyncrasy (as in the case of the use of Indonesian by dyad 05-25). Although the results suggest that there is no great difference in the frequency of certain types of IMs, it is interesting to note that when great differences occurred, those differences occurred mostly in the IM types in which the DMT produced more frequent occurrences (i.e., in clarification requests, overt indication of agreement, confirmation check, and overt indication of non-agreement; except the use of Indonesian). This may be due to the method of identifying the IMs in the transcript. An individual IM was usually identified as a turn. In the JST, the utterances were usually longer per turn, whereas in the DMT they were usually shorter. As the DMT generated more turns than the JST, it is possible that the frequency of IM production in the DMT was greater than the JST.

Motives and Factors Involved in IM Production

The third research question aimed at exploring the motives and factors in producing IMs. This analysis reveals that the need for understanding was an instrumental factor in the subjects' decision to produce an IM. Most of the subjects considered the production of IMs to be necessary to understand their partner's message more clearly or to confirm their understanding of their partner's message and such requests for elaboration or repetition can help them understand better, avoid confusion, and confirm their understanding. The production of IMs is also related to the importance of understanding their partner's information correctly in order to proceed to the next question and to accomplish the goals of the tasks.

Interestingly, the medium in which the subjects are engaged (i.e., written medium of Internet chatting) affected the decision to produce IMs. When the subjects are deprived of using non-verbal communication as available in face-

to-face communication, they are limited in how to convey misunderstandings and thus can only do so explicitly—through IMs—as opposed to implicitly through non-verbal communication.

However, there was also a chance that when they encountered communication problems, they would decide not to produce an IM to indicate the problem. One of the explanations for such a decision is because the time given for them to do the task was limited. This time factor can also be related to the possibility that finding a solution to a communication breakdown was not very crucial in accomplishing the task or not related to the task. In such an instance, the subjects deliberately did not request more elaboration about the problematic message. Some of the subjects also viewed using IMs as a disruption to the flow of their work in accomplishing the goals of the tasks. Two other reasons for not producing an IM when the subject did not understand his or her partner's message were: (1) the complicated nature of the task, and (2) the rapid speed of a partner's comments/response.

To sum up the overall study, the findings of the study show that in both combined tasks, confirmation checks occurred the most frequently, followed by overt indications of agreement and clarification requests. Although the use of Indonesian to replace ideas or words in English occurred quite frequently, this IM type was not considered as notable since it occurred as a result of an idiosyncrasy of one dyad. Second, the study found that the DMT generates more occurrences of each IM. For five IM types (clarification requests, overt indications of agreement, the use of Indonesian, confirmation checks, overt indications of understanding, and overt indications of non-agreement), there were large differences in frequency between the two tasks, which may due to: (1) the nature and the requirements of the tasks (whether the task requires a description or argumentation), (2) the importance of the information being supplied, and (3) an idiosyncrasy. Third, in exploring the motives and factors in

producing IMs, the analysis reveals that the need for understanding was an instrumental factor in the subjects' decision to produce an IM. This result was not surprising because understanding was important to the success in achieving the goals of the tasks. Other factors involved in the production of IMs were the time dedicated to doing the tasks and the medium.

FUTURE TRENDS

So far, the findings of this study have examined the differences between the jigsaw and decision-making tasks in the generation of IM types in NNS-NNS dyads in a controlled computer lab environment. However, one of the limitations of this study is that it was conducted in a non-naturally occurring language classroom. If the tasks were integrated in a course, the subjects involved in the study might take the tasks more seriously and provide an opportunity to test the tasks in a natural setting. For instance, the teacher can assign students to work collaboratively in a project with students of other similar classes in other universities outside of the class (in Internet cafes). Such telecollaboration has been explored in other studies and is getting more and more popular (see Belz, 2002, 2003, who discussed the social, cultural, and linguistics dimensions of telecollaboration projects; and O'Dowd & Eberbach, 2004, who offered some guidelines for teachers in engaging their students in telecollaborative projects). With the use of a project as an assessment, the students may take the tasks in a more serious manner and have a sense of responsibility and fixed purpose to make the online communication more effective in order to successfully accomplish the requirements of the project. The use of a project as an assessment may also solve the problem of the authenticity of the tasks that this study encountered. Instead of engaging students in "make-believe" tasks with no specific objectives, the students' interactions through

Internet chatting to discuss the project might be more meaningful and authentic. Through careful design of telecollaborative projects, teachers may also be able to incorporate features of jigsaw and decision-making tasks, and thus provide opportunities for students to produce IMs.

One of the setbacks of this integration of tasks in a normal learning/teaching context is that some students in Indonesia might feel that this outside-of-class activity would create an additional cost for an Internet connection. Data from the APDIP ICT Country Profile for Indonesia (UNDP–APDIP, 2002) reported that the cost of an Internet connection through Internet cafes ranges from US$0.30 to $1.00 per hour, and even more if using private Internet service providers (US$1.00 to $2.00 per hour). In this case, the teacher may still be required to provide Internet access in a computer lab during normal class periods, as the cost of an Internet connection will be billed to the school administration (about US$0.50/student/month, far cheaper than personal access to the Internet).

Once this collaborative project is set up, it will be possible to conduct research about the occurrences of IMs in a more natural setting (for instance, in Internet cafes or outside of class). When such a study is conducted, a system of recording the transcripts of online communication needs to be carefully set up and agreed upon with the subjects, because the researcher will be technically dependent on the subjects in terms of collecting transcripts. It is also important to conduct an initial survey on the subjects' familiarity with the IM software and to determine a time when they feel most comfortable doing the Internet chatting. Information from such a survey would be invaluable in setting up the study. It will also be useful to have a control group in which the subjects are engaged in face-to-face interaction. The results of that group can be compared with the results of a study similar to this one to actually explore whether differences in the communication medium affect the negotiation of meaning.

CONCLUSION AND RECOMMENDATIONS

The intention of this study is to provide a methodology for using the tasks in Indonesia and other countries with similar technology profiles in which an Internet connection is considerably more expensive and not widely available. To do this, it is necessary to keep in mind the following issues for their implementation: the appropriateness of the tasks, technical support, and financial support to develop the tasks.

In terms of task appropriateness, the results of this study suggest that the teachers who want to do either the jigsaw or decision-making task need to consider the purpose of engaging their students in the tasks. When the teacher is more interested in the amount of words produced by his or her students, the JST is probably best-suited for this purpose. When he or she wants the students to practice the use of certain IM types or to encourage more turn-taking, the DMT may be more useful. Selection of the tasks should also consider the nature of the tasks (whether it promotes practice in describing some objects or building argumentative skills) to ensure the appropriateness of the tasks with the purpose of the course. The results of this study also suggest that engagement in the tasks through CMC may provide opportunities for students to practice a foreign language in terms of being engaged in an interaction that is solely conducted in English. As English is treated as a foreign language in Indonesia and some other countries, the opportunity to use English in a natural context is very limited. Internet chatting may be one of the alternatives to give students an arena to practice their English and to expose students to a variety of English used by native speakers of English or non-native speakers from other countries.

The technical implementation of the tasks in a classroom setting remains very problematic in Indonesia. The availability of a stable Internet connection is a prerequisite for conducting the

tasks, but such a connection may not be readily available in many of the classrooms in Indonesia and other countries. Although many colleges in Indonesia may have computer labs, such labs are usually not Internet enabled because the technology is still considered expensive. The cost of the technology may not be the only reason why the adoption of Internet technology in educational institutions is not as rapid as in the other sectors in Indonesia. With the freedom of information access that Internet technology is capable of offering, there is also a fear that students may access information that is not appropriate for them to view. This may lead to the tendency of the administrators in educational institutions to approach the use of this technology with caution and critical perspectives. The technology promises to yield positive effects for pedagogical purposes, but because such effects have not been empirically proven to deliver the effects, the administrators may be reluctant to adopt the technology for their institutions.

Similar studies provide evidence regarding the positive effects of Internet technology for teachers and administrators. This type of study illustrates to teachers how the tasks can be utilized in their classes and can benefit their students. The positive results of this experimental study may persuade academic administrators to start considering the adoption of Internet technology for their institutions. Among the positive results that the administrators need to know and consider in the adoption of Internet technology is the capability of Internet chatting, particularly text-based chatting, to make the students engage in meaningful tasks, to provide more alternative means for students to use English in a less threatening environment. With the difficulty of attracting native speakers of English to teach in Indonesia and some other countries (due to political or financial reasons), Internet communication may also become a solution for the administrators in providing exposure to native speaker use of English.

In sum, to put the Internet technology in practice, cooperation between teachers and administrators is a requirement. The teachers play a role in selecting tasks and activities in an Internet environment that encourage students to gain the fullest benefits of a CMC environment. The administrators play a role in providing technology to support teachers' efforts to help students acquire the target language.

ACKNOWLEDGMENT

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KEY TERMS

Communicative Language Task: A learning activity that gives students an opportunity to communicate in the target language and produce realistic use of the target language with less control from the teacher.

Computer-Mediated Communication: A communication activity that is facilitated by computer technology, whether it is synchronous (e.g., using chatting software or in chat rooms), or asynchronous (e.g., e-mail, forums, blog posts). This communication can be one-to-one communication or one-to-many communication.

Interactional Modifications: Changes to the structure of a conversation to accommodate potential or actual problems of understanding in negotiation of meaning (Long, 1990, in Ellis, 1999).

Interaction Hypothesis: A hypothesis proposed by Long (1996) that conversational interactions in a second language develop the basis for the development of language rather than only a medium for practicing specific language features.

Jigsaw Task: A type of communicative language task, in which the interlocutors must interact and hold different information and take turns in requesting and supplying information in order to achieve only one possible solution for the task.

Negotiation of Meaning: The conversational exchanges that arise when interlocutors seek to prevent a communication impasse from occurring or to remedy an actual impasse that has arisen. These exchanges involve interactional modifications (Ellis, 1999).

Problem-Solving Task: A type of communicative language task, in which the interlocutors have the choice to interact and use the same information provided to find one or more solutions to the task.