CHAPTER 3. METHODOLOGY

The motivation behind the writing of this thesis is the feasibility of using interaction via the computer to supplement learning in Indonesia. Therefore, the selection of some elements in the methodology was based not only on the results of previous studies, but also how such elements can be applied with ease in Indonesia’s classroom setting. This chapter will discuss the tasks, the selected categorization of interactional modifications, the software selected, participants, the key investigators, the methods and the analysis of the data obtained in this study.

Tasks

The Rationale of Task Selection

The selection of the two tasks used in this study, i.e. jigsaw task and decision-making task, is based on the review of communication tasks by Pica, Kanagy, and Falodun (1993) and two studies in CMC environment by Blake (2000) and Sauro (2001) that compared the use of certain tasks.

Pica et al. (1993) categorized the communication tasks into five categories, i.e. jigsaw, information-gap, problem solving, decision-making, and opinion exchange tasks. Although they found no empirical research that show the effectiveness of these tasks for classroom language learning, based on the findings of the research focusing on task types, they expect that jigsaw and information-gap would provide the greatest opportunity for students to interact and focus on their input comprehension and output production. With regard to decision-making and opinion-exchange tasks, Pica et al. (1993) refer to a study by Duff (1986) which concluded that decision-making is a more effective task than an
opinion-exchange task, due to the greater number of turns and questions generated during the task. It is important to note, however, that based on their proposed typology of tasks, Pica et al. (1993) consider the two tasks that Duff studied as decision-making and opinion-exchange tasks, although Duff labeled them as problem solving tasks.

A study by Blake (2000) which used jigsaw, information-gap and decision making tasks, tested the claim by Pica et al. (1993) that jigsaw and information-gap tasks would be superior in the CMC environment. The findings of this study 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 interlanguage production compared to other types of tasks (e.g., information gap, decision-making, opinion tasks). A study by Sauro (2001) compared the use of two tasks, namely jigsaw and decision making tasks and the results of her study showed that the jigsaw task did not lead to a greater amount of interaction modifications. Contrary to prior research, the study proved that the dyads considered the decision-making task to be easier to comprehend and complete than the jigsaw task.

With respect to tasks, this study employs the same type of communication tasks as Sauro’s (2001) study, applied in different chatting software, subjects and chatting environment. The selection of different chatting software, subjects and chatting environment is deliberately made with an assumption that such differences may generate different results from previous studies.

**Task Description**

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):
Table 3.1. Characteristics of Jigsaw and Decision-Making Tasks

<table>
<thead>
<tr>
<th>Jigsaw Task</th>
<th>Decision Making Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interlocutors hold different information and take turns in requesting and supplying information</td>
<td>Interlocutors hold the same information and only supply it when requested.</td>
</tr>
<tr>
<td>Interlocutors have the same goal</td>
<td>Interlocutors have the same goal</td>
</tr>
<tr>
<td>Interaction is required to achieve the goal.</td>
<td>Interaction is optional to achieve the goal.</td>
</tr>
<tr>
<td>Only one possible outcome (for instance, there is only one possible answer/solution to the problem posed)</td>
<td>More than one outcome possible (for instance, there are many possible solutions/answers to the problem posed)</td>
</tr>
</tbody>
</table>

(Pica et al., 1993)

For the jigsaw task, the activity selected was a Picture Story, very much like that described by Pica, Lincoln-Potter, Paninos and Linnell (1996). For the decision-making task, the activity selected was Desert Island from Duff (1986). Both activities correspond to the characteristics of their task type as outlined by Pica et al. (1993) in Table 3.1.

**Jigsaw Task – Picture Story**

As described by Pica et al. (1996) the goal of the picture story task is to create a complete story from a series of pictures in a certain limited period of time. In order to achieve the goal of creating a complete story, each interlocutor in the dyad is given different pictures, each describing an event in the story. There are nine pictures in the story and each subject got five pictures in a random order, describing different events in the story. One of the pictures (picture 7) was given to both subjects due to the non-clarity of the picture. They have to request and supply information regarding the pictures to their
partner. During the interaction, they may have to negotiate the objects in the pictures, the sequence of events and the relationship among events.

It is expected that this task will allow the interlocutors to engage in a fun and meaningful interaction. The topic of the story, which has an adventure genre, gives room to the interlocutors to be imaginative in creating a complete story. The task also requires the interlocutors to look at the individual pictures at a time, transmit the information in the pictures to their partners and make sure that the information that they pass is comprehensible. In the process of transmitting information, they may have to modify the input using several types of interactional modifications to overcome communication breakdowns. The task also requires the interlocutors to work together in making guesses about the individual events (for instance, they could guess what the characters are doing in certain events, what their motives are in doing such action) and the relationship among the events. Within this process, frequent negotiation may occur to decide the order of the events.

The focal topic of the story, which was taken from Choe (2000) and presented in Appendix B together with its instructions, which are in Appendix A, is the story of a researcher who goes to South America to look for a rare and valuable artifact (picture 1). His trip is widely promoted and requires a lot of time, preparation, money and personnel (picture 2). After a long and difficult journey (picture 3, 4, and 5), he and his team find the artifact (picture 6). He expects to bring back the artifact to civilization to make money and fame for himself (picture 7 and 8). However, when he reaches the nearest town, he finds that many identical artifacts are on sale in the local market (picture 9). The story may seem to be straightforward when it is seen in a complete form, but not necessarily when it is broken down into individual pictures.
Decision Making Task – Desert Island

The goal of the decision-making task, originally created by Duff (1986) and presented in Appendix C, is to agree on certain items to be brought to a desert island in order to survive after a shipwreck. There are six groups of items and among the items provided to be selected including lighting supplies and utensils (such as matches, oil lamps, can opener); settlement necessities (such as tent, clothes, sleeping bags); variety of drinks (such as fresh water, beer, whiskey, coffee); spices supplies (such as salt, flour, dry milk); hunting equipment (such as bows and arrows, guns, fishing poles); as well as food supplies (such as meat, fruits, vegetables). The interlocutors are only allowed to take three items from each group of items and they must agree on the items taken. In this task, both interlocutors have access to the same information. Although each of them may work individually to come up to a decision of which items that they individually select, negotiation is required to agree on the same items. They may need to argue about the importance of certain items for survival or to disagree with the other’s rationale. Some of the items may be foreign to one of the interlocutors, and in this case the partner may offer a comprehensible description of what the items are.

The genre of the task story is believed to be appealing to the interlocutors because it allows them to make believe that they are actually involved in the situation and use their logic and evaluative reasoning to come up with a decision. When an interlocutor presents his/her reasons for selecting certain items, negotiation may occur in the way the other interlocutor understands and evaluates the reasons. When experiencing problems in comprehending foreign items, one interlocutor, who knows what the object is, is forced to provide a comprehensible input about the item. In such a process, interactional
modifications become a necessity in order for both interlocutors to agree on the
description of certain items.

**Categorization of Interactional Modifications (IM)**

This study used the categorization of IM 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
non-CMC environment (such as studies by Gass and Selinker, 2001 and Duff, 1986). The
categorization of the IMs by Lee (2002) and Kotter (2003) have been presented in Table
2.1 and 2.2 respectively in chapter 2.

From the categorizations, several types were selected to generate a list of IMs
specifically used for this study. Table 3.2 presents the categorization of IMs selected for
this study. The definitions used by Kotter and Lee are indicated, as is the definition used
in this study.

For several overlapping types of IMs, Kotter’s (2003) categorization became the
preferred reference because the definitions and examples that he presented were more
detailed. Another consideration in the selection of Kotter’s categorization was his
criticism of Lee’s categorization. He noted that she did not clearly differentiate between
clarification request and repetition. The only modification to Lee’s definition was the use
of the native language. The use of English to substitute words or ideas in Spanish is
changed to the use of Indonesian or other languages to substitute for words and ideas in
English. This modification is necessary to reflect the change in the native language
background of the subjects.
Table 3.2. Categorization of IMs

<table>
<thead>
<tr>
<th>Interactional Modification Type</th>
<th>Kotter (2003)</th>
<th>Lee (2002)</th>
<th>Definition Used in This study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Confirmation check</td>
<td>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.</td>
<td>To make sure the message is understood</td>
<td>As in Kotter (2003)</td>
</tr>
<tr>
<td>2. Clarification request</td>
<td>An explicit demand for an elaboration or a reformulation of an idea, which “require[s] a rerun of the troublesome utterance” in question (Aston, 1986, p. 136).</td>
<td>To repeat parts of the statement to ensure the understanding</td>
<td>As in Kotter (2003)</td>
</tr>
<tr>
<td>3. Comprehension check</td>
<td>A speaker’s attempt to prompt another speaker to acknowledge that he has understood a particular utterance (Mitchell &amp; Myles, 1998, p. 129)</td>
<td>To express confusion or ask for help due to unfamiliar words or incomprehensible message</td>
<td>As in Kotter (2003)</td>
</tr>
<tr>
<td>4. Repetition</td>
<td>The repetition, in isolation, of part of or an entire erroneous or otherwise problematic utterance.</td>
<td></td>
<td>As in Kotter (2003)</td>
</tr>
<tr>
<td>5. Self-correction</td>
<td></td>
<td>To correct errors made on lexical items or grammatical structure</td>
<td>As in Lee (2002)</td>
</tr>
</tbody>
</table>
Table 3.2. (continued)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6.</td>
<td>Other-correction/recast</td>
<td>A form-focused partner-related target-like reformulation of all or part of an incorrect utterance (Long, 1996, p. 434; Lyster &amp; Ranta, 1997, p. 46)</td>
</tr>
<tr>
<td>7.</td>
<td>Overt indication of understanding</td>
<td>Overt indication that a speaker has understood a particular message.</td>
</tr>
<tr>
<td>8.</td>
<td>Over indication of agreement</td>
<td>Overt indication that a speaker agrees with what his partner said.</td>
</tr>
<tr>
<td>9.</td>
<td>Overt indication of non-agreement</td>
<td>Overt indication that a speaker does not agree with what his partner said.</td>
</tr>
<tr>
<td>10.</td>
<td>Use of Indonesian</td>
<td>To use Indonesian to substitute words or ideas in English</td>
</tr>
<tr>
<td>11.</td>
<td>Use of keyboard symbols as</td>
<td>To signal for uncertainty or To confirm an idea or</td>
</tr>
</tbody>
</table>

As in Kotter (2003)
As in Kotter (2003)
As in Kotter (2003)
As in Kotter (2003)
To use Indonesian to substitute words or ideas in English
As in Lee (2002)
<table>
<thead>
<tr>
<th>discourse markers</th>
<th>agreement</th>
</tr>
</thead>
</table>

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Internet Messaging Software

The feasibility of using internet messaging software in a classroom setting in Indonesia is the main basis for selecting MSN Messenger version 6.2. This software can be downloaded free from http://messenger.msn.com. The software was also selected for several other reasons. In addition to being freely available to account holders of either MSN or Hotmail, it was also developed by the Microsoft Corporation, which develops Windows Operating System (OS). Microsoft with various Windows versions has nearly 90% share in the OS market (Spector, 1998). This ensures that most computers with the Windows operating system are able to run the software with ease.

The minimum requirement system for running the software is also another factor in selecting the software. The program can run with a minimum Pentium 233MHz processor or better (500MHz recommended) and 64 MB RAM with Microsoft Windows 98, Windows 2000, Windows Millennium, or Windows XP operating system. The very bottom-line specifications, although they may seem very rudimentary if compared to most computers in the U.S., are still very much used in Indonesia because of its sufficient performance and low cost.

Featuring basic common facilities like other internet Messaging programs such as text-based, video, and audio chat, as well as the possibility of file exchanges between interlocutors, one of the most important features of the software for this study is the message history feature. This feature enables automatic transcribing of the chatting interaction in xml format, which later can be easily transferred into Microsoft Excel files. The transcript also records the duration of the interaction as well as any file transfers. The record of duration and file transfer is important to monitor and control the time length of
the conversation and to avoid interlocutors sending any other information not included in
the study. Figure 3.1 is the screen capture of the MSN Messenger 6.2.

Figure 3.1. The Interface of MSN Messenger

Participants
The motivation to write this thesis is driven by the desire to explore and evaluate the use of internet chatting for actual classroom use in college level EFL classes in Indonesia. The participants in this study are therefore limited to EFL students of Indonesian nationality at college level. All of the subjects of this study were recruited from the students of the English Department of Satya Wacana Christian University, Salatiga, Indonesia, and their involvement in this study was on voluntary basis. From the 46 candidates registered, only 28 subjects (23 females, 5 males) were included into the study, due to unavailability of the other candidates on the day of data collection. It is also worth noting that the school terms of the university created a problem in recruiting and ensuring a greater number of subjects. As the school term ended one week after the recruitment process, most of the students of the college already had plans for the break and were unable to commit to the data collection date.

The age range of the subjects is 19-28 years old, with the majority being 20 and 21 years old (11 and 10 subjects respectively). Table 3.3 describes the subjects, categorized by the year they first enrolled in the university as reflected by their student number:

Table 3.3. Subjects According to First Year of University Enrollment

<table>
<thead>
<tr>
<th>Year of Enrollment</th>
<th>Number of Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>1</td>
</tr>
<tr>
<td>2001</td>
<td>3</td>
</tr>
<tr>
<td>2002</td>
<td>20</td>
</tr>
<tr>
<td>2003</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
</tr>
</tbody>
</table>
The native language of the subjects is either Bahasa Indonesia/Indonesian language (22 subjects), Javanese (2 subjects) or both languages (4 subjects).

The following sub-sections are going to describe the subjects’ English language proficiency and technical background in computer and IM software use.

**English Language Proficiency**

In terms of English language proficiency, all of the subjects had had at least 6 years of English instruction in high school, mostly in English grammar. Depending on their year of college, they have had additional 2, 3 or 4 years of English instruction (respectively 11, 6 and 3 subjects). English is the language of instruction in the English Department. In the first two years of college, the courses aim to intensively build their English skills (speaking, listening, reading, and writing) and the last two years focus more on content courses in teaching English as a foreign language, English linguistics and literature. Eight subjects have additional English instruction beyond the high school and college, probably prior to high school through special English courses available in their elementary school or by taking private/after school courses.

Although they may have years of English instruction, it is assumed that the participants of this study do not have native like English proficiency level, because they do not use English on a daily basis for communication purposes. They probably use English in the classroom setting only, with minimum interaction because of the nature of instruction in Indonesia where the teacher plays a dominant role in class and students are reluctant to take an active role of initiating discussion. Based on my experience as a teacher in the department, the only time that students are required to talk in English is during Speaking courses, presentations, or in class/group discussions. From the...
questionnaire I learned that three subjects felt that their communication skill in English on face-to-face environment is fair, fourteen subjects rated it as average and 11 subjects as good, and only 3 of them felt either very uncomfortable or uncomfortable communicating in English with native speakers of English. In my teaching, I observed that in group discussions the students were more comfortable in using their native language in order to solve the discussion problems.

Talking English to friends is another option that they choose to improve their communication skill. However, 12 subjects claim that they have no friends that they can speak English with on daily basis. Although the rest of the subjects have 3-7 friends to speak English to on a daily basis, I assume that this will not give them an opportunity to use English intensively for communication. With the EFL environment, they also have a very limited opportunity to talk to native-speakers of English. Only 6 subjects claimed to have native speaker friends.

Technical Background

In terms of computer usage, 11 subjects own a computer. Although not all subjects own a computer, all of them use a computer on a daily basis, with the average years of using computer to be 2.3 years and the average hours of using computer to be 1.9 hours per day. Fourteen subjects claim to have average typing skills (25-30 words per minute).

All of them but one subject are familiar with the IM software, with Yahoo! Messenger as the most preferred IM software to use (21 subjects), followed by mIRC (10 subjects), MSN Messenger and ICQ (each 2 subjects). Two subjects use all of this software and 6 subjects did not specify their preference. The frequency of usage ranges from daily usage (2 subjects) to once/twice per month (3 subjects), with 13 subjects using
it on a weekly basis. Only 9 subjects stated that they rarely use or do not use it as often as they used to. Almost all of them have used English in chatting before (21 subjects).

**Key Investigators**

In conducting the study, I was assisted by three key personnel to assist with the data collection and data analysis. Due to the nature of data collection, an investigator who could oversee the collection process in Indonesia was contacted. She also worked on the recruitment of the subjects. In collecting the data, the investigator was assisted by a computer technician, who oversaw the technical aspects of the data collection. Upon collection, another colleague and I coded the interactional modifications. This rater was employed to assure the accuracy in the IM identification and an interrater reliability was calculated. The following section will describe the background of each key personnel.

The assistant investigator is a junior teacher in the English Department of Satya Wacana University. She holds a BA in English Language teaching from the same department. She has been teaching in the department for approximately 4 years and she is familiar with the IM software used for the internet interaction. Her responsibility in this study includes contacting and recruiting the potential subjects, obtaining consent agreement forms from the subjects, overseeing the data collection process, making sure the subjects understood the tasks, and being ready to answer any questions that the subjects raised during the tasks.

The computer technician is currently employed by the university to run the computer lab. His responsibility in this study includes installing the IM software on the computers, making sure that the IM software records the internet conversations, saving all necessary data for analysis and sending the final data to be analyzed.
Before the actual data collection, detailed instructions on how the data collection was to be performed was sent to both the assistant investigator and the computer technician. We also had an online meeting to run the IM software two days prior to the actual data collection to ensure that the IM software ran trouble-free and that we would be able to record the interaction.

The second rater is a student of MA TESL program who has already taken English 517 (Second Language Acquisition) and who is familiar with the literature review in the study of interactions in second language acquisition. The guideline for transcript tagging was given to the second rater and before the transcript tagging we met to ensure that both of us understood the features of each IM. We also reviewed the examples given in the guidelines and identified potential problems in tagging the transcripts and possible solutions to solve those problems.

Methods

Environment and Software Set-up

Initially, the study was to be conducted in the natural environment of internet cafés where most of the subjects likely do the chatting. However, considering the cost and the technical difficulties of setting up the study there, this idea was aborted.

The data collection environment was then changed to the environment of a computer lab at Satya Wacana Christian University. The benefit of running the data collection here is not only that it will be less expensive, but also that it reflects how a teacher might use the methods of this study in a classroom situation as an alternative to conventional face-to-face activities. The assistant investigator, who is a coordinator of
several speaking courses in the department, had shown her interest of applying the
methods in one of her speaking courses the following semester.

The computer lab used is one of the labs owned by the university. The university
owns three computer labs in total, all located on one floor of the university library. These
labs are used by all departments in the university for courses which require the use of
computers and for the purpose of online courses registration. During the data collection, I
had to arrange the schedule of the data collection four weeks in advance to avoid a
conflict of schedule with other departments and the schedule of university course
registration process. Since the data collection was not classified as a course, a special
arrangement was made by the computer technician for me to use the lab, with the
stipulation that I pay a usage fee.

The computer lab contains 40 personal computers, all equipped with Pentium 1.8
GHz processor and 64 MB RAM with the Windows XP operating system. This computer
specification meets the minimum requirement of running MSN Messenger. Although
these computers are internet-enabled, the use of an internet connection in the campus is
very limited, due to the university’s limited capability for internet use. Again, the
computer technician managed to secure permission for me from the head of the labs to
use the internet connection for data collection purposes. Figure 3.2 illustrates the layout
of the lab and how the computers are positioned.

The assistant investigator sat in the teacher’s table to oversee the whole process of
data collection both online and physically. When any subject required help, she and the
computer technician would come to the subject’s table.

The computer technician installed MSN Messenger version 6.2 on each computer
prior to the data collection processes. As the expected number of subjects that would be
used for data collection was 40, 40 Hotmail accounts were created, each with the account

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number reflecting subject numbers (i.e. subject01, subject02, etc.) to ensure anonymity during data collection. These numbers also correspond to the numbers of the computer table location where they would sit during the tasks.
Figure 3.2. Computer Lab Layout

```
  1  2  Teacher  3  4
   5  6       7  8  9  10
  11 12      13 14  15 16
  17 18      19 20  21 22
  23 24      25 26  27 28
  29 30      31 32  33 34
  35 36      37 38  39 40
```

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Dyad Pairing

The dyad pairing was done based on the student ID number of the individual subjects. The student number consisted of nine digits: the first two digits reflect the faculty where the student belongs (in this case, the number was 11, the code number for English Department), the next four digits reflect the year of the student’s enrollment, and the last three digits reflect the student’s unique ID number assigned by the university. Each subject was paired with another subject of the same year of enrollment whose unique ID number was closest to his/her number. When the number of subjects of that year was not sufficient to make a dyad due to the availability of the subjects, then the next preference was to match a subject with another subject from another year of enrollment, either one year older or younger. The aim of this method of pairing was to ensure that the subjects in the same dyad have a similar English proficiency background in terms the number of years they had had English instruction at the university. Each subject then was given an individual hotmail account, which served as their login name to the MSN Messenger as well as the table where they were going to sit. Table 3.4 illustrates the dyad set-up plan.

Table 3.4. Dyad Set-up Plan

<table>
<thead>
<tr>
<th>Dyad</th>
<th>Group 1 Login name</th>
<th>Group 1 Login name</th>
<th>Group 2 Login name</th>
<th>Group 2 Login name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dyad 1</td>
<td>subject01</td>
<td>subject-21</td>
<td>Dyad 11</td>
<td>Subject11</td>
</tr>
<tr>
<td>Dyad 2</td>
<td>subject02</td>
<td>subject22</td>
<td>Dyad 12</td>
<td>Subject12</td>
</tr>
<tr>
<td>Dyad 3</td>
<td>subject03</td>
<td>subject23</td>
<td>Dyad 13</td>
<td>Subject-13</td>
</tr>
<tr>
<td>Dyad 4</td>
<td>subject04</td>
<td>subject24</td>
<td>Dyad 14</td>
<td>Subject14</td>
</tr>
</tbody>
</table>
The groups reflect the order of the tasks. Group 1 would start with jigsaw task, followed by decision making task. Group 2 would start in a reverse order. The first round of data collection included Dyad 1-5 and 11-14. The second round of data collection comprised Dyad 6-9 and 15-19. However, the subjects in Dyad 1, 11, 13 and 18 were not able to do both of the tasks. The two tasks were done on consecutive days and the subjects were absent on the second day. Their data became void. For the purpose of data analysis, the names of the dyads were changed to reflect the subject pairing, for instance 2-22, 3-23, and so on. Instead of using the name “Dyad 2”, the name “Dyad 2-22” will be used. In total, this study used 14 dyads (28 subjects). This number is within the range of the number of subjects used in previous studies (8-50 subjects). The final subject pairing and the order of the tasks that they did are shown in Table 3.5.

Table 3.5. Final Subject Pairing and Order of Task

<table>
<thead>
<tr>
<th>Dyad</th>
<th>First Task</th>
<th>Second Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-22</td>
<td>Jigsaw</td>
<td>Decision Making</td>
</tr>
<tr>
<td>3-23</td>
<td>Jigsaw</td>
<td>Decision Making</td>
</tr>
<tr>
<td>4-24</td>
<td>Jigsaw</td>
<td>Decision Making</td>
</tr>
<tr>
<td>5-25</td>
<td>Jigsaw</td>
<td>Decision Making</td>
</tr>
</tbody>
</table>
Table 3.5. (continued)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6-26</td>
<td>Jigsaw</td>
<td>Decision Making</td>
</tr>
<tr>
<td>7-27</td>
<td>Jigsaw</td>
<td>Decision Making</td>
</tr>
<tr>
<td>15-35</td>
<td>Jigsaw</td>
<td>Decision Making</td>
</tr>
<tr>
<td>16-36</td>
<td>Jigsaw</td>
<td>Decision Making</td>
</tr>
<tr>
<td>8-28</td>
<td>Decision Making</td>
<td>Jigsaw</td>
</tr>
<tr>
<td>9-29</td>
<td>Decision Making</td>
<td>Jigsaw</td>
</tr>
<tr>
<td>12-32</td>
<td>Decision Making</td>
<td>Jigsaw</td>
</tr>
<tr>
<td>14-34</td>
<td>Decision Making</td>
<td>Jigsaw</td>
</tr>
<tr>
<td>17-37</td>
<td>Decision Making</td>
<td>Jigsaw</td>
</tr>
<tr>
<td>19-39</td>
<td>Decision Making</td>
<td>Jigsaw</td>
</tr>
</tbody>
</table>

Procedure

The data collection was conducted twice, each consisting of two sessions of different tasks in April 2005. In each round of data collection, the two sessions were conducted in two separate days with 24 hour interval in between. So on one day, half of the subjects did the jigsaw task, and on the next the decision-making task. The other half did the decision-making task, and on the next the jigsaw task. The period of time when the data was collected depended on the availability of the computer lab and the subjects’ individual class schedule. All the data were collected on the weekend, when the lab was less busy and most subjects could attend the data collection sessions.

In the first session of each data collection round, each subject was given a login name, and then sent to his/her designated computer table. As can be seen in Figure 3.2, the subjects in each dyad were separated from each other by at least 2 rows to ensure that they would only communicate through the IM software.
In the first data collection round, we included all the subjects in one chat window in order to instruct them all at once regarding some technical preparation before the actual chatting took place. In order to gather the chatting transcripts, the feature of message history of the each subject’s computer needed to be enabled. One of the key investigators also logged in to the MSN Messenger as a passive observant, so that his/her computer could record the transcript through the message history feature in his/her MSN Messenger. Also, all files (transcripts and questionnaires) needed to be saved in a specific folder in a specific directory to ensure that all the necessary data was saved.

This approach of instructing them altogether in one chatting window proved to be not so successful because it turned out that many of the subjects were not very familiar with the features in MSN Messenger and the computer lab. In addition to this technical problem, the assistant investigator observed that many subjects did not pay attention to our instructions because they were too involved in chatting among themselves. The assistant and the technician then decided to visit each table to make sure that they enabled the message history feature. The same approach was then applied in the second data collection round.

After the chatting software was set-up, each subject was required to fill in the pre-task questionnaire (presented in Appendix D) to gather some information about their background. Again, the problem of not paying attention to the instruction hampered the collection of the questionnaires. Three of the subjects did not fill in the questionnaires and these data were only obtained three weeks after the data collection process because these subjects were on school term break.

As mentioned elsewhere, in both data collection rounds, half of the dyads started with the jigsaw task and the other half with decision-making in the first sessions. During the second session, the order was reversed. In the jigsaw task, the assistant distributed
random pictures to each subject. 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 started to solve the task by chatting. Upon completion of the 60 minute period
of the first session, the subjects stopped working.

The following day, the subjects started working with the reversed order. The
dyads that worked with the jigsaw task in the previous day were engaged in the decision
making and vice versa. The procedure was similar to the first session; they reviewed the
tasks for 15 minutes and worked on the tasks via chatting for 60 minutes. Upon
completion of the tasks, the subjects filled out a post-task questionnaire (presented in
Appendix E), in order to get feedback on their experience in doing the tasks.

After each session was completed, the technician worked on the compilation of
the data and sent the data to me. When a certain dyad transcript was not available, we
used the message history in one of the key personnel’s computer to generate the
transcripts. The transcripts of the internet chatting were saved in xml format files. In order
to tag the transcripts, these files were then converted to Microsoft excel files, retaining
information on the time of the conversation, the speaker and the messages. The assistant
also worked on getting missing questionnaires from the subjects.

Analysis

This study elicited both qualitative and quantitative data. Questionnaires were
used to collect background information and feedback on the tasks. Analyzing the
negotiation of meaning and doing statistical analyses followed the procedures done in
earlier studies.
Unit of Analysis

The unit of analysis intended to be used in this study is the number of words that the subjects produce. This unit of analysis seemed to be appropriate since the subjects’ interaction was limited to written communication only. Another unit of analysis used in this study is the number of turns as well as the frequency of interactional modifications that the dyads produced.

Transcript Tagging

The other rater and I worked on tagging the transcripts according to the guidelines of transcript tagging. We separately tagged individual transcripts for two weeks. The tagging process involved identifying the routines of interactional modifications as outlined by Gass and Varonis (1985) in their model of negotiation of meaning. After doing the tagging, we met twice to compare and check the results of the tagging process.

We agreed that it was challenging to pin down the interactional modifications in the transcripts because often times there are variations in the model of negotiation of meaning proposed by Gass and Varonis in the form of the pattern of Trigger (T), Indicator (I), Response (R) and Reaction to Response (RR). The subjects in the dyads sometimes did not provide an Indicator that they did not understand certain utterances from their partner straight away and only provide the Indicator after some turns. There were also occurrences when such Indicator was disturbed by or occurred together with other topic. The following example from Dyad 08-28 illustrates such delay in the responding to the Trigger:

(3-1) Subject08: The next pic
(3-2) Subject28: 2nd pic: about a plane (the cockpit)
(3-3) Subject08: a group of people are walking to the high heal (Trigger)
(3-4) Subject08: They bring all their stuff to a destination place
(3-5) Subject28: there are people departing, I think
(3-6) Subject28: with a lot of goods
(3-7) Subject08: they pass the mountain I think
(3-8) Subject08: ya lots of goods
(3-9) Subject08: so…
(3-10) Subject28: high heels pass mountains? (Indicator)
(3-11) Subject28: maybe they’re connected
(3-12) Subject28: just continue
(3-13) Subject08: I don’t know whether they want to go to the top of mountain or heel (Response)
(3-14) Subject08: but they want to go the th etop
(3-15) Subject08: top
(3-16) Subject28: the 3rd. (implied Reaction to Response)

In this transcript, what seemed to happen was that subject 08 misspelled the word “hill” for “heel” in (3-3) and this triggers confusion in subject 28’s understanding of his/her partner’s explanation. However, subject 28 did not immediately show any confusion until (3-10). Only after subject 08 provided a Response by providing a synonym “mountain” to the word “heel” in (3-11), subject 28 signaled that s/he understood the word by changing the topic in (3-16).

This transcript also exemplifies another problem in deciding an IM; the jump of topics. Often found in the transcripts, both subjects were presenting about different topics at the same time. Due to nature of written communication, this seemed not to be a big problem for the partners because they could always refer back to what their partner had written. In this case, we had to find the logical connections within individual transcripts to identify the pattern of negotiation of meaning. Once the elements of the pattern were identified, we could mark and tag the IM.
When encountering differences in classifying certain occurrences of the interaction modifications, we discussed appropriate arguments to support the classification of the interaction modifications. The calculation of interrater reliability suggests that the raters reach 95.91% agreement on IM identification.

**Questionnaire Processing**

Answers in both the pre-task and post-task questionnaires were transferred to Microsoft Excel to simplify the results. The answers of multiple choice type questions were coded with numbers for the purpose of counting occurrences of certain answers. For instance, when there were two possible answers in gender (female/male), I coded female as 1 and male as 2. For open-ended questions, the answers were simply copied and pasted in different cells of Excel worksheet.

**Statistical Analysis**

In addition to descriptive statistics which involves counting the frequencies of IMs within each task and for the overall task, a paired t-test was done to calculate the significant difference in the frequencies of IM occurrences between the two tasks. The aim of this additional inferential statistical analysis is to provide a finer and more detailed calculation of the difference. Since this study does not assume a strong hypothesis about the difference between the two tasks in language and IM production (in other words, this study uses a nondirectional alternative hypothesis), the data will be evaluated using a two-tailed paired t-test.
For the qualitative data which was obtained from the post-task questionnaires, the data were to shed light on (1) the subjects’ motives in producing interactional modifications, (2) the factors involved in their production of interactional modifications, and (3) their experience in doing the tasks in pairs.

The next chapter is going to describe the analysis of both quantitative and qualitative data, organized based on the research questions posed.