

## CHAPTER III

### RESEARCH DESIGN AND METHODOLOGY

#### Subjects

The population for this study were the Thai students who studied Business English I at Chiangrai Commercial School in Chiangrai during the first semester of the academic year 2001. They were divided into 2 groups-- an experimental group and a control group by a placement test. The sample in both groups were 94 students, 46 students in an experimental group and 48 students in a control group. During the eight weeks of teaching, the researcher taught the experimental group by using a cooperative learning method and the control group by the traditional group work method. The researcher used tests to evaluate the students' critical thinking skills, and a questionnaire to find out about the students' opinions towards the cooperative learning method. In the lesson plan, the materials used in learning for eight weeks in the experimental group and the control group were the same, while, the method used was different in each group.

## **Instruments and Procedure**

There were four kinds of research instruments: the placement test which was used as a pre-test and post-test, unit tests which consisted of pre-tests, post-tests, the lesson plans and the questionnaire.

### **The placement test ( pre-test and post-test)**

The placement test was a teacher-made test to check the students' proficiency in Business English I. The content was related to the course description of the curriculum. After giving the placement test, the researcher selected only two groups whose proficiency levels were proven to be not statistically different by using t-test. The placement test, which was used as the pre-test, had 30 items comprising of 12 factual items and 18 critical thinking skill items. At the end of the eighth week the post-test, which was the same as the pre-test, was given to students in both groups. Both pre-test and post-test were used to evaluate students in four skills: reading, writing, speaking and listening. The test components of the critical thinking skills were analysis, synthesis and evaluation. Each test had 6 short-answer test items.

Time allowed for the test was 110 minutes. The criteria for marking were as follows:

1. The 12 factual items

1.1 One point for a correct answer

1.2 Zero for an incorrect answer, no answer, and more than one answer per one test item

1.3 Pass: 6 points up      Fail: lower than 6 points

2. The 18 critical thinking items

Table 1. The Criterion in Grading the Critical Thinking in Analysis Level

Score	Criterion
5 points	Work level is, on the whole, not only clear, precise, and well reasoned, but <b>insightful</b> as well. It displays <b>excellent reasoning and problem-solving in examining and breaking information into parts by identifying issue, relationship and giving reason to support</b> and works consistently at a <b>high level</b> of intellectual performance.
4 points	Work level is, on the whole, clear, precise, and well reasoned, but <b>does not have depth of insight</b> . It displays sound reasoning and problem-solving <b>in examining and breaking information into parts by identifying issue, relationship</b> and giving reason to support and works consistently at a <b>competent level</b> of intellectual performance.
3	Work level is inconsistently clear, precise, and not well reasoned, moreover, it <b>does not display depth of insight or</b>

points	even consistent competence. It displays <b>inconsistent</b> reasoning and problem-solving <b>in examining and breaking information into parts by identifying issue, relationship and giving reason to support</b> and works consistently, at best, at a <b>moderately</b> competent level of intellectual performance.
2 points	Work level represents thinking that is typically unclear, imprecise, and <b>poorly</b> reasoned. It displays <b>poor</b> reasoning and problem- solving <b>in examining and breaking information into parts by identifying issue, relationship and giving reason to support</b> and works at a <b>rather low</b> level of intellectual performance.
1 point	Work level represents thinking that is regularly unclear, imprecise, and <b>poorly</b> reasoned. Students <b>do not analyze and giving reason to support</b> . It displays <b>incompetent</b> reasoning and problem- solving <b>in examining and breaking information into parts by identifying issue, relationship and giving any reason to support</b> and works at a <b>low</b> level of intellectual performance.

1.2.1 The analysis part consisted of 6 items. Each item is 5 points. The total is equal to 30 points.

Table 2. The Analysis Level Score

Score	Analysis level	Skill level
0-6 points	unacceptable analysis	( unskilled)
7-12 points	low level analysis	(minimally skilled)
13-18 points	mixed level analysis	( basically skilled)
19-23 points	commendable analysis	( skilled)
24-30 points	excellent analysis	( highly skilled)

Table 3. The Criterion in Grading the Critical Thinking in Synthesis Level

Score	Criterion
5 points	Work level is, on the whole, not only clear, precise, and well reasoned, but <b>insightful</b> as well. It displays <b>excellent</b> reasoning and problem-solving <b>combining learning from different areas into the new patterns of thought</b> and works consistently at a <b>high level</b> of intellectual performance.
4 points	Work level is, on the whole, clear, precise, and well reasoned, but <b>does not have depth of insight</b> . It displays sound reasoning and problem-solving <b>combining learning from different areas into the new patterns of thought</b> and giving reason to support and works consistently at a <b>competent level</b> of intellectual performance.
3 points	Work level is inconsistently clear, precise, and not well reasoned, moreover, it <b>does not display depth of insight or even consistent competence</b> . It displays <b>inconsistent</b>

	reasoning and problem-solving in <b>combining learning from different areas into the new patterns of thought</b> and works consistently, at best, at a <b>moderately</b> competent level of intellectual performance.
2 points	Work level represents thinking that is typically unclear, imprecise, and <b>poorly</b> reasoned. It displays <b>poor</b> reasoning and problem-solving in <b>combining learning from different areas into the new patterns of thought</b> and works at a <b>rather low</b> level of intellectual performance.
1 point	Work level represents thinking that is regularly unclear, imprecise, and <b>poorly</b> reasoned. Students <b>do not analyze and giving any reason to support</b> . It displays <b>incompetent</b> reasoning and problem-solving in <b>combining learning from different areas into the new patterns of thought</b> and works at a <b>low</b> level of intellectual performance.

1.2.2 The synthesis part consisted of 6 items. Each item is 5 points. The total is equal to 30 points.

Table 4. The Synthesis Level Score

Score	Synthesis level	Skill level
0-6 points	unacceptable synthesis	( unskilled)
7-12 points	low level synthesis	(minimally skilled)
13-18 points	mixed level synthesis	(basically skilled)
19-23 points	Commendable synthesis	( skilled)
24-30 points	Excellent synthesis	( highly skilled)

Table 5. The Criterion in Grading the Critical Thinking in Evaluation Level

Score	Criterion
5 points	Work level is, on the whole, not only clear, precise, and well reasoned, but <b>insightful</b> as well. It displays <b>excellent</b> reasoning and problem-solving <b>in judging materials in terms of data supported, internal evidence or external evidence</b> and works consistently at a <b>high level</b> of intellectual performance.
4 points	Work level is, on the whole, clear, precise, and well reasoned, but <b>does not have depth of insight</b> . It displays sound reasoning and problem-solving <b>in judging materials in terms of data supported, internal evidence or external evidence</b> and giving reason to support and works consistently at a <b>competent level</b> of intellectual performance.
3 points	Work level is inconsistently clear, precise, and not well reasoned, moreover, it <b>does not display depth of insight or even consistent competence</b> . It displays <b>inconsistent</b> reasoning and problem-solving <b>in judging materials in terms of data supported, internal evidence or external evidence</b> and works consistently, at best, at a <b>moderately competent level</b> of intellectual performance.
2 points	Work level represents thinking that is typically unclear, imprecise, and <b>poorly</b> reasoned. It displays <b>poor</b> reasoning and problem-solving <b>in judging materials in terms of data supported, internal evidence or external evidence</b> and works at a <b>rather low level</b> of intellectual performance.

1 point	Work level represents thinking that is regularly unclear, imprecise, and <b>poorly</b> reasoned. Students <b>do not analyze and giving any reason to support</b> . It displays incompetent reasoning and problem- solving in <b>judging materials in terms of data supported, internal evidence or external evidence</b> and works at a <b>low level</b> of intellectual performance.
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1.2.3 The evaluation part consisted of 6 items. Each item is 5 points. The total is equal to 30 points.

Table 6. The Evaluation Level Score

Score	Evaluation level	Skill level
0-6 points	unacceptable evaluation	( unskilled)
7-12 points	low level evaluation	(minimally skilled)
13-18 points	mixed level evaluation	( basically skilled)
19-23 points	Commendable evaluation	( skilled)
24-30 points	Excellent evaluation	( highly skilled)

Source: Adapted from Paul, Richard W. (2000) International Critical thinking Essay Test (ICAT) [on-line]. Available: [www.criticalthinking.org/icat2.html](http://www.criticalthinking.org/icat2.html). (July 22,2000).

The table of specification for the pre-test is shown in Appendix C.

The complete pre-test is shown in Appendix D.



### Procedure of Constructing and Developing the Test

1. Analyzed the objectives of the course
2. Researched textbooks
3. Categorized the information into groups
4. Constructed the placement test
5. Requested two specialists, one was an English teacher at Chiangrai Commercial School and the other was an English Native teacher at Chiangrai Rajabhat Institute to check the tests
6. Conducted a try-out for the pre-test with 40 accounting major students who were taking the Business English I course in the first semester of the academic year 2001 The test reliability was at 0.70
7. Improved the test items by the means of the comments from the students and the specialists
8. Collected data

#### Questionnaire

The questionnaire was used to identify the students' opinion towards the cooperation in the cooperative learning method and to evaluate their opinions on their learning and thinking ability after

being taught through cooperative learning. The questionnaire had only one section: The opinion on the cooperative learning method. There were six main topics in this questionnaire: (1) positive interdependence, (2) face to face interaction, (3) social skills, (4) individual accountability, (5) group processing, and (6) self-evaluation on their learning and thinking ability after being taught through cooperative learning.

Scaling technique, the Likert scale was used for a rating scale. The subjects were asked to complete the questionnaire as soon as they had finished the post-test.

#### Stages of Constructing the Questionnaire

1. Set the objectives
2. Studied the topics
3. Made questions under each objective and topic
4. Constructed the questionnaire
5. Requested two specialists, one was an English teacher at Chiangrai Commercial School and the other was an English Native teacher at Samakkhiwitthayakom School in Chiangrai to check the questionnaire

4. Tried out the questionnaire with 47 accounting major students who were taught through the cooperative learning method. The reliability was 0 .70.
5. Improved the questionnaire by the means of the comments from the students and the specialists
6. Collected data

#### Unit pre- test and Unit post-test

Before starting the new unit, the students took the unit pre- test and took the unit post-test after completing the unit. The unit test was a teacher-made test used to check the students' proficiency in mastering the content in each unit. Each unit test composed of factual and critical thinking items. The content was related to the content in each unit.

#### Stages of Constructing the Test

1. Set the objectives
2. Collected the test items
3. Categorized the information into group
4. Requested two specialists, one is an English teacher at Chiangrai Commercial School and the other is an English

Native teacher at Samakkhiewitthayakom School in Chiangrai to check

5. Tried out the test with the students who studied in Business English I in the first semester of the academic year 2000 in the other classes.
6. Improved the test by the means of the comments from the students and the specialists
7. Collected data

#### Lesson Plan

The lesson plan of Business English I was related to the course description and course objectives. There were 16 weeks of teaching for one semester, but this study focused on the last 3 units in the eight weeks after the midterm examination. The method used in the experimental group and the control group was different, while, the materials used in learning of both groups were the same.

#### Stages of Constructing the lesson plan

1. Studied the course descriptions and the course objectives
2. Grouped the course descriptions and the course objectives into units
3. Wrote the lesson plan for both groups

4. Requested two specialists, one is an English teacher at Chiangrai Commercial School and the other is an English teacher at Samakkhiwitthayakom School in Chiangrai to check
5. Tried out the lesson plan with the students who studied in Business English I in the first semester of the academic year 2000 in the other classes.
6. Adjusted the lesson plan after trying out the lesson plan
7. Used the lesson plan with both groups

#### **Data collection**

Data was collected from two instruments: 1) the tests and 2) the questionnaire. A placement test was given to the students to check their proficiency in Business English. Then two groups of the same proficiency as proven to be not statistically different by t-test, were selected to give a placement test for checking their critical thinking skills. Before starting each unit, the students took the unit pre-test and the unit post-test after completing the unit. After 8 weeks of learning, the students took the post-test. After finishing the test, the students completed the questionnaire. During the completion of the questionnaire, the researcher clarified some questions.

### Data Analysis

The data collected from the tests and the questionnaire were analyzed using descriptive statistics of t-test and Statistical Packages for the Social Science (SPSS). The means were employed to interpret the data from the questionnaire by using the specification as follows:

Table 7. The Interpretation of the Mean

Scale	Level of opinion	Mean range	Level of cooperation	Level of opinion
1	Strongly disagree	1.00-1.80	Minimally cooperative	Highly negative
2	Somewhat disagree	1.81-2.60	Basically cooperative	Moderately negative
3	Neutral	2.61-3.40	Neutral	Neutral
4	Somewhat agree	3.41-4.20	Moderately cooperative	Moderately positive
5	Strongly agree	4.21-5.00	Highly Cooperative	Highly positive