CHAPTER V

CONCLUSION, DISCUSSION, AND RECOMMENDATION

Included in this chapter were the objectives of the study, conclusions of the research findings, discussions, implications of the research findings, and recommendations for future research.

Objectives of the Study .

The study basically aimed to find the effects of synchronous and asynchronous learning in task-based instruction on English language learning achievement. The focus was on two types of WBI environments (SL and ASL) and two types of tasks (convergent and divergent tasks). The objectives of the study were: 1) to investigate the effects of convergent and divergent tasks on English language learning achievement, 2) to investigate the effects of synchronous and asynchronous Web-based learning environments on English language learning achievement, and 3) to investigate the interaction effects among convergent and divergent tasks and synchronous and asynchronous Web-based learning environments on English language learning achievement.

Research Procedures

1. Population

The population of this study was undergraduate students taking English courses at Kasetsart University during the academic year 2005. There were 26,867 undergraduate students consisting of 14,965 students at Bangkhen Campus, 3,108 students at Sakon Nakhon Campus, 3,908 students at Kamphaeng Saen Campus, 739 students at Suphan Buri Campus, 4,048 students at Si Racha Campus, and 99 students at Krabi Campus. These students were required to take at least 9 credits in English from the English language syllabus to fulfill their study. One of the courses required was Foundation English III (FE3) course of which the approximate number of students taking this course was 2,000.

2. Subjects

Purposive sampling technique was conducted to select the subjects of this study. They were 102 undergraduate students registering in the course 355254 'English for Ground and In-flight Attendants' in the first academic semester of 2005 at Kasetsart

University: Bangkhen and Kamphaeng Saen Campus. They were from various fields of study i.e. Engineering, Business Administration, Economics, Social Science, Humanities, Agro Industry, Education, Science, and Liberal Arts and Science.

3. Instruments

Two sets of research instruments were constructed: one was used for the experiment; the others were used for data collection. The instrument for the experiment was a Web courseware whereas the instruments for data collection consisted of a language achievement test, and an open-ended questionnaire asking opinions at the end of the treatments.

4. Treatments

The experiment was conducted at two campuses of Kasetsart University, one was the main campus in Bangkok; the other was an up-country campus. The first treatment was given in synchronous learning environment which required the subjects to log in the Web-based class on affixed schedule for the period of four weeks (Module 1 and 2). Communication tools used in SL were a ChatRoom and a live Webboard. After four weeks, the subjects were given the first part of the test in traditional way. Then, they were given the second treatment in asynchronous learning environment which the subjects learned at their own place, time and pace with the same type of tasks for another four weeks (Module 3 and 4). Communication tools used in ASL environment were e-mail and Webboard. At the end of Module 4, the second part of the test was given in traditional way. Scores from both testing were used in the analysis of variance with repeated measures for the main effects and interaction effects.

5. Data collection

Data were collected using two instruments: language achievement test and an opened questionnaire asking opinions at the end of the treatments. At the end of the first and second treatment, each part of the test was given to the subjects respectively. The data from the achievement test were used for Factorial ANOVA analysis with repeated measures. After the two treatments, the subjects were given an open-ended questionnaire to retrieve the opinions on two Web learning environments (SL and ASL). The responses were categorized by key words and used as descriptive data.

6. Data analysis

Mean and standard deviation were calculated using 2 × 2 ANOVA with repeated measures to find the main effects and interaction effects between two IVs (TBI and WBI). The results of the analyses were used to test the hypotheses set for this study.

The opinions from the questionnaire were computed for frequency and percentage. The findings were used in the interpretation and discussion of the results from the ANOVA analysis.

Research Findings

The findings were summarized as follows:

1. There was no significant difference between convergent and divergent tasks on English language learning achievement at the 0.05 significance level.

2. English language learning achievement learnt via synchronous learning was higher than asynchronous learning.

3. There was no interaction effect among synchronous and asynchronous learning environments and convergent and divergent tasks on English language learning achievement at the 0.05 significance level.

Discussions

1. The finding indicated that there was no significant difference between convergent and divergent tasks on English language learning achievement.

Why was no significant difference found between convergent and divergent tasks on English language learning achievement?

The reasons might be because of the following:

1.1 One of the main features of task-based instruction was that it was goal-oriented (Skehan, 1998). Students were required to perform group interaction tasks, and achieve some outcomes through their interaction. The goals of the tasks used in this study were convergent (making conclusion, 'closed') and divergent (discussion, 'open'). In convergent tasks, only one outcome was expected, and the participants needed to agree toward one single result. In divergent tasks, more than one outcome was possible, and the participants might end up with several results. The interaction in divergent tasks might confuse the subjects. However, the process before the final solution showed that students used various strategies in order to find the final solution to accomplish the task. The work of some students showed that they raised questions and found alternate solutions to those questions. This might be an evidence for a conclusion that students tried to use divergent ideas to perform divergent task. Nevertheless, the characteristics of group works might sweep away the benefits of divergent tasks. Since one of the characteristics of divergent tasks is to allow individual to perform the tasks differently according to their cognitive styles. Thus, working as groups did not enhance their learning achievement. This might be the answer to the question why the scores of students performing divergent tasks were not different from the scores of the convergent group. This reason is consistent with Coskun's study (2005). Coskun suggested from the finding that the provision of divergent thinking tasks could not be processed by group-works.

1.2 The tasks were assigned to exploit the group interaction, engaging students in the process of constructing knowledge and learning. In this study, students did not choose the members for the group works themselves. This might cause some problems while working together. However, it did not mean that the co-operative groups who chose to work together would outperform those in groups who explicitly did not want to work together (Chapman and McGregor's 2002).

1.3 Students used both types of cognitive strategies while performing these two types of tasks. This reason was consistent with Brophy (2001). Brophy's study several cognitive and personality attributes and the CPS differences in the attributes, activities and performance of the three types. The results showed that the participants frequently used convergent thought as well as divergent thought. This means that

naturally, people tend to use both types of cognitive strategy; therefore, different types of tasks do not necessarily have effects on learning outcomes. Consistently, Sak and Maker (2005) investigated the relationship between convergent and divergent thinking with an emphasis on fluency, originality, flexibility and elaboration in the mathematic domain. They found the statistically significant correlations between the divergent and convergent thinking.

1.4 The characteristics of divergent tasks were swept away by the beneficial benefits of the Web-based learning environments-the beneficial of the borderless communication. Students can read from other Web sites and conclude the information to accomplish their work. This might allow the divergent group to read and gain the information before discussing or generating their own ideas. Thus, the cognitive stimulation induced and led to no effect between these two types of tasks.

The finding rejected the first hypothesis set for this study. The finding was inconsistent with the studies of Getzels and Jackson (1962), Hasan and Butcher (1966, cited in Biggs and Telfer, 1987), Biggs & Telfer (1987), Duff (1986), and Nakamishi (2003) which indicated that the student performance in divergent tasks was better than convergent tasks or students produced more words and more language complexity than the convergent tasks. Consistently, Coskun (2005) studied the influence of divergent and convergent exercises on the subsequent performance. The findings indicated that the provision of divergent exercise and a convergent-divergent sequence led the participants to generate more ideas. Additionally, the results from Biggs and Telfer's study indicated that divergent ability contributed to academic attainment over and above the convergent ability.

2. The finding indicated that synchronous Web-based learning was better than asynchronous learning in terms of English language learning achievement.

Why was English language learning achievement of students learning via synchronous learning significantly higher than asynchronous learning?

The reasons might be because of the following:

2.1 Synchronous learning environment provided social contact between peers and teacher. This reason was consistent with studies by Picciano (2002), Ocker & Yaverbaum (2001), and Richardson (2003) that the students' perceptions of social presence had a highly positive effect on the Web-based learning environment. The reason was that SL created social and communication interactions between student – student and students-teacher. Based on the results of these studies, the ability to ask questions, to share opinions with other students was positively correlated with student performance in a Web-based class. Moreover, Richardson's study (2003) indicated that students' perceptions of social presence scored high in terms of perceived learning and perceived satisfaction. His study was consistent with Feyten and Nutta's study (1999) on the transformation of information environments into technological learning environments.

2.2 Synchronous learning environment provided immediate responses. This reason was consistent with Lin (2005) who investigated the differences of mediating effects between synchronous (ChatRoom) and asynchronous (Webboard) communication on the student revision processes (task). The subjects were 14 students in a college-level ESL academic writing class. They rotated the use of the two technologies for four peer response sessions in a semester. Primary data were student online talk transcripts and writing products. Secondary data were questionnaires, retrospective interviews and student journals to discover students' perceptions of the role that the different media played in the writing classroom. The findings indicated that the media did not have direct impact on student's subsequence revisions (tasks). Additionally, Lin's findings revealed that students preferred ChatRoom to Webboard because of its synchronity- instant feedback and peer response.

In the present study, students made a lot of complaints while doing group works since they came from different fields of study. Using e-mail and Webboard were not as convenient as ChatRoom. They wanted to have immediate responses from teacher. Nevertheless, the subjects indicated in the questionnaire that ASL could facilitate and enhance learning achievement. The frequencies (46.6%) from the open-ended questionnaire indicated that they were not certain whether SL or ASL could

motivate their learning and in turn could increase their preference in English language learning.

2.3 Asynchronous learning environment requires self-directed learning. Olson's study (2003) from which the result found that self-directed learning characteristics might be innate pre-dispositions to learning. The less structured the environment is, the more self-direction is required. When learning in SL environment, the subjects were controlled by their attendance and had teacher with them online. It was the teacher's presence that directed their learning. When learning in ASL, the students were more independent. This required very high self-directed learning. This could be attributed to a number of factors: effect of a learned response depended more on the instructor/or other students for guidance and directions. It may be concluded that the subjects prefer the flexibility of ASL environment because they can study at their convenient time with more or less often without teacher control. Along the same line, they cannot control their learning. Lack of experience in self-directed learning might decrease their attention on their study and in turn decrease their learning achievement.

An unfamiliar asynchronous learning environment might cause anxiety. Several research studies indicated that students' anxiety increased in self-directed learning such as Jonassen and Grabowski (1993), Horwitz (1986), and McIntyre and Gardner (1989). Anxiety is possibly the affective factor that most pervasive obstructs the learning process (Oxford, 1999). The Web-based class was controlled by machine, the deadlines for task submission was set at the specific time. Students were forced to meet all deadlines, since late submission was not allowed. This may cause anxiety to students with low English ability and computer competency. Hence, their anxiety might affect on their learning.

The finding that English language learning achievement of students learning via synchronous learning was significantly higher than asynchronous learning rejected the second hypothesis set for this study. The finding was inconsistent with Spector and Anderson (eds.) (2000), Thirunanarayanan and Perez-Prado (2002), and Rattanampornsopon (2001), who found that Web-based learning environment

enhanced learning outcome. Thirunanarayanan and Perez-Prado (2002) compared the achievement of students enrolling in classroom setting and online course. The finding suggested that students in the online class achieved more than the classroom -based class. Rama's study (1998) also reported that interactive media increased motivation, class participation and marked reduction in classroom stress.

3. The finding indicated that there was no interaction effect among synchronous and asynchronous learning environments and convergent and divergent tasks on English language learning achievement at the 0.05 significance level.

Why was no interaction effect found among synchronous and asynchronous learning environments and convergent and divergent tasks on English language learning achievement?

The reasons might be because of the following:

3.1 Time used in this study was not long enough to cause an interaction effect between TBI and WBI. The lines representing WBI and TBI in the interaction graph showed the tendency that they might meet at one end but not in this frame. The tendency that the lines would meet was likely to have interaction effect with TBI on the performance of convergent tasks not divergent tasks. This might be interpreted that if the time was extended, WBI was likely to have interaction effect with TBI on the performance of convergent tasks. The reason hypothesized for this finding was that students did not have prior experience learning in ASL environment while learning in ASL required high self-directed learning. Therefore, their learning achievement in ASL dropped. Moreover, Raksasuk's findings (2000) showed that the Converger learning style performed better in the linear-computer-based instruction (CBI) whereas the Diverger performed better with the branching CBI. Ruksasuk investigated whether the four types of Kolb's learning styles: Converger, Diverger, Accommodator, and Assimilator and interaction modes of WBI had an effect on the degree of student achievement. Ruksasuk's findings revealed that there was a difference in the main effect between the Converger and the Diverger but no

differences were found in the interaction effect among all learning styles and WBI. The suggestions from Ruksasuk's study showed that WBI might increase interaction in distance education. Since the design in this study was in linear; therefore, it might enhance the performance of convergent tasks.

3.2 Synchronous and asynchronous learning had no interaction with types of task students performed in the Web-based environment. Hence, it led to no interaction effect. This reason was consistent with Lin (2005) who investigated the differences of mediating effects between synchronous (ChatRoom) and asynchronous (Webboard) communication on the student revision processes (task). Lin's findings indicated that the media did not have direct impact on student's subsequence revisions (tasks). Consistent with Lin, Fahad;'s study (2005 showed no significant effect between WBI and classroom learning. Fahad's study revealed that there were no significant differences between the Web-based learning and classroom learning.

The finding that there was no interaction effect among synchronous and asynchronous learning environments and convergent and divergent tasks on English language learning achievement rejected the third hypothesis set in this study. The finding was inconsistent with Thirunarayanan and Perez-Prado (2002), Fu (2002), and Kerr and Murthy (2005) who found the positive relationship between Web environment and learning outcome. Rama (1998) did a multi-media-oriented approach to language teaching. The finding reported greater comprehension on both linguistic and paralinguistic. The finding also indicated that instructional delivery really reflected and supported the way student learnt. Rama's study was consistent to Lin's (2003) who did a survey with students in Taiwan and found that CMC environment was useful in improving students' proficiency.

Recommendations

1. Implementation of the Research Findings

The recommendations for implementation of the research findings are as follows:

1.1 This research revealed that there was no significant difference between convergent and divergent tasks on English language learning achievement. Thus, implementing a task-based learning, both convergent and divergent tasks may be used since there is no indication from this study that which one can be more beneficial.

1.2 This research revealed that synchronous mode of learning was better than asynchronous learning and enhanced student learning achievement. Therefore, in implementing a Web-based instruction a practitioner is recommended to deliver the learning material in synchronous mode of learning.

1.3 The finding also revealed no interaction effect found among synchronous and asynchronous learning environments and convergent and divergent tasks on English language learning achievement. This means that task-based instruction does not cause any differences in Web-based learning environments. What are in concerns are the Web learning environments which have effects on learning achievement. Therefore, convergent and divergent task can be used in synchronous or asynchronous learning without any differences in learning achievement.

2. Recommendations for Future Research

Based on the results of the analyses, the recommendations for future research are as follows:

2.1 The findings indicated that the achievement of students performed in convergent and divergent tasks was not significantly different. This might be because time used in this study is only eight weeks. This time length might not be long enough to investigate the differences between these two types of tasks. Therefore, convergent and divergent tasks and synchronous and asynchronous learning may be

investigated in a longer period to see whether they have effect on learning achievement or not. Also the interaction effect among them may be investigated in future study.

2.2 The findings indicate that synchronous mode of learning enhances student learning achievement. On the other hand, the student opinions indicated that asynchronous learning enhanced their learning achievement. Thus, more research studies may investigate the differences between preferences in synchronous and asynchronous Web learning environments.

2.3 The reports from the opinions in the questionnaire indicated that factors such as social presence, self-directed learning, group-work etc. played important roles in Web-based learning. Since this study did not study the factors that had effects on learning achievement. Therefore, factors such as social presence, self-directed learning, and motivation should be investigated.

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2.2 The findings indicate that synchronous mode of learning enhances student learning achievement. However, the opinions of the students indicated that they preferred asynchronous learning. Thus, more research studies may investigate the differences between preferences in synchronous and asynchronous Web learning environments.

2.3 The findings from the opinions in the questionnaire asking opinions on attitude and motivation indicated that the subjects wanted to have social interaction with their peers and teacher. Moreover, some of them indicated that they could not manage their learning alone. This may be concluded that factors such as social presence, self-directed learning, group-work etc. played important roles in Web-based learning. Since this study did not study the factors that had effects on learning achievement. Therefore, factors such as social presence, self-directed learning, and motivation should be investigated.