**CHAPTER III**

**RESEARCH METHOD**

In this chapter consists of model of research and development, procedures of research and development, try out of the product, subject of trying out the product, types of data, data collection method, data collection instrument and technique of data analysis.

* 1. **Model of Research and Development**

Research is a organized, systematic, data based, critical, scientific, inquiry into a specific problem ... (Sekaran, 2000)

Based on the identification of the research problem, this research belongs to research and development. Research and development can be define as a process or steps to develop a new product or to complete an available product and it can accountable (Sujadi, 2003:164). According to Sugiono (2010: 407) research and development are research method which used to producing a certain product and examine the effectiveness the product.

Borg and Gall (1983:772) define research and development method as below:

Educational Research and development (R & D) is a process used to develop and validate educational products. The steps of this process are usually referred to as the R & D cycle, which consists of studying research findings pertinent to the product to be developed, developing the products based on these findings, field testing it in the setting where it will be used eventually, and revising it to correct the deficiencies found in the filed-testing stage. In more rigorous programs of R&D, this cycle is repeated until the field-test data indicate that the product meets its behaviorally defined objectives.

Borg and Gall (1983) also mention four basic characteristics in the research and development:

* 1. Studying research findings pertinenent to the product to be develop
  2. Developing the product base on this findings
  3. Field testing it in the setting where it will be used eventually
  4. Revising it to correct the deficiencies found in the field testing stage*.*

According Van Den Aker and Plom (1994:462) purpose research and development:

1. Better understanding of the implementation problem of teachers.
2. Development of prototypical project intervention ( training, materials, support), including empirical evidence of their quality.
3. Generating methodological directions for the design and evaluation of such products or intervention.
4. Increased ( both individual and collective ) expertise of the various participant.

Based on the explanation above, means that the researcher must conduct some research or steps and make a product in this case the researcher make English student’s book and English teacher’s book using authentic material for second grade of accounting program in vocational high school in Tulungagung region.

Many model of Research and development such as Four-D model consists of Define Design Develop Disseminate, Sugiyono model that is have ten phase consist of Potensi dan masalah (Potential and Problem), Pengumpulan data (Data collection), 3.Desain produk (Product Design), Validasi desain (Design Validation), Revisi Design (Design Revision), Uji coba produk (Testing of Product), Revisi produk (Product revision), Uji coba pemakaian (Testing of usage), Revisi produk (product revision), Produksi masal ( Production). , Cennamo model or called Spiral model that is divide a cycle to five steps consist of Design Define Demonstration Development Deliver and Borg and Gall model that is also have ten phase consist of Research and collecting, Planning, Develop preliminary form, Preliminary field testing, Main product revision, Main product testing, Operational product revision, Operational field testing, Final product revision, and Dissemination and implementation, but the researcher choose ADDIE model as the model in this research because ADDIE model is quite simple and appropriate with educational research and development. ADDIE model has five phases. They are Analysis, Design, Development and Implementation.

* 1. **Procedure of the Research and Development**

 An instructional design model gives structure and meaning to a problem, enabling the would-be designer to negotiate her design task with a semblance of conscious understanding.

The research design that the researcher uses in research and development is ADDIE model. Almost all of classical instructional model is the variation of ADDIE model. ADDIE is an acronym stand for Analysis, Design, Development, Implementation and Evaluation. This model is guiding through the process of creating effective educational courses and materials. The five of ADDIE’s steps will be explain below based on website instructional design central :

* + 1. Analysis

Analysis is the study we do in order to figure out what to do (Allison Rossett & Kendra Sheldon,2001:67). Analysis is the foundation phase to develop instructional material. In the analysis phase, the instructional problem is clarified, the instructional goals and objectives are established and the learning environment and learner's existing knowledge and skills are identified. In the Analysis phase there are stated need analysis. The purpose of the need analysis is to gathering information in the field and find what the subject wants or what their desires are. Besides, there are performance analysis, it has purpose to identify the room causes of problem.

* + 1. Design

The design phase deals with learning objectives, assessment instruments, exercises, content, subject matter analysis, lesson planning and media selection. The design phase should be systematic and specific. The purpose of this phase is to prepare instructional prototype.

* + 1. Development

The development phase is where instructional designers and developers create and assemble the content assets that were blueprinted in the design phase. In this phase, storyboards are created, content is written and graphics are designed. If e learning is involved, programmers work to develop and/or integrate technologies.

* + 1. Implementation

During the implementation phase, a procedure for training the facilitators and the learners is developed. The facilitators' training should cover the course curriculum, learning outcomes, method of delivery, and testing procedures.

* + 1. Evaluation

The evaluation phase consists of two parts: formative and summative. Formative evaluation is present in each stage of the ADDIE process. Summative evaluation consists of tests designed for domain specific criterion-related referenced items and providing opportunities for feedback from the users which were identified.

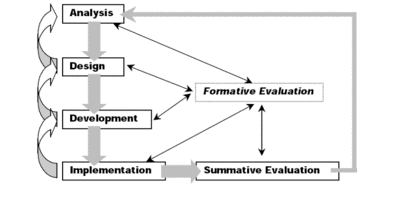
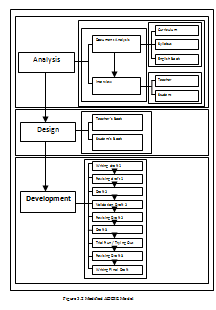


Figure 3.1 ADDIE model

Based on explanation above the researcher using ADDIE model in this study, but the researcher make some modification in ADDIE model with two reason, internal factor and external factor. The considerations in internal factor are cost that must spend for this research, the limitation of time that is given by the universities and it also influence the limitation place or area that the researcher visited, and then the researcher academic strata make the boundary of this research. The external factor is influence by universities rule and school institution policy.

The modification that the researcher does isn’t change the basic model, but just modifies the phase of the model. In this case, the researcher uses Analysis phase, Design phase, and Development phase.



* + 1. Analysis phase

In this phase the researcher want to gathering information in the field. The researcher try to find discrepancy between the desire of institution, teacher and learner and the real fact that happen in the field. In this phase the researcher has two steps, they are:

1. Document analysis

This step has purpose to analyze the documents that use in the teaching learning process, like curriculum, syllabus, and book that use in teaching learning process.

1. Interview

In this step the researcher gathering information from the students about what they feel, want, and faced in the teaching learning process. It is also analyze the student’s context in where they will use the material, what kind environment that they will be there and what kind competency that support them in the future.

Besides, the researcher is also gathering information from the teacher. This step uses to know what activity that is doing by teacher, what is their role, how they work, how their student characteristic, what their problem and what solution that they have applied in the classroom.

* + 1. Design phase

In this phase can call as planning phase, the researcher begins to design teacher and student’s book like instructional goal, choosing kind of material, choosing an appropriate media, choosing format and design assessment instrument, etc. This phase is a blueprint of development phase.

* + 1. Development phase

In the development phase, the blueprint in design phase is built as a prototype or can call as prototyping. The first step in this phase is making outline. The outline consists of topic that will be written and arranging the topic depend on instructional goals. The next step is writing step. It is an activity to develop the outline becomes a draft. The draft is not only one but it can be three draft or more depend on the formative evaluation that do after finishing writing the draft. This step is like cycle, after finishing the draft, then evaluate, then revise until the product became a qualify product.

There are several steps in development phase that the researcher do:

1. Writing draft 1

In this step the researcher develop the product based on what has designed before

1. Revising draft 1

This step is evaluating the first draft and it is done by the researcher self. If there are any faults or lack, the first draft will analyze, develop, repair and revise it becomes second draft.

1. Draft 2

Draft two is revising from draft one that has done by the researcher herself.

1. Validation draft 2

If second draft has revised and ready as a better draft, the researcher validate it to the validator. Validator in this study is two persons expert validator come from lecturer of English Educating Program in IAIN Tulungagung and one person validator come from English teacher in one of school institution in Tulungagung region. There are two validities used for teacher and student’s manual book:

1. Content validity, which is English student’s manual book that has been stated appropriate with standard competence and basic competence.
2. Construct validity, which is appropriating student’s manual book with indicators that have been decided.

Validity activities do in the form fill validity sheet English student’s manual book. This activities until got certain valid student’s book and suitable to use.

The researcher provides four types validity sheet, validity sheet of student’s book for expert, validity sheet of teacher’s book for expert, validity sheet of student’s book for English teacher, and validity sheet of teacher’s book for English teacher.

In each validy sheet consists of five aspect, content aspect, language aspect, display aspect, the effect aspect and the comprehensive aspect. Each point of those aspects has several indicators and 5 scales that must be filled by validator.

1. Revising draft 2

After the product validate by validator, the researcher revise based on the critics, suggestion and validator’s comments.

1. Draft 3

Draft 3 is the result of revising draft 2.

1. Trying out draft

After the product validate by validator and revise become draft 3, the researcher tries the product to the small group of learner. The researchen will test the product in a class of accounting learner in one of vocational school in Tulungagung. In the trying out the draft, the learner will evaluate not only the book but also how the book run in teaching learning process, how the book applied, and what the effect of book that they have felt. The opinion of the learner in this step will accomodate in form of questionare. The result of their opinion will make as a revision of the book.

* 1. **Try-out of the Product**

Try out the product is the step to collect useful data to know the properness, effectiveness, efficiency and the attractiveness of the product. In this part consist of design of try-out, subject of the try-out, types of data, data collection method, data collection instrument and technique of data analysis.

* + 1. **Design of the try-out**

Try out the product means that the researcher want to know the effectiveness, the properness and the attractiveness of the product by delivering it to the research subject in the teaching learning process. According to Dick and Carey (1985), there are three kinds of evaluation that can done in formative evaluation, like one to one, small group and field test. According to Borg and Gall (1983: 775), the limitation of try out subject involves 6-12 students in 1-3 school. The design of the try-out of the product will be done by three step:

1. The first step is selected the students as the research subject and get in touch with the teacher to try-out or trial run the product that is consist of teacher and student’s book.
2. The second step is observed the teaching learning process using teacher and student’s book. This process has purpose to know the properness and the barrier that will face during teaching learning process.
3. The third step is giving questionnaire to the students and conducting structure interview to the students and teacher. The information from the result of questionnaire and interview can be base consideration to evaluate and revise the product.
   * 1. **Subject of try-out**

As the first step in design of the try out, the researcher select the subject of try-out. The researcher selected the subject of the try-out in small group of second grade accounting program. The researcher chooses small group because the researcher has the limitation of time, energy and money, thus the possibility and the appropriate way is by choosing small group of second grade of accounting program. Finally the researcher chooses one class (2AK2) second grade of accounting program in SMKN 1 Boyolangu. The subject of the tri-out process used purposive sampling. The important consideration of the choosing those subject is the possibility to conduct the research on that school and have coordination with the English teacher in that school to conduct preliminary data.

* + 1. **Types of data**

The result kinds of the data are presented in word only or descriptively. Types of data separate into the result data related to the product and kind data from try-out as data from research in general. Data related to the product is the data come from the analysis phase until the development of the product or simplify as data taken from before and after try-out the product. The data that is taken before try-out like analyzing book, conducting interview that the result as base for design phase. Besides, the process that happen in development process like drafting and revising, the data that is gotten from those also can call kind data related to the product.

The kind data related to the try-out or research in general consist of the result of the try-out to know the effectiveness, attractiveness and the properness of the product. The result of data to know the effectiveness, attractiveness and properness are taken from conducting validation process and analyze the result of the questioner.

In validation process the researcher provides validation sheet to fill by three validators based on the product that they had seen. The aspects that are measure are the properness of the content, the properness of the language, The presentation of the product and the effect of the product.

The result data from questionnaire also mentioned by giving students 20 questions to evaluate the product. The aspect that is measure is the presentation, content, language, and the effect of the book.

* + 1. **Data Collection Method**

Data collection methods that are used for this research are:

* + - 1. Observation

Observation is the method which the researcher gains data from the field using sight sense (Mannan, 1986:32). But, Latief (2010: 163) believe that observation involves all senses not only eyes. Based on Riduwan (2005:76) observation is doing observe directly to the research to see activities closely subject. In this research observation has purpose to gain some information in practical operating English activities during learning process. This method is used when the researcher doing try-out phase in this case to know the effectiveness and usefulness of the product during teaching learning process.

* + - 1. Questionnaire

Questionnaire is question lists are given to another people who aware give respond match with user request (Riduwan, 2005:71). In this research questionnaire has gain to know how the student’s book work to the student and what the learners feel with the student’s book. The questionnaire is using Likert Scale that is consist of 20 questions and have five choices, SS for Sangat Setuju (Strongly Agree), S for Setuju (Agree), N for netral (neutral), TS for tidak setuju (disagree), and STS for sangat tidak setuju (Strongly disagree).

* + - 1. Interview

Interview is used to gather data on subject opinions, beliefs, and feelings about the situation in their own word (Ary, 2008:434). In this research, interview that used is open-ended and structure interview. The researcher uses open ended interview because this kind of interview can explore many kind of idea and information and pursues the blur information. Semi structure interview uses for gain information in the analysis phase to know the desire of the learners the teachers, the problem that they faced, and others information for build a book. Structure interview is doing in the process book testing and after book testing. The interviewees are not only learners and teachers but also it can be the head master or other staff that have relation with the research.

* + - 1. Document note taking

This data collection method used in analyzes the document in analysis phase like curriculum, syllabus, and English book.

* + 1. **Data Collection Instruments**

Data collection technique is used to determine validity of English student’s book validation process way and discuss with validator. Data collection technique to know practical of English student’s manual used observation sheet and interview guide. Instruments are used in this research, such as:

* + - 1. Validity sheets

Validity sheets are used to know the validity of student’s book and teacher’s book. Someone who fill the validity sheet is calls a validator. Validator must be someone that mastery and know how to assess or evaluate the product. The validator of this research consists of 3 persons, 2 persons is the lecturer in the IAIN Tulungagung and 1 person is the teacher of the school that will be placed as a trial or testing place. There are 2 kinds of validity sheets used in this research: Validity sheet student’s book for expert and Validity sheet teacher’s book for expert

In the validity sheet there are five points. The five points are content aspect, language aspect, display aspect, the effect aspect and the comprehensive aspect. Each point has several indicators and 5 scales that must be filled by validator.

* + - 1. Document

Document is the instrument of the document note taking. The kind of document that will analyze is curriculum, syllabus and English book that is used in teaching learning prosess.

* + - 1. Questionnaire

Questionnaire used for knowing how the student’s book work and how the learners feel about the book. The researcher provides

* + - 1. Interview guide

In this research, interview that used is semi structure interview to explore much kind of idea and information and pursues the blur information. Semi structure interview uses for gain information in the analysis phase to know the desire of the learners the teachers, the problem that they faced, and others information for build a book. The semi structure interview is also doing in the process book testing and after book testing. The interviewees are not only learners and teachers but also it can be the head master or other staffs that have relation with the research.

In the analysis phase the interview is arrange to find some information about the related document that is used in this research like: curricula, syllable, instructional book and so on. It is also uses to gain some information that needed like teacher role, problem, learner’s activities, learner’s characteristic, the school policy, etc.

In the process of the product testing, semi structure interview uses to evaluate the product, what things that must be repair and suggestion from teacher and the learners.

Semi structure interview after product testing is to know the learner’s and teacher’s feeling and think about the product like a book review as the researcher report and suggestion for the next research.

* + 1. **Technique of Data Analysis**

The technique of data analysis is organizing, summarizing and interpreting the data. The researcher used triangulation by using multiple methods of data collection such interview and observation to confirm the result of the data.

* + - 1. Observation and Interview

The data obtained from observation and interview in form of information, suggestion, and opinions will be interpreted in the descriptive form.

* + - 1. Validation sheet

The data that is taken from the result of validation sheet trough all aspect that is evaluate in the form of table then count and find the percentage of the score. To find the percentage, the researcher uses the pattern below.

the score

 **(%) =**  **x 100 %**

 maximal score

The criteria of quality in the percentage based on Riduwan (2005;89)

|  |  |
| --- | --- |
| **Percentage score** | **Interpretation** |
| 81 % - 100 % | Very proper |
| 61 % - 80 % | Proper |
| 41 % - 60 % | Proper enough |
| 21 % - 40 % | Less of proper |
| 20 % - 0 % | Improper |

This table shows if the research and development reach 61% or more, it assert to be success

* + - 1. Questionnaire

The data that is taken from questionnaire are change into percentage of data and then they are categorized into some categories that is mentioned into Riduwan category above and descriptively concluded.