

CHAPTER III

METHODOLOGY

This chapter elaborates the research design; the procedure of development which includes need analysis, developing of materials, expert validation, revision 1, field testing, revision 2 and the final product; data collection instruments and data analysis.

A. Research Design

Aiming at developing English supplementary materials for EFL Generation Z learners, the design of this research was classified into educational Research and Development (R&D). The major purpose of this research was not aimed to test or formulate a theory, but to develop effective product to use in educational activities (Ain, 2014: 75). Educational research and development is a process used to develop and validate educational products that meet specified criteria of effectiveness, quality, or similar standard through systematic field-tests, evaluation, and revisions (Borg & Gall, 1983). The products produced included: teaching-learning materials; learning materials; sets of behavioral objectives; media materials and management system (Lestari, 2016: 23).

To reach the aim in developing web-based supplementary materials for the tenth grade students, some steps in Research and Development were used. The steps were research and information collecting, planning, need analysis, developing preliminary form of product, expert validation, preliminary testing, main product revision, main field testing, final product

revision, and dissemination and implementation. However, since the research and development model is conducted for a thesis, conducting a smaller scale project with a few steps of the cycle is the best way. Some other reasons were to avoid time consuming, energy consuming, and fund consuming as stated by Borg and Gall (Borg & Gall, Educational Research: an Introduction (4th Edition), 1983).

B. Location of the Research

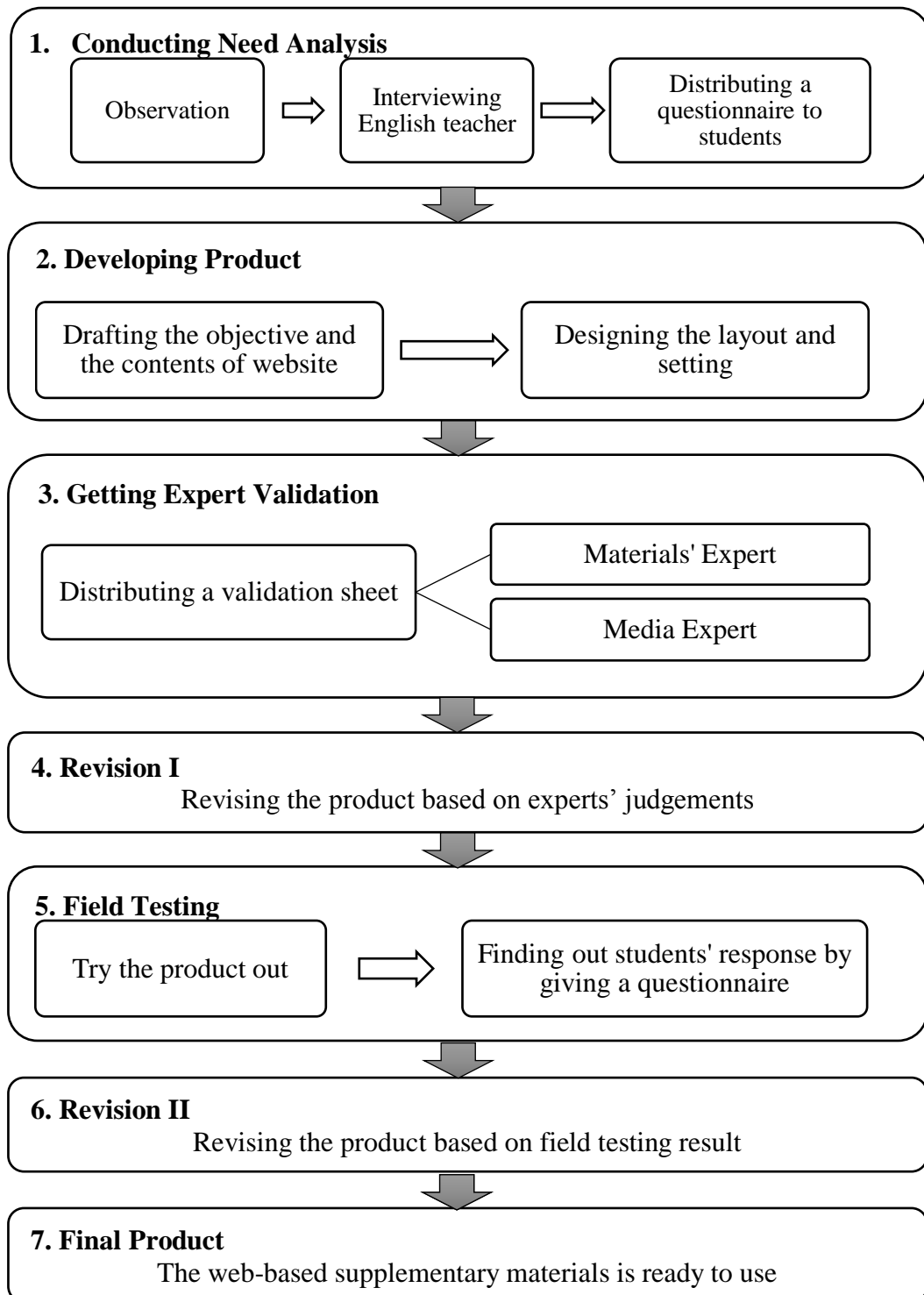
The location of the research is SMAN 2 Kediri. It is located at Jl. Veteran No. 7 Kota Kediri. It chosen because it is one of favorite schools in Kediri. According to the researcher's observation at the beginning of study, the problem faced by the English teacher and the students leads the researcher to conduct this research in this school. The number of students who will be involved in this study are 30. They are the students of grade X in the social class or well-known as IIS class.

C. The Procedure of Development

Dealing with the purpose of study, namely developing web-based supplementary reading materials, the researcher developed the materials based on the model proposed by Borg and Gall (1983). There are ten stages in developing product: (1) research and information collecting, (2) planning, (3) develop preliminary form of product, (4) preliminary field testing, (5) operational field testing, (6) operational product revision, (7) main field testing, (8) main product revision, (9) final product revision and (10) dissemination and implementation. Because of some considerations, the researcher simplified and

modified the stages into seven main stages in applying the model development: (1) conducting need analysis, (2) developing the product, (3) getting expert validation, (4) revision I, (5) field-testing, (6) second revision and (7) final product, with the last stage is implementation. Each main stage has its definition and some steps to do. Concerning any limitations stated above, the model of the materials development in this research is drawn in the figure as follows:

Figure 3.1 Modified R&D Procedure Designed by Borg and Gall (1983)



1. Conducting Need Analysis

This first step of the development is conducting analysis. It is an activity like collecting information which is related to learning and target needs. In this step, the researcher analyses the problems to decide the appropriate product design needed. The information collected from the need analysis is in the form of observation and students' questionnaire results. The observation is conducted to know the classroom problems. While the result of the students' questionnaires is used to know how the product is needed in the field.

There are quantitative data and qualitative data in this research. The quantitative data is obtained through questionnaires. There are two kinds of questionnaires in this research. The one is a questionnaire which is distributed to the students and the other one is an expert judgement questionnaire that is distributed to the expert to find out whether the materials are appropriate for the learners or not.

a. Observation

In this process of development, teaching learning process in the class is observed by researcher to get the data. By using field note to record its factual process in the class, the researcher tries to get opportunity to gather data from live situation.

b. Questionnaire

The questionnaire is given to the students. The researcher uses questionnaire as instrument in order to obtain the information about

thoughts, values, attitudes, feelings, beliefs, and perceptions of the students as participants. According to Brown, questionnaires are any written instruments that present respondents with a series of questions or statements to which they are to react either by writing out their answers or selecting from among existing answers (Brown, 2001).

This kind of instrument will help the researcher to get data about describing of what the product needed in the field, what learning media which the students need and about their opinions about the learning media used by the teacher. The need analysis questionnaire is used to collect information about the target needs and the learning needs. It is consisted of multiple choices and the students are asked to choose one option from several provided options. The questionnaires are distributed to students and filled individually. The organization of content in the need analysis questionnaire is as follow:

Table 3.1. The Organization of Needs Analysis Questionnaire

Aspect of The Questions	The Purpose of The Questions	Item Number
Learners' Identities	To find out the information about students' profile	Part A
Learners' goal	To find out the learners' goal in learning English	1, 2, 3, 4
Wants	To find the students' wants related to the materials.	5, 6, 8, 9
Lacks	To find the students' lacks related to the materials.	7
Input	To find out the information about the students' opinions of the learning aids	10, 11, 12, 13, 14,
Procedure	To find out the information about the learners' opinion of learning activities in the classroom.	15, 16, 17, 18, 19, 20, 21
Learners' Role	To find out the information about the learners' opinion of learning activities in the classroom.	22, 23

The data obtained by using need analysis questionnaires are analyzed using frequencies and percentage. The percentage of the data are calculated by using the following formula.

$$P = \frac{f}{N} \times 100$$

P : Percentage (%)

F : frequency

N : number of respondents

100 : fixed number

The researcher takes an average score from each item number. To give the decision on products' quality, here is the achievement level conversion with scale 5 used.

Table 3.2. Achievement Level Conversion of Each Item Number

Percentage	Qualification
90% - 100%	Very good
75% - 89%	Good
65% - 74%	Enough
55% - 64%	Poor
0 - 54%	Very poor

2. Product Development

The second step of the procedure is product development stage. The researcher develops the product based on the data from the need analysis. During this stage, the researcher is drafting and designing the web-based reading supplementary materials.

a. Drafting

1) Deciding the objective of the product

The first step of drafting is deciding the objective of the product. This activity aims in providing sense of coherent framework for the researcher in planning the materials. The product focusses on reading comprehension materials dealing with the syllabus of English materials of Curriculum 2013 for the tenth grade students of Senior High School.

2) Stating contents of the website

Selected materials are organized and developed based on syllabus that has been created before. By combining text, colourful image visualization, and graph, the website contains of reading materials, quizzes, tasks, and tips of how to comprehend reading skill.

b. Designing

Stating design of website and arrangement of activities is the second step of this product development. After drafting the content, the researcher designs the display of content combination.

3. Getting Expert Judgement

The expert judgement is employed after the first draft of the product has been designed. There is an English teacher and a selected lecture who had competences to give the judgement about developed materials in the form of questionnaire. The questionnaire is used to evaluated the materials in the form of rating scale. There is also a space to give comments and suggestions in each item of each sheet.

The questionnaire is distributed into the English teacher as material expert and the selected lecturer as media expert. The questions included some aspects such as contents, presentation, and pictures. The organization of the validation sheet of each expert can be seen as follow:

Table 3.3. The Organization of the Expert of Content Validation Sheet

Expert of Content Validation			
No.	The Purpose of The Questions	Aspects	Item Number
1.	To find out the appropriateness of the whole contents of the developed materials.	Appropriateness	A (1, 2)
		Display	A (3)
		Meaning	A (4)
2.	To find out the acceptability of language used in the developed materials	Appropriateness and Accuracy	B (1, 4)
		Unity and Features	B (2, 3, 5)

Meanwhile, the organization of the questionnaire for validating the product to media expert can be seen in the following table.

Table 3.4. The Organization of the Expert of Media Validation Sheet

Expert of Web-Design Validation			
No.	The Purpose of The Questions	Aspects	Item Number
1.	To find out the best arrangement of Home Design	Clarity	A (1, 3)
		Attractiveness	A (2)
2.	To find out the best arrangement of Page Organization	Topic description	B (1, 3)
		Visual Illustrating	B (2, 4, 5)
3.	To find out the best arrangement of Navigation	Consistency	C (1, 2)
		Utility	C (3)
		Clarity	C (4)

In these questionnaires, the response categories are weighted by numbers, supposed that SA (Strongly Agree) =5, A (Agree)=4, N (Neither)= 3, D (Disagree)=2, SD (Strongly Disagree) =1. To analyze collected data from experts' response quantitatively, the researcher uses percentage as can be seen in the following formula (Sugiyono, 2008).

$$\text{Percentage} = \frac{\sum(\text{response} \times \text{weighting on each response})}{N \times \text{weighting the highest response}} \times 100\%$$

Remember that:

Σ : total number

N : the total number of all the questionnaire item

In order to give decision on product's quality, the researcher uses achievement level conversion with scale 5 as described on Table 3.5. If the score is above 75%, means that the developed materials is proper to use by the users.

Table 3.5. Achievement Level Conversion

Percentage	Qualification	Discussion
90% - 100%	Very good	No revision needed
75% - 89%	Good	Revision needed
65% - 74%	Enough	Revision needed
55% - 64%	Poor	Revision needed
0 - 54%	Very poor	Revision needed

4. Revision 1

The product which have been validated is revised according to validations feedback. This is the first product revision after it is already

tried-out. This stage helps the researcher to determine the contents of the website being used included all aspects as written in the expert validation sheets, in order to match the media to the tenth grade students of Senior High School. This stage proposes the researcher to fix several parts of the product. And after being revised, the product will be tested to the students (try-out).

5. Field Testing (Try-out)

The next stage is trying-out. After obtaining validation and revising the product, the researcher tries the product out to the students. It is conducted to know applicability, appropriateness, usefulness, effectiveness, efficiency and attractiveness of the students in using this web-based reading supplementary materials. In this procedure, the researcher teaches the students by using the website, so the researcher makes lesson plan before. Last meeting of the learning process, the researcher gives the students a questionnaire which based of scale *Linkerto* fill by them based on assessment of the product.

In this questionnaire, the response categories are weighted by numbers, supposed that SA (Strongly Agree) =5, A (Agree)=4, N (Neither)= 3, D (Disagree)=2, SD (Strongly Disagree) =1. To analyze collected data from experts' response quantitatively, the researcher uses percentage as can be seen in the following formula (Sugiyono, 2008).

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Remember that:

Σ : total number

N : the total number of all the questionnaire item

In order to give decision on product's quality, the researcher uses achievement level conversion with scale 5 as described on Table 3.6. If the score is above 75%, means that the developed materials is proper to use by the users.

Table 3.6. Achievement Level Conversion

Percentage	Qualification	Discussion
90% - 100%	Very good	The product is very suitable
75% - 89%	Good	The product is suitable
65% - 74%	Enough	The product is quite suitable
0% - 64%	Poor	The product is not suitable

6. Second Revision

After trying it out, the product is revised for the second time based on field testing (try-out) result to get the most suitable product. This is the last revision to get suitable product.

7. Final Product

The web-based reading supplementary materials is finally finished and could be used in English teaching learning process for the tenth grade of Senior High School students.