

CHAPTER III

RESEARCH METHOD

This part, the writer discussed research type, research design, place and time, population and sample, research instrument data collecting procedure and data analysis procedure.

A. Research Type

In conducting the study, the writer used **mixed model research**, in which mixing of qualitative and quantitative approaches occurs in all stages of a study (formulation of the research questions, data collection procedures and research method, interpretation of the results, and final inferences) or across stages of a study (e.g., qualitative questions and quantitative data)¹. The aim of the mixed model research is to measure the validity, reliability, and index difficulty of **(multiple choice, fill the blank, and translate to English)** test based on goon criterion of the test, and want to know the problems of preposition face of by 10th grade made by the English teacher of SMAN 1 Timpah.

B. Research Design

¹ Tashakkori and Teddlie, *Introduction to Research in Education*, Pearson Education, New York (2003), pg 561.

In this study, the writer used **sequential designs** data that are collected and examined in one stage inform the data collected in the next phase. Data analysis begins before all data are collected and the analysis may influence choices made in conducting the next phase of the study. Each separate phase may shape the conceptual and methodological approaches used in following phases. Different forms of data are collected in sequence at different phases in a study. For example, a quantitative survey collected and analyzed in the first phase may inform the second qualitative phase of the study, or qualitative observations conducted in the first phase may inform development of a quantitative survey in the second phase. The sequential ordering provides information necessary to conduct a more thorough study. It a study which analyzes the problems of using preposition (in, on, and at) faced by 10th grade student of SMAN 1 Timpahin order to find the problems of using preposition.

The most widely accepted **notation system** used in mixed methods designs, first introduced by Morse (1991), uses a plus sign (+) to indicate that the data collection and analysis of methods occur at the same time. An arrow (→) indicates that data collection and analysis occur in sequence. Morse also indicates that the weight or importance of the methods within the study should be denoted by using uppercase letters for prominence and lowercase letters to indicate less dominant methods. There are no specific rules that determine appropriate proportions of qualitative and quantitative research in a mixed methods study. Some researchers use parentheses to indicate methods that are embedded within other methods.

- The notation system rules are shown here Weighting priority

QUAL + QUAN (both are equally important)

QUAN + qual (quantitative approach is dominant)

QUAL + quan (qualitative approach is dominant)

- Sequence

QUAN → Qual (quantitative collection or analysis occurs first followed by qualitative collection/analysis)

QUAL → Quan (qualitative collection or analysis occurs first followed by quantitative collection/analysis)

- Embedded

QUAL (quan)

QUAN (qual)

Visually representing a mixed methods design is a useful tool for helping the researcher to determine and show logic in the relationship between the components.

The visual interactive model allows for a clear representation of how the purpose, conceptual framework, methodology, methods, and issues including validity / credibility interact with the central overarching research question².

C. Placeand Time of the Study

²Donald Ary, *Introduction to Research in Education*, Pearson Education, New York (2003), pg. 565

In this study, the writer needed about two months (3 February s/d 3 April 2015) to collect all of the data accurately and briefly. The place of the study was in SMAN 1 Timpah.

D. Population and Sample

1. Population

The students of 10th Grade students of SMAN 1 Timpah are only 26 students in one class. The population of the study is all of the 10th Grade students of SMAN 1 Timpah. Therefore, the study is called population research. It is also called population study or census study³. Population is a set or collection of all elements possessing one or more attributes of interest⁴. Meanwhile the student and the teacher are as information to get the data.

2. Sample

The sample in this study were 26 students, based on Bambang Setiadi that sample is a group of individuals that presents the whole individuals that becomes the part of subject of the study. It is supported by Surakhmad stated that if the population is less than one hundred, it is used as a total sample, but if it is more than one hundred

³Arikonto, *Prosedur Penelitian Suatu Pendekatan Praktik*, Jakarta: Rineka Cipta 2002, p. 112

⁴*Ibid.*, p. 108

will be used 50%.⁴³ It means that all members of the population have equal chance to be the sample.

According to Arikunto, population is the whole of research subject, if someone wants to research all of the elements in research area its research are called population research or census study.⁵

The population of the research is all the students of ten grades at SMA N 1 TIMPAH which is consisted of 26 students.

Table 3.1 the Number of Population

Class	X
Students	26
Total	26

According to Arikunto, sample is some or represent of population that is researched.

E. Research Instrument

The data is very important in the study. They are needed to support and prove the study itself. The Writer helps by them to find the problem of using preposition *in*, *on*, and *at* faced by 10th grade students of SMAN 1 Timpah.

⁵Syamsudin and Vismaia S. Damaianti, *Metode Penelitian Pendidikan Bahasa*, Bandung: Rosda, 2006, p.25

1. Instrument Validity

Validity refers to extend to which the results of an evaluation procedure serve the particular uses for which they are intended⁶. If the tests are valid, they can be used as instrument for measuring the students' ability. One of the requirements of a good instrument is the instrument must be valid. Validity provides information on the extent to which the instrument measured what is supposed to be measured. According to Heaton, briefly, the validity of a test is the extent to which it measures what it is supposed to measure and nothing else.⁷

In addition, related to the validity, Sugiyono states:

Instrumen yang valid berartialatukuruntukmendapatkan data (mengukur) itu valid. Valid berarti instrument tersebutdapatdigunakanuntukmengukurapa yang seharusnya diukur. (Valid instrument means the measurement device to get (measure) the data is valid. Validity means the instruments can be used to measure what it is supposed to measure).

Validity refers to extend to which the result of evaluation procedure serve the particular uses for which they are intended.⁸ If the tests are valid, they can be used as instrument for measuring the students' ability.

Muhidin and Abdurahman state:

⁶Wilmar Tinambunan, *Evaluation of students' Achievement*, Jakarta: Departemen Pendidikan Kebudayaan 1988, p.11.

⁷J.B. Heaton, *English Language Test*, Longman, New York, 1974, P.10

⁸WilmarTinambunan, *Evaluation of Students' Achievement*, Jakarta: DepartemenPendidikanKebudayaan, 1988, P. 11.

Suatu instrument pengukuran dikatakan reliable jika pengukurannya konsisten dan cermat kurat. Jadi uji reliabilitas instrument dilakukan dengan tujuan untuk mengetahui konsistensi dari alat ukur, sehingga hasil suatu pengukuran dapat dipercaya.⁹

(An instrument of measurement is regarded reliable if the measurement is consistent, precise and accurate. Because of that, the instrument reliability measurement is used to know the consistency of the instrument, furthermore, the result of measurement can be believed).

In addition to validity test, the reliability test is used. The formula KR-21 is used to measure the reliability of the instrument:

To measure the validity of this test, the formulation below used:

$$\gamma_{pbi} = \frac{M_p - M_t}{S_t} \sqrt{\frac{p}{q}}$$

Where :

γ_{pbi} = coefficient validity of each item

M_p = mean of the right answer

M_t = mean of the total score

S = standard deviation from the total score

P = proportion of the students correct answer for each item

⁹Sambas Ali Muhidin and Maman Abdurahman, *Analisis Korelasi, Regresi, dan Jalur dalam Penelitian*, p. 37.

$$\left(p = \frac{\text{banyaknya siswa menjawab benar}}{\text{jumlah seluruh siswa}} \right)$$

q = proportion of the students wrong answer each item ($q = p - 1$)

The interpretation of correlation of coefficient about Validity is :

- Between = 0,800 - 1,00 : very high (perfect)
- Between = 0,600 - 0,80 : high
- Between = 0,400 - 0,600 : fair
- Between = 0,200 - 0,400 : low
- Between = 0,00 - 0,200 : no correlation

The criteria a certain item of validity if $r_{pbis} \geq 0,40$.

Arikunto states:

*Tes adalah serentetan pertanyaan atau latihan serta alat lain yang digunakan untuk mengukur keterampilan, pengetahuan, intelegensi, kemampuan atau bakat yang dimiliki oleh individu atau kelompok.*¹⁰ (The test is a set of questions, exercises, or other instrument that is used to measure the skill, knowledge,

¹⁰Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktek*, Jakarta: PT. Rineka Cipta, 2006. p. 127.

intelligence, ability or talent has been possessed by individual or group). The test is used to obtain the score English preposition (on, in, at) test.

a. The construction of the tests is described below:

- It consists of 40 items: (20 item fill the blank, 10 item multiple choice, and 10 item translate to English with using on, in, and at)

b. Test Scoring Technique

- For giving score to each student, the writer scores 1 for each correct and 0 for the wrong answer. To get the real score both of test for each student, the following formula is used¹¹:
- For giving score question “Translate” it’s using the criteria of sentence (global error using preposition, error using preposition) for On, In, and At.

A. Content Validity

Content validity is the degree to which a test measures the coverage of a substance evaluation to measure. To get the content validity requires two important aspects, namely content and valid sampling techniques. Valid is included in particular, matters relating to whether the evaluation items depict measurements in scope to measure. While the validity of the sampling technique is generally related to how well a sample test items represent the total scope of the content¹².

B. Construct Validity

¹¹Zainal Arifin, *Evaluasi Pembelajaran*, Bandung: PT Remaja Rosda Karya. 2011, P. 126.

¹²M. Sukardi, *Evaluasi Pendidikan Prinsip dan Operasionalnya*, Jakarta timur: PT. Bumi Aksara, 2008.p.32.

The validity of the construction is a test in which the item about the building every aspect of thinking as it is called in the specific instructional objectives (ICT). Or in other words the validity of the construction of the test items measure thinking aspects because accordance with the concept or approach used to analyze the aspects of thinking¹³. Construct validity deals with construct and underlying of the language learning and testing. If the test has construct validity it is capable measuring certain specific characteristics with a theory of language and behavior and learning.

Construct validity often necessitates an extremely complicated process of validation. Thus, the validity of a test is the extent to which the test measures what is intended to measure. So, to measure the validity the writer used the content validity and construct validity for validation of instruments.

2. Instrument Reliability

A test should be reliable as a measuring instrument. A test cannot measure anything well unless it measures consistently. Another opinion, a test cannot be valid unless it is reliable.¹⁴ If the test administered to the same students on the different occasion and there is no difference to results. It can be said that the test is reliable. In

¹³M. Chabib Thoha, *Teknik Evaluasi Pendidikan*, Jakarta: PT. Raja Grahafindo Persada, 2003.p.110.

¹⁴J. Charles Anderson, Caroline Clapham and Dianne Wall, *Language Test Construction and Evaluation*, (British: Cambridge University Press, 1995) p. 18

other opinion, the test is said can be trusted if it gives the consistent result when it is tested repeatedly.¹⁵

The reliability of test should be consistent and stable. The reliability refers to how consistent test scores and other evaluation results are from one measurement to another.¹⁶ So, reliability is necessary characteristic of measurement of any good test for it to be valid at all and a test must be reliable as a measuring instrument.

To measure reliable of this test, the writer will use KR21 (Kuder-Richardson 21) formula.

$$r_{11} = \left(\frac{n}{n-1} \right) \left(1 - \frac{M(n-M)}{nS_t^2} \right)$$

Where:

r_{11} = Coefficient reliability test

n = total of test item

M = mean of the score

S_t^2 = total variant

3. Index Difficulty

Assumption that is used to get good item, besides has fulfill validity and reliability, it is also has to have the balancing of index difficulty. Few of index

¹⁵Suharsimi Arikunto, *Dasar – Dasar Evaluasi Pendidikan*, Jakarta: Bumi Aksara, 1999, P.60

¹⁶E.N Grounlund, *Measurement and Evaluation in Teaching*, British: Cambridge University Pressp.

difficulty are based on student's ability in answering it, not from the side of the test maker.

Determining item difficulty on a test related to the numbers of students who answer the item correctly. A good test has to be proportional item, which means in a test has to have balancing within easy item, enough and the difficult. The good item consists of a fair number of difficult, fair and easy items. A very easy test will no stimulate make students to enrich his effort to solve it. While a test that too difficult will make students hopeless and there no passion to try again because it out of their rich.

To measure index difficulty of this test, the writer will use formula:

$$P = \frac{B}{JS}$$

Where:

P = Index difficulty

B = Student correct answer

JS = Total student

Creteria of index difficulty.

- If P 0,00 - 0,30 it says difficulty item
- If P 0,30 - 0,70 it says the middle item
- If P 0,70 - 1,00 it says easy test

Index difficulty item is about 0,00 – 1,00. It means the lowest index difficulty item is 0,00 and the highest is 1,00. Index difficulty 0,00 (P=0,00) is guidance for

tester that the item conclude to difficult item. Because, this case the tester cannot answer the question correctly. Index difficulty 1,00 ($P=1,00$) is the guidance that the item to easy. Because of all the testers can answer correctly.¹⁷

4. The effectiveness of distracter

To analyze the effectiveness of distracter the writer compared the students' numbers in upper and lower group who choose the wrong alternative distracters.

F. Data Collection

There are some kinds of data collecting methods. They are Test, Questioner, Interview, Observation, Rating scale, and Documentation. Here, did to use only three of them, namely Test, Observation, and Documentation.

In the beginning study of research, observation is usually used to know the real condition of participant. Then, the test is used to measure the problem of using preposition *in*, *on*, and *at* faced by the 10th grade student of SMAN 1 Timpah. So, the documentation is also used to collect and to analyze all the documents such as, source reference, headlines of newspapers or some picture of students when were in process of collecting data.

G. Data analysis Procedure

There are two steps in data processing procedure.

¹⁷Witherington in Anas Sudijono, *Pengantar Evaluasi Pendidikan*, Jakarta: PT. Raya Garfindo Persada, 2007, p 371

A. Preparation.

The activity in this steep are:

- a. Checking the name and object identity.
- b. Checking the data completeness.
- c. Checking the kinds of answering data.

B. Tabulation.

The activity also includes in tabulation:

- a. Scoring into the items.
- b. Coding into the scoreless items.
- c. Changing this type of data to adjust or to modify by the analysis technique.

Related on the steeps above, there are also some researcher's activities to continue the seeps of data collecting procedure. First of all, the researcher did check out all of the data completeness such as the students' translation. Then, the researcher did analyze the students' translation to seek the possible crosslinguistic problems one by one and classifying the errors based on categorize of errors. The writer did continue to tabulate the data obtained. The last, when all

The steeps are finished, and the result has been known, it did be followed by description of the data.