

CHAPTER III

Research Methodology

This chapter discusses the research methodology employed in the present study. The discussion starts from the research problems since it is the basis for the whole study. Based on the research problems the research was designed. The research design is followed by the description of research site and participants, research methods, research instruments, data collection technique, and methods of data analysis.

3.1 Research Problems

The focus of this study is to develop materials of an EFL reading courseware for 8th grade students. This leads to three research problems, i.e.

- (1) What are the processes involved in developing materials of EFL reading comprehension courseware?
- (2) How do students and teacher respond to the courseware designed?
- (3) Does the reading courseware improve students' reading comprehension?

Based on these problems the research is designed so that all research questions can be answered.

3.2 Research Design

The present study is divided into four stages, i.e. needs analysis, material development, try out and evaluation, and analysis of all collected data. The needs analysis is intended to obtain data on students' needs and preference in relation to reading comprehension. This is done by distributing a questionnaire to the students, interviewing the teacher, and observing the class activities.

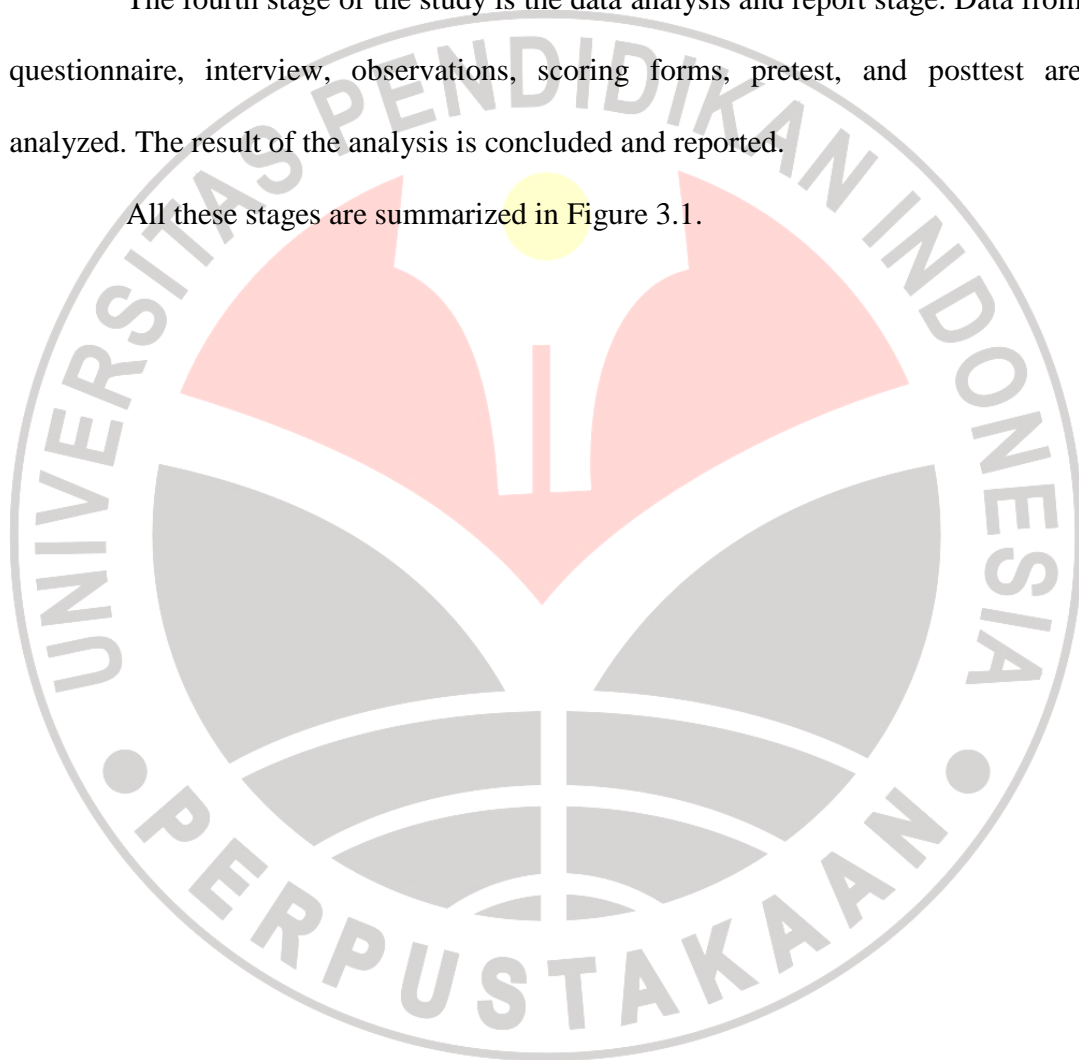
The second stage of the study is material development stage, including both the reading material and courseware. Research activities in this stage are developing reading materials, writing storyboard, producing, judging, and revising the courseware. The material development includes selecting texts, designing exercises and instructions, integrating texts and exercises based on taxonomy for reading comprehension, and designing mechanism for readers' feedback. The storyboard contains complete description of lesson presentation using multimedia. Meanwhile, the software production was done by a software engineer. When the software is completed, it is judged by a multimedia and EFL methodology experts who are the researcher's supervisors. Finally, the courseware is revised.

The third stage of the research is the try out and evaluation stage. There are three steps here. First, students are given a pretest. Second, the students and one English teacher are asked to use the courseware. Observation is done during the trial session. During the observation students' and teacher's responses are recorded. When students finish with the courseware, they are asked to complete a questionnaire to

find students' responses towards the courseware. Meanwhile, teacher is asked to give score for the courseware, complete a reading comprehension evaluation form, and complete a questionnaire. Finally, a posttest is administered.

The fourth stage of the study is the data analysis and report stage. Data from questionnaire, interview, observations, scoring forms, pretest, and posttest are analyzed. The result of the analysis is concluded and reported.

All these stages are summarized in Figure 3.1.



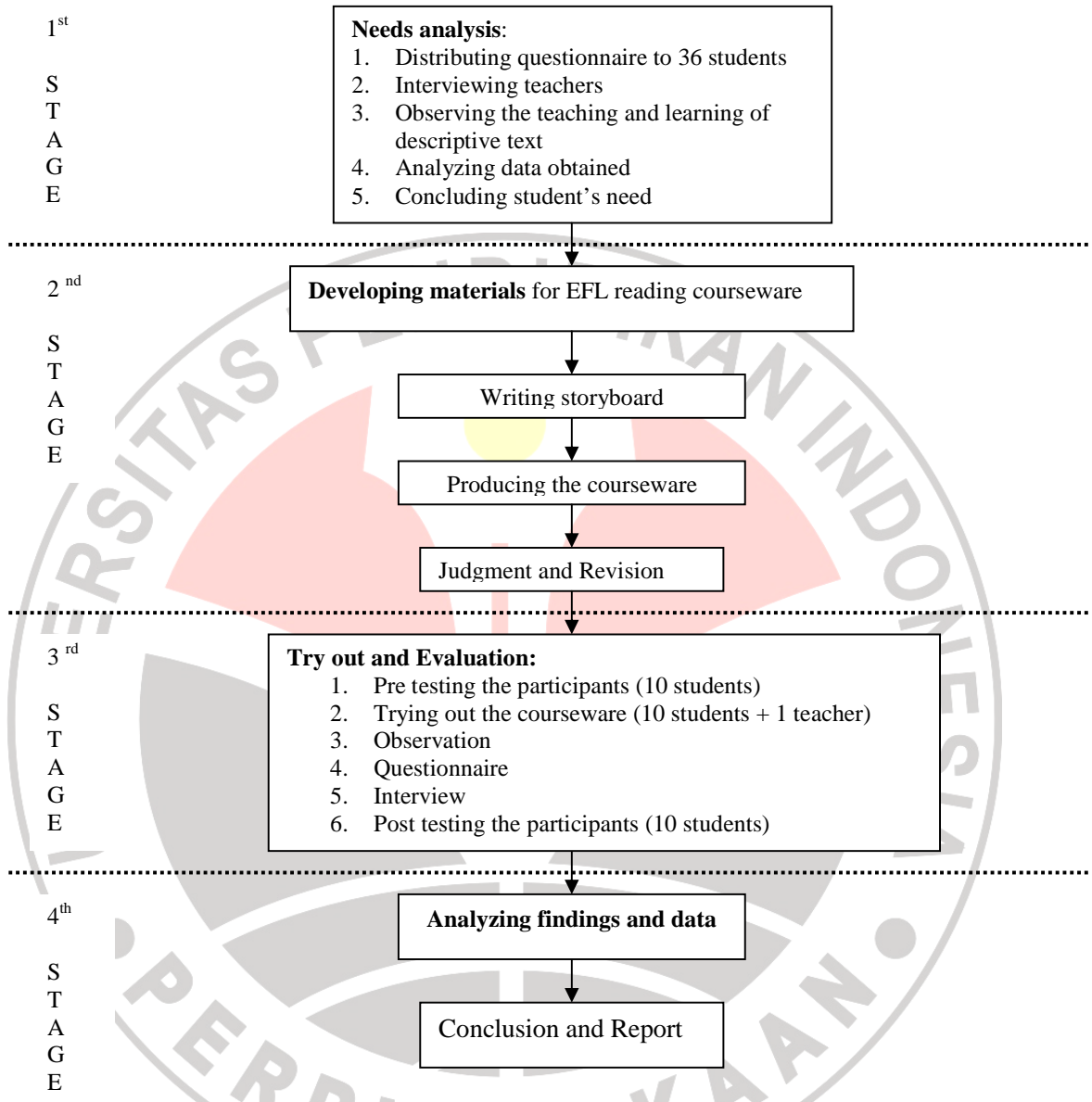


Figure 3.1 Flowchart of the research design

3.3 Research Procedure

This section includes data collection and data analysis. Data collection is discussed in terms of the site and participants, the instrumentation, and the collection technique. Meanwhile, data analysis is discussed based on the type of data that would be obtained.

3.3.1 Data Collection

3.3.1.1 Research Site and Participants

This study is conducted in one junior high school in Bandung because this school has a special program, i.e. acceleration class, and provides a compulsory subject, i.e. Skills for Computer Technology and Information, which requires the students to work in the computer laboratory. The acceleration class is a pilot project for the school and when the present study was conducted the students were in their eighth grade. This class consists of 36 students.

Purposively, this study selects students from eighth grade of the acceleration class for two reasons. First, these students have been introduced to the basic knowledge of English in their seventh grade. Second, these students have been trained to study both individually and in groups in completing their tasks since they were in their seventh grade. Students' capabilities in working in groups have made the communication between students and the researcher easier, especially during the

needs analysis and try out sessions. Students' familiarity with working individually has made the courseware try out possible.

Meanwhile, the Skills for Computer Technology and Information subject becomes an important basis for the site selection because the subject has made the courseware try out possible. This particular subject implies that computer is not a new and extraordinary medium. Further, the school also provides the acceleration class with two units of computer capable of connecting to the Internet. This ensures the researcher that both the students and the teacher are familiar with working with the computer.

The participants in needs analysis stage are different from those in the evaluation stage. In the needs analysis all students (36 students) of the acceleration class are involved. However, the try out stage is conducted with only 10 students of the class. This is due to the limited number of computers available: only ten computers can be used for the implementation.

The selection of students who are involved in the trial session is done purposively (Alwasilah, 2003; McMillan and Schumacher, 2001; Maxwell, 1996). The researcher asked the teacher to select three students with high scores, four students with average scores, and three students with low scores in her English class. Referring students' score records, including those when the students were in their seventh grade, the teacher select the students.

3.3.1.2 Instrumentations

The present study involves two types of instrumentations, i.e. needs analysis instruments and courseware evaluation instruments. Needs analysis instruments include a questionnaire for students, an interview guideline to interview the teacher, and observational sheets to record the class activities. Courseware evaluation instruments consist of two questionnaire to be completed by ten students and a teacher, a reading comprehension evaluation and a courseware evaluation forms which are completed by the teacher, observational sheets to record students' responses during the try out session, and pre-test and post-test questions.

3.3.1.2.1 Needs analysis Instrumentations

The instruments used to examine students' needs in reading comprehension are questionnaire, interview and observation. Each of these instruments is described in Sections 3.2.2.1.1.1, 3.2.2.1.1.2, and 3.2.2.1.1.3.

3.3.1.2.1.1 Questionnaire

The questionnaire is used to obtain data on student's needs in reading comprehension. The questions are designed to get data on the students' purpose in reading a text, type of reading text that they like most, reading topics that they like most, difficulties that they encounter when they are reading, strategies to overcome the difficulties, and

their familiarity with working with computer. This questionnaire is completed by students in the beginning of the first stage of the study.

This questionnaire is developed based on six categories of questions previously mentioned. Each category is developed into aspects and indicators for each question (see Appendix 1). The 23 questions used here are closed-type questions in which choices of alternatives are offered to the respondents. Table 3.1 presents the categories and the number of questions which address each category.

No	Category	Question No.
1.	Reading Purpose	1, 2, 3, 4, 5
2.	Types of Texts	6, 7, 8, 9
3	Reading Topics	10
4	Difficulties encountered when reading English texts	11, 12, 13, 14
5	Strategies done to overcome the difficulties when reading English texts	15, 16, 17
6	Working with computers	18, 19, 20, 21, 22, 23

Table 3.1 Categories for Student Questionnaire in Needs Analysis

The responses are recorded in two ways: three categories of purposes which answer can be always, sometimes, or never, and two categories of purposes which answer can be yes or no.

Before the questionnaire is distributed to the participants of this study it is reviewed, and tried out to eighth grade students from a different class. The questionnaire is reviewed in terms of its statements' and questions' clarity, bias, conciseness, and the possible meanings for all readers. Furthermore, it is tried out to check the ambiguity in sentences, instructions and the time of completion. Finally, the questionnaire is revised depending on the feedback from the review and the try out. The questionnaire is presented in Appendix 5.

3.3.1.2.1.2 Interview Guidelines

The second instrument for needs analysis is the interview guidelines. These guidelines are used to interview the teacher to gain data on students' need from the teacher's point of view and to obtain teacher's recommendation in terms of text type for the courseware content. The guidelines are divided into six categories which are the same as those for questionnaire distributed to the students. The categories are developed into aspects and indicators for the questions (see Appendix 2).

The interview is a semi-structured interview. It uses the same categories with the questionnaire for two reasons. First, through the interview it is expected that there will be more data gained. Second, technically this technique is possible to be used because only one teacher is involved in this study.

Table 3.2 presents detailed categories and the number of questions which address each category. The guidelines are presented in Appendix 7.

No	Category	Question No.
1.	Reading Purpose	1 & 2
2.	Types of Texts	3, 4, 5, 6, & 7
3	Reading Topics	8 & 9
4	Difficulties encountered when reading English texts	10, 11, 12, 13, 14, & 15
5	Strategies done to overcome the difficulties when reading English texts	16
6	Working with computers	17, 18, & 19

Table 3.2 Categories for Interview with English Teacher in Needs Analysis

3.3.1.2.1.3 Observational Sheets

The observations are done to collect data on how teacher conducts her English class, especially the reading classes, and how students participate in those classes.

Consequently, the observations are addressed to both students and the English teacher. The data is used to determine the position of the courseware developed in the English class.

The observational data are recorded in two kinds of field notes. The first field note is used to record teacher's techniques in teaching descriptive texts. The second field note is used to record the students' participation during the class. The observational sheet format is presented in Appendix 9.

3.3.1.2.2 Instruments for Try Out and Evaluation

Instrumentations for the try out are the courseware developed. The courseware contains pre-reading activities, the reading texts, exercises, instructions, and the reading test. Pre-reading activities require students to follow the KWL strategy for reading descriptive texts, to watch movie clips related to the reading text, and to follow the vocabulary web. The reading texts are taken from a printed source which is one of the series from Childcarft World Book International published in 1993. They are approximately of similar levels. The exercises are designed based on Barrett's taxonomy of the Cognitive and Affective Dimensions of Reading Comprehension (section 2.3.3.2.2.). The instructions are presented in written and spoken forms. Both the written and spoken instructions are conducted in conversational way using first and second persons (see Section 2.6.1). Meanwhile the reading test is designed also based on Barrett's taxonomy. All texts, exercises,

instructions and test for the courseware are presented in Appendices 21, 22, 23, and 24.

The instrumentations for evaluation include instrumentations for courseware evaluation and instrumentations for preliminary analysis of courseware effectiveness. The first instrumentations include questionnaire completed by students and teacher, reading comprehension and courseware evaluation forms completed by the teacher, and observation sheet. Meanwhile, the second instrumentations consist of pre-test and post-test questions. Section 3.2.1.2.2.1 to Section 3.2.1.2.2.5 will describe each instrument further.

3.3.1.2.2.1 Questionnaire

There are two kinds of questionnaire used here, one was completed by the students and the other by the teacher. The questionnaire are used to obtain data on students' and teacher's responses toward the courseware.

The questionnaire are developed based on ten categories of questions as shown in Table 3.4. Each category was developed into aspects and indicators for each question (see Appendix 3 and 4). Table 3.4 presents the categories for student questionnaire. Table 3.5 presents the categories for teacher questionnaire.

No	Category	Question No.
1.	KWL Strategy	1, 2, 3, 4, 5, 6, 7, 8, & 9
2.	Pre-Reading Activities	10, 11, 12, 13, 14, 15, & 16
3.	Read Aloud Practice	17, 18, 19, 20, 21, 22, 23, 24
4.	Texts	25, 26, 27, 28, 29, 30, 31, 32, 33, & 34
5.	Exercises	35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, & 49
6.	Help	50, & 51
7.	Ease of Use	52 & 53
8.	General Design	54, 55, 56, 57, & 58
9.	Mode of Instruction	59, 60, & 61
10	Feedback	62, 63, 64, & 65

Table 3.4 Categories for Student Questionnaire in Evaluation Stage

No	Category	Question No.
1.	The Use of KWL Strategy	1, 2, 3, 4, 5, 6,
2.	Pre-Reading Activities	7, 8, 9, 10, 11, & 12
3.	Read Aloud Practice	13, 14, 15, 16, 17, 18, & 19
4.	Texts	20, 21, 22, 23, 24, 25, 26, 27, & 28
5.	Exercises	29, 30, 31, 32, 33, & 34
6.	Help	35, 36, 37, & 38
7.	Ease of Use	39 & 40
8.	General Design	41, 42, 43, 44 & 45
9.	Mode of Instruction	46, 47, 48, & 49 50
10	Feedback	51, 52 & 53

Table 3.5 Categories for Teacher Questionnaire in Evaluation Stage

Similar to the process in developing questionnaire for needs analysis, these questionnaire are assessed, reviewed, and tried out. The questionnaire are assessed and reviewed in terms of their statements' and questions' clarity, bias, conciseness, and the possible meanings for all readers. They are tried out to check the ambiguity in sentences, instructions and the time of completion. Finally, the questionnaire are revised depending on the feedback from the assessment, review, and try out. The questionnaire are presented in Appendices 11 and 13.

3.3.1.2.2.2 Evaluation Form for Reading Comprehension

The evaluation form for reading comprehension is intended to measure the quality of the activities in the reading courseware. The form is completed by the teacher. The instrument is adopted from Plass (1998). The items are designed according to the cognitive process in reading comprehension and developed based on five categories. The categories are activating and processing of prerequisite knowledge, decoding the linguistic surface structure of the text, paying attention to and selecting relevant information, organizing the selected information into a text base, and integrating the new information into the learner's mental model. The form is provided in Appendix 14.

3.3.1.2.2.3 Courseware Evaluation Form

The courseware evaluation form is adopted from Switala's (2003). It is used to assess the key elements of the content, the management, the ease of use, the general design, and the mode of instruction. The assessment was done by giving points to these five criteria. The criteria are divided into three ranges, i.e. range 0-10 points, 11-20 points, and 21-30 points. The descriptions of each point are provided in Appendix 16. This form was completed by the teacher only.

3.3.1.2.2.4 Observation

Similar with the observational sheets used in needs analysis, the observational sheets for the evaluation stage are used to record students' responses during the try out session. Data which are recorded are students' questions in relation with the courseware. This data are recorded in field notes. The observational sheet format for the evaluation stage is presented in Appendices 18A, 18B, 19, and 20.

3.3.1.2.2.5 Pre-test and Post-test Instrumentations

A pretest and post-test are administered to measure students' reading comprehension before and after they use the courseware. The pre-tests and post-test questions are designed using Barrett's Taxonomy. Three comprehension types are used as the guidelines, i.e. literal comprehension, reorganization, and inferential comprehension. Table 3.6 presents the descriptions of types of comprehension outputs, forms of questions, and the number of questions which address each type of comprehension output. These descriptions are applied for pre-test and post-test.

No	Type of Comprehension Outputs	Part	Form of questions	Question No.
1	Literal Comprehension (Recognition: 1.1.1.)	I	finding sentence or paragraph	1, 2, & 3
2	Literal Comprehension (Recognition: 1.1.3.)	I	finding sentence or paragraph	7
3	Literal Comprehension (Recognition: 1.1.5.)	I	finding sentence or paragraph	5 & 6
4	Literal Comprehension (Recall: 1.2.1.)	II	true/false	8, 9, 10, & 11
5	Literal Comprehension (Recall: 1.2.3.)	II	true/false	12 & 13
6	Literal Comprehension (Recall: 1.2.4.)	II	true/false	14
7	Literal Comprehension (Recall: 1.2.5.)	II	true/false	15, 16, 17
8	Reorganization (Classifying: 2.1)	III	click and drag	18, 19, 20, 21, 22, & 23
8	Reorganization (Summarizing: 2.3)	IV	Click and drag	26, 27, 28, 29, 30, 31, 32, 33, 34, 35
9	Inferential Comprehension (3.1.)	V	true/false	36, 37, & 38
10	Inferential Comprehension (3.2.)	V	true/false	39
11	Inferential Comprehension (3.5.)	V	true/false	40

Table 3.6 Questions Guidelines Based On Comprehension Outputs

Similar to the process in developing the questionnaire, these tests are assessed, reviewed, and then tried out. The assessment, review, and try out are intended to check the clarity of the tests' sentences and instructions. After that, the tests are revised. Pre-test and post-test questions are presented in Appendices 25 and 26.

3.3.1.2.3 Summary of the Instrumentations

Based on the research questions and type of data obtained all instrumentations used at all stages of the present study are summarized in Table 3.7.

No	Research question	Type of data	Instrument
1	No. 1	a. Students need and preferences	Questionnaire
		b. Teacher's recommendation	Interview guideline
		c. class activities for the teaching and leaning of descriptive texts	Observation sheets
2	No. 2	a. Student's responses	Questionnaire
		b. Teacher's responses	Questionnaire, Reading Comprehension Evaluation Form, Courseware Scoring Form
3	No. 3	a. Students' reading comprehension score.	Pretest Questions
		b. Students' reading comprehension score.	Posttest Questions

Table 3.7 Research Instruments Based on Research Questions

3.3.1.2.4 Data Collection Technique

The techniques employed in collecting the data can be based on the data needed and the instruments used in this present study. There are nine types of data needed in this study. The first is students' needs and preferences which are obtained through a questionnaire. The second is teacher's recommendation whose data are obtained from interviewing the English teacher. The third is the activities in the teaching and learning of descriptive texts where the data are obtained from observation.

The fourth is students' responses toward the courseware whose data are collected from the questionnaire and observation to the students when they are using the courseware. The fifth is teacher's responses toward the courseware which are

obtained by asking the teacher to complete a questionnaire. The sixth is score for reading comprehension activities. This data is gained from a reading comprehension evaluation form. The seventh is courseware score which data are obtained from an evaluation and a scoring form. The eighth and the ninth are students' reading comprehension scores before and after they use the courseware. These data are collected from administering pre-test and post-test. Table 3.8 summarized all the techniques employed during the study.

No	Research question	Data type	Data collecting technique	Time allocation
1	No. 1	a. Students need and preferences	Questionnaire	Conducted at the beginning of preliminary study
		b. Teacher's recommendation	Interview	Conducted at the beginning of preliminary study
		c. Class activities for the teaching and leaning of descriptive texts	Observation	Conducted in the middle until the end of preliminary study.
2	No. 2	a. Student's responses	Observation	Conducted during the try out
			Questionnaire	Conducted after the try out
		b. Teacher's responses	Questionnaire	Conducted after the try out
		c. Reading comprehension's activities score	Reading Comprehension Evaluation Form	Conducted after the try out
		d. Courseware Score	Courseware Scoring Form	Conducted after the try out
3	No. 3	a. Students' reading comprehension score.	Pretest Questions	Conducted before the try out
		b. Students' reading comprehension score.	Posttest Questions	Conducted after the try out

Table 3.8 Data Collecting Technique Based on Research Questions and Data Type

3.3.2 Data Analysis

Basically, all data for this study are obtained from distributing questionnaire, conducting interviews, conducting observations, assessing the courseware, and administering tests. This means that the analysis for the data might be qualitative or quantitative depending on the type of the data. Data from questionnaire, evaluation and scoring forms and tests are analyzed quantitatively. Meanwhile, data from the interview and observations are analyzed qualitatively. Further, all texts used in this study are analyzed using the guidelines for selecting EFL reading texts proposed by Day (1999) and Nuttal (1982). The data analysis methods for each type of data are presented in table 3.9.

No	Research question	Data type	Data collecting technique	Data Analysis
1	No. 1	a. Students need and preferences	Questionnaire	Quantitative
		b. Teacher's recommendation	Interview	Qualitative
		c. class activities for the teaching and leaning of descriptive texts	Observation	Qualitative
		d. Texts for the courseware and the pr-test and post-test	Use authentic texts	Day's (1999) and Nuttal's (1982) guidelines for selecting EFL reading texts
2	No. 2	a. Student's responses	Observation	Qualitative
		b. Teacher's responses	Questionnaire	Quantitative
		c. Reading comprehension's activities score	Reading Comprehension Evaluation Form	Quantitative
		d. Courseware Evaluation Score	Courseware Scoring Form	Quantitative
3	No. 3	a. Students' reading comprehension score.	Pretest Questions	Quantitative
		b. Students' reading comprehension score.	Posttest Questions	Quantitative
		c. Pre-test and Post-test Results	Pretest & Posttest	Quantitative (matched <i>t-test</i>)

Table 3.9 Data Analysis Based on Data Type and Data Collecting Technique

3.4 Concluding Remarks

This chapter has discussed the methodology of the present study. This methodology is used as the guidelines in conducting the research. The data obtained from all stages of this study are presented, analyzed, and reported in Chapter IV.

