CHAPTER III

RESEARCH METHOD

This chapter discusses the research method used in this research. It covers the discussion of the research design, subject of the research, technique of data collection, technique of data verification and data analysis.

A. Research Design

Research design is structural planning by using method that must be followed to arrange the research. It is arrange to set the guidelines, includes the method be used, what kind of data be collect, how and from whom the data submited. In order to support the research, an appropriate design should be decide.The data collection method in this research use descriptive design with qualitative approach. The goal of descriptive research is to describe a phenomenon and its characteristics. In such research, the data may be collected qualitatively, but it is often analyzed quantitatively, using frequencies, percentages, averages, or other statistical analyses to determine relationships. Qualitative research, however, is more holistic and often involves a rich collection of data from various sources to gain a deeper understanding of individual participants, including their opinions, perspectives, and attitudes. (Nassaji 2015)

Qualitative research, focuses on understanding social phenomena from the perspective of the human participants in natural settings. It does not begin with formal hypotheses, but it may result in hypotheses as the study unfolds (Ary et. al, 2010: 22). Qualitative research was type of research approach that

aimed to reveal a particular social situation through describe the real fact in form of words grounded on relevant data collection and analyze process from natural situation (Satori and Komariah, 2012:25). The researcher conduct the research and report detailed of informant in natural setting. To get the clear information in the research, the reseacher present the information as detail as possible about the object have been described.

B. **Subjects of The Research**

The subjects of this research are Mathematics students of IAIN Tulungagung at fourth semester at the academic years 2017/2018 and English lecturer. Forth semester Mathematics students was already given Matriculation, English for Islamic Insight, and TOEFL. They are chosen by homogeneous sampling. Homogeneous sampling selects a subgroup that is considered homogeneous in attitudes, experiences, and so on. Homogeneous sampling is one of variations on purposive sampling that used in qualitative research.

C. **Sources of Data**

Data is any information that can answer any research question or problems. Saryono (2013: 3) stated that the data in qualitative research is in form of words, utterance, and narration related to the subject of the research. In this research, the data will be obtain from questionnaires, and interview. Questionnaire is done to collect the information about students learning needs percieve by mathematics students during learning process in English class. To dig more information, the researcher conduct interview with them to get the

information about their perception on their target needs in learning English for Mathematics and their learning strategies. The supported data comes from the interview with related informant , in this case is English lecturer. The data in this research be in form of interview transcript, list of students need in learning english for mathematics, and some notes about subjects' opinion about their English class.

This research be conducting to know mathematics students' perception on their need in learning english for mathematics, so the main data will be collecting from mathematics students of IAIN Tulungagung. Beside that, another data comes from the informant, who is English lecturer who teaches mathematics student.

1. Mathematics Students

    Mathematics students are the persons who registered as the college students of Mathematics Education Program of IAIN Tulungagung. Fourth semester mathematics students in academic year 2017/2018 become the main sources in this research because they was already given Matriculation, English for Islamic Insight, and TOEFL. In this case, 35 fourth semester students from all classes chosen by researcher as participants and they give any information that the researcher needs. They may give the information about their learning need in learning English.

2. An English Lecturer

    While English lecturer in this case is the lecturer who teach English for Mathematics student. In this research, the English lecturer has a role as

informant. The English lecturer was chosen as randomly representative of English course lecturer in FTIK. She give additional information about students' need because the lecturer is close to the students and know about their habits during learning process.

D. Technique of Collecting Data

Fathoni (2006: 104) states that the data in the qualitative research means the information that obtained through some measurements and it was used to formulate a logical argument become certain fact. The data its self be collecting through some tecniques as follows:

1. Questionnaires

    According to Sugiyono (2015: 142) questionnaire is technique of collecting data done by giving a set of question or written question to the respondent to answer. The questionnaire has become one of the most used and abused means of collecting information. If well constructed, a questionnaire permits the collection of reliable and reasonably valid data in a simple, cheap and timely manner. (Anderson and Arsenault, 1998: 179). The questionnaires given to the 35 participants as representative of mathematics students. An open-ended question are given so the respondent can answer as they choose.

2. Interview

    Stainback (2012: 130) state that an interview has been a tool for gain the deeper understanding of how the participant interpret a situation or phenomenom that collected in observation alone. Interview is

probably the widely used method of data collection in educational research. Interview can be conducted on all subjects by all types of interviewers and they can range from informal incidental sources of data to the primary source of information used in a research study (Anderson and Arsenault, 1998: 202). From theories above, the reseacher use interview as the research instrument for collecting the data. Interview was used to gain the information about students' target needs of Mathematics students in IAIN Tulungagung. That be interviewed by researcher are four Mathematics students of IAIN Tulungagung fourth semester and an English lecturer. The question was also developed from Hutchinson and Waters theory on learning need. It consisted 18 questions for lecturer and 27 question for students. In addition, the concern in qualitative research is the completion of information acquisition with a variety of variations that exist, not the number of samples of data sources (Sugiyono 2015). The sampling is terminated when considered sufficient by researchers

E. Data Analysis

Analysis is the act of giving meaning to data. In qualitative research data analysis and interpretation are far from simple. The challenge facing the researcher is to make sense of copious amount of data and to construct a framework. Data analysis in qualitative is time-consuming and difficult process because the writers has to faces massive amount of data which must be examined and interpreted.These data may be text based, as in notes,

transcripts, and other written materials, or they may be form audio or visual sources such as recordings, pictures, or video.

Analyzing qualitative data is a systematic process that organizes the data into manageable units, combines and synthesizes ideas, develops constructs, themes, patterns or theories and illuminates the important discoveries of your research (Anderson and Nancy, 1998: 138). Maxwell (2005: 95) described that the experienced qualitative researcher begins data analysis immediatelly after finishing the first interview or observation and continues to analyse the data as long as he or she working on the research, stopping briefly to write reports and papers.

According to Ary (2010:481), the approaches to analysis of qualitative data can be described in three stages as follows:

1. Familiarizing and Organizing

    The first stage in analyzing qualitative data involves familiarization and organization so that the data can be easily retrieved. The researcher must be immersed in the data. Field notes, audiotapes, videotapes, observer comments, and other data must be put into a form ready for analysis. Preferably, transcriptions should be made of all data, including tape-recorded interviews, focus groups, video recordings, and handwritten field notes. Words should be transcribed directly to avoid potential bias in selection or interpretation that may occur with summarizing.

The major task of organizing the large body of information begins after familiarization. Start with creating a complete list of data sources. Files can be organized in a variety of ways, for example, by interview, by questions, by people,or by places. As suggestion the researcher should always keep backup copies of the original data.

2. Coding and Reducing

This is the core of qualitative analysis and includes the identifi cation of categories and themes and their refinement. Coding is about developing concepts from the raw data. The first step in coding is referred to as axial coding, open coding, preliminary coding, or provisional coding. The most common approach is to read and reread all the data and sort them by looking for units of meaning—words, phrases, sentences, subjects' ways of thinking, behavior patterns, and events that seem to appear regularly and that seem important. Each unit of meaning label should be understandable without any additional information.

Coding is used to make the way easier to recognize the differences or the simmilarities the data. After coded all the data, the researcher begin to reduce the data into a manageable of categories. Then, after the categories had been sorting out, the researcher begin to research the relationship or pattern between one to other categories then identifying the major theme to build an understanding of the context or people that are studied.

3. Interpreting and Representing

Interpreting involves reflecting about the words and acts of the study's participants and abstracting important understandings from them. In this stage, researcher develop hypotheses that have evolved during the analysis. Interpretation is about bringing out the meaning, telling the story, providing an explanation, and developing plausible explanations.

So, in this stage, the researcher will develop the hypothesis and make explanation then present the data in a detail description.

F. Trustworthiness of The Data

The terms *validity* and *reliability* have most commonly been associated with rigor in quantitative research, the concepts of making valid inferences from data and the consistency of the data are also important issues in qualitative research. Qualitative researchers may use different terms to apply to these criteria. The standards of rigor used in qualitative research consist of four criteria. They are credibility, transferability, dependability or trustworthiness and confirmability.

1. Credibility

Credibility in qualitative research concerns the truthfulness of the inquiry's findings. Credibility or truth value involves how well the researcher has established confidence in the findings based on the research design, participants, and context. The researcher has an obligation to represent the realities of the research participants as accurately as possible and must provide assurances in the report that this obligation was met. The

term *credibility* in qualitative research is analogous to *internal validity* in quantitative research (Ary, 2010: 498).

2. Transferability

   Transferability is the degree to which the findings of a qualitative study can be applied or generalized to other contexts or to other groups. Researcher have responsibility to provide sufficiently rich, detailed, thick descriptions of the context so that potential users can make the necessary comparisons and judgments about similarity and hence transferability. The researcher must strive to provide accurate, detailed, and complete descriptions of the context and participants to assist the reader in determining transferability (Ary, 2010: 501).

3. Dependability

   Dependability needs credibility to be presented. Some strategies to investigate dependability are using an audit trail, replication logic, stepwise replication, code recording, interrater comparisons and triangulation. Cohen (2000:117) explained that methodological triangulation is using the same method on different occasions or different method on the same object of study. In this case this research used triangulation of technique. The writer is responsible for examining data, findings, interpretations and recommendation in order to approve that the research are supported by data. This activity would be a means of establishing confirmability of the research.

4. Confirmability

It is a neutral criterion for measuring the trustworthiness of qualitative research. Neutrality refers to data neutrality and not the writer's neutrality. Confirmability is a strategy to ensure neutrality. The purpose is to illustrate that the evidence and thought and processes give another writer the same conclusion in the research context.