CHAPTER 3

THE INFLUENCE OF ATTITUDES ON ENGLISH LANGUAGE LEARNING ACHIEVEMENTS IN IAIN SUNAN GUNUNG DJATI

3.1 Method and Procedure of Investigation

A method used in the investigation is a descriptive method. The method has three basic steps in its working procedure, namely, gathering the data, organizing the data, presenting and analyzing the data, which can be described as follows:

3.1.1 Gathering the Data

In conducting the investigation, the reliability and the validity depend largerly on the methods of gathering the data. In this step, the activity is concentrated on gathering the original data from the subjects observed. To make it simple and easy, she makes some preparation as follows:

3.1.1.1 Determining the Representative Sample

Before conducting the investigation, the writer determines the representative sample by using stratified random sample. She only takes twenty percents from all the population. There are 946 students in the population, so 20% from 946 is 189.2 or 200 (rounded). The sample which must be taken from each faculty is:

$$\frac{\Sigma \text{ population of the faculty}}{\Sigma \text{ total population}} \times 200 \text{ or, } \frac{\Sigma F}{\Sigma P} \times 200$$

The representative sample from each faculty, each class or department related to their educational backgroud can be seen in detailed determination in appendix 1.

3.1.1.2 Determining Suitable Instrument

The instrument of gathering the data is done mainly by using questionnaire. There are two parts of the questionnaire:

Part One, designed in blank forms, should be filled by the students, they consist of the students' educational background, their academic achievements, especially their English achievements which are considered as general basic subject of instuction (MKDU) from their first three or four semesters, their challenge and obstruction in learning English and their expectation and suggestion in improving the quality of the teaching of English.

Part Two consists of their attitudes towards English in form of attitude scales based on the Likert's attitude scales - developed by Rensis Likert (1932). The attitude scales are designed to provide a quantitative measure of individuals relative position along a unidimensional attitude continuum.

In the Likert's scale, a series of attitude statements are presented and it calls for a graded response to each statement. The response is usually expressed in terms of the following five categories: strongly agree, agree, undecided (neutral), disagree and strongly disagree. The individual statements are either clearly favourable or clearly unfavourable. To score the scale, the alternative responses are credited: 5,4,3,2 or 1, resfectively, from the favourable statement to the unfavourable end, for example, strongly agree with a favourable statement would receive a score of 5, as would strongly disagree with an unfavourable statement. The sum of the item credits represents the individual's total score, which must be interpreted in terms of empirically established (Anastasi,1964: 547).

The attitude scales consist of 60 items of statements, namely, 43 items of positive statements and 17 items of negative statements. Both statements involve: English-teaching learning process which includes materials (10 items), teacher (3 items), administration (7 items), and evaluation (3 items); orientation - integrative (5 items) and instrumental (6 items); interest - general (5 items) and specific (6 items); environment (5 items) and effort (10 items). For details see appendix 2.

With the instruments, the investigator can draw the variables which she really needs, namely: their educational background, their programme of studies, their attitudes and their achievements. To obtain the data about their achievements of the English subject, she also conducts the documentary study. The documentary study here means a method used to collect the data that had been prepared by the institute from which the writer gets the data. The data of the students' achievement of the English subject is the average result of their first three or four semesters.

Before distributing the designed attitude scales, they have been tried out to the half of the students of the English department of the IAIN in the third grade to make sure whether they can or cannot use the instruments effectively.

3.1.2 Organizing the Data

In this step, she finds out the validity and the reliability of the instruments, the normality of the data, and computes the data with the following procedures:

3.1.2.1 Testing the Validity and the Reliability of the instrument

To make sure that the instruments or the attitude scales which have been operated are valid and reliable - capable of achieving certain aims and have certain accuracy she tries to test the validity and the reliability of the instruments.

To test the validity, the formula which has been used:

$$t = \frac{\bar{X}h - \bar{X}l}{\sqrt{\frac{\sum (Xh-\bar{X}h)^2 + \sum (Xl-\bar{X}l)^2}{n(n-1)}}}$$

(Subino,1987:125)

where,

$\bar{X}h$: mean of high score

$\bar{X}l$: mean of low score

n: the number of sample

To conduct the formula, the writer selects 25% from samples who gain the highest scores and 25% from samples who gain the lowest scores. There are 200 samples, so she gets 50 samples from the lowest ones and also 50 samples from the highest ones (for details, see appendix 3).

To test the reliability of the instruments, she uses split-half method. She arranges the sum of scores of the sample above and departs the sum of odd scores and the sum of even scores. The formulas which have been used in testing the reliability are:

a. To find the coefficient of reliability used the general formula:

$$r.o.e = \frac{XoXe/N-(\bar{X}o)(\bar{X}e)}{(So)(Se)}$$ (Subino,1987:114)

b. To find the coefficient of reliability of the scale:

$$rtt = \frac{2\ r.o.e}{1+r.o.e}$$ (Subino,1987:115)

where,

r.o.e: the reliability of even and odd number of statements

rtt : the coefficient reliability of the scale

XoXe : the total number of scores of both even and odd numbers of statements

N : The number of the selected sample

$\bar{X}o$: the mean score of odd numbers

$\bar{X}e$: the mean score of even numbers

So : the standard deviation of odd numbers

Se : the standard deviation of even numbers

To measure the level and the height of the coefficient reliability, the classification of Guilford can be used as follows:

r: less than 0.20 = slight

0.20 - 0.40 = low

0.40 - 0.70 = moderate

0.70 - 0.90 = high

0.90 - 1.00 = very high

From the computation above, the writer can obtain the conclusion as follows:

1) The level of the validity of the attitude scales are regarded valid because the obtained t value are greater than the t table value at 0.05 level of significance with 98 degrees of freedom.
2) The level of the reliability of the attitude scales are 0.96. Based on the Guilford criteria, it is regarded very high reliable and can be used.

3.1.2.2 <u>Testing the Normality of the Distribution of Data</u>

Before computing data, the normality of the data must be tested. If it is normal, the data can be used for further statistical computation, but if it is not normal, the data must be normalized or standardized before conducting further statistical computation. The writer uses some steps in testing the normality for both of the attitudes and achievements data as follows:

1. Classifying the data into interval with using the Sturges rules: $C = 1 + 3.3 \log n$

   where, (Subino,1982:44)

   C: the number of class

   n: the number of data

2. Finding out the length of interval with using formula:

   $$I = \frac{R}{C} = \frac{X(\text{highest-lowest})}{C}$$ (Subino,1982:46)

where, R: Range gained from the highest score minus the lowest score

3. Calculating the frequency of each interval, the frequency is called observed frequency (fo)
4. Determining the limit of the class (LC). LC is low class of each interval minus 0,5 and high class of it plus 0.5
5. Determining $Z\text{-}LC = \frac{LC - Mean}{s}$
6. Determining the Mean $(\bar{X})$. $\bar{X} = \frac{\sum f.\ Xci}{\sum f}$

   where, f: frequency

   Xci: score in the central of the interval
7. Determining Width of Each Class (WC). WC = Z-table value obtained by comparing Z-LC with the Z-table value
8. Determining the Difference of Width of Each Class (DWC). DWC = Difference obtained from each of WC
9. Determining the expected frequency (fe). fe = DWC x N
10. Entering the χ^2. $\chi^2 = \sum \frac{(fo - fe)^2}{fe}$

With the degree of freedom (C-3), the writer can find conclusions as follows:

1) The distribution is said normal if the χ^2- table value is greater than the obtained χ^2 value. In this computation, the obtained χ^2 value of attitude data is 28.94. The χ^2-table value at 0.01 level of significance with 6 degree of freedom is 16.81. The obtained χ^2 value is greater than the χ^2-table value so the distribution is not normal.
2) The obtained χ^2 value of achievement data, 28.37 is greater than the χ^2-table value, 15.09, so the distribu-

tion of the achievement data is not normal too.

For further statistical computation, the writer has to normalize or standardize the scores of the data by considering the following steps:

1. Changing the individual data into percentile rank with using formula: $PR = 100 - (\frac{100R-50}{n})$

(Subino,1982:116)

where, PR: percentile rank

R: rank

n: the number of data

2. with using the table of the proportions of area under the standard normal curve, the percentile rank is changed into the Z-table score
3. Transforming the Z-score into the T-score with using the formula: $T = 10\ (Z) + 50$
4. Entering further statistical computation.

3.1.2.3 Steps in Computing the Data

The writer tries to compute the data with considering subsequent formulas:

a. To find out the correlation between the students' language attitude towards English (X) and their achievement (Y), conducted by using the adapted t-test formula or checking the product-moment correlation. According to Hatch and Farhady (1982:201), we can determine the statistical significance of all the correlations by using an adapted t-formula or by checking the product-moment correlation.

b. To find out the relationship between students' educational background and their attitudes towards English and also the relationship between the students' educational background and their achievements, she uses t-test to find the significance correlations.

c. To find out the difference involving the students' attitudes and their achievements among Law, Theology and Education Faculties, she uses one way analysis of variance (ANOVA).

3.1.2.3.1 Steps in Product-Moment Correlation

1. Preparing the T-scores to be studied: the T-scores of the students' attitudes and the T-scores of their achievements.
2. Tabulating the scores of the students' attitudes as variable X and the students' achievements as variable Y, and listing them in parallel columns (Farhady,1982:197).
3. Finding out the x scores by substracting the mean of the T-scores from the T-score (X) . $x = X - \bar{X}$.
4. Finding out the y scores in the same way.
5. Squaring each score and entering them in the x^2 and y^2.
6. Multiflying the x and y scores together and entering them in xy columns.
7. Adding up each column.
8. Applying the correlation coefficient formula (called the Pearson product-moment formula)

$$r_{xy} = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$$ (Subino,1982:65)

9. Entering the table critical values of the Pearson pro-

duct-moment correlation coefficient.

10. Finding out the significant correlation with applying t-test formula: $t = r\sqrt{\frac{n-2}{1-(r)^2}}$ (Subino,1982:129)

11. Entering the t-table value.

3.1.2.3.2 Steps in t-test

1. Preparing the pairs of scores to be studied
2. Tabulating the scores of X variable and of Y variable in an interval form, with determining the sum of classes of interval of scores of the variables with using Sturges rule: $C = 1 + 3.3 \log n$, and determining the length of the interval: $I = \frac{R}{C}$.
3. Determining the scores in the central of each interval (Xci) of the two variables.

   $Xci = \frac{Xhi+Xli}{2}$ (Subino.1982:48)
4. Determining the frequency of scores of the two variables.
5. Determining the mean of the Xci.

   $\overline{X}ci = \frac{\sum f \cdot Xci}{\sum f}$ (Subino,1982:49)
6. Determining the moment deviation (di) for each class of interval with using formula:

   $di = \frac{Xci-\overline{X}ci}{i}$ (Subino,1982:47)

   entering the scores in di columns.
7. Multiflying the frequency (f) with the moment deviation (di), entering the scores in fdi columns.
8. Multiflying the frequency (f) with the square of the

moment deviation, entering the scores in fdi^2 columns.

9. Adding up each column.
10. Finding out the mean by using formula:

$$\bar{X} = \bar{X}ci + i \left(\frac{\Sigma fdi}{\Sigma f}\right)$$ (Subino,1982:47)

11. Finding out the standard deviation

$$s = i\sqrt{\left(\frac{fdi^2}{n}\right) - \left(\frac{fdi}{n}\right)^2}$$ (Subino,1982:63)

12. Computing the standard error of mean of the variable.

$$SE_X = \frac{s}{\sqrt{n-1}}$$

13. Computing the standard error of mean 1 minus mean 2 with using formula: $$SE_{X_1-X_2} = \sqrt{SE_{X_1}^2 + SE_{X_2}^2}$$
14. Computing the value of t.

$$t = \frac{X_1-X_2}{SE_{X_1-X_2}}$$

15. Determining degree of freedom (df).

$$df = (N_1+N_2-2)$$

16. Entering the t-table value.

3.1.2.3.3 <u>Steps in One Way Analysis of Variance</u> (ANOVA)

1. Listing the scores according to their fields of study (n_1,n_2,n_3) of the variable (X_1,X_2,X_3) in a parallel columns.
2. Calculating the standard deviation of each score.
3. Squaring them and entering X_1^2,X_2^2,X_3^2 columns.
4. Adding up each column.
5. Determining the homogeneity of the three variances by

calculating F-value. F-value is gained from the highest standard deviation divided by the lowest standard deviation. It is obtained by considering the sum of cases (n) with the highest standard deviation with the sum of cases with the lowest standard deviation $(n_{s_h}-1):(n_{s_l}-1)$. The variances are called homogeneous if F- table value is greater than the obtained F value.

6. Computing the sum of squares total (SST).

$$SST = \sum X^2 - \frac{(\sum X)^2}{N}$$ (Hatch and Farhady, 1982:154)

where, N: the total number of cases of all group.

7. Computing the sum of squares between group (SSB).

$$SSB = \left[\frac{(\sum X_1)^2}{n_1} + \frac{(\sum X_2)^2}{n_2} + \frac{(\sum X_3)^2}{n_3}\right] - \frac{(\sum X)^2}{N}$$

where, n: the number of cases of each group.

8. Computing the sum of square within group (SSW).

SSW = SST - SSB.

9. Computing the degree of freedom (df) by using the following ways:
   - degree of freedom of total (dft), dft = (N-1).
   - degree of freedom of between group (dfb), dfb = (g-1)
   - degree of freedom of within group (dfw), dfw = (N-g).
10. Computing sum of mean of squares between group (MSB), $MSB = \frac{SSB}{dfb}$.
11. Computing sum of mean of squares within group (MSW), $MSW = \frac{SSW}{dfw}$.
12. Computing and interpreting the F-value, $F = \frac{MSB}{MSW}$.

The criterion of the computation is that if the obtained F-value is greater than F-table value, the Null hypothesis is rejected. The degree of freedom of between group and of within group is $\frac{dfb}{dfw}$ (Hatch & Farhady,1982:134).

3.1.3 <u>Presentation and Analysis of the Data</u>

This part is devoted to the presentation and Analysis of the data based on the methods and techniques which have been discussed in the previous part. In this part, the writer tries to present the results of the statistical computation and to discuss them. From the discussion, she is able to have clarification whether her hypotheses are received or rejected. The analysis of the hypotheses are conducted as follows:

<u>Hypothesis 1</u>:

There is a positive relationship between the students' attitudes towards English and their English achievements. Students who have positive attitudes towards English will gain good achievements in English.

To test the hypothesis, correlation statistical formula has been used. The purpose of this kind of statistical computation is to test the degree of relationship between two variables involved, that is students' language attitudes - students' attitudes towards English, and the degree of their achievements of English. The formulas used in testing the hypothesis are:

a. To find out the coefficient relation used formula:

$$r\,xy = \frac{xy}{(x^2)(y^2)}$$

b. To test the significance of the correlation used:

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

The computation become:

1) All sample of the students:

a. $r\,xy = \frac{7354.40}{\sqrt{(19977.07)(19599.46)}} = \frac{7354.40}{\sqrt{391539784.4}}$

$= \frac{7354.4}{19787.36} = 0.37$

b. $t = 0.37\sqrt{\frac{200-2}{1-(0.37)^2}} = 0.37\sqrt{\frac{198}{1-0.1369}} = 0.37\sqrt{\frac{198}{0.8631}}$

$= 0.37\sqrt{229.4056} = 0.37 \times 15.15 = 5.6$

2) Sample from Islamic school background:

a. $r\,xy = \frac{3171.43}{\sqrt{(9247.92)(8099.536)}} = \frac{3171.43}{\sqrt{74903860.97}}$

$= \frac{3171.43}{8654.70} = 0.366$

b. $t = 0.366\sqrt{\frac{100-2}{1-(0.366)^2}} = 0.366\sqrt{\frac{98}{1-0.134}} = 0.366\sqrt{\frac{98}{0.866}}$

$= 0.366\ \overline{113.164} = 0.366 \times 10.638 = 3.89$

3) Sample from General school background:

a. $r\,xy = \frac{2896.31}{\sqrt{(10145.37)(10896.61)}} = \frac{2896.31}{\sqrt{110550140.2}}$

$= \frac{2986.31}{10514.28} = 0.284$

b. $t = 0.284\sqrt{\frac{100-2}{1-(0.284)^2}} = 0.284\sqrt{\frac{98}{1-0.080656}}$

$= 0.284\sqrt{\frac{98}{0.9193}} = 0.284 \times \sqrt{106.603} = 0.284 \times 10.325$

$= 2.93$

Result and Discussion:

A Null Hypothesis can be rejected if the obtained t-value is greater than the t-table value. The result of the computation can be shown as follows:

1) From all sample of the students; the t-table value at 0.01 and 0.05 levels of significance with 198 degree of freedom are 2.326 and 1.645. The obtained t-value (5.6) is greater than the t-table value, so the null hypothesis is rejected.
2) The t-table value at 0.01 and 0.05 levels of significance with 98 degree of freedom are 2.358 and 1.658. The obtained t-value of the Islamic school background is 3.89. It is greater than the t-table value, so again the null hypothesis is rejected.
3) The obtained t-value of students with General school background is 2.93. It is greater than the t-table value at 0.01 and 0.05 levels of significance with 98 degree of freedom (2.358 and 1.658), so again the null hypothesis is rejected.

In respect to the results of the computation, the writer can interpret that there is a positive relationship between students' language attitudes - the students' attitudes towards English, and their achievements.

<u>Hypothesis 2</u>

There is a significant difference between the students' educational background and their attitudes towards English; students with general school background have more positive attitudes towards English than those with Islamic school background.

Based on the difference of the mean of scores between the attitudes towards English of students with General school background and of those with Islamic school background, the appropriate test employed to test the hypothesis is t-test formula. The computation of this test is as follows:

The formula used: $t = \dfrac{X_1 - X_2}{SE_{X_1 - X_2}}$

where,

X_1 : the mean of scores on the English language attitudes obtained by students with general school background = 52.12

X_2 : the mean of scores on the English language attitudes obtained by those with Islamic school background = 47.9

$SE_{X_1 - X_2}$: standard error of mean 1 minus mean 2 = 1.41

df. : the number of sample from both of the sample minus two $(N_1 + N_2 - 2)$ = 198

so, $t = \dfrac{52.12 - 47.9}{1.41} = 2.99$ (for details, see appendix 5)

Result and Discussion:

A null hypothesis can be rejected if the observed t-value is greater than the t-table value. The t-table value at 0.05 and 0.01 levels of significance with 198 degree of freedom are 1.645 and 2.326. The obtained t-value (2.99) is greater than the t-table value, so the null hypothesis is rejected.

In respect to the result of the computation, the writer can interpret that there is a significant difference between the students educational background and their attitudes towards English.

Hypothesis 3

There is a significant difference between the students' educational background and their English achievements; students with General school background have better English achievements than those with Islamic school background.

For testing the hypothesis, the writer uses the t-formula. It is in the same way with the test of hypothesis 2:

$$t = \frac{X_1 - X_2}{SE_{X_1 - X_2}}$$ (for details,see appendix 5)

where,

X_1 : the mean of scores on the English achievements obtained by students with General school background= 51.7

X_2 : the mean of scores on the English achievements obtained by students with Islamic school background= 48.7

$SE_{X_1-X_2}$: standard error of mean 1 minus mean 2 = 1.385

so $$t = \frac{51.7-48.7}{1.385} = \frac{3}{1.385} = 2.1661$$

Result and Discussion:

In respect to the computation, the writer can interpret that there is a significant difference at 0.05 level of significance but it is not so significant at the level of 0.01.

Hypothesis 4

There is a significant difference of attitudes towards English among students of Law, Theology and Education faculties.

To test the hypothsis, the writer has used one way analysis of variance (ANOVA). The steps of the computation is as follows:

1. Computing sum of squares total (SST) = 19977
2. Computing sum of squares between group (SSB)= 1030.27
3. Computing sum of squares within group (SSW)= 18946.73
4. Determining the degrees of freedom:
   - total (dft) = (N-1) = 199
   - within (dfw) = (N-g) = 197
   - between (dfb) = (G-1) = 2
5. Computing sum of mean of squares between (MSB).

$$MSB = \frac{SSB}{dfb} = \frac{1030.27}{2} = 515.135$$

6. Computing sum of mean of squares within group (MSW).

$$MSW = \frac{SSW}{dfw} = \frac{18946.73}{197} = 96.176$$

7. Computing and interpreting F-value.

$$F = \frac{MSB}{MSW} = \frac{515.135}{96.176} = 5.356$$

(for details, see appendix 5)

Result and discussion:

The criterion of this computation is that if the obtained F-value is greater than the F-table value, the null hypothesis is rejected. The degree of freedom to obtained the F-table value is (2:197), which is gained by dividing the degree of freedom between group by the degree of freedom within group ($\frac{dfb}{dfw}$), at 0.05 and 0.01 levels of significance are 3.04 and 4.71.

From the computation above, the null hypothesis is rejected because the obtained F-value (5.36) is greater than the F-table values (3.04 and 4.71). From this result, the writer can interpret that there is a significant difference of attitudes towards English among students of Law, Theology and Education Faculties.

Hypothesis 5

There is a significance difference of English achievements among students of Law, Theology and Education Faculties.

To test this hypothesis, the writer uses ANOVA. It is in the same way with testing hypothesis 4. The steps are as follows:

1. Computing sum of squares total (SST) = 19596.86
2. Computing sum of squares between (SSB) = 19596.441
3. Computing sum of squares within (SSW) = 0.449
4. Computing degrees of freedom:
   - total = 199
   - within = 197
   - between = 2
5. Computing sum of mean of squares between group (MSB).

   $$MSB = \frac{0.449}{2} = 0.2245$$

6. Computing sum of mean of squares within (MSW).

   $$MSW = \frac{19596.411}{197} = 99.47$$

7. Computing and interpreting F-value.

$$\text{F-value} = \frac{0.2245}{99.4700} = 0.0022$$

Result and Discussion:

The F-table value at 0.05 and 0.01 levels of significance, 3.04 and 4.71, are greater than the obtained F-value, 0.0022, so the null hypothesis is received.

In respect to the result of the computation, the writer can interpret that there is no difference of achievements among students of Law, Theology and Education faculties.

From all the computation, the writer can conclude whether all her hypotheses are received or rejected. The conclusion of all the hypotheses will be specially explained in the next chapter - chapter 4.