

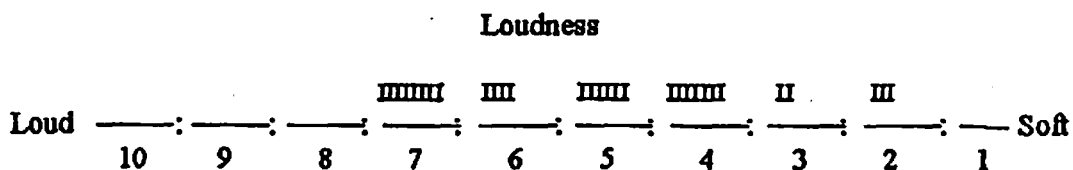
CHAPTER III

PRESENTATION AND ANALYSIS OF THE DATA

3.1. Presentation of the Data

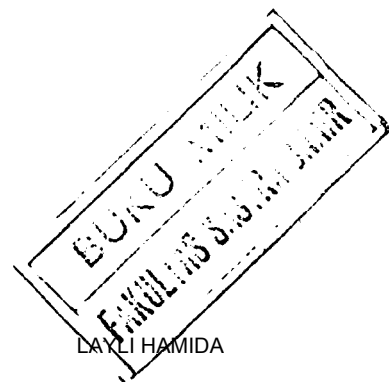
3.1.1. Listeners' Perception toward Speakers' Loudness of Speaking

Listeners' perception toward speakers' loudness can be defined from their ratings on semantic differential scales. The following data display the perception of the listeners toward the speakers' loudness of speaking. The speakers are arranged in an order from the first to the sixth speaker based on their score on Eysenck Personality Questionnaire. The first and second speakers are the ones who get the lowest scores on the test, and the fifth and sixth speaker are the ones who have the highest scores. The third and fourth speakers are the ones whose scores are in average. The first, third, and fifth speakers are females, while the second, fourth, and sixth speakers are males. Each scale represents listeners' perception on each speakers' loudness.

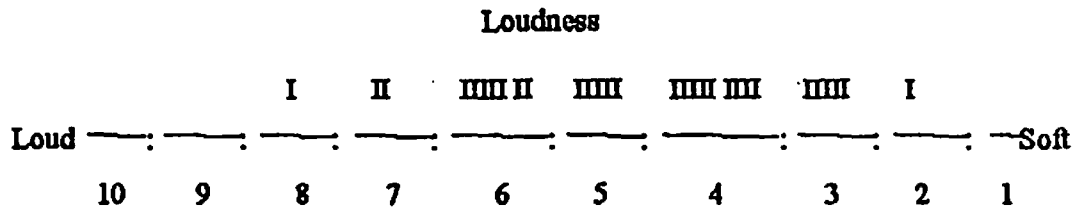


Scale 3.1.1.1

Listeners' ratings on the first speaker's loudness



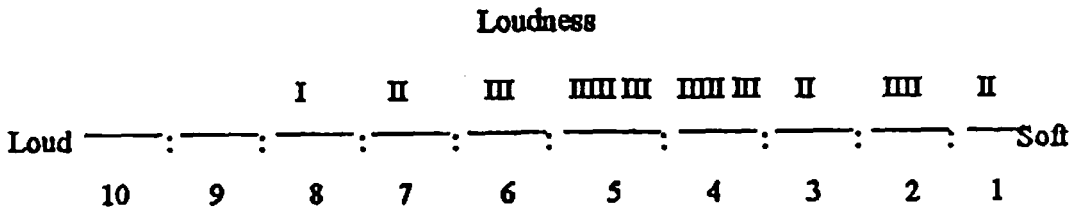
From the scale above, we could see that three people choose value 2, two people choose value 3, seven people choose value four, six people choose value 5, and four people choose value 6. In this case, we may conclude that the listeners rate the first speaker's loudness as average, that is around value 5. However, there are also eight people who choose value seven in which the loudness is considered as above the average.



Scale 3.1.1.2

Listeners' ratings on the second speaker's loudness

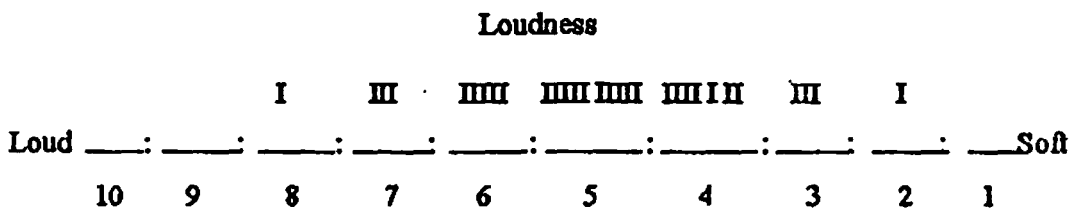
From the second scale, it is obvious that for the second speaker's loudness, one person choose value 2, five people choose value 3, nine people choose value 4, five people choose value 5, and seven people choose value 6. Here, the second speaker is considered as to have a rather soft voice since more people rate his voice on the values under the average. Nevertheless, there are two people who choose value 7 and one person who chooses value 8 for the second speaker's loudness.



Scale 3.1.1.3

Listeners' ratings on the third speaker's loudness

Based on the third scale, we can conclude that the third speaker is considered as having a soft voice since sixteen people rate her voice on the value under the average that are, eight on 4, two on 3, and four on value 2. Even, there are two people who give value 1, which is the lowest value of the scale on the loudness of speaking. There are eight people who give her the average value 5, and only six people rate her voice on the value above the average. Each are three on 6, two on 7, and one on value 8.



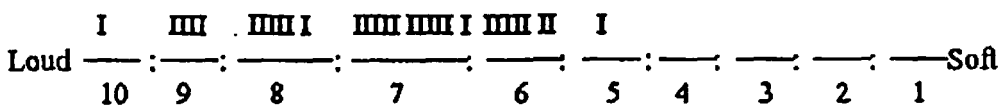
Scale 3.1.1.4

Listeners' ratings on the fourth speaker's loudness

Listeners' rating on the fourth speaker's loudness show that there are one person who chooses value 2, three people give value 3, seven people give value 4, ten people choose value 5, five people choose value 6, three people rate his voice on value 7, and one person gives value 8. According to this fourth scale, it can be seen that listeners tend to give average values for the fourth speaker's

loudness. Most listeners rate the fourth speaker's loudness on the values near to the extreme soft point, and only few of them rate his voice on the value above the average.

Loudness

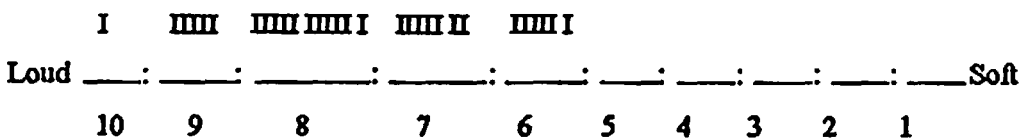


Scale 3.1.1.5

Listeners' ratings on the fifth speaker's loudness

From the fifth scale, we could see that the fifth speaker is considered to have a loud voice by the listeners since most of them rate her voice on the value above the average. There are seven people who choose value 6, eleven people choose value seven, six people choose value 9, and even there is one person who rates her voice on the extreme point ten. There is only one person who gives the average value 5 for her loudness of speaking.

Loudness



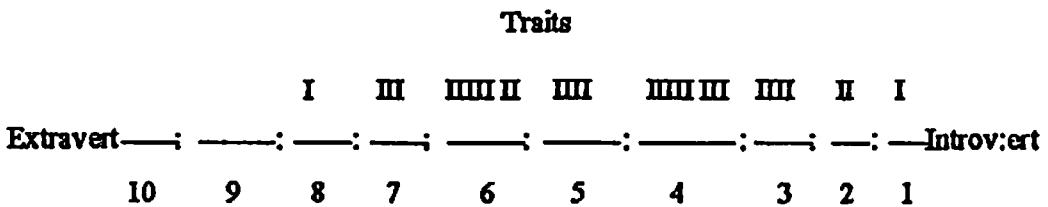
Scale 3.1.1.6

Listeners' ratings on the sixth speaker's loudness

The sixth scale shows that all listeners consider that the sixth speaker's voice is loud since there is even no single listener gives his voice on the average value. Six people gives value 6. Seven people gives value 7. Eleven people gives his voice value 8. Five people gives him value 9. And one person chooses value 10 for the loudness of the sixth speaker's voice.

3.1.2. Listeners' Impression upon Speakers' Personality Traits

On the basis of the speakers' loudness, the listeners are asked to give their impression about the speakers' traits, in this case extravertness-introvertness. Listeners' impressions are represented by their ratings about the speakers' extravertness-introvertness on semantic differential scales as presented on the following data.

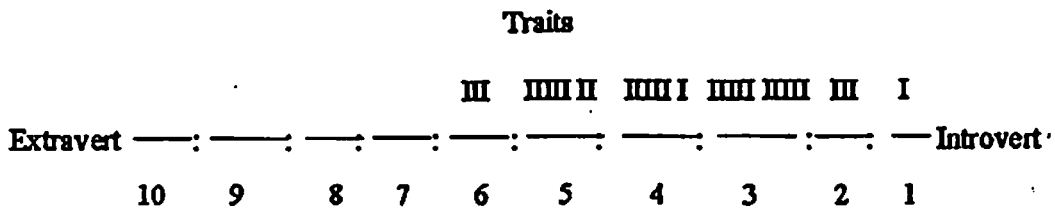


Scale 3.1.2.1

Listeners' ratings on the first speaker's trait

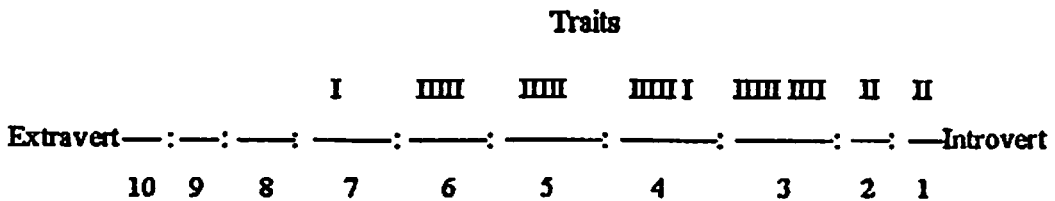
From the above scale, we can see that based on the loudness of the first speaker's speech most listeners get the impression that the first speaker has an average degree of extravertness-introvertness. Such conclusion emerges because there are not only fifteen people who rate her trait on the value near the extreme introvert

point, four people rate her trait on the average value 5 and seven on 6, but also there are three people who choose value 7 and one person who chooses value 8.



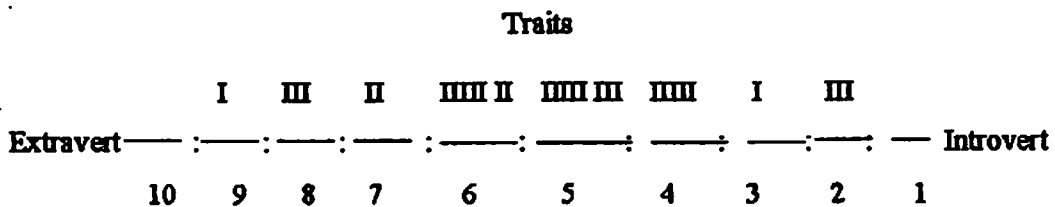
Scale 3.1.2.2
Listeners' ratings on the second speaker's trait

The second scale on the speaker's trait shows that there is no listener who give high values for the second speaker's trait. There are only three people who choose value six and seven people who choose average value 5. The rests of the listeners give him the value under the average near the extreme introvert point, that are six on 4, ten on 3, three on 2 and one on 1. Thus, we may say that based on the second speaker's loudness of speaking the listeners get the impression that he is an introvert person.



Scale 3.1.2.3
Listeners' ratings on the third speaker's trait

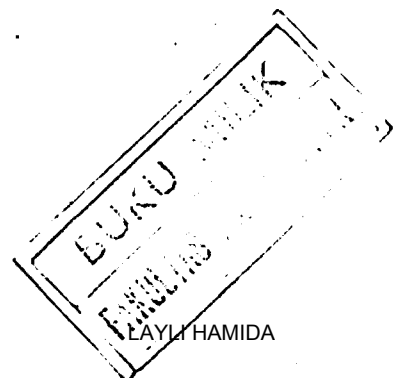
On the third scale of the speaker's trait, it is known that for the third speaker, most listeners get impression that she is an introvert person. It is because there is only one person who gives her value 7 and only five people who choose value 6. Five other people choose the average value 5 for her and the rests choose the value under the average.



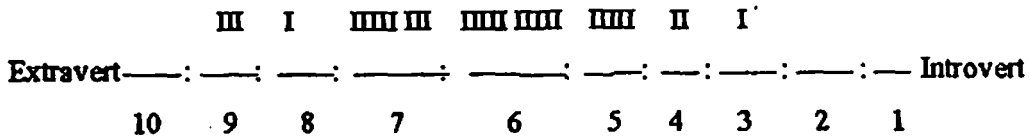
Scale 3.1.2.4

Listeners' ratings on the fourth speaker's trait

From the scale above, we see that the given values for the fourth speaker are spread from the extreme extravert point to the extreme introvert point. Although there is only one person who gives him value 9, and there are only three people who give value 8 and two people give value 7, we cannot say that he is an introvert person. We cannot also say that he is an extravert person since there are five people who choose value 4, one person who chooses value 3, and three people who choose value 2 for his extravertness-introvertness. However, we see that there are eight people who rate his trait on the average value 5. Therefore, we may say that the fourth speaker's personality trait is in between or a mix between extravert and introvert.



Traits

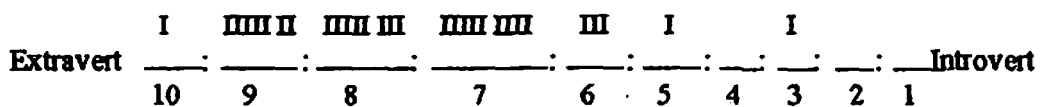


Scale 3.1.2.5

Listeners' ratings on the fifth speaker's trait

Based on the above scale, we learn that the listeners tend to give the value above the average for the fifth speaker's trait. There are only five people who give her value 5. Ten people choose value 6. Eight people give value 7. One person gives value 8 and three people choose value 9. There are also two people who choose value 4 and there is one person who chooses value 3. But, based on scale 3.1.2.5 we still can conclude that the listeners rate the fifth speaker as an extravert person.

Traits



Scale 3.1.2.6

Listeners' ratings on the sixth speaker's trait

Listeners' ratings on the sixth speaker's trait show us that there is only one person who chooses the value under the average and also one person who gives the average value for his trait. The rests of the listeners choose the value above the average. There are three people who give him value 6, nine people who choose

value 7, eight people who choose value 8, and seven people who choose value 9. Even, there is one person who gives the extreme extravert point 10 for the sixth speaker's trait. Therefore, we can conclude that based on the sixth speaker's loudness of speaking, the listeners get the impression that the sixth speaker is an extravert person.

Beside rating the speakers' trait on a semantic differential scale, based on the speakers' loudness, the listeners also give comments upon their trait. For example, some listeners think that the second speaker is unsociable, and careful. He tends to plan ahead or look before he leaps. In other word, he is thoughtful. Some other listeners also think he likes a well-ordered way of life. All of the listeners' comments upon the second speaker are indicators of the trait introvert. For the first speaker, the listeners think that she is lack of self confidence. In this case, the listeners identify other traits beside extravertness-introvertness based on the speaker's loudness. For the third speaker, the listeners think that she is reserved, unsociable, rigid, and passive which are all indicators of introvertness. Additionally, the listeners also think that she is lack of self confidence. The listeners also commentate on the fourth speaker's trait. Some listeners think that he is calm, thoughtful, and distant except to intimate friends. But, some listeners also think that he cannot be said to be unsociable and he is open enough to other people. From the listeners' comments, we see that the fourth speaker has a mix personality traits between extravert and introvert. The fifth speaker is considered to be undoubtful, ready to take chances, simple and emphatic. While, the sixth speaker is considered to be sociable, needs to have people to talk to, careful, easygoing, simple, but ready to take chances and emphatic

3.2. Quantitative Analysis

3.2.1. The Mean Value of Semantic Differential Scales on the Speakers'

Loudness

Listeners' ratings on the speakers' loudness varies from the lowest to the highest value. Thus, for the purpose of statistical analysis the mean values of the listeners' ratings on each speaker's loudness need to be found.

To find the mean value for each speaker's loudness from the semantic differential scale, we have to multiply the value in each space with the number of marks at that space. The results are then totalled and divided by the total number of listeners. In short, the formula for calculating the mean value of a semantic differential scale is :

$$\frac{[(m \times v) + (m \times v) + \dots]}{n}$$

m = number of marks at each space

v = value for the space

n = total number of listeners

After calculating the mean value of the semantic differential scale for each speaker, we have the results as follows :

- a. scale I : first speaker's loudness = 5
- b. scale II : second speaker's loudness = 4.73
- c. scale III : third speaker's loudness = 4.27
- d. scale IV : fourth speaker's loudness = 4.93
- e. scale V : fifth speaker's loudness = 6.93
- f. scale VI : sixth speaker's loudness = 7.6

The mean value of the first scale for the first speaker's loudness is 5. It could be said that, on the average, the first speaker is judged to have a loud voice to the degree of 5 on a ten point scale by the listeners.

Next, on the loudness scale, the mean evaluation for the second speaker is 4.73. It is to be interpreted as indicating that, on the average, the second speaker is judged to have a loud voice to the degree of almost 5 on a ten point scale by the listeners.

The mean value of the third scale is 4.27. Then, it can be interpreted as an indication that the third speaker is judged to have a loud voice to the degree of a bit more than 4 on a ten point scale by the listeners.

The fourth scale for the fourth speaker has the mean value of 4.93. It indicates that, on the average, the fourth speaker is judged to have a loud voice to the degree of almost 5 on a ten point scale by the listeners.

The mean value of the fifth scale for the fifth speaker's loudness is 6.93. Thus, it can be interpreted as indicating that, on the average, the fifth speaker is

judged to have a loud voice to the degree of almost 7 on a ten point scale by the listeners.

From listeners' ratings on the sixth speaker's loudness, the mean evaluation is 7.6. Therefore, it could be said that the sixth speaker is judged to have a loud voice to the degree of almost eight on a ten point scale.

If we are to take the value 5 as the intermediary value for loudness, the values under five as indicators of soft voices and the values above five as indicating loud voices, then, we could say that the first speaker's loudness is moderate. The second speaker's loudness is moderate, but tends to be soft. The third speaker's voice is soft and the fourth speaker's loudness tends to be moderate. While, the fifth and the sixth speakers' voices are loud.

3.2.2. The Mean Value of Semantic Differential Scales on the Speakers'

Traits

From the calculation of the mean value for semantic differential scales on the speakers' extravertness-introvertness, the results can be presented as follows :

- a. scale I : first speaker's extravertness = 4.6
- b. scale II : second speaker's extravertness = 3.8
- c. scale III : third speaker's extravertness = 3.97
- d. scale IV : fourth speaker's extravertness = 5.27
- e. scale V : fifth speaker's extravertness = 6.23
- f. scale VI : sixth speaker's extravertness = 7.53

From the first scale, we have the mean value of 4.6. It means that, on the average, the first speaker is judged to be extravert to the degree of almost 5 on a ten point scale by the listeners.

The mean value from the second scale for the second speaker is 3.8. It can be interpreted as indicating that, on the average, the second speaker is judged to be extravert to the degree of almost 4 on a ten point scale by the listeners.

The mean value of the third scale is 3.97. It means that, on the average, the third speaker is judged to be extravert to the degree of almost 4 on a ten point scale by the listeners.

The calculation of listeners' ratings on the fourth speaker's extravertness results in the mean evaluation of 5.27. Thus, it can be said that the fourth speaker is judged to be extravert to the degree of a bit more than 5 on a ten point scale.

The mean value of the fifth scale is 6.23. It means that, on the average, the fifth speaker is judged to be extravert to the degree of a bit more than 6 on a ten point scale by the listeners.

Last, from listeners' ratings for the sixth speaker's extravertness on the sixth scale, the mean evaluation is 7.53. It can be interpreted that, on the average, the sixth speaker is judged to be extravert to the degree of almost 8 on a ten point scale.

If we also take the value 5 as the intermediary value for extravertness-introvertness as we did in the previous section on the speakers' loudness, the values under 5 as indicators of introvertness and the values above 5 as indicators of extravertness, we see that from the results of the mean value calculation, the first speaker tends to be moderate in her extravertness-introvertness quality degree. The second speaker is introvert because the listeners' ratings on him result in the mean

value of 3.8. The third speaker is also an introvert since the mean value of the listener's ratings on her trait is 3.97. While, the fourth speaker's extravertness-introvertness quality degree can be said to be moderate as the mean value of the listeners' ratings on his trait is 5.27. Because the mean value of the listeners' ratings for the fifth and the sixth speakers' extravertness-introvertness are each 6.23 and 7.53, it means that they tend to be extravert.

3.2.3. Correlation Test for Speakers' Loudness and Extravertness-Introvertness

From the results of listeners' ratings on speakers' loudness and extravertness-introvertness, we get the mean value for each scale. These values are the ones that are to be reported and subjected to statistical analysis, in this case correlation test. The following table presents the summary of the results of the mean value calculation from each scale on loudness and extravertness-introvertness.

Speaker	The Mean Value of Scale on Loudness (x)	The Mean Value of Scale on Extravertness-Introvertness (y)
1	5	4.6
2	4.73	3.8
3	4.27	3.97
4	4.93	5.27
5	6.93	6.23
6	7.6	7.53

Table 3.2.3.1

The Mean Values of Scale on Loudness and Extravertness-Introvertness

To know whether a relationship exists between loudness (variable x) and extravertness-introvertness (variable y), I plot the data on a graph, in which one point is given for each pair of measurements. The resulting plot is called a scatter diagram as shown in figure 3.2.3.1

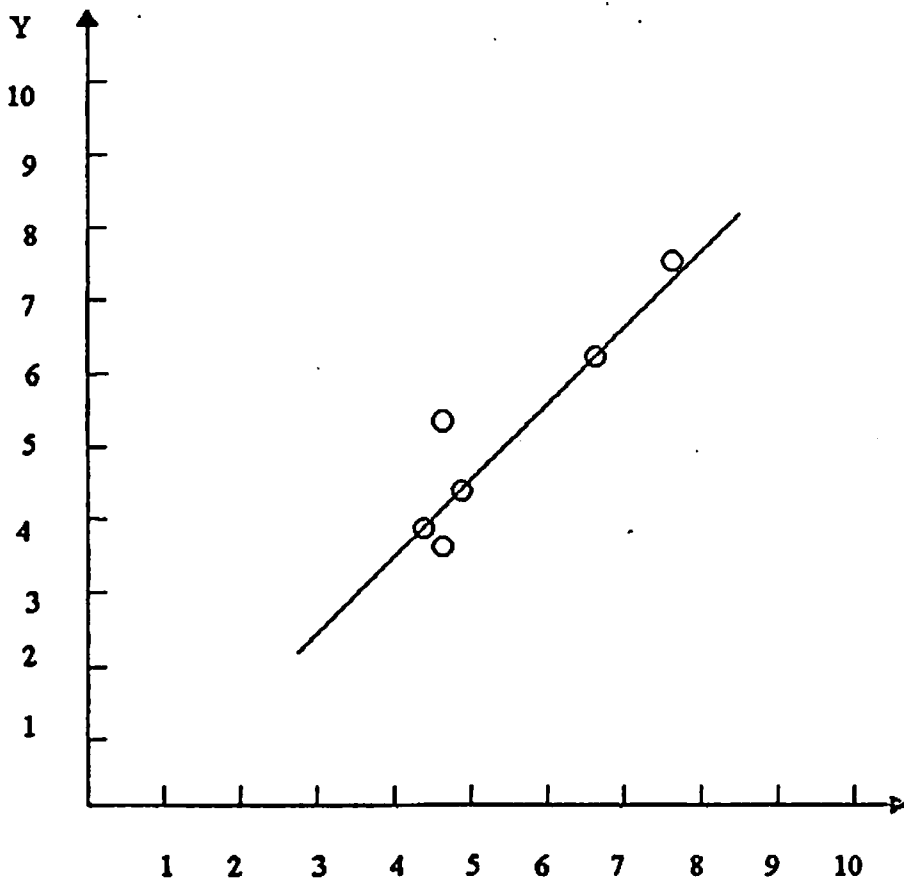


Figure 3.2.3.1

Scatter diagram on loudness and extravertness-introvertness

The scatter diagram shows six points, one for each pair of the mean value of speakers' loudness and extravertness-introvertness. From the diagram we see that the dots tend to rise as we move from the left side of the plot to the right. This suggests that a speaker's degree of loudness is related to the speaker's extravertness-

introvertness quality degree. Specifically, it appears that the speaker's extravertness-introvertness quality degree increases as the degree of loudness increases.

With the help of a straight line drawn through the plot, we can predict whether loudness and extravertness-introvertness have a linear relationship. The relationship is considered to be linear if the points in the scatter diagram tend to cluster about the straight line. The closer the points are to the line, the stronger the degree of linear relationship. Thus, from the above diagram we may say that the speakers' loudness and extravertness-introvertness have a linear relationship since the points which represent the measurements of the speakers' loudness and extravertness-introvertness cluster around the straight line. We may also say that the degree of the relationship is strong as three points exactly lie on the line and the other points are close to the line.

Based on the scatter diagram we can predict that there is a linear relationship between the speakers' loudness and extravertness-introvertness. The next step is to find the linear correlation coefficient r to measure the extent to which the points in the scatter diagram tend to cluster about the straight line.

The formula to find the correlation coefficient r is :

$$r = \frac{n(\sum x_i y_i) - (\sum x_i)(\sum y_i)}{\sqrt{\{n(\sum x_i^2) - (\sum x_i)^2\}} \cdot \sqrt{\{n(\sum y_i^2) - (\sum y_i)^2\}}}$$

In this case :

r = value of correlation coefficient

n = amount of the data

x_i = the mean value of certain speaker's loudness

y_i = the mean value of certain speaker's extravertness

The mean values from listeners' ratings on semantic scale for speakers' loudness are considered as x_i while the mean values for the speakers' extravertness-introvertness are considered as y_i . To make the calculation easier, I summarize the data as follows :

x_i	y_i	$x_i \cdot y_i$	x_i^2	y_i^2
5	4.6	23	25	21.16
4.73	3.8	17.97	22.37	14.44
4.27	3.97	16.95	18.23	15.76
4.93	5.27	25.98	24.30	27.77
6.93	6.23	43.17	48.02	38.81
7.6	7.53	57.23	57.76	56.7
Total : 33.46	31.4	184.3	195.68	174.64

Table 3.2.3.2

Correlation analysis on speakers' loudness and extravertness-introvertness

From table 3.2.3.2 we have the calculation that :

$$\Sigma x_i = 33.46$$

$$\Sigma y_i = 31.4$$

$$\Sigma x_i \cdot y_i = 184.3$$

$$\Sigma x_i^2 = 195.68$$

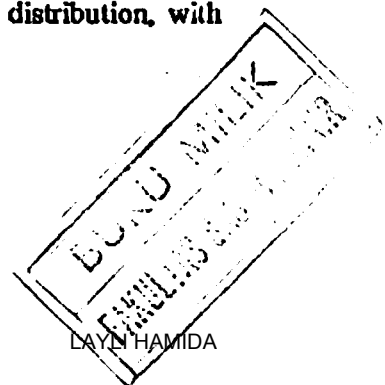
$$\Sigma y_i^2 = 174.64$$

Thus, the r value for loudness and extravertness-introvertness is :

$$\begin{aligned}
 r &= \frac{n (\sum x_i y_i) - (\sum x_i) (\sum y_i)}{\sqrt{\{ n (\sum x_i^2) - (\sum x_i)^2 \}} \cdot \sqrt{\{ n (\sum y_i^2) - (\sum y_i)^2 \}}} \\
 &= \frac{6 (184.3) - 1050.64}{\sqrt{\{ 6 (195.68) - 1119.57 \}} \cdot \sqrt{\{ 6 (174.64) - 985.96 \}}} \\
 &= \frac{1105.8 - 1050.64}{\sqrt{(1174.08 - 1119.57)} \cdot \sqrt{(1047.84 - 985.96)}} \\
 &= \frac{55.16}{7.38 \cdot 7.86} \\
 &= \frac{55.16}{58.01} \\
 &= 0.95
 \end{aligned}$$

The result of the calculation to find the correlation coefficient shows that the r value is large and positive. Coefficient correlation 0.95 suggests a strong linear relationship between speakers' loudness (variable x) and extravertness-introvertness (variable y). In this case, the correlation coefficient r matches the condition in the scatter diagram.

To make the result of the investigation more convincing, we need to do a significant test. The test finds out whether the correlation coefficient of the observation is different with nol. In this matter, we use the normal distribution, with hypotheses :



Ho : There is no significant relationship between loudness and extravertness-introvertness.

H1 : There is a significant relationship between loudness and extravertness-introvertness.

The normal distribution test uses the formula as follows :

$$Z = \frac{\sqrt{(n-3)}}{2} \ln \left\{ \frac{(1+r)(1-f_o)}{(1-r)(1+f_o)} \right\}$$

n = amount of the data

r = correlation coefficient value

f_o = correlation coefficient nol value

Thus, we get the calculation :

$$\begin{aligned} Z &= \frac{\sqrt{(n-3)}}{2} \ln \left\{ \frac{(1+r)(1-f_o)}{(1-r)(1+f_o)} \right\} \\ &= \frac{\sqrt{(6-3)}}{2} \ln \left\{ \frac{(1+0.95)(1-0)}{(1-0.95)(1+0)} \right\} \\ &= 0.87 \ln 39 \\ &= 0.87 \cdot 3.66 \\ &= 3.2 \end{aligned}$$

To compare the result of the calculation and the Z value in the table, I take the confidence level of 95 % since I cannot guarantee that this study is 100 % right.

$$\begin{aligned} \text{It means } \alpha &= 100 \% - 95 \% \\ &= 5 \% \end{aligned}$$

From Z table, we get :

$|Z(\alpha/2)|$ for $\alpha = 5\%$ is

$$Z(\alpha/2) = Z(2.5\%) = 1.96$$

It means that $|Z(\alpha/2)| = 1.96$

The result is presented in a diagram as follows :

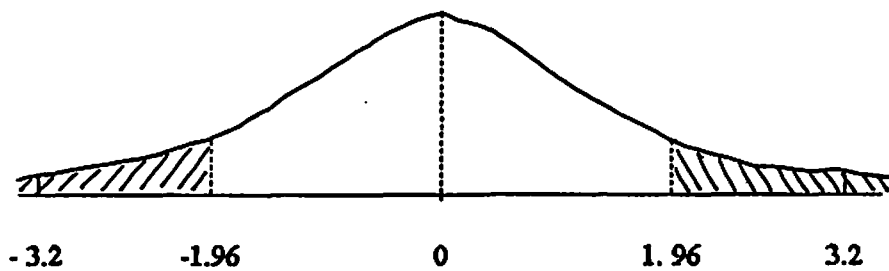


Figure 3.2.3.2
Normal distribution curve

Because the point (3.2) is outside the curve (Z value of the investigation does not lie between negative value of Z table and positive value of Z table), then H_0 is rejected. It means that, statistically there is a linear relationship between loudness and extravertness-introvertness and the relationship is significant.

3.2.4. Correlation Test for Speakers' Scores on Eysenck Personality Questionnaire of Extravertness-Introvertness and Listeners' Ratings on the Speakers' Extravertness-Introvertness based on Loudness

In the explanation about the instruments of the study, I have explained that the speakers are selected by observation and by giving them test using Eysenck Personality Questionnaire on extravertness-introvertness. Thus, for the purpose of answering the third question of this study, I need to find the relationship between speakers' extravertness-introvertness perceived from loudness (using the listeners as instrument of assessment) and their scores on the EPQ test. The following table presents the six speakers' scores on the EPQ test on extravertness-introvertness and the mean value of listeners' ratings on speakers' extravertness-introvertness based on loudness (for a complete look on the result of EPQ test see appendix A table 1).

Speaker	Speakers' scores On EPQ test (x)	The Mean Value of Scale on Extravertness-introvertness (y)
1	3	4.6
2	8	3.8
3	10	3.97
4	13	5.27
5	16	6.23
6	17	7.53

Table 3.2.4.1

Spekers' scores on EPQ test and the mean value on scale for extravertness-introvertness

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To know whether a relationship exists between speakers' scores on EPQ test (variable x) and their personality traits of extravertness-introvertness perceived from loudness (variable y), I plot the data on a scatter diagram as shown below :

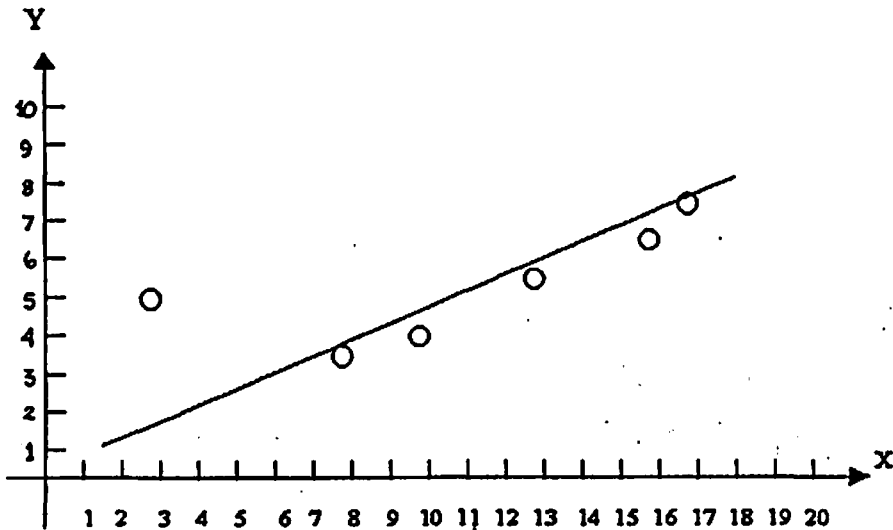


Figure 3.2.4.1

Scatter diagram on speakers' scores on EPQ test and their extravertness-introvertness perceived from loudness

From the diagram we see that the dots tend to rise as we move from the left side of the plot to the right. This suggests that a speaker's score on the EPQ test is related to the listeners' ratings on the speaker's extravertness-introvertness based on loudness. However, we also see that not all points cluster around the straight line. One point deviates from the cluster. Thus, we cannot directly predict the degree of the relationship.

To know how the relationship really is, we have to find the linear correlation coefficient r to measure the extent to which the points in the scatter diagram tend to cluster about the straight line. To find the correlation coefficient r we use the same formula, that is :

$$r = \frac{n(\sum xi yi) - (\sum xi)(\sum yi)}{\sqrt{\{n(\sum xi^2) - (\sum xi)^2\}} \cdot \sqrt{\{n(\sum yi^2) - (\sum yi)^2\}}}$$

In this case :

r = value of correlation coefficient

n = amount of the data

xi = certain speaker's score on EPQ test

yi = the mean value of certain speaker's extravertness

Speakers' scores on EPQ test are considered as xi while the mean values for listeners' ratings on the speakers' extravertness-introvertness based on loudness are considered as yi . To make the calculation easier, I summarize the data as follows :

	xi	yi	$xi \cdot yi$	xi^2	yi^2
	3	4.6	13.8	9	21.16
	8	3.8	30.4	64	14.44
	10	3.97	39.7	100	15.76
	13	5.27	68.51	169	27.77
	16	6.23	99.68	256	38.81
	17	7.53	128.01	289	56.70
Total :	67	31.4	380.1	887	174.64

Table 3.2.4.2

Correlation analysis on speakers' scores on EPQ test and listeners' ratings on the speakers' extravertness-introvertness based on loudness

From table 3.2.4.2 we have the calculation that :

$$\Sigma xi = 67$$

$$\Sigma yi = 31.4$$

$$\Sigma xiyi = 380.1$$

$$\Sigma xi^2 = 887$$

$$\Sigma yi^2 = 174.64$$

Thus, the r value for speakers' scores on EPQ test and their traits perceived from loudness is :

$$\begin{aligned} r &= \frac{n (\Sigma xiyi) - (\Sigma xi) (\Sigma yi)}{\sqrt{\{n (\Sigma xi^2) - (\Sigma xi)^2\}} \cdot \sqrt{\{n (\Sigma yi^2) - (\Sigma yi)^2\}}} \\ &= \frac{6 \times 380.1 - 67 \times 31.4}{\sqrt{\{6 \times 887 - 4489\}} \cdot \sqrt{\{6 \times 174.64 - 985.96\}}} \\ &= \frac{2280.6 - 2103.8}{\sqrt{(833)} \cdot \sqrt{(61.88)}} \\ &= \frac{176.8}{226.83} \\ &= 0.78 \end{aligned}$$

The result of the calculation shows that the r value is positive, although it is not large. Thus, the next step is to do the significant test to find out whether the positive relationship between speakers' scores on EPQ test for extravertness-introvertness and listeners' ratings on the speakers' extravertness-introvertness based on loudness show significant relation with the hypotheses :

H₀ : There is no significant relationship between speakers' scores on EPQ test for extravertness-introvertness and listeners' ratings on the speakers' extravertness-introvertness based on loudness.

H₁ : There is a significant relationship between speakers' scores on EPQ test for extravertness-introvertness and listeners' ratings on the speakers' extravertness-introvertness based on loudness.

From the calculation we get the Z value :

$$\begin{aligned}
 Z &= \frac{\sqrt{(n-3)}}{2} \ln \left\{ \frac{(1+r)(1-r_0)}{(1-r)(1+r_0)} \right\} \\
 &= \frac{\sqrt{(6-3)}}{2} \ln \left\{ \frac{(1+0.78)(1-0)}{(1-0.78)(1+0)} \right\} \\
 &= \frac{1.73}{2} \ln \frac{1.78}{0.22} \\
 &= 0.87 \times 2.09 \\
 &= 1.82
 \end{aligned}$$

To compare the result of the calculation and the Z value in the table, I take the confidence level of 95%.

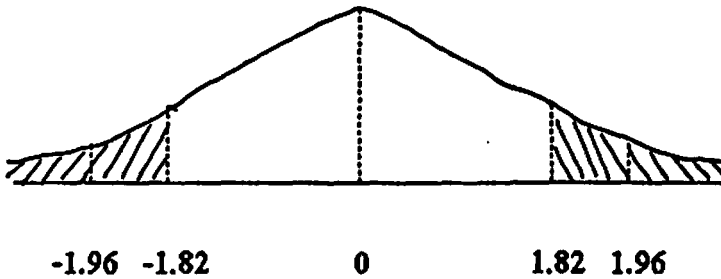
$$\begin{aligned}
 \text{It means } \alpha &= 100\% - 95\% \\
 &= 5\%
 \end{aligned}$$

From Z table, we get :

$$\begin{aligned}
 |Z(\alpha/2)| \text{ for } \alpha &= 5\% \text{ is} \\
 Z(\alpha/2) &= Z(2.5\%) = 1.96
 \end{aligned}$$

It means that $| Z (\alpha/2) | = 1.96$

The result is presented in a diagram as follows :



Because the point (1.82) is within the curve (Z value of the investigation lies between negative value of Z table and positive value of Z table), then H_0 is accepted. It means that the relationship is not significant.

In the first correlation on speakers' loudness and extravertness-introvertness we get the correlation coefficient $r = 0.95$. Thus, the r value seems to indicate a useful linear relationship since it can be considered close enough to 1. Furthermore, we can also predict that there be a significant relation between the two variables. But, in the second correlation for speakers' scores on EPQ test of extravertness-introvertness and listeners' ratings on the speakers' extravertness-introvertness based on loudness, the r value is 0.78. The value is hardly considered as close enough to 1 to indicate a reasonable degree of linear relationship. The difficulty lies in that although r measures the degree of linear relationship, it does not do so in familiar terms. The r value of 0.5, for example, does not represent " halfway between perfect correlation and no correlation." If the r value is not large enough, although it is positive, we cannot define a significant relation between two variables. Therefore, in the significant test the

null hypothesis is accepted. However, it does not mean that there is no relationship. Hence, to determine the extent of the relation between speakers' scores on EPQ test of extravertness-introvertness and listeners' ratings on the speakers' extravertness-introvertness based on loudness we have another approach, that is, by squaring the r to find the coefficient of determination (r^2). The r^2 is the proportion of the total variability of the y values that can be explained by the variable x .

Thus, for the correlation between speakers' scores on EPQ test of extravertness-introvertness and listeners' ratings on the speakers' extravertness-introvertness based on loudness :

$$\begin{aligned} r^2 &= (0.78)(0.78) \\ &= 0.61 \end{aligned}$$

It means that 61% of the variation in listeners' ratings on the speakers' extravertness-introvertness based on loudness is explained by speakers' scores on EPQ test of extravertness-introvertness. The remaining 39% of the variability is unexplained or is explained by the fact that the relationship is not exactly linear.

3.3. Interpretation of the Result

The result of the study shows that degree of loudness does reflect a person's degree of extravertness-introvertness quality. It is obvious since the first data presentation about listeners' ratings on speakers' degree of loudness and extravertness-introvertness. Speakers who are rated as having degree of loudness below the average are also considered as having degree of extravertness-

introvertness quality below the average. In other words, speakers who have soft voices are considered as introvert. On the other hand, speakers who are rated as having degree of loudness above the average are also considered as having degree of extravertness-introvertness quality above the average, or, speakers who have loud voices are considered as extravert. Although, during the data collection I see that there are also listeners who give high ratings on speakers' loudness, but rate their degree of extravertness-introvertness below the average. This is not surprising since this study employ listeners' perception and impression to assess the speakers' loudness and extravertness-introvertness, and we cannot expect all people to have exactly the same perception. However, the data indicate that most listeners show an agreement upon the phenomena of loudness and extravertness-introvertness. Even, from the loudness of the speakers, the listeners not only are able to rate their extravertness-introvertness on the semantic scale, but also evaluate and describe of what sort of persons the speakers are.

An unexpected deviation occurs during the study, since the first speaker who is, during the observation and the test on EPQ, observed of having soft voice and shows a lowest score on the test, but is rated by the listeners as having a medial degree of loudness, and therefore having an average degree of extravertness-introvertness. Another deviation occurs when the third speaker is rated as having soft voice and therefore having a low degree of extravertness-introvertness, while in the observation and EPQ test she is observed as having an average degree of loudness and she shows an average score in EPQ test. These happen because the listeners hear the first speaker's voice from the tape recorder

as average in loudness, and the third speaker's voice as soft, and these are caused by the weaknesses of the tape recorder that cannot give a good result of recording. If the study use a more sophisticated equipment, for example using dynamic microphone and a tape recorder with a recording level, so that the speakers' voices can be recorded as quite exact as the way they are, the deviation might not occur. However, listeners' ratings deviation for the third speaker's voice does not consequently affect the second correlation calculation as the rating deviation for the first speaker does since it is still in the line with the other ratings for the other speakers.

Nevertheless, from the result of the first correlation test on speakers' loudness and extravertness-introvertness, we see that the r value is 0.95. It means that there is a positive and strong linear relationship between loudness and extravertness-introvertness. An increase in the degree of loudness is followed by an increase in the degree of extravertness-introvertness quality. Thus, it is a support for Allport and Knowles' theories. If we meet a person who has a quite loud voice we may predict that he may also be an extravert, and if we know a person of having an extravert quality, we may also assume that he will show consistency of his behavior, that is, he will speak with a loud voice anytime he has a chance to speak (eliminating the phenomena of whispering conversation). However, this study does not define a causal relationship between loudness and extravertness-introvertness. Whether extravertness-introvertness is the cause of a person's vocal behavior, in this case his or her loudness of voice, is not the aim of the study. Only that this study proves that there is a significant relationship

between the degree of loudness and the degree of extravertness-introvertness quality. Significance of a relationship indicates that the relationship rarely occurs by chance. A nonrandom pattern represents the probabilistic association between the variables involved. In other words, it is not coincident that an increase in the degree of loudness is followed by an increase in the degree of extravertness-introvertness quality.

The second correlation test is not successful in presenting a useful linear relationship between speakers' scores on EPQ test of extravertness-introvertness and listeners' ratings on the speakers' extravertness-introvertness based on loudness. The r value is 0.78 in which we can hardly say whether the relationship is close to perfect correlation or to no correlation at all. However, since the r is positive we still can say that there is a relationship between speakers' scores on EPQ test of extravertness-introvertness and listeners' ratings on the speakers' extravertness-introvertness based on loudness. The square of the r , that is the r^2 or coefficient of determination equal to 0.61 explains that 61 % of the variation in listeners' ratings on the speakers' extravertness-introvertness based on loudness is explained by the speakers' scores on EPQ test of extravertness-introvertness. In this case, the remaining 39 % or the residual error = 0.39 is explained by the fact that there is a deviation on listeners' ratings especially for the first speaker as explained above, and by the fact that the sample of speaker is not successful. Nevertheless, the coefficient of determination provide an ample room for improvement. Hence, if the recording process is improved and the sample of speakers is added, then, we may find a significant relation between speakers'

scores on EPQ test of extravertness-introvertness and listeners' ratings on the speakers' extravertness-introvertness based on loudness. Although the second correlation test hardly shows a significant relationship between the variables involved, it does not mean that there is no accuracy in listeners' judgement on the speakers' extravertness-introvertness based on loudness when related to the speakers' scores on EPQ test. It is only that the accuracy is relatively small. Nevertheless, we still be sure that the listeners' show an agreement in their judgement.

All in all, the results of the study indicate that loudness as one aspect of paralinguistic features is able to mediate what is in the speakers' mental structure which constructs his or her personality traits (extravertness-introvertness quality). In consequence, the listeners' attitudes, that are, their responses toward the speakers' extravertness-introvertness based on loudness are the representation of the forming of perception and impression in their mental process. In this case, their attitudes toward the loudness and extravertness-introvertness of the speakers are considered as internal stimulation which mediate their responses. Loudness as aspect of paralinguistic features or vocal behavior of a speaker has played a role in conveying information about the speaker. It is supported by the fact that the increase in the degree of speakers' loudness is followed by the increased in the degree of the speakers' extravertness-introvertness quality. Thus, it is not faulty if we use paralinguistic features such as loudness to infer a speaker's personality traits.

CHAPTER IV

CONCLUSION