

CHAPTER III

RESEARCH METHOD

This chapter explained research design, research type, population and sample, data collection, research instrument, and data analysis.

A. Research design

The research design used correlation design, this design afforded to measuring the degree of interdependence between two variable correlation studies related to the correlation scoring between two or more variable. This study involved the measurement of the correlation degree.¹ In this study, The research design used correlation design, this design afforded to measuring the degree of interdependence between two variable correlation studies. There are synonym context clues (X) and Reading Comprehension (Y).

B. Type of the study

The research used quantitative method that the design purposed to explain and to know about the correlation between synonym context clue and reading comprehension of English study program students of IAIN Palangka Raya.

C. Population and Sample

1. Population

According to Donald Ary, ‘a population is defined as all members of any well-defined class of people, events or objects.’² Population was the generalization that occurred over the subject/object: had certain qualities and characteristics set

¹Syamsudin and vismaia S. Damaianti, *metode pendidikan bahasa*, Bandung : rosda,2006,p.25

². Donal Ary(et...all)*Introduction to Research in Education*, p.129.

by the writers to learn and draw the conclusion.³In this study, Population of this research was all students of English study program at State Islamic Institute there were three reading classes of English study program where each class has 20-25 students. Total class and students may see on the table below:

Table 3.1

The population at third semester IAIN Palangka Raya

Reading Class	Total students
A	16
B	16
C	13
	$\Sigma = 45$

2. Sample

The writer used a sample from population above as probability sampling, so probability sampling defined as the kind of sampling in which every element in the population had an equal chance of being selected. The possible inclusion of each population element in this kind of sampling took place by chance and was attained through random selection.⁴

The best known of the probability sampling procedures was sample random sampling. The basic characteristic of simple random sampling was that all members of the population had an equal and independent chance of being included in the random sample.⁵Based on the understanding of simple random sampling the writer took class B as the sample class and class C as the tryout class with the number 28 students.

³Sugiono, *metode penelitian kuantitatif kualitatif* dan R & D, Bandung: Alfabeta:2009, p.80

⁴Donald Ary, Lucy Cheser Jorcorbs, Chis Sorenses&AsgharRazavieh, *Introduction to Research in Education*, Canada:Nelson Education,2010,8th ed. P 150

⁵*Ibid* p. 150

Table 3.2

Number of population of at third semester of IAIN Palangka Raya.

No	Class	Total students
1	B	15
2	C	13
		$\Sigma=28$

From the data sample above, the writer implemented the try out in class C. To measure the validity of the items. The items consisted of 50 items. The item divided into 25 synonym context clue and reading comprehension 25 items.

D. Data Collection Procedure

The function of data collection was to determine that result of the research. The writer took some procedures in collecting data, they were :

1. Preparing the instruments to try out. The writer gave test toward the students. The test consisted 50 multiple chaise test (a, b , c, and d).
2. Giving the try out test to the students, Thursday, September 22, 2016, at 3.15 PM in IAIN Palangka Raya.
3. Analyzing the reliability and validity of the try out test. The writer analyzed the data obtained into calculation. to calculate the data, the writer used SPSS calculation and Manual calculation.
4. Giving the synonym context clue test and then the reading comprehension test to the sample class. The writer gave test toward the students. The test consisted 40 multiple chaise test (a, b , c, and d).The items consisted of 40 items. From 40 items divided into 20 reading comprehension and 20 synonym context clue items.

5. Collecting the students' synonym context clue test scores and their reading comprehension test scores. Totally 50 items divided into 25 reading comprehension and 25 synonym context clue items.
6. Analyzing the data by using Pearson Product Moment to answer the problem of the study. The writer analyzed the data obtained into calculation. to calculate the data, the writer used SPSS calculation and Manual calculation. To analyzing the data helped by scatter plot using SPSS Program.
7. Interpreting the result of analyzing data. Based on the SPSS calculation and Manual calculation.
8. Concluding the data.

Table 3.3 The sources of the data and the data needed

No	Source of data	Instrument	Data Needed
1	Students' Answer sheets	Synonym context clue Test	The students' scores of synonym context clue test
2	Students' Answer sheets	Reading Comprehension Test	The students' scores of reading comprehension test

E. Research Instruments

Before analyzing the data, the writer collected the data. The main components of the technique of collecting the data are follows:

1. Research Instruments
 - a. The test of synonym context clue

The test of synonym context clue is intended to collect the data about students' vocabulary mastery. The test is an objective test in the form of multiple-choice. There were 40 items of questions. From 40 items divided into 20 synonym context clue items (6 inferential and 4 literal). The blueprint and the objectives test of vocabulary can be seen at Appendices 3

The final score is calculated:

$$\frac{\textit{student' scorrectanswer}}{\textit{the number of item}} \times 100$$

b. The test of Reading Comprehension

The test of reading comprehension is intended to collect the data about the students' reading comprehension. The test is an objective test in the form of multiple-choice type. There are four alternatives in each item. There were 40 items of question. From 40 items divided into 20 reading comprehension items (11 inferential and 9 literal) The blueprint and the objective test of reading comprehension can be seen at Appendices 3

The final score is calculated:

$$\frac{\textit{student' scorrectanswer}}{\textit{the number of item}} \times 100$$

2. Validity and Reliability

Validity is defined as the extent to which on a test enable score one to make meaningful and appropriate interpretation.⁶ Validity is the most important consideration in developing and evaluating measuring instrument. Face Validity is taken to ensure that the questionnaire is valid. Face validity is a term

⁶*Ibid.*, p.224

sometimes used in connection with a test's content. Face validity refers to the extent to which examinees believe the instrument is measuring what it is supposed to measure.⁷ Construct Validity Construct validity is type of validity which assumes the existence of certain learning theories or contracts underlying the acquisition of ability and skill.⁸

According to Donal Ary, "Reliability is concerned with the effect of error on the consistency of scores. Reliability is consistent in measuring whatever it is measuring."⁹ The reliability of a measuring instrument is the degree of consistency with which it measures whatever it is measuring. on a theoretical level, reliability is concerned with the effect or error on the consistency of scores.¹⁰

In the reliability of an instrument quantitative research described statistically by using the correlation calculation by searching for " coefficient " which ranges between 0 and 1. When coefficient close to 1 , the instruments have high reliability.¹¹

The good instrument in a study was not only the instrument valid but also reliable to measure what suppose measured. The analysis used several formulas that used to measure the realibility.¹² To measure the realibility test, the writer used the Kuder Richardson (KR20) and the formula as follow :

3. Instruments Try Out

⁷*Ibid.*, p.228

⁸J.B. Heaton, *Writing English Language test*, Longman, 1974, p. 154

⁹Donal Ary, *Introduction to Research In Introduction*, secon edition, New York: Wardsworth/Thomson Learning, 1974, P. 237

¹⁰Donald Ary, Lucy Cheser Jacobs, Chris Sorensen, and Asghar Razavieh, *Introduction to Research in Education*, Canada: Wadsworth, 2010, p.237

¹¹Prof. Dr. M.Soenardi Djiwandono,2008,*TesBahasa, Indonesia*:PTmacanan Jaya Cemerlang, P 170.

¹²Sugiyono , *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif dan R&D*,p. 131.

Try out is used to measure the suitability of the test and the students' ability in the sample class of this study, so the writer conducted a try out test.

The writer chose the students in the try out test and collected the students' answer for giving scores, and analyzed the score to get the instruments reliability and validity of test. There were two kinds of test that had been given to students, both were synonym context clue test and reading comprehension test in one paper. The synonym context clue test consisted of 25 items and reading comprehension 25 items in form of multiple choices on the time allocation for answering the test was 55 minutes. The try out test was at the third semester students at English education study program of IAIN Palangka Raya, it class C with 13 students.

Before analyzing the data, the writer collected the data. The main components of the technique of collecting the data are follows:

a. The test of synonym context clue

The test of synonym context clue is intended to collect the data about students' vocabulary mastery. The test is an objective test in the form of multiple-choice. There were 40 items of questions. From 50 items divided into 25 reading comprehension and 25 synonym context clue items. The blueprint and the objectives test of vocabulary can be seen at Appendices 2.

The final score is calculated:

$$\frac{\textit{student' scorrectanswer}}{\textit{the number of item}} \times 100$$

b. The test of Reading Comprehension

The test of reading comprehension is intended to collect the data about the students' reading comprehension. The test is an objective test in the form of multiple-choice type. There are four alternatives in each item. The blueprint and the objective test of reading comprehension can be seen at Appendices 3

The final score is calculated:

$$\frac{\text{student' correctanswer}}{\text{the number of item}} \times 100$$

4. Validity and Reliability

The good instrument in a study was not only the instrument valid but also reliable to measure what suppose measured. The analysis used several formulas that used to measure the realibility.¹³ To measure the realibility test, the writer used the Kuder Richardson (KR20) and the formula as follow :

The formula to be used :

$$r = \frac{k}{k-1} \times \left\{ 1 - \frac{\sum pq}{s^2} \right\}$$

Notes

Statistics

Tryout

¹³Sugiyono , Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif dan R&D,p. 131.

- R : Reliability of test
 K : Number of test items
 P : Mean of the correct answer
 Q : Mean of the wrong answer
 S² : Variance

N	Valid	13
	Missing	0
Variance		27.936

$$r = \frac{k}{k-1} \times \left\{ 1 - \frac{\sum pq}{s^2} \right\}$$

$$r = \frac{50}{50-1} \times \left\{ 1 - \frac{93304}{(27,936)2} \right\}$$

$$r = \frac{50}{49} \times \left\{ 1 - \frac{93304}{780.420096} \right\}$$

$$r = \frac{50}{49} \times \{1 - 119.556122\}$$

$$r = 1.02040816 \times \{118.556122\}$$

$$r = 0.975634$$

0.800-1.000 = Very High Reliability

0.600-0,799 = High Reliability

0.400-0,599 = Fair Reliability

0.200-0.399 = poor Reliability

0.000-0.199 = Very Poor Reliability¹⁴

¹⁴Suharto , Educational Research, Second Edition, p.88.

According to Suharto, the result of the calculation above connected to the following criteria. From the result above, 0.975634 indicate that the realibility test was very high reliability.

1. Construct validity

Construct validity was type of validity which assumes the existence of certain learning theories or construct underlying the acquisition of abilities and skills.¹⁵

Each pre test and post test gave 40 items and matched by syllabus of English at students of English study program students of IAIN Palangka Raya.

2. Content Validity

The test item in this study measured the students' English synonym context clue and based on the English reading comprehension in IAIN Palangka Raya. In making the test, the writer tried to match each of item test with the synonym context clue and reading comprehension that was used by students of English study program students of IAIN Palangka Raya.

3. Face Validity

The test item in this study measured the students 'English synonym context clue and based on the English teaching learning about 50 items of synonym context clue and reading comprehension to class B and C in IAIN Palangka Raya. The test constructed in the multiple choice test (a, b , c, and d). The test consisted of 50 items.

¹⁵Ibid, Norhayati, p35

Table 3.4. Item Specification of Instrument Try Out

No	Indicator	Total		
			Inferential	Literal
1	Synonym context clue	25	4,7,16,18,20,24,26,28,29,33,40,42,44,46,48,50	2,9,10,12,14,30,31,36,38
2	Reading Comprehension	25	1,6,13,17,19,23,25,32,34,35,39,45,49	3,5,8,11,15,21,22,27,37,41,43,47

To measure the validity of the instrument, the writer used the formulation of product moment by person as follows¹⁶ :

$$r_{xy} = \frac{N \sum xy - (\sum x)(\sum y)}{\sqrt{\{N \sum x^2 - (\sum x)^2\} [N \sum y^2 - (\sum y)^2]}}$$

Where :

r_{xy} : Index Correlation Number “r” Product Moment.

N : Number of Cases

$\sum XY$: Multiplication Result between score X and score Y.

$\sum X$: Total Value of score X.

$\sum Y$: Total Value of score Y.

Interpretation :

$r_{xy} > r_t$ = Valid

$r_{xy} < r_t$ = Invalid

¹⁶Riduan ,2004, Metode dan teknik menyusun tesis, Bandung : alfabeta, p110

The criteria of interpretation the validity ¹⁷:

0.800 – 1.000 = Very High Validity

0.600 – 0.799 = High Validity

0.400 – 0.599 = Fair Validity

0.200 – 0.399 = Poor Validity

0.00 – 0.199 = Very Poor Validity

$$r_{xy} = \frac{N \sum xy - (\sum x)(\sum y)}{\sqrt{\{N \sum x^2 - (\sum x)^2\} [N \sum y^2 - (\sum y)^2]}}$$

$$r_{xy} = \frac{13.63728 - (232)(220)}{\sqrt{\{13.(68256 - (232)^2)\} [13.62368 - (220)^2]}}$$

$$r_{xy} = \frac{828464 - 51040}{\sqrt{887328 - (53824)(810784) - (48400)}}$$

$$r_{xy} = \frac{777424}{\sqrt{(833504)(762384)}}$$

$$r_{xy} = \frac{777424}{\sqrt{635.450113536}}$$

$$r_{xy} = \frac{777424}{\sqrt{797151,248}}$$

$$r_{xy} = 0,97525282$$

¹⁷SuharsimiArikunto. *Procedur Penelitian Suatu Pedekatan Praktik*. Jakarta :PT.Rineka Cipta,2006.p,274.

In this study, using manual calculation the result of tryout r_{xy} was 0.97525282. r observed was 0.97525282 than r table 5% the value was 0.5139 and 1% was 0.6411. So, the interpretation was $r_{xy} > r_t = \text{Valid}$. $0.5139 < 0.97525282 > 0.408 = \text{Valid}$. The criteria of interpretation the validity¹⁸: 0.97525282 was Very High Validity.

From the calculation above, the items was specification of synonym context clue and reading comprehension in tryout test items. The number of the valid items based on SPSS program (more detail, appendix 3)

Table . 3.5 Valid and invalid items Specification

No.	Indicator	Total	The number of valid		The number of invalid
			Inferential	Literal	
1	Synonym context clue	25	4,7,16,20,24,26,28,29,33,40,42,44,48,50	2,9,14,30,36,38	10,12, 18, 31,46
2	Reading Comprehension	25	1,6,17,19,23,25,34,35,39	3,5,8,11,21,22,27,37,41,43,47	13,15, 32, 45, 49

From the table above, the number of invalid was 10,12, 18,31, and 46 from synonym context clue items. Meanwhile, the number of invalid from reading comprehension was 13,15, 32, 45 and 49. The total of invalid items was 10 numbers. So, it meant that the valid number was 40 numbers. The number of valid from synonym context clue was 4,7,16,20,24,26,28,29,33,40,42,44,48,50 (inferential) and 2,9,14,30,36,38 (literal). The valid number of valid from reading comprehension was 1,6,17,19,23,25,34,35,39, (inferential) and 3,5,8,11,21,22,27,37,41,43,47 (literal).

¹⁸suharsimiArikunto. *Procedur Penelitian Suatu Pedekatan Praktik*. Jakarta :PT.Rineka Cipta,2006.p,274.

F. Data Analyzing

After the all data have been collected, the next step is analyzing the data. To analyze the data obtained from the field, several techniques conducted as follow:

1. Writer did try out to third semester students of English study program students of IAIN Palangka Raya. The tryout implemented on Thursday, 22 September 2016 in class C Reading Comprehension at 13.15 pm the number of students was 13 students.
2. Writer collected the data of the students result. From 40 items consisted of 20 reading comprehension and 20 synonym context clue items. Writer gave score to students by using formula.

$$\frac{\text{student' scorrectanswer}}{\text{the number of item}} \times 100$$

3. Test item specification

Tabel 3.6 Test Item Specification of instrument of study

No	Skills to test	Literal	Inferential	Jumlah
1	Synonym Context clue	6	14	20
2	Reading Comprehension	11	9	20

The proportion of correct answers (p), the number of test takers who answered correctly on items that were analyzed in comparison with the number of participants is a difficulty entirely tests most commonly used. Writer discusses clarify the research finding about result of study. The writer was give test toward the students. The test consisted 40 multiple choice test (a, b , c, and d).

4. Correlation coefficients

Connecting the two values using the formula Pearson product moment correlation to know is there any correlation or not in the two variables. The formula of Product Moment by Pearson as follows¹⁹:

$$r_{xy} = \frac{N \sum xy - (\sum x)(\sum y)}{\sqrt{\{N \sum x^2 - (\sum x)^2\} [N \sum y^2 - (\sum y)^2]}}$$

Where as:

r_{xy} : The coefficient of correlation

$\sum X$: Total Value of Score X

$\sum Y$: Total Value of Score Y

$\sum XY$: Multiplication Result between Score X and Score Y

N : Number of students

Pearson product moment correlation coefficient, symbolized r , which is the most widely used descriptive statistic of correlation. Recoil that the Pearson coefficient is appropriate for use when the variables to be correlated are normally distributed and measured on an interval or ratio scale.²⁰

$$r_{xy} = \frac{N \sum xy - (\sum x)(\sum y)}{\sqrt{\{N \sum x^2 - (\sum x)^2\} [N \sum y^2 - (\sum y)^2]}}$$
$$r_{xy} = \frac{13.63728 - (928)(880)}{\sqrt{13.(928)^2 - (68256)} [13.(880)^2 - 62368]}$$

¹⁹Riduan, *Metode dan teknik Menyusun Thesis*, Bandung: Alfabeta, 2004, p. 110.

²⁰Donald Ary, Lucy Cheser Jacobs, Chris Sorensen, and Asghar Razavieh, *Introduction to Research in Education*, Canada: Wadsworth, 2010, p.353

$$r_{xy} = \frac{828464 - 816640}{\sqrt{(13.861148) - 68256] (13.10067200 - 62308}}$$

$$r_{xy} = \frac{11824}{\sqrt{1127136 - (10004832)}}$$

$$r_{xy} = \frac{11824}{\sqrt{-8877696}}$$

$$r_{xy} = \frac{11824}{2979.54627}$$

$$r_{xy} = 3,96838946$$

The result of tryout in product moment formulas using manual calculation indicated that the item was valid. (see appendix 3 more detail).the result from SPSS calculation was valid. (see appendix 3).

5. The last step is test of significance correlation

Further testing is test of significance that serves to search for the meaning of the relationship between variables X and variable Y. The results of the Pearson product moment significance was tested with the following formula:

$$t = \frac{r\sqrt{n-2}}{r\sqrt{1-r^2}}$$

Where:

t = the significant correlation

r = the correlation between two variables

N = the amount of subject

By using the equation, it can be found the significant the correlation between synonym context clue and reading comprehension. Then the use of distribution (t table) for $\alpha = 0,05$ (significance of 5% or 0,05, is a standard measure that is commonly used in research.)²¹. In this research, the writer tends to use computerized calculation by utilizing SPSS. Product moment correlation and Scatter Plot.

If $t_{\text{observed}} > t_{\text{table}}$ = significant

$t_{\text{observed}} < t_{\text{table}}$ = not significant.

The writer uses the 5% significant level because her field of research is reading comprehension subject not an exact subject. In the language study, it is better to use 5% significant level. On the other hand, for exact study it is better to use the 1% significant level.

²¹. Ibid, p.221