



**THE CORRELATION BETWEEN LEFT AND RIGHT BRAIN
TO STUDENTS' WRITING ABILITY
AT GRADE X SMA NEGERI 2 PADANGSIDIMPUAN**

A THESIS

*Submitted to the State Institute for Islamic Studies Padangsidempuan as
A Partial Fulfillment of the Requirement for the Degree of
Islamic Education Scholar (S.Pd.I) in English*

Written by:

SAPRIDAWATI
Reg. No. 09 340 0061

ENGLISH EDUCATION DEPARTMENT

**FACULTY OF TARRBIYAH AND PEDAGOGY
STATE INSTITUTE FOR ISLAMIC STUDIES
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2014

Things : Thesis
a.n. Sapridawati
Appendix : 6 (six) Exemplar

Padangsidimpuan, May 2nd 2014
To:
Dean Faculty of Tarbiyah and
Pedagogy
di-
Padangsidimpuan

Assalamu'alaikum Wr.Wb.

After Reading, studying, and giving advices for necessary revises on thesis belongs to Sapridawati, entitle "**THE CORRELATION BETWEEN LEFT AND RIGHT BRAIN TO STUDENTS' WRITING ABILITY AT GRADE X SMA NEGERI 2 PADANGSIDIMPUAN**". We assume that the thesis has been acceptable the assignment and fulfill the requirement for the degree of Sarjana Pendidikan Islam (S.Pd.I), Department of Education in IAIN Padangsidimpuan.

Therefore, we hope that she could be to defend her thesis in Munaqosyah. That's all and thank you for your attention.

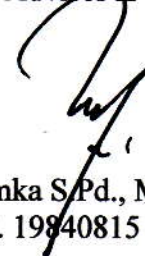
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Declaring to arrange own thesis without asking for illegal helping from the other side except the guiding of advisors team and without doing plagiarism along with the students' ethic code in article 14 subsections 2.

I made this declaration truthfully, if there is a deviation and incorrect of my declaration later on, I resign to get the punishment as what has involved in student' ethic code in article 19 subsections 4 that is about dispassion of academic degree disrespectfully and the other punishment accord with the norms and accepting legal requirement.

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LEGALIZATION

The theses with title : THE CORRELATION BETWEEN LEFT AND RIGHT BRAIN
TO STUDENTS' WRITING ABILITY AT GRADE X SMA
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ABSTRACT

This theses is talking about The Correlation Between Left and Right Brain to Students' Writing Ability at Grade X in SMA Negeri 2 Padangsidimpuan. Most of students lack in writing. Many students feel that writing is difficult. First, writing happen in real time. Second, writing cannot be without think about vocab and the tenses. Furthermore, this is caused students are afraid to do mistakes, feel tremble, tight, and worry in writing, have high is not known, do not practice it every day, and do not have seldom the writing in a paper.

The objective of this research is the Correlation Between Left and Right Brain to Students' Writing Ability at Grade X SMA Negeri 2 Padangsidimpuan. To solve the problem the researcher conducted by quantitative method. The population of this research was 236 students of the grade X. Then, the sample of research intended 27 students. Next, the validity and reliability test were given to the respondent. To analysis the data, the writer used formulation of Jaspren's which aims to test the hypothesis.

The result of the calculation was compared and with the value of table on the degree of freedom $RT = N-2$, it shows that $27-2 = 25$. It will be compared with nearest value on the table in $\alpha: 0.05$ significant. This phenomenon shows that the value of $(r_0) = 0.756$ was higher than the value $r_{table} 0.396$ means that $(r_0) = 0.756 > 0.396 = (r_{tabel})$. After having analyzed and calculation the data, it found that the hypothesis of this research was accepted, means that "there was significant correlation between left and right brain to students' writing ability at grade X SMA Negeri 2 Padangsidimpuan.

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College : IAIN Padangsidempuan

Appendix I: The Validity Test

QUESTIONNAIRE

I. Direction

1. Read the questions well, then answer them which one is the easier.
2. Give the cross mark (X) in the right answer.
3. Answer the question based on your competence and don't cheat another's answer.

II. Questions

A. Left Brain Questionnaire

Answer these questions well by crossing a, b, c, d and e.

1. My math scores above average.
 - a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
2. I champion class each semester.
 - a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
3. My daily tests above average.
 - a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
4. In my academic priority is to get a high score.
 - a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
5. For math I can answer and explain the answer.
 - a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
6. I tend to tidy desks.
 - a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never

7. I provide a special place for storing goods.
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
8. When remembering school friend, I familiar with the name.
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
9. I was disturbed when studying while listening to music.
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
10. My best ideas arise, when I was studying in the study room.
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
11. When speaking, I tend not expressive.
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
12. I describe myself as peoples stable .
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
13. I take important decisions based on logic.
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
14. When watching a soap opera, I noticed the plot.
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
15. I did something that has been proven correct.
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
16. In the talk I use formal language.
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never

- b. Often d. Almost Never
17. I write to reality.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
18. I have a specific schedule for studying.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
19. On my free time I plan something.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
20. I finish the job one by one.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
21. In acting, I cling to the principle.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
22. I prepare for the exam with a clear learning plan and organized.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
23. I recorded weekly expenditures.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
24. I use the watch anywhere.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
25. I was on time in any case.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never

26. I read book about education.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
27. I have finished a TTS (Teka-Teki Silang).
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
28. I learn new language.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
29. I important myself than another people.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
30. I obey arrangement of school.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never

B. Right Brain Questionnaire

Answer these questions well by crossing a, b, c, d and e.

1. I do many things at once.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
2. I tend to take the risk.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
3. To others' mistakes forgive me.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
4. Do you make new things every day?
- a. Always c. Sometimes e. Never

- b. Often d. Almost Never
5. Are you ready when given the challenge?
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
6. When you pick up the phone, if you pick up the phone right?
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
7. I learned while listening to music.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
8. When studying the book I mess everywhere.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
9. When writing the report, then I make the report in accordance with my wishes.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
10. About something, I tend to get bored quickly.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
11. When I talked small talk first.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
12. Every picture, I tried to describe it.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
13. Are you studying in the open?
- a. Always c. Sometimes e. Never
b. Often d. Almost Never

14. To answer the question I was answering essay precedence.
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
15. Are you creative every day?
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
16. To be able to enjoy my poetry.
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
17. Do you understand each picture or symbol?
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
18. While spare time, I write short stories.
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
19. When someone is talking, I noticed the body language and movements.
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
20. I am a moderator at an event.
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
21. I get along anywhere and with anyone.
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
22. I give a statement to the criticisms and suggestions.
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never
23. Do you entertain your friends who are sad?
- a. Always
 - b. Often
 - c. Sometimes
 - d. Almost Never
 - e. Never

- b. Often d. Almost Never
24. I love my job that requires travel.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
25. If you do not plan for when they wanted to go out.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
26. Do you like to read a novel?
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
27. What do you use idiom words in give clear about something?
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
28. What do you use questions that have equivalent answer maybe?
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
29. I sport every day.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
30. When there are serious problems, I have finished with emotion.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never

data hasil uji coba instrumen angket otak kiri

no respond	score	untuk item	no
1	3	2	3
2	3	3	4
3	3	3	5
4	4	2	6
5	5	3	7
6	4	4	8
7	3	3	9
8	5	4	10
9	3	1	11
10	4	3	12
11	3	3	13
12	4	1	14
13	5	4	15
14	3	2	16
15	4	3	17
16	4	1	18
17	4	3	19
18	3	4	20
19	3	3	21
20	5	3	22
21	3	3	23
22	4	1	24
23	5	3	25
24	5	4	26
25	5	3	27
26	3	1	28
27	4	3	29
28	5	4	
29	4	4	
113	4	81	106
			107
			98
			124
			134
			123
			91
			116
			89
			114
			119
			99
			114
			106

Appendix III: The Data of Basal Velocity Test Right Brain

Notes	Score Item																														Y	Y2
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
1	3	3	4	3	4	5	3	3	4	4	3	4	3	2	4	4	4	2	3	3	3	3	3	3	2	4	3	3	2	2	94	8836
2	5	3	3	3	3	5	3	2	3	5	3	3	3	2	3	3	3	2	3	3	5	3	3	5	3	5	3	3	5	3	100	10000
3	3	4	3	3	3	4	3	2	3	3	3	4	3	3	4	3	3	3	4	3	3	4	3	4	3	3	3	3	4	3	97	9409
4	1	1	5	3	3	5	3	2	1	3	3	3	2	1	3	5	4	3	4	2	5	3	4	5	1	3	3	2	3	89	7921	
5	5	1	5	5	5	5	3	1	5	1	1	5	3	5	3	3	3	1	4	5	3	5	5	5	5	5	5	4	1	115	13225	
6	3	4	5	2	3	5	3	3	2	3	4	3	2	3	3	3	2	1	4	3	4	3	3	2	4	4	3	3	3	93	8499	
7	4	3	4	4	3	4	4	3	3	2	4	3	3	4	5	3	4	5	4	4	4	4	4	4	3	4	4	3	3	110	12100	
8	3	4	4	3	3	5	2	2	2	3	4	3	3	4	4	4	3	3	4	5	4	3	3	3	4	4	4	4	4	100	10000	
9	4	5	3	3	4	5	3	4	2	4	2	4	1	3	3	4	3	3	5	3	3	4	4	5	5	3	4	4	5	109	11881	
10	3	3	5	5	5	5	3	3	3	3	5	3	3	3	4	4	4	3	4	3	3	5	4	4	1	4	3	3	4	106	11236	
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13	3	4	5	3	5	5	4	5	3	3	4	4	4	5	3	4	3	1	5	3	3	5	3	4	5	1	1	4	3	106	11236	
14	3	3	4	3	3	5	3	2	2	3	3	2	2	3	1	2	2	1	3	1	3	2	2	3	3	3	2	5	2	79	6241	
15	3	3	2	4	5	5	3	2	4	3	3	4	3	2	4	4	4	2	3	3	3	4	4	3	3	2	3	3	2	98	9604	
16	1	3	3	3	3	5	1	3	1	3	1	3	1	3	1	3	3	1	1	3	3	1	5	1	5	5	3	3	3	78	6084	
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21	4	4	4	4	4	5	2	1	3	3	2	3	3	4	3	4	4	3	3	3	3	4	5	4	3	5	4	5	3	107	11449	
22	1	3	4	3	4	3	4	1	3	3	3	3	3	4	3	3	4	3	5	3	3	3	4	1	3	3	3	3	3	92	8464	
23	2	3	4	4	4	5	3	1	5	3	3	3	3	4	4	3	3	3	3	3	4	4	5	5	4	4	3	4	3	105	11025	
24	4	4	5	3	5	5	5	5	3	4	3	5	3	3	3	3	3	3	4	4	4	3	4	4	3	5	4	3	3	111	12321	
25	3	3	5	3	4	5	1	2	3	3	3	3	2	2	3	3	1	4	4	2	4	3	4	4	2	5	2	4	3	91	8281	
26	3	3	5	3	5	3	2	3	2	2	4	3	3	2	5	3	2	4	4	3	3	3	3	5	3	3	3	2	4	98	9604	
27	4	5	5	3	3	5	4	4	4	4	4	3	3	4	4	3	1	4	4	2	4	5	3	3	5	3	3	3	2	107	11449	
28	3	5	5	4	5	5	3	4	1	2	1	3	3	3	4	4	4	5	4	5	5	4	5	1	5	3	4	1	2	102	10404	
29	3	3	5	4	5	5	3	1	1	2	1	3	3	4	4	3	3	1	5	1	5	3	4	5	1	3	3	4	3	96	9216	
	92	96	124	100	118	137	90	76	86	87	89	102	78	92	88	107	95	68	114	86	118	107	118	115	82	108	89	98	107	77	232	2992

Appendix IV

The calculation of the validity test left brain questionnaire

1. The Questionnaire Validity

Manner of calculate questionnaire validity Number 1, is:

No	X	Y	X ²	Y ²	XY
1	3	100	9	10000	300
2	3	120	9	14400	360
3	3	103	9	10609	309
4	4	119	16	14161	476
5	5	122	25	14884	610
6	4	107	16	11449	428
7	3	113	9	12769	339
8	5	117	25	13689	585
9	3	99	9	9801	297
10	4	111	16	12321	444
11	3	116	9	13456	348
12	4	112	16	12544	448
13	5	109	25	11881	545
14	3	92	9	8464	276
15	4	119	16	14161	476
16	4	101	16	10201	404
17	4	111	16	12321	444
18	3	110	9	12100	330
19	3	119	9	14161	357
20	5	121	25	14641	605
21	3	112	9	12544	336
22	4	103	16	10609	412
23	5	116	25	13456	580
24	5	111	25	12321	555
25	5	105	25	11025	525
26	3	110	9	12100	330
27	4	115	16	13225	460
28	5	118	25	13924	590
29	4	118	16	13924	472

Σ	113	3229	459	361141	12641
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$$\Sigma X = 113$$

$$\Sigma Y = 3229$$

$$\Sigma X^2 = 459$$

$$\Sigma Y^2 = 361141$$

$$\Sigma XY = 12641$$

$$N = 29$$

$$\begin{aligned}
r_{xy} &= \frac{N(\Sigma XY) - (\Sigma X)(\Sigma Y)}{\sqrt{\{N(\Sigma X^2) - (\Sigma X)^2\}\{N(\Sigma Y^2) - (\Sigma Y)^2\}}} \\
&= \frac{29(12641) - (113)(3229)}{\sqrt{\{29(459) - (113)^2\}\{29(361141) - (3229)^2\}}} \\
&= \frac{(366589) - (364877)}{\sqrt{\{(13311) - (12769)\}\{(10473089) - (10426441)\}}} \\
&= \frac{(1712)}{\sqrt{(542)(46648)}} \\
&= \frac{(1712)}{\sqrt{(25283216)}} \\
&= \frac{(1712)}{5028,2} \\
&= 0,340
\end{aligned}$$

After can score r_{xy} , furthermore is calculate by Uji-t, is:

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

$$t_{hitung} = \frac{0,340\sqrt{29-2}}{\sqrt{1-0,340^2}}$$

$$t_{hitung} = \frac{0,340\sqrt{27}}{\sqrt{1-0,115}}$$

$$t_{hitung} = \frac{1,776}{0,940}$$

$$t_{hitung} = 1,878$$

For Questionnaire number 2 to 30 method of done same with in front of.

2. The Questionnaire Reliabilitas

Manner of calculate questionnaire validity Number 1, is:

$$V_1 = \left[\frac{\sum x^2 - \frac{(\sum x)^2}{N}}{N} \right]$$

$$V_1 = \left[\frac{459 - \frac{(113)^2}{29}}{29} \right]$$

$$V_1 = \left[\frac{459 - \frac{12769}{29}}{29} \right]$$

$$V_1 = \left[\frac{459 - 440,3}{29} \right]$$

$$V_1 = \left[\frac{18,7}{29} \right]$$

$$V_1 = 0,644$$

For Questionnaire number 2 to 30 method of done same with in front of. After gotten the result, so for known quantity from variance all questionnaire are amounted the all variance score. In this research quantity all variance are 6,542. Then to look for total variance that is:

$$V_t = \left[\frac{\sum x^2 - \frac{(\sum x)^2}{N}}{N} \right]$$

$$V_t = \left[\frac{354459 - \frac{3229^2}{29}}{29} \right]$$

$$V_t = \left[\frac{354459 - 359532,4}{29} \right]$$

$$V_t = \left[\frac{-5073,4}{29} \right]$$

$$V_t = -174,94$$

Furthermore, to look for the validity and reliability test to right brain from number 1 until 30 same with in front of.

Appendix V: The Test Validity and Reliability Results of Research Instruments

Trials conducted before the instrument used in data collection. The type of instrument used a questionnaire and essay test. Trials of each instrument performed in class X-1 SMA Negeri 2 Padangsidimpuan, amounting to 29 students'.

1. Left Brain Questionnaire

The questionnaire instrumented trials aimed to explore the validity (validity/ conformity) using product moment correlation formula and look for reliability (accuracy) by using the alpha formula.

a. The test validity results of Research Instruments

Based on calculations by the author that of the 30 questions that have been tested and compared with the rate t_{tabel} significance $\alpha = 0.05$ and $dk = 29 - 2 = 27$, the obtained t_{table} 1.703 so there were 20 valid questions that can be seen in table using the following formula product moment correlation and followed by *Uji-t*.

Table 10.

Results of Questionnaire Validity Test Instruments Left Brain

Item No. of Problems	Correlation Coefficient	Price t_{count}	Price t_{table}	Interpretation
1	0.340	1.878	1.703	Valid
2	0.525	1.705	1.703	Valid
3	0.423	2.424	1.703	Valid
4	0.362	2.017	1.703	Valid
5	0.469	2.758	1.703	Valid
6	0.177	0.933	1.703	Invalid
7	0.450	2.618	1.703	Valid
8	0.467	2.744	1.703	Valid
9	0.158	0.894	1.703	Invalid
10	-2.033	-4.672	1.703	Invalid
11	0.358	1.751	1.703	Valid
12	3.287	5.454	1.703	Valid
13	0.435	2.511	1.703	Valid
14	0.193	1.855	1.703	Valid
15	0.545	3.378	1.703	Valid
16	0.354	1.966	1.703	Valid
17	-0.026	-0.134	1.703	Invalid
18	1.905	2.138	1.703	Valid
19	0.461	4.335	1.703	Valid
20	0.342	1.890	1.703	Valid
21	0.631	4.229	1.703	Valid
22	0.123	0.644	1.703	Invalid
23	0.145	0.761	1.703	Invalid
24	0.368	4.305	1.703	Valid
25	3.268	1.754	1.703	Valid
26	-0.107	0.558	1.703	Invalid
27	0.246	1.359	1.703	Invalid
28	2.381	2.182	1.703	Valid
29	0.005	0.025	1.703	Invalid
30	0.068	0.354	1.703	Invalid

From the above, data it could be seen that about 6, 9, 10, 17, 22, 23, 26, 27, 29, 30 were invalid, were not include in data collection. Then there were 20 questions that used a data collection tool.

b. Reliability Test Instruments

Based on results of calculations by the author, the 30 questions that had been tested items were variances which can be seen in the following table:

Table 11.

Variance of each Test Instruments Left Brain Questionnaire

Item No. Problem	Score	Formula
1	0.644	$V = \left[\frac{\sum x^2 - \frac{(\sum x)^2}{N}}{N} \right]$
2	0.993	
3	0.227	
4	0.631	
5	0.582	
6	0.544	
7	12.334	
8	0.737	
9	2.534	
10	0.620	
11	0.617	
12	0.664	
13	0.506	
14	1.210	
15	0.548	
16	0.848	
17	0.548	
18	0.556	
19	0.544	
20	12.334	
21	0.337	
22	0.601	
23	1.246	
24	10.75	

25	0.434	
26	0.306	
27	0.447	
28	0.597	
29	0.786	
30	0.475	
Total	54.2	

Total variance of the questionnaire instrument trials were as follows:

$$V_t = \left[\frac{\sum x^2 - \frac{(\sum x)^2}{N}}{N} \right]$$

$$V_t = \left[\frac{354459 - \frac{3229^2}{29}}{29} \right]$$

$$V_t = \left[\frac{354459 - 359532,4}{29} \right]$$

$$V_t = \left[\frac{-5073,4}{29} \right]$$

$$V_t = -174,94$$

Once the value of the variance of each item and note the value of the total variance subsequently carried out calculations using the formula alpha predetermined, namely:

$$r_{11} = \left[\frac{k}{k-1} \right] \left[1 - \frac{\sum \delta_b^2}{\delta_t^2} \right]$$

$$= \left[\frac{30}{30-1} \right] \left[1 - \frac{54,2}{174,94} \right]$$

$$= \left[\frac{30}{29} \right] [1 - 0,309]$$

$$= 0,714$$

The results of the calculations that the reliability of the questionnaire was 0.714 (r_{count}), whereas r_{table} level of 95 % with a value of 0.361. Result known that $r_{\text{count}} > r_{\text{table}}$ the questionnaire used reliably at 0.714. So that the questionnaire decent accuracy and to be used in research.

2. Right Brain Questionnaire

a. Test Validity Questionnaire Research Instruments

Based on calculations by the author, of the 30 questions that had been tested and had been compared with the rate t_{table} significance $\alpha = 0.05$ and $dk = 29 - 2 = 7$, the obtained t_{table} 1.703 so there were 20 valid questions that can be seen in table using the following formula product moment correlation and followed by *Uji-t*.

Table 12.

Results of Questionnaire Validity Test Instruments Right Brain

Item No. of Problems	Correlation Coefficient	Price t_{count}	Price t_{table}	Interpretation
1	0.736	5.648	1.703	Valid
2	0.236	1.261	1.703	Invalid
3	0.239	1.278	1.703	Invalid
4	0.772	6.306	1.703	Valid
5	3.022	5.507	1.703	Valid
6	0.767	6.216	1.703	Valid
7	-0.501	-3.009	1.703	Invalid
8	0.325	1.785	1.703	Valid
9	0.442	2.560	1.703	Valid
10	-0.008	0.139	1.703	Invalid
11	0.196	1.038	1.703	Invalid

12	2.522	5.727	1.703	Valid
13	0.255	1.371	1.703	Invalid
14	0.438	2.531	1.703	Valid
15	1.016	29.658	1.703	Valid
16	0.323	1.774	1.703	Valid
17	0.129	0.676	1.703	Invalid
18	0.391	2.207	1.703	Valid
19	0.509	3.074	1.703	Valid
20	0.433	2.496	1.703	Valid
21	0.818	7.391	1.703	Valid
22	0.696	5.036	1.703	Valid
23	1.094	12.859	1.703	Valid
24	0.533	3.273	1,703	Valid
25	0.046	0.023	1.703	Invalid
26	0.198	1.048	1.703	Invalid
27	0.377	2.114	1.703	Valid
28	0.425	2.440	1.703	Valid
29	0.168	0.885	1.703	Invalid
30	1.174	9.934	1.703	Valid

From the above data it could be seen that about 2, 3, 7, 10, 11, 13, 17, 25, 26, 29 were invalid, were not included in data collection. Then there were 20 questions that used a data collection tool.

b. Reliability Test Instruments

Based on results of calculations by the author, the 30 questions that were tested items were variances which could be seen in the following table:

Table 13.

Variance of each Test Instruments Right Brain Questionnaire

Item No. Problem	Score	Formula
1	0.832	

2	0.524
3	0.682
4	0.213
5	1.034
6	0.958
7	0.872
8	1.617
9	1.413
10	0.689
11	0.893
12	-0.024
13	0.872
14	0.834
15	0.379
16	0.631
17	0.337
18	1.055
19	0.824
20	0.655
21	0.755
22	0.803
23	0.686
24	1.068
25	7.179
26	1.820
27	0.410
28	0.375
29	0.768
30	0.779
Total	28.189

$$V = \left[\frac{\sum x^2 - \frac{(\sum x)^2}{N}}{N} \right]$$

Total variance of the questionnaire instrument trials were as follows:

$$V_t = \left[\frac{\sum x^2 - \frac{(\sum x)^2}{N}}{N} \right]$$

$$V_t = \left[\frac{293315 - \frac{2929^2}{29}}{29} \right]$$

$$V_t = \left[\frac{293315 - 75,1}{29} \right]$$

$$V_t = \left[\frac{293239,9}{29} \right]$$

$$V_t = 10111,721$$

Once the value of the variance of each item and note the value of the total variance subsequently carried out calculations using the formula alpha predetermined, namely:

$$\begin{aligned} r_{11} &= \left[\frac{k}{k-1} \right] \left[1 - \frac{\sum \delta_b^2}{\delta_t^2} \right] \\ &= \left[\frac{30}{30-1} \right] \left[1 - \frac{28,189}{10111,721} \right] \\ &= \left[\frac{30}{29} \right] [1 - 0,0027] \\ &= 1,0312 \end{aligned}$$

The results of the calculations that the reliability of the questionnaire was 1.0312 (r_{count}), whereas r_{table} level of 95 % with a value of 0.361. Result known that $r_{\text{count}} > r_{\text{table}}$ the questionnaire used reliability at 1.0312. So that questionnaire decent accuracy and to be used in research.

The images regression equation is as follows:

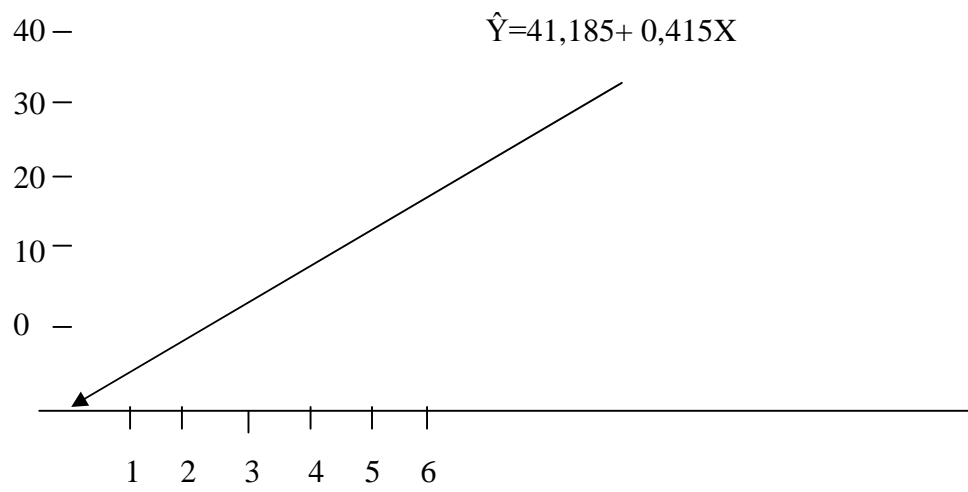


Figure 3: Graph Simple Linear Regression Equation

Appendix VI: The instrument of Research

QUESTIONNAIRE AND ESSAY TEST

I. Questionnaire

a. Direction

- 1). Read the questions well, then answer them which one is the easier.
- 2). Give the cross mark (X) in the right answer.
- 3). Answer the question based on your competence and don't cheat another's answer.

b. Questions

1). Left Brain Questionnaire

Answer these questions well by crossing a, b, c, d and e.

1. My math scores above average.

a. Always c. Sometimes e. Never

b. Often d. Almost Never

2. I champion class each semester.

a. Always c. Sometimes e. Never

b. Often d. Almost Never

3. My daily tests above average.

a. Always c. Sometimes e. Never

b. Often d. Almost Never

4. In my academic priority is to get a high score.

a. Always c. Sometimes e. Never

b. Often d. Almost Never

5. For math I can answer and explain the answer.

a. Always c. Sometimes e. Never

b. Often d. Almost Never

6. I provide a special place for storing goods.

a. Always c. Sometimes e. Never

b. Often d. Almost Never

7. When remembering school friend, I familiar with the name.

- a. Always c. Sometimes e. Never
- b. Often d. Almost Never

8. When speaking, I tend not expressive.

- a. Always c. Sometimes e. Never
- b. Often d. Almost Never

9. I describe myself as peoples stable .

- a. Always c. Sometimes e. Never
- b. Often d. Almost Never

10. I take important decisions based on logic.

- a. Always c. Sometimes e. Never
- b. Often d. Almost Never

11. When watching a soap opera, I noticed the plot.

- a. Always c. Sometimes e. Never
- b. Often d. Almost Never

12. I did something that has been proven correct.

- a. Always c. Sometimes e. Never
- b. Often d. Almost Never

13. In the talk I use formal language.

- a. Always c. Sometimes e. Never
- b. Often d. Almost Never

14. I have a specific schedule for studying.

- a. Always c. Sometimes e. Never
- b. Often d. Almost Never

15. On my free time I plan something.

- a. Always c. Sometimes e. Never
- b. Often d. Almost Never

16. I finish the job one by one.

- a. Always c. Sometimes e. Never

- b. Often d. Almost Never
17. In acting, I cling to the principle.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
18. I use the watch anywhere.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
19. I was on time in any case.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
20. I learn new language.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never

2). Right Brain Questionnaire

Answer these questions well by crossing a, b, c, d and e.

1. I do many things at once.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
2. When there are serious problems, I have finished with emotion.
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
3. Do you make new things every day?
- a. Always c. Sometimes e. Never
b. Often d. Almost Never
4. Are you ready when given the challenge?
- a. Always c. Sometimes e. Never
b. Often d. Almost Never

5. When you pick up the phone, if you pick up the phone right?
a. Always c. Sometimes e. Never
b. Often d. Almost Never
6. When studying the book I mess everywhere.
a. Always c. Sometimes e. Never
b. Often d. Almost Never
7. When writing the report, then I make the report in accordance with my wishes.
a. Always c. Sometimes e. Never
b. Often d. Almost Never
8. Every picture, I tried to describe it.
a. Always c. Sometimes e. Never
b. Often d. Almost Never
9. To answer the question I was answering essay precedence.
a. Always c. Sometimes e. Never
b. Often d. Almost Never
10. What do you use questions that have equivalent answer maybe?
a. Always c. Sometimes e. Never
b. Often d. Almost Never
11. Are you creative every day?
a. Always c. Sometimes e. Never
b. Often d. Almost Never
12. To be able to enjoy my poetry.
a. Always c. Sometimes e. Never
b. Often d. Almost Never
13. While spare time, I write short stories.
a. Always c. Sometimes e. Never
b. Often d. Almost Never

14. When someone is talking, I noticed the body language and movements.

- a. Always c. Sometimes e. Never
- b. Often d. Almost Never

15. I am a moderator at an event.

- a. Always c. Sometimes e. Never
- b. Often d. Almost Never

16. I get along anywhere and with anyone.

- a. Always c. Sometimes e. Never
- b. Often d. Almost Never

17. I give a statement to the criticisms and suggestions.

- a. Always c. Sometimes e. Never
- b. Often d. Almost Never

18. Do you entertain your friends who are sad?

- a. Always c. Sometimes e. Never
- b. Often d. Almost Never

19. I love my job that requires travel.

- a. Always c. Sometimes e. Never
- b. Often d. Almost Never

20. What do you use idiom words in give clear about something?

- a. Always c. Sometimes e. Never
- b. Often d. Almost Never

II. Essay Test

Write down a description text (minimal 3 paragraph) with use of sequence expression, such as first, then, next, afterwards, ect. then you may to use of the topic about your friend.

No Items Left Brain

3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
3	3	3	5	3	2	4	4	5	5	4	3	4	5	5	2	4	4
5	3	3	5	5	3	5	5	5	3	3	3	5	5	3	3	5	5
4	3	3	5	5	2	5	5	5	5	5	5	3	5	5	5	2	5
3	4	3	5	3	1	5	5	5	5	3	5	3	5	3	5	4	5
5	5	4	4	5	3	5	5	3	5	3	5	5	4	5	4	3	5
4	5	3	5	4	3	4	3	4	3	4	5	3	4	5	2	3	3
4	4	3	3	4	3	4	5	3	3	3	5	3	5	5	3	3	4
4	4	3	4	4	2	5	5	2	4	5	5	5	5	5	3	4	4
3	3	3	5	5	3	5	5	3	5	3	4	5	5	4	2	3	4
5	3	3	5	5	3	3	5	5	5	3	3	5	5	5	3	5	5
4	4	3	5	5	1	5	5	1	5	4	4	5	4	5	2	3	5
3	5	3	5	5	3	3	5	3	3	5	5	5	5	5	3	3	3
5	3	3	5	1	1	4	5	5	4	4	4	4	5	5	1	3	5
3	3	3	5	5	3	5	5	3	5	3	4	5	5	4	2	3	4
3	3	1	4	4	2	5	5	2	5	3	5	2	4	5	4	3	4
4	3	3	5	4	2	5	5	3	4	5	5	5	5	5	5	5	4
5	5	3	5	5	3	5	5	5	3	5	5	5	5	5	1	5	3
5	3	3	5	3	3	3	5	3	3	3	4	5	5	5	3	5	3
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4	4	4	5	3	4	5	5	5	4	5	4	5	3	5	3	5	4
4	3	3	5	3	3	4	5	4	3	3	5	3	5	5	1	1	3
3	3	1	4	4	1	3	5	3	5	3	5	5	5	4	1	3	3
4	3	3	4	5	3	3	5	3	5	3	5	5	5	5	4	3	3
3	3	3	5	5	4	4	5	5	4	2	3	5	4	5	1	3	4
3	3	3	5	5	4	4	5	5	5	5	5	5	5	5	5	5	3
3	3	3	5	5	4	4	5	5	4	5	5	5	5	5	1	3	5
4	4	3	5	5	3	3	5	5	5	4	5	5	4	5	3	5	5

s	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	2	4	5	5	1	4	3	3	3	3	3	4	5	2	5	3	4	4	5
	3	5	5	3	3	5	3	3	3	3	5	3	5	3	3	3	5	3	5
	1	2	5	5	1	1	5	5	5	3	5	5	5	5	5	1	5	5	5
	1	3	4	5	1	5	5	5	5	5	1	5	5	3	5	5	5	5	5
	4	4	5	5	3	3	4	4	5	2	5	4	5	3	3	4	4	4	5
	3	2	3	3	1	3	4	4	5	5	4	5	5	4	4	4	3	4	5
	1	3	5	5	5	5	3	3	3	3	4	3	5	1	5	3	5	3	5
	2	3	5	5	4	5	4	4	4	3	3	4	5	2	5	4	5	4	5
	2	4	4	5	3	2	3	4	3	3	4	3	5	2	3	3	3	3	4
	1	5	5	5	3	5	3	5	5	3	5	5	3	5	3	5	5	3	5
	2	3	5	5	1	1	3	4	3	4	5	5	5	3	5	5	5	5	5
	3	5	3	5	5	1	3	3	5	3	3	3	3	1	5	2	3	5	3
	1	4	5	5	3	5	5	4	4	3	3	4	4	1	4	5	4	4	3
	3	3	4	5	3	4	3	2	3	3	3	4	4	3	4	3	4	3	4
	1	2	3	5	5	5	3	2	2	2	1	3	2	1	2	1	1	1	5
	2	3	3	5	5	5	5	3	5	3	3	2	3	1	5	1	4	3	5
	3	5	5	5	1	5	5	5	5	5	5	3	3	3	5	3	3	5	3
	3	3	5	5	1	5	5	3	3	4	3	3	1	3	5	3	3	5	5
	3	3	3	5	4	4	3	3	5	3	1	3	3	1	4	3	5	3	5
	4	4	5	5	4	4	4	4	4	3	3	3	4	2	5	4	3	4	3
	1	3	5	5	3	1	3	1	3	3	1	3	5	3	5	1	3	5	5
	1	3	3	5	1	4	3	2	3	3	4	3	3	1	3	2	5	3	5
	1	3	5	3	5	5	3	3	4	3	3	3	3	2	5	3	5	4	3
	2	3	4	5	5	5	5	2	3	3	2	2	2	4	5	2	5	4	4
	3	5	3	5	3	5	5	3	5	2	3	3	3	3	4	3	5	4	5
	2	4	3	5	3	4	3	3	3	3	3	2	4	2	4	3	5	4	5
	3	5	3	5	2	5	3	3	4	3	3	3	5	3	5	3	4	4	4

Appendix IX: The instrument Essay test

No. Res	Indicators				Total
	Vocab	Tenses (S. P. T)	S. Expression	Topic	
1	20	20	5	25	70
2	20	23	10	25	78
3	15	21	5	25	66
4	15	18	5	25	63
5	18	20	5	25	68
6	17	19	5	25	66
7	20	19	5	25	69
8	17	15	5	25	62
9	15	10	5	25	55
10	19	21	5	25	70
11	20	20	5	25	70
12	18	19	5	25	67
13	20	18	5	25	68
14	23	20	25	25	93
15	15	15	5	25	60
16	15	16	5	25	61
17	19	21	7	25	72
18	20	22	10	25	77
19	18	18	5	25	66
20	20	15	8	25	73
21	23	20	10	25	78
22	23	24	10	25	82
23	20	24	8	25	77
24	18	23	7	25	73
25	20	20	5	25	70
26	18	20	25	25	88
27	20	21	10	25	76
Total					1920

Appendix X

The calculation of data statistic test essay

Test Of Essay Data Score					
55	60	61	62	63	66
66	66	67	68	68	69
70	70	70	70	72	73
73	76	77	77	78	78
82	88	93			

1. Range = highest score-lowest score

$$= 93-55$$

$$= 38$$

2. Many Class = $1 + 3,3 \log n$

$$= 1 + 3,3 \log (27)$$

$$= 1 + 4,719$$

$$= 5,719$$

$$= 6$$

3. Interval (i) = range/many class

$$= 38/6$$

$$= 6,33$$

$$= 6$$

4. Mean = $\frac{\sum fx_1}{N}$

$$= \frac{1926}{27}$$

$$= 71,3$$

Interval	Fi	x_i	fx_i	$X' = x - X$	x^2	fx^2
55-60	2	58	116	$58 - 71,3 = -13,3$	176,89	1544,9
61-65	3	63	189	$63 - 71,3 = -8,3$	68,89	206,67
66-70	11	68	748	$68 - 71,3 = -3,3$	10,89	119,79
71-75	3	73	219	$73 - 71,3 = 1,7$	2,89	8,67
76-80	5	78	390	$78 - 71,3 = 6,7$	44,89	224,45
81-85	1	83	83	$83 - 71,3 = 11,7$	136,89	136,89
86-90	1	88	88	$88 - 71,3 = 16,7$	278,89	278,89
91-95	1	93	93	$93 - 71,3 = 21,7$	470,89	470,89
Total	27	604	1926	33,6	1191,12	2991,15

$$\begin{aligned}
 5. \text{ Median} &= \ell + \left(\frac{\frac{1}{2}N - f_{kh}}{f_i} \right) \times i \\
 &= 65,5 + \left(\frac{13,5 - 5}{11} \right) \times 6 \\
 &= 65,5 + \left(\frac{8,5}{11} \right) \times 6 \\
 &= 65,5 + 4,2 \\
 &= 69,7 \\
 &= 70
 \end{aligned}$$

$$6. \text{ Modus} = \ell + \left(\frac{f_a}{f_a + f_b} \right) \times i$$

$$= 65,5 + \left(\frac{3}{3+3}\right) \times 6$$

$$= 65,5 + \left(\frac{3}{6}\right) \times 6$$

$$= 65,5 + 3$$

$$= 68,5$$

$$7. \text{ Standar Deviasi} = \sqrt{\frac{\sum fx^2}{N}}$$

$$= \sqrt{\frac{2991,15}{27}}$$

$$= \sqrt{110,78}$$

$$= 10,5$$

$$= 11$$

**Appendix XI: The calculation of correlation between left brain and right brain
to students' writing ability at grade X SMA Negeri 2
Padangsidempuan.**

Hypothesis testing aims to determine the correlation between left and right brain to students' writing ability at grade X in SMAN 2 Padangsidempuan using the product moment formula. Before testing the hypothesis, first performed the calculation of the scores obtained by the respondents as the table below:

The correlation between left brain and right brain to students' writing ability at grade X SMA Negeri 2 Padangsidempuan

NO.	Initials of Respondents	Left and Right Brain (X)					Y
		5	4	3	2	1	
1	RD		√				70
2	AM	√		√			78
3	MH	√	√	√		√	66
4	AI		√			√	63
5	DS	√	√				68
6	AMH			√			66
7	SLN			√	√	√	69
8	ET		√		√		62
9	JT		√		√		55
10	AR	√	√				70
11	AG						70
12	FRI			√			67
13	DS		√	√		√	68
14	PIN					√	93
15	YEC			√	√	√	60
16	RR		√	√			61
17	TRS	√	√		√		72
18	CRC						77
19	SM	√		√	√		66
20	LS	√	√		√		73
21	ER			√		√	78
22	FW			√		√	82

23	EP		√	√		√	77
24	YN				√		73
25	IO					√	70
26	YO		√	√	√	√	88
27	LY		√	√			76
Total		7	14	14	9	11	1918

The calculation also can be seen on the following:

The Level of Involvement				
High				Low
5	4	3	2	1
Value				
66	70	67	72	66
68	66	61	60	63
72	68	66	62	69
78	70	78	55	93
73	68	72	73	68
70	72	88	88	60
66	73	76	66	78
	88	66	69	82
	76	69	73	72
	72	68		70
	81	60		88
	55	66		
	62	78		
	63	82		
∑ 493	964	997	618	809

From the table can be known:

$$Y_1 = 70.4 \quad Y_2 = 68.8 \quad Y_3 = 71.2 \quad Y_4 = 68.7 \quad Y_5 = 73.5$$

$$N_1 = 7 \quad N_2 = 14 \quad N_3 = 14 \quad N_4 = 9 \quad N_5 = 11$$

$$\sum Y = 3881 \quad \sum Y^2 = 277741 \quad NT = 54$$

$$S_y = \sqrt{\frac{\sum Y^2 - \frac{(\sum y)^2}{NT}}{NT}}$$

$$= \sqrt{\frac{277747 - \frac{(3881)^2}{54}}{54}}$$

$$= 7.290$$

Below is the table for data of coefficient correlation Jaspén's:

Tgt	Y _i	P	CP	O _b	O _a	O _b -O _a	(O _b -O _a) ²	$\frac{(O_b - O_a)^2}{P}$	Y _i (O _b -O _a)
5	70.4	0.12	0.12	0.2000	0	0.2000	0.04	0.333	14.08
4	68.8	0.26	0.38	0.3808	0.2000	0.1808	0.032	0.123	12.43
3	71.2	0.26	0.64	0.3741	0.3808	0.0667	0.000	0.001	-0.477
2	68.7	0.17	0.81	0.2714	0.3741	-0.1027	0.010	0.058	-6.86
1	73.5	0.20	1.01	0	0.2714	-0.2714	0.0736	0.368	-14.94
Σ						0		0.883	5.187

$$M = \frac{\sum (y_i)(O_b - O_a)}{(S_y) \sum \left(\frac{(O_b - O_a)^2}{P} \right)}$$

$$= \frac{5.187}{(7.290)(0.8834)}$$

$$= 0.8055$$

Value M = 0.8055 the meaning that the correlation between left and right brain to student's writing ability at grade X SMA Negeri 2 Padangsidimpun was positive and good.

Test statistic coefficient correlation Jaspén's (m):

$$\begin{aligned}
r &= (m) \sqrt{\sum \left[\frac{(o_b - o_a)^2}{P} \right]} \text{ with db} = RT - 2 \\
&= (0.8055) \sqrt{0.883} \\
&= 0.756
\end{aligned}$$

The correlation between left and right brain to student's writing ability at grade X SMA Negeri 2 Padangsidimpuan (The measure skala interval/ rasio) with total sample 27 gave the value Left and Right Brain was $M = 0.8055$ and value $\left(\frac{(o_b - o_a)}{P} \right) = 0.883$. Found out what is the correlation that significant or not at fact standard 5%.

The conclusion : Because r_0 left and right brain = $0.756 > r_{0.05: 25} = 0.396$, it received, this meaning that left and right brain there was significant correlation. So, hypothesis said that if H_1 = hypothesis can received and if H_0 = hypothesis can not received, but the result of this research was H_1 . So, there was correlation between left and right brain to student's writing ability and significant correlation also hypothesis can received.

16	0,497	0,623	40	0,312	0,403	200	0,138	0,181
17	0,482	0,606	41	0,308	0,398	300	0,113	0,148
18	0,468	0,590	42	0,304	0,393	400	0,098	0,128
19	0,456	0,575	43	0,301	0,389	500	0,088	0,115
20	0,444	0,561	44	0,297	0,384	600	0,080	0,105
21	0,433	0,549	45	0,294	0,380	700	0,074	0,097
22	0,423	0,517	46	0,291	0,376	800	0,070	0,091
23	0,413	0,526	47	0,288	0,372	900	0,065	0,086
24	0,404	0,515	48	0,284	0,368	1000	0,062	0,081
25	0,396	0,505	49	0,281	0,364			
26	0,388	0,496	50	0,279	0,361			

Appendix XIII

TABEL
NILAI-NILAI DALAM DISTRIBUSI t

<i>α</i> untuk uji dua pihak (<i>two tail test</i>)						
	0,50	0,20	0,10	0,05	0,02	0,01
<i>α</i> untuk uji satu pihak (<i>one tail test</i>)						
dk	0,25	0,10	0,05	0,025	0,01	0,005
1	1,000	3,078	6,314	12,706	31,821	63,657
2	0,816	1,886	2,920	4,303	6,965	9,925
3	0,765	1,638	2,353	3,182	4,541	5,841
4	0,741	1,533	2,132	2,776	3,747	4,604
5	0,727	1,476	2,015	2,571	3,365	4,032
6	0,718	1,440	1,943	2,447	3,143	3,707
7	0,711	1,415	1,895	2,365	2,998	3,499
8	0,706	1,397	1,860	2,306	2,896	3,355
9	0,703	1,383	1,833	2,262	2,821	3,250
10	0,700	1,372	1,812	2,228	2,764	3,169
11	0,697	1,363	1,796	2,201	2,718	3,106
12	0,695	1,356	1,782	2,179	2,681	3,055
13	0,692	1,350	1,771	2,160	2,650	3,012
14	0,691	1,345	1,761	2,145	2,624	2,977
15	0,690	1,341	1,753	2,131	2,602	2,947
16	0,689	1,337	1,746	2,120	2,583	2,921
17	0,688	1,333	1,740	2,110	2,567	2,898
18	0,688	1,330	1,734	2,101	2,552	2,878
19	0,687	1,328	1,729	2,093	2,539	2,861
20	0,687	1,325	1,725	2,086	2,528	2,845
21	0,686	1,323	1,721	2,080	2,518	2,831
22	0,686	1,321	1,717	2,074	2,508	2,819
23	0,685	1,319	1,714	2,069	2,500	2,807
24	0,685	1,318	1,711	2,064	2,492	2,797
25	0,684	1,316	1,708	2,060	2,485	2,787
26	0,684	1,315	1,706	2,056	2,479	2,779
27	0,684	1,314	1,703	2,052	2,473	2,771
28	0,683	1,313	1,701	2,048	2,467	2,763
29	0,683	1,311	1,699	2,045	2,462	2,756
30	0,683	1,310	1,697	2,042	2,457	2,750
40	0,681	1,303	1,684	2,021	2,423	2,704
60	0,679	1,296	1,671	2,000	2,390	2,660
120	0,677	1,289	1,658	1,980	2,358	2,617
∞	0,674	1,282	1,645	1,960	2,326	2,576

Appendix XIV

TABEL HARGA – HARGA KRITIS DEVIAT DAN ORDINAT

B The larger area	Z Standard Score	F Ordinate	\sqrt{BC}	C The smaller area
500	0000	3989	5000	500
505	0125	3989	5000	495
510	0251	3988	4999	490
515	0376	3987	4998	485
520	0502	3984	4996	480
525	0627	3982	4994	475
530	0753	3978	4991	470
535	0878	3974	4988	465
540	1004	3969	4984	460
545	1130	3964	4980	455
550	1257	3958	4975	450
555	1383	3951	4970	445
660	1510	3944	4964	440
565	1637	3936	4958	435
570	1564	3928	4961	430
575	1891	3919	4943	425
580	2019	3909	4936	420
585	2147	3899	4927	415
590	2275	3887	4918	410
595	2404	3876	4909	405
600	2533	3863	4899	400
605	2663	3850	4889	395
610	2793	3837	4877	390
615	2924	3822	4867	385
620	3055	3808	4854	380
625	3180	3792	4841	375
630	3319	3776	4828	370
635	3451	3759	4814	365
640	3585	3741	4800	360
645	3719	3723	4785	355
650	3853	3704	4770	350
655	3989	3684	4754	345
660	4125	3664	4737	340
665	4261	3643	4720	335

670	4399	3621	4702	330
675	4538	3599	4684	325
B The larger area	Z Standard Score	F Ordinate	\sqrt{BC}	C The smaller area
680	4677	3576	4665	320
685	4817	3552	4645	315
690	4959	3528	4625	310
695	5101	3503	4604	305
700	5244	3477	4583	300
705	5388	3450	4560	295
710	5534	3423	4538	290
715	6681	3395	4514	285
720	5828	3366	4490	280
725	5978	3337	4465	275
730	6128	3306	4440	270
735	6280	3275	4413	265
740	6433	3244	4386	260
745	6588	3211	4359	255
750	6745	3178	4330	250
755	6903	3144	4301	245
760	7063	3109	4271	240
765	7225	3073	4240	235
770	7388	3036	4208	230
775	7554	2999	4176	225
780	7722	2961	4142	220
785	7892	2922	4108	215
790	8064	2882	4073	210
795	8239	2841	4037	205
800	8416	2800	4000	200
805	8596	2757	3962	195
810	8779	2714	3923	190
815	8965	2669	3883	185
820	9154	2624	3842	180
825	9346	2578	3800	175
830	9542	2531	3756	170
835	9741	2482	3712	165
840	9945	2433	3666	160
845	1.0152	2383	3619	155
850	1.0364	2332	3571	150

855	1.0581	2279	3521	145
860	1.0803	2226	2470	140
865	1.1031	2171	5417	135
870	1.1264	2115	3363	130
875	1.1503	2059	3307	125
880	1.1750	2000	3250	120
B The larger area	Z Standard Score	F Ordinate	\sqrt{BC}	C The smaller area
885	1.2004	1941	3190	115
890	1.2265	1880	3129	110
895	1.2536	1818	3066	105
900	1.2816	1755	3000	100
905	1.3106	1690	2932	095
910	1.3408	1624	2862	090
915	1.3722	1556	2789	085
920	1.4051	1487	2718	080
925	1.4395	1416	2634	075
930	1.4757	1343	2551	070
935	1.5141	1268	2465	065
940	1.5548	1191	2375	060
945	1.5982	1112	2280	055
950	1.6449	1031	2179	050
955	1.6954	0948	2073	045
960	1.7507	0862	1960	040
965	1.8119	0773	1838	035
970	1.8808	0680	1706	030
975	1.9600	0584	1561	025
980	2.537	0484	1400	020
985	2.1701	0379	1226	015
990	2.3263	0267	0995	010
995	2.5758	0145	0705	0005
996	2.6521	0118	0631	0004
997	2.7478	0091	0547	0003
998	2.8782	0063	0447	0002
999	3.0902	0034	0316	0001
9995	3.2905	0018	0224	0005

**TABEL
NILAI-NILAI UNTUK DISTRIBUSI F**

Barisan atas urutuk	5%	1%	v = d-pembilang																								
			1	2	3	4	5	6	7	8	9	10	11	12	14	16	20	24	30	40	50	75	100	200	500	0	
1	40,51	40,00	39,49	38,98	38,47	37,96	37,45	36,94	36,43	35,92	35,41	34,90	34,39	33,88	33,37	32,86	32,35	31,84	31,33	30,82	30,31	29,80	29,29	28,78	28,27	27,76	27,25
2	58,51	58,00	57,49	56,98	56,47	55,96	55,45	54,94	54,43	53,92	53,41	52,90	52,39	51,88	51,37	50,86	50,35	49,84	49,33	48,82	48,31	47,80	47,29	46,78	46,27	45,76	45,25
3	74,46	74,00	73,49	72,98	72,47	71,96	71,45	70,94	70,43	69,92	69,41	68,90	68,39	67,88	67,37	66,86	66,35	65,84	65,33	64,82	64,31	63,80	63,29	62,78	62,27	61,76	61,25
4	89,71	89,35	88,99	88,63	88,27	87,91	87,55	87,19	86,83	86,47	86,11	85,75	85,39	85,03	84,67	84,31	83,95	83,59	83,23	82,87	82,51	82,15	81,79	81,43	81,07	80,71	80,35
5	104,26	104,00	103,74	103,48	103,22	102,96	102,70	102,44	102,18	101,92	101,66	101,40	101,14	100,88	100,62	100,36	100,10	99,84	99,58	99,32	99,06	98,80	98,54	98,28	98,02	97,76	97,50
6	119,11	118,95	118,79	118,63	118,47	118,31	118,15	117,99	117,83	117,67	117,51	117,35	117,19	117,03	116,87	116,71	116,55	116,39	116,23	116,07	115,91	115,75	115,59	115,43	115,27	115,11	114,95
7	134,26	134,20	134,14	134,08	134,02	133,96	133,90	133,84	133,78	133,72	133,66	133,60	133,54	133,48	133,42	133,36	133,30	133,24	133,18	133,12	133,06	133,00	132,94	132,88	132,82	132,76	132,70
8	149,71	149,74	149,77	149,80	149,83	149,86	149,89	149,92	149,95	149,98	150,01	150,04	150,07	150,10	150,13	150,16	150,19	150,22	150,25	150,28	150,31	150,34	150,37	150,40	150,43	150,46	150,49
9	165,46	165,58	165,70	165,82	165,94	166,06	166,18	166,30	166,42	166,54	166,66	166,78	166,90	167,02	167,14	167,26	167,38	167,50	167,62	167,74	167,86	167,98	168,10	168,22	168,34	168,46	168,58
10	181,51	181,72	181,93	182,14	182,35	182,56	182,77	182,98	183,19	183,40	183,61	183,82	184,03	184,24	184,45	184,66	184,87	185,08	185,29	185,50	185,71	185,92	186,13	186,34	186,55	186,76	186,97
11	197,96	198,26	198,56	198,86	199,16	199,46	199,76	200,06	200,36	200,66	200,96	201,26	201,56	201,86	202,16	202,46	202,76	203,06	203,36	203,66	203,96	204,26	204,56	204,86	205,16	205,46	205,76
12	214,81	215,20	215,59	215,98	216,37	216,76	217,15	217,54	217,93	218,32	218,71	219,10	219,49	219,88	220,27	220,66	221,05	221,44	221,83	222,22	222,61	223,00	223,39	223,78	224,17	224,56	224,95
13	232,06	232,54	233,02	233,50	233,98	234,46	234,94	235,42	235,90	236,38	236,86	237,34	237,82	238,30	238,78	239,26	239,74	240,22	240,70	241,18	241,66	242,14	242,62	243,10	243,58	244,06	244,54
14	249,71	250,28	250,85	251,42	252,00	252,57	253,14	253,71	254,28	254,85	255,42	255,99	256,56	257,13	257,70	258,27	258,84	259,41	259,98	260,55	261,12	261,69	262,26	262,83	263,40	263,97	264,54
15	267,86	268,52	269,18	269,84	270,50	271,16	271,82	272,48	273,14	273,80	274,46	275,12	275,78	276,44	277,10	277,76	278,42	279,08	279,74	280,40	281,06	281,72	282,38	283,04	283,70	284,36	285,02
16	286,51	287,26	288,01	288,76	289,51	290,26	291,01	291,76	292,51	293,26	294,01	294,76	295,51	296,26	297,01	297,76	298,51	299,26	300,01	300,76	301,51	302,26	303,01	303,76	304,51	305,26	306,01

Barisan atas urutuk 5%
Barisan bawah urutuk 1%

v = d-pembilang

1/2 - d/1
pembilang

CHAPTER I

INTRODUCTION

A. The Background of the Problem

Humans are creature of Allah that most perfect is equivalent with other creature. Humans have more than that is given mind and thinking for maximize of function from mind and thinking there humans need knowledge. The knowledge motivates to understand how become humans that the whole. Humans that can use mind of thinking and can balancing life of the world and life of the hereafter. Humans are not used mind of thinking can be misfortune of the life. Can be seen in Q. S Yunus as this below:

وَمَا كَانَ لِنَفْسٍ أَنْ تُؤْمِنَ إِلَّا بِإِذْنِ اللَّهِ وَجَعَلَ الرَّجْسَ عَلَى الَّذِينَ لَا يَعْقِلُونَ ﴿١٠٠﴾

The meaning: “No soul can believe, except by the will of Allah, and Allah will place doubt (obscurity) on those who will not understand”. (Yunus: 100)¹

In other verse also is distinct that the important maximizing of function from mind of thinking that is used in Q. S Yasiin the follow:

وَمَنْ نُعَمِّرْهُ نُنَكِّسْهُ فِي الْخَلْقِ أَفَلَا يَعْقِلُونَ ﴿٦٨﴾

The meaning: “if we grant long life to any, we cause him to be reversed in nature: will they not then understand?” (Yasin: 68).²

¹Abdullah Yusuf Ali, *The Holy Qur'an*, (Kuala Lumpur: Saba Islamic Media, 1998), p. 258.

²*Ibid*, p. 540.

The brain is organ of humans' body that God placed a respectable position in upper part of humans' body and firmly protected inside the cranium (skull) head. The position of brain is a symbol that shows that peoples are more precious to God other creatures, such as location and position of the animals brain level with the humiliation and body store and secret feces (stomach and rectum or plants that do not have a brain and do not know where to position brain if any).

In language of Indonesia is resourceful means intellect, mind and memory, whereas in Arabic intellect (Aql) means a mind, heart, memory, power of thought, ideology, diyat, fortress or shelter. In this sense perhaps proper English if translated word cognition (knowing; awareness; Including sensation but excluding emotion). And our brain must be developed to the imagination.

Spiritual power that one has to distinguish the good with the bad and keep madharat benefit as well. The reason has 2 characters. Firstly, a distinctive sense of something good the poor; This also distinguishes between humans and animals. Secondly, a sense of identity with the highest compared to other creatures.

The humans' brain, like machine, it will not work at highest efficiency when gas is less, filled with soot, or even if there is a simple but essential tool missing.³ So if our students feel full, received sufficient attention from family, emotional control and well educated, most likely we will not experience serious difficulties. We have to give continuous motivation. But if students are feeling tired, not

³Louanne Johnson, *Pengajaran Yang Kreatif dan Menarik* (Jakarta: Pt Macanan Jaya Cemerlang, 2009), p. 199.

getting enough attention from my family, suffering from emotional stress, not well educated it is a challenge for us, so we have to be patient and keep motivated to become a good boy.

From the brief description above, it can be concluded that the reason is the means to understand what one object that is not possessed by other creatures. In writing, brain is very important to know how we can know about definition of left and right brain to writing ability. Students can the application it to writing ability. Students can to know about them skill.

First, writing is the primary basis upon which your work, your learning, and your intellect will be judged in college, in the workplace, and in the social community. Second, writing activities our left and right brain for thinking and problem solving. In the process of writing, our left and right brain is activated to remember vocabulary, and structure in grammar. Finally, we can learn thought through writing. Written texts are representation of the author's thought, so that writing is a way to understand the depth and the way of thinking of ourselves by writing our own brains.

Based on the illustration above, it is undeniably that writing is necessary for everybody in variety of purposes and needs. However, writing skill is problematic at SMA Negeri 2 Padangsidempuan either in the aspect of ability or left and right brain. The actual fact is revealed in the following illustration.

Student's writing ability is low. Come from PKS kesiswaan SMAN 2 Padangsidimpuan Mrs. Yus when the researcher was PPL there. Based on Minimal of Complete Criteria (KKM) every subject, passing grade of senior high school is 78 for English subjects special of Quality class and 75 for regular class. However, the data found in SMA Negeri 2 Padangsidimpuan reveals the average of student's writing ability still lack of standar score in grade X. In brief, students' writing ability does not fulfill the expectation. In addition, it was also found that students have lack the vocabulary, grammatical writing problems: recognize and fix grammatical errors.

Accordingly, the problems above need to be solved in order to avoid flaws in students as product of education. There are some strategies that can enhance students ability in writing such as vocabulary which it is very important to written. Brainstorming is students list all they can think of related to a topic, either in writing or aloud, quickly and without much planning. Word mapping is a more visual form of brainstorming. When students create word maps, they begin with idea at the top or center of a blank piece of paper. Quick writing is where students begin with a topic, but then write rapidly about it. These strategies theoretically judged to be good to apply in writing ability.

From the three alternative strategies above, the writer can connect the third strategies. Because, students must know vocabulary for they write, then they can to make to sentences pattern, and then they develop into paragraph. Below the writer reveals the reason.

First, it was found that student's materials can to write daily activities sentences. Second, the age level of students is "in between" which close to maturation. Humans in this age is theoretically able to acquire short story or developing a topic and so on. The last, correlation with left and right brain purpose to vocabulary, sentences pattern, and paragraph developing is simple and objective to know how speed and systematically a written in writing.

In view of above discussion, the researcher is interested in conducting an correlation research of which purpose to know the correlation between left and right brain to student's writing ability at grade X in SMA Negeri 2 Padangsidempuan. This research will connect left and right brain in speed and systematically a written to student's writing ability by make brainstorming, word mapping, and quick writing the conventional way of teachers in teaching writing skill.

B. The Identification of the Problem

Based on the background above, problems concerning writing skills at SMA Negeri 2 Padangsidempuan are:

1. Students low ability in writing which can be due to the inappropriate writing strategy.
2. Their lack vocabulary when they will write a paragraph.
3. They lack understand to grammar.

C. The Limitation of the Problem

The coverage of the variables stated above is so large in the matter of materials, space and time that is difficult to correlate alone. Due to the limitation of the writer in the aspect of ability, time and finance, this research must be limited. Thus, this study is to investigate the correlation between brainstorming, word mapping and quick writing on writing ability of developing of topic, in grade X at SMA Negeri 2 Padangsidempuan. Other subjects left and related to this study can be the domain of the future researchers.

D. The Formulation of the Problem

From the identification of the problem, so the formulation needed to explain the aim of research. Furthermore, the formulation of problem is: “Is there significant correlation between left and right brain to students’ writing ability at X SMAN 2 Padangsidempuan”.

E. The Objectives of the Research

The objectives are relevant to the formulation of the problem is: “To know whether there is the correlation between left and right brain to students’ writing ability at X SMAN 2 Padangsidempuan”.

F. The Use of the Research

The result of research is expected to be useful for:

1. As information for SMA Negeri 2 Padangsidempuan about the correlation between left and right brain to student’s writing ability.
2. As information for the teacher, especially for English teacher.

4. As a reference for the researcher in the next time

G. The Definition of Operation Variables

1. Left and Right Brain

Left brain has a character such as motor controls the motion of the body right - sensible, systematic, mechanical - mathematical calculations - analysis, language, images, words - a character straight line, parallel - details, controls, objectives / targets - the ingenuity, worldliness - realities and dominant, direct - active, oriented in the - identity, reading, writing - the ultimate goal, target - to and upon request - a tendency in yourself - the trend is more inward.

Right brain has a character such as: motor controls the motion of the body left - the character of human relationships - acoustics, sound, music - artistic, art, creativity - the symbols, sensuality, space - intuition, imagination, the equation - continuous, permanent, clear - emotions, feelings overview - open, giving priority to feeling - quality oriented - doubling and processes - and the appearance of spiritual - concerned with the other party - the nature and situation awareness.

2. Writing Ability

Writing /'raitin/ noun, the activity of writing, in contrast to reading, speaking, etc. a group of pieces of writing, especially by a particular person or

on a particular subject.⁴ Writing is the physical act of committing words or ideas to some medium, whether it is hieroglyphics inked onto parchment or a E-mail message typed into a computer. On the other hand, writing is the mental work of inventing ideas, thinking about how to express them, and organizing them into statements and paragraphs that will be clear to a reader.⁵

In other hand the both of part is very important for stimulus brain of students. Students can remember or memorizing in their brain. The first students look a written. The second, from the look it students bring it to brain and the process in mind. Then, the students make it to paper and etc. So, there is process in writing.

⁴*Oxford Advanced Learner's Dictionary*, 7th edition, P. 1769.

⁵David Nunan, *Practical Language Teaching* (North America: The McGraw-Hill, 2003), p.

CHAPTER II

THEORETICAL DESCRIPTION

A. Left and Right Brain

Neurolinguistics, an offspring of psycholinguistics, investigates how the human brain creates and processes speech and language. The disproportionate attention devoted to the well-known anatomical fact that human brains have two separate and virtually identical cerebral hemispheres. An unusual enchantment with the brain in our current culture, so that this anatomical condition has prompted a great deal of discussion about ‘left brain and right brain’ differences in human behavior.¹

There are millions of association pathways which connect the left and right hemisphere is immediately shared with the other. The function of the corpus callosum (the largest sheath of association pathways connecting the two hemispheres) is often unknown, ignored, or misunderstood so that nowadays it is often represented as a ‘fact’ that there are ‘left-brained and ‘right-brained’ people in the same way that individuals can be left or right handed. Misconceptions like these about neurology lead, quite naturally, to misconceptions about the relationship between the brain and mental states or linguistic structure².

¹ Thomas Scovel, *Psycholinguistics* (New York: Oxford University Press, 2001), p. 71.

² *Ibid*

Furthermore, the left brain houses the logical and conscious mind whereas the right brain is home to the intuitive and the unconscious³.

1. Left brain

The left hemisphere of the brain is associated with IQ (Intelligence Quotient) of man. IQ includes the ability to mathematic, formulate speech, reading, writing, logic, and analysis⁴. In Indonesia more important a IQ than EQ, because of that Indonesian's children more ego and not have imaginative that large.

According to Sperry, he states that left brain regulate matters that are rational, is used to measure things quantitatively, work order, partial and sequential.⁵ So, human who the dominance of left brain have the logical that high than human of right brain that use of feeling.

Left Brain (IQ) associated with awareness of space, awareness of something that looks, and mastery of mathematics. IQ is able to work to measure speed, set the new things, store and recall information as well as the objectives of an active role in counting numbers, etc.⁶

The experts began to investigate since the 1930s believed that left brain is the rational brain, which is closely related to IQ, is more logical, arithmetic, verbal, segmental, focus, serial (linear), looking for differences,

³*Ibid*, p. 79.

⁴As'adi Muhammad, *Misteri Otak Tengah Manusia* (Jogjakarta: Buku Biru, 2010), p. 26.

⁵*Ibid*.

⁶Ary Ginanjar Agustian, *ESQ Power* (Jakarta: Arga, 2003), p. 60.

and time-dependent.⁷ The left brain is logical, sequential, linear, and rational. This side is very organized although grounded in reality, he is able to abstract and symbolic interpretation.⁸

2. Right brain

The right brain is an emotional brain that is closely related to the EQ (Emotional Quotient), is intuitive, spatial, visual, holistic, diffuse, parallel (lateral), look for similarities, and do not depend on time.⁹ The right brain is random, irregular, intuitive and holistic.¹⁰ A series of skills to work their way in the world that is full of twists and turns social issues.¹¹ The right brain develops the personality, creativity, intuition, the ability of the application, the ability of the stage, and the arts.¹²

So Emotional intelligence is the ability to "listen" whisper emotions, and make it as a source of information is most important to understand yourself and others to achieve a goal.¹³ In Indonesia seldom use of right brain, why? Because Indonesian's children more important a score than the creativities and imaginative. So, the right brain in second number.

⁷Ippho Santosa, *13 WasiatTerlarang* (Jakarta: PT Elex Media Komputindo, 2008), p. XXII.

⁸ Bobbi Deporter & Mike Herracki, *Quantum Learning* (New York: Dell Publishing, 1992), p.

36.

⁹Ippho Santosa, *Log. Cit.*

¹⁰ Bobbi Deporter dan Mike Herracki, *Opcit*, p. 38.

¹¹ Ary Ginanjar Agustian, *Opcit*, p. 61.

¹² As'adi Muhammad, *Op. Cit.*, p. 29.

¹³ *Op. Cit.*, p. 62.

3. Type of Left and Right Brain

A person with a tendency to a more dominant left hemisphere more selfish, self-centered, easily jealous, arrogant and so forth. The left brain is like the questions that just have the answer "yes" or "no" and also prefer questioned "is right or wrong." Left brain memory is short term (short term memory). If there is damage to the left hemisphere there will be a disruption in the function of speech, language and mathematics.

The left brain prefers members with proper and thorough explanations. The left brain is also good to remember the name but it is not good to remember faces. How do think of according to the regular tasks for verbal expression, writing, reading, auditory association, put the details and facts, and symbolism.

If categorized in engineering science thinking, left brain thinking styles referred to as two-dimensional style of thinking. Style of thinking like this is needed because the rational and logical. Any decision should be based on cause and effect, the past experiences, and must have a referral. Every idea must. Based logic first, then only be implemented.

Those who use the left brain is likely to be submissive and walk according to his experiences, and not able to think beyond the bounds of

reason, as many thinkers possessed.¹⁴ Usually high IQ people, tend to be less jaunty, unfeeling and selfish.¹⁵

However, those people who are using left brain very important in life. Because if matched with the right intelligence, left brain power will be close to optimal. And we must the correlate always to active our mind. So, our mind can be expression a imagination in mind to developing technique of our mind whenever and wherever.

While, the power of the right brain is long (long term memory). If there is damage to the right brain, such as stroke or tumor in the brain, brain function is impaired visual and emotional ability. The right brain is more like the questions that have a variety of possible answers and more like a "why this is true and it's wrong?". Besides, the right brain prefers analogy, metaphor, and expression of the members an explanation about something. The right brain thinking with shadows and images and try asking about "Is it possible?" To produce a wide range of creativity.

More than that the right brain is also to know something that is nonverbal such as feelings and emotions, consciousness with regard to feelings (feel the presence of something or someone, spatial awareness, shape

¹⁴As'ad Muhammad, *Ibid*, p. 26-28.

¹⁵Ary Ginanjar Agustian, *Log Cit*.

and pattern recognition, music, art, color sensitivity, creativity and visualization).¹⁶

It is therefore right and left brain must develop optimally both so much better. And that is to balance with our brain, if left brain more dominance, so we must active again our right brain. Because in our life need balance not in material but our mind or our brain too follow it.

4. Process of Left and Right Brain

Once we know what the definition of the left brain and the right brain is now how the left and right brain working it in an article, even though we know the writing lies in the left hemisphere, but writing also requires a high imagination and emotion to reveal all the stories there we head to become a post.

With awareness as above it, such as when viewed from the aspect of education, how to learn and how to think need to be more knowledgeable in using the two hemispheres of the human brain. For the operationalization of consciousness, the first job is the awareness of basic human potentials which are related to the brain.

These components include the: (1) sensory, (2) ratio, (3) emotional, and (4) intuition. Parts of the brain itself has become "the place" for the course components. Corollary, body movements (kinesthetic), problem solving skills,

¹⁶As'ad Muhammad, *Op. Cit.*, p. 30.

emotional maturity, and skill to dig the subconscious is changing the way learning key skills and ways of thinking.¹⁷

Note the table of brain function below:

Table. 1
Brain and Functions Roger Sperry, 1961

THE FUNCTION OF BRAIN	
a. Sequential	a. Random
b. Descriptive	b. Associative
c. Detail	c. Gestalt
d. Letter, Symbol	d. Picture
e. Word	e. Color
f. Logic	f. Spontant
g. Rational	g. Intuitive
	h. Emotional
Intelligence Quotient (IQ)	Emotional Quotient (EQ)

Mention of the left brain and the right brain is not just a symbol or above analogy. There are biological facts behind it. Because the left brain and right brain does exist and play a role, just like those analogies. On the face of the human head is cleaved be seen two large chunks called the cerebrum. Because there are two cerebrum and formed a sphere, then each called hemispheres cerebrum. Both parts are prepared by billions of nerve cells gray

¹⁷Taufiq Pasiak, *Revolusi IQ/EQ/SQ* (Bandung: PT MizanPustaka, 2002), p. 125-126.

(called the substantia grisea) and billions of white fibers (called the substantia alba). White section located under parts gray.

The composition of these cells also influence the differences in both brain function. Relative right brain contains more white matter. While the gray matter more in the left hemisphere. Nerve fibers in the right brain obviously longer than the left brain. Because it's the right brain can be more in touch and form bonds with each other. "Ways of working" right brain, integrated and comprehensive formed by nerve fibers that has a lot to it.

Seen with the naked eye the surface of the brain looks different. Surface texture and pattern of folds showed a clear distinction. That is, no matter how cursory look the same, but if observed carefully real those differences. The contours of the "river" is called the sulcus and bumps like a hill called gyrus showed a noticeable difference. Including the part responsible for one function.

Language functions, for example, the left part of the brain, known as Broca's area and Wernicke areas much larger and wider than in the right hemisphere. Front of the frame on the left Broca's area located in the frontal lobe, and serves to mobilize the tools to talk. While Wernicke's area is located next to the left temporal lobe, and serves to capture information in the form of sound. To make contact in language work, they are both connected by a piece of "rope" called connective fibers. Another area, called the angular region that

serves to match the language in visual form (which see) and auditory (hears) only in the left hemisphere.

According to Tony Buzan, both hemispheres are like "Sleeping Giant" (the sleeping giant). One of the ways to wake him up, among others, through the study of the brain's two hemispheres intact.¹⁸

Diocles divides the brain into left and right brain. The left brain is associated with the "understanding" and right brain connection with perception and sensing. Diocles members to accept the role of the sensory information coming from the outside and then go to the left brain. An understanding of the information entered is the task of the right brain. Almageon and Empedocles, two famous Greek philosopher, Seide with Diocles when they are called "census" and "intellectus" for the function of the two hemispheres of the brain.

Subsequent developments, researcher Sperry, the evidence that the two hemispheres of the brain that produce two kinds of minds. A rational mind, the other intuitive-creative mind. The first, working serially and sequentially, and very concerned with things that are concrete and realistic. While the second, working in parallel and not patterned and prioritize those things tend to be abstract and ideal.

¹⁸*Ibid*, p. 130.

Terms such as reason and sense, reason and feeling, intellect and intuition (or between "khabar" and 'ishq, love or heart according to the term poet, philosopher Sir Muhammad Iqbal) or brain and heart are felt in everyday language because of the two types of thought. Because people think it's two ways that life evolved towards dynamics and better.¹⁹

From the results of an IQ test, most people who have high IQs showed poor performance on the job, while IQ was, it was very accomplished. Academic ability, grades, graduation predicates of higher education can't be a measure of how well a person after work or how high a success to be achieved. According to the 1973 Cleland paper "Testing For Competence" that "particular set of skills such as empathy, self-discipline, and the initiative will result in people who are successful and the stars of the performance"²⁰,

Look at the table of differences in the left and right brain below:

Table. 2

The differences in the left brain and right brain by Roger Sperry:

HEMISPHERE	LEFT	RIGHT
Abstract Thought	Abstract, Linear, Concrete	Concrete, Holistic
Thinking Style	Rational, logic	Intuitive, artistic
Language	Rich of words, Sentences and Good	No Grammar and Sentences few word

¹⁹*Ibid*, p. 132.

²⁰Ary Ginanjar Agustian, *Rahasia Sukses Membangun Kecerdasan Emosi dan Spiritual (ESQ)* (Jakarta: Arga, 2001), p.56.

	Grammar	
The ability to decide	Introspection, will, initiative, about yourself, focus on tree	Low sense of self, luck of initiative, focusing on the forest
Specificity functions	Reading, Writing, Arithmetic, and sensory motor skills	Music, in a dream, imagination, Gestalt recognition
Time	Sequential, scalable,	Life time, not timeless
Spatial orientation	Not good nice	Very good, especially for a space or an image.
Aspects of psychoanalytic	Ego, conscious, super ego	Idi, dreams, free association, hallucination
Ideal type	Aristoteles, Model Appollonial, Marx Frued, koester's	Plato, Model dionition, nitzche, Jung koestel's, yog.

Ned Herman divides the human brain into 4 regions. This division is, anatomically, referring to the limbic system functions and 2 hemispheres. Functionally, the quadrants were working when receiving and interpreting information and then make a decision. Can be seen in the table below:²¹

²¹*Ibid*, p. 134-135.

Table. 3

"Four Brain" Ned Herman

TOP LEFT (Analytic Thinking)		TOP RIGHT (Social Thinking)	
Style	Application	Style	Application
1. Logic	1. Logical	1. Holistic	1. Imagination
2. Analysis	2. Analytical	2. Intuitive	2. Artistic
3. Factual	3. Mathematics	3. Integration	3. Sintesis
4. Measurement	4. Techniques	4. Synthesis	4. Nonlinear
	5. Scientific		
BOTTOM LEFT (Implementation Thinking)		BOTTOM RIGHT (Future Thinking)	
Style	Application	Style	Application
1. Organization	1. Control	1. Interpersonal	1. Hub. Social
2. Sequential	2. Conservative	2. Social	2. Emotional
3. Planning	3. Organizational	3. Kinesthetic	3. Spirituality
4. Detailed	4. Administrative	4. Emotion	

Then can be seen table of third intelligence below:

Table. 4

According to Danah Zohar "third intelligence":

ASPEK	IQ	EQ	SQ
Structure	Neural Pathways	Neural network	Oscillations 40 Hz
Thinking	Serial	Associative	Unitive
Thought type	Rational	Emotional	Spiritual
Adjective	Automatic properties	Flexible	Can be change

Excess/luck	Accurate, precise, trustworthy	Not accurate, flexible	Very accurate
Basic philosophical	Newtonian	Humanism	Philosophy, eastern conscious instinctive
Response	Naluriah	Conditioned	-
Example	Respiratory System, regulate blood pressure, reflexes, etc.	Connecting hunger with rice, mother with love, with a comfortable home, etc.	The meaning of life, the meaning of brotherhood, the meaning of love, etc.
Machine	Series Computer	Computer analog	None
Learn processing	Can't learn	Can learn	Can learn
Psychology process	Prapersonal	Personal	Transpersonal

In the table above plus the spiritual Quotient, because this is also one way of thinking in his Iphho agamais as a member Santosa example that there is a friend Helmi Wahidi, having principles and sticking to the book Al-Quran that says, "he who doing good and faithful, then he is not worried about the reduction of debt ".²² This kind of thinking can't be calculated or sensible. But here's intuition or belief and way of thinking of people using right-brain dominant.

²²Iphho Santosa, *7 KeajaibanRezeki* (Jakarta: PT Elex Media Komputindo, 2010), p. 32.

6. Islam and the Right Brain

Islam is not just a rule or law, but also science, love, affection, and the most impressive is the emotional intelligence or EQ (Emotional Quotient), even a concept of the pillars of faith, Pillars of Islam and Ihsan which the religion of Islam. Where all Muslims must believe in the six pillars of faith. Perform the pillars of Islam. And the most important is that we worship Ihsan as if seeing God.

Man is a two-dimensional alignment that requires the need for physical and spiritual interests. Therefore man must have a concept of temporal or emotional sensitivity and good intelligence (IQ plus EQ) and it is also important ruhiah mastery vertical or spiritual quotient (SQ). emotions have been many studies proving that emotional intelligence has a much more significant role than the intelligence quotient (IQ). Intelligence (IQ) play a role limited to the minimum required to achieve success, but emotional intelligence someone who actually drove to the summit of achievement. It has been proven, many people who have high intelligence, slumped amid the competition. Instead many who have intellectual mediocrity, it went on to become stars performance; successful entrepreneurs, and leaders in the various groups. This is where emotional intelligence (EQ) prove the extention.²³

²³Ary Ginanjar Agustian, *ESQ Emotional Spiritual Quotient the Way 165 1 Ihsan 6 rukun Iman dan 5 rukun Islam* (Jakarta: Arga Publishing, 2007) p. Xvi-Xvii.

To the problems investigate about EQ, scientists have spent more than twenty years. Such as, Robert K Cooper PhD, quoting the words of Robert Frost as an aspect of "what they left behind and they often forget is the aspect referred to by Robert Frost as an aspect of" Heart ". This opinion is reinforced by the opinion of a psychologist from Yale, Robert Stenberg, an expert in the field of Succesfull Intellegence who said: "if the ruling IQ, is because we let it do so. And if we let him in power, we have chosen a bad ruler.

It's got strong evidence from a survey of thousands of executives, managers, and entrepreneurs who showed that most of them rely on impulse conscience as a source of emotional intelligence in almost all decisions and interactions are taken over the years.

This above is a bit contrary to our education system for this, which overstate the importance of academic value only. Ranging from primary school level to the college, rarely found on emotional intelligence education teaching: integrity, honesty, commitment, vision, creativity, mental toughness, wisdom, justice, the principle of confidence, self-control or synergies.

Based survey in the United States in 1918 on IQ, found, "paradox" dangerous "while children's IQ scores higher, their emotional intelligence actually fell. More worryingly, the data from a massive survey in 1970 and 1980 against the parents and teachers showed, "the current generation of children more frequently experience emotional problems than previous generations. Altogether, the children are now grown in loneliness and

depression, irritability and unruly, more nervous and anxious tend; impulsive and aggressive.

Academic ability, good grades, high school graduation predicate can be not the only talk measure how well a person's performance on the job or how high the success that can be achieved. According to McClelland 1973 titled testing for competence rather than intelligence, "a set of specific skills such as empathy, self-discipline, and initiative; would distinguish between those who are successful as the performance of the field work was limited survive. So the conclusion is the core of personal and social skills that are key to the success of a person's emotional intelligence really is. EQ is upon ability to feel. Emotional intelligence is a key on your honesty on your conscience."²⁴

As known that children have an honest nature. Memorize of the children is very strong. Children aged 8-12 years who have great memories of reaching the intensity. Rote memorization power and power (intentionally inserting and embedding knowledge in memory) is the most powerful. Children are able to load the most amount of memory material.

Fantasy life experienced important changes. At the age of 8-9 years old children like all fairy tales. For example, golden cucumber, onion garlic, Malin Kundang, Bandung Bandawasa, Lara Jonggrang, and others. The elements of a great and magical in this gripping tales of all children's interests. Gradually, elements of criticism began to emerge, and the child now wants the

²⁴ *Ibid*, p. 5-9.

real events that actually happened, or should have happened. Therefore the child enjoys stories of heroism. Therefore, as we age can also affect a child's brain either IQ or EQ²⁵.

Thus the importance of the ability of the brain in man. Thus, any activity that affects everything we want to do. As in writing, everyone can write but not all the posts can be accepted by the reader. Here are four ways to help you develop a vocabulary of great thinkers:

1. Use words and phrases that are large, positive, and cheerful to describe your feelings.
2. Use words and phrases that are right, cheerful and fun to portray someone else.
3. Use positive language to encourage other people.
4. Use positive words to summarize the plan to others²⁶.

After seeing the above information. Now, how creative thinking and dreaming. First, let's clear up an erroneous idea of the meaning of creative thinking. Because some illogical reason, science, technology, art and writing is considered as the only one that requires thinking really creative. Most people associate creative thinking with things like the discovery of electricity or polio vaccines, or the novel or the development of color television.

²⁵Drs. H. Abu Ahmadi & Drs. Munawar Sholeh, *Psikologi Perkembangan* (Jakarta: PT Rineke Cipta, 2005) p. 118.

²⁶David J. Schwartz, *Berfikir dan Berjiwa Besar (the magic of thinking big)* (Batam: Binarupa Aksara, 2007), p. 105-106.

Of course this is an achievement that has been evident from the way of thinking creatively. Each step forward in the conquest of space is the result of creative thinking. However, creative thinking is not limited to a particular job, not just for the super smart people. Then, the meaning of creative thinking it is a discovery of new ways to better do anything. For example, a low-income family who plan to send their sons to the university²⁷. So think creatively has a very broad meaning, not like that produced by IQ alone, but with the way of thinking that motivates EQ spontaneity.

To motivate our minds the thought of having to be at peak condition. That is, you must be relaxed, confident, and motivated. When you feel stressed, bored, or lacking in confidence or can be not see the point of studying the subject, you will not be able to learn well.

Have the right attitude in learning something is an absolute prerequisite. You must have the desire to learn new knowledge or skills. You have to have confidence that is able to learn, and that the information obtained would be useful to have influence in life. In other words, look at the personal benefits of investing your time and energy. Think, "what is in it for me?" Sir Chrishtopher Ball, director of education for the Encouregement Royal Society of Arts, manufactures, and commerce (RSA) the prestigious says: "The three

²⁷ *Ibid*, p. 132-133.

most important factors in learning is, motivation, motivation and motivation"²⁸.

Robert Ornstein in his research has shown the process of thinking is a complex combination of words, images, scenarios, color, and even sounds and music. Because of the way it presents and captures the content by creating a map of learning on average quite close to the way brain surgery is a natural thought. Brain like a dense forest comprising tens of thousands of trees, with berates-hundred branches, branches of millions, and billions of twigs. Map study formed the same way. Here information is stored in the branches of a central theme, although in a much smaller scale! when making a map of learning, style processing of the left hemisphere and the right to be fully involved.

By using learning maps, new information will be absorbed easily remembered and kept in mind our brains. This format is very suitable for visual learners and global, and in addition, the emotional brain can further involved with the use of different types of colors in the learning map. Moreover, the information that you have created yourself such as maps will learning is personal and specific to you.

Creating a visual record are things that have been done throughout human history. Look at the cave paintings of primitive man and hieroglyphic

²⁸John Morellus, *Belajar Efektif Ala Jenius* (Panji Digital Pers, 1999), p. 4.

writing of ancient Egyptian times. If left to their own devices, children will also be sketching and doodling when given new ideas²⁹.

Master artist, Nancy Margulies, author of *Mapping inner space and yes, you can Draw* said, before creating the language, we visualize our thinking pictures and links on these concepts. Unfortunately, we often block the creative channel to train the children to write words only, in monochrome, on lined paper.

Most of us, the idea is traditional to write linearly, on lined paper, using the same color (usually blue, black, or gray), is a habit that is ingrained. It is also monotonous boring Ask Tony Buzan, developer of map learning technique called mind mapping, and what brains do when he is bored? He faded, outages, and went to bed. Thus, 95% of the human population is making notes in a way that will only make them bored and distracted, and sent most of them situation unconscious.

Try to see libraries in schools, universities, cities large and small throughout the world. What do half the people are library it? Sleep! where we learn to be a giant common bedroom! Retraining our brains to illustrate the ideas that poured from a central picture takes practice and patience. Heat is to train the skill to become automatic³⁰.

²⁹*Ibid*, p. 43.

³⁰*Ibid*, p. 44.

While the left brain is the task that is always associated with numbers, language analysis, logic, intellectual science. The right brain is responsible in terms of imagination, creativity, arts, music, innovation, creativity, intuition, subconscious mind, sincerity, happiness, spirit, tenacity, honesty, beauty and others. In addition to taken care of by the left brain, right brain is also a concern.

"The right brain has the capability in terms of empathy or concern that high. The right brain also has the ability to collaborate with the heart, have the ability and the power of the creative arts. The specialty of the right brain has brain waves with alpha waves. These waves could feel the sincerity, happiness, serenity, humility, relax, quiet, contentment, and so imaginative

B. Writing

Writing is an activity to express ideas with structure and grammar. Similarity, McWhorter. Kathleen T says that "writing is an excellent means of monitoring and improving your comprehension and retention. It is also an effective learning strategy.

Writing is the physical act of committing words or ideas to some medium, whether it is hieroglyphics inked onto parchment or an e-mail message typed into a computer. On the other hand, writing is the mental work of inventing ideas,

thinking about how to express them, and organizing them into statements and paragraphs that will be clear to a reader³¹.

It is both a process and a product. The writer imagines, organizes, drafts, edits, reads, and rereads. This process of writing is often cyclical, and sometimes disorderly. Ultimately, what the audience sees, whether it is an instructor or a wider audience is a product-an essay, letter, story, or research report.

Then according Hamps-Lyons 1990. Writing is personal act in which writers take ideas or prompts and transform them into “self-initiated” topics³². So the conclusion, writing is the process of giving information by texts, that involved in generating the letters, words and sentences. Typically one will use a writing utensil (such as a pen/ pencil to write characters on paper or computer (type writer).

1. The Kinds of Writing

a. Scientific Writing

- 1). Educational research
- 2). Research writing

b. Inform active writing

- 1). Story
- 2). Report
- 3). Summary
- 4). Review

³¹David Nunan, *Log. Cit.*

³²J. Michael O'Malley & Lorraine Valdez Pierce, *Authentic Assessment For English Language Learners* (New York: Addison-Wesley Publishing Company, 1996), p.136.

c. Prose

- 1). Novel
- 2). Short story
- 3). Fiction
- 4). Drama

d. Poem

- 1). Lyric
- 2). Epic
- 3). Dramatic

2. The Steps of Successful Writing

a. Preparation

- 1). Writing like technical task, requires solid preparation. In fact, adequate preparation is important as writing the draft.
- 2). Preparation for writing consists
 - a). Establishing objective
 - b). Identifying the readers
 - c). Determining the scope of coverage

b. Research

The purpose of most writing is to explain something that is complex. This kind of writing cannot be done by someone who does not understand the subject he or she is writing about. The way to be sure that you can deal adequately with complex subject are:

- 1). Taking notes
- 2). Doing library research
- 3). Interviewing for information
- 4). Creating and using a questionnaire

c. Organizing

Without organization, the material gathered during your research world it incomprehensible to your reader. Thus you must determine the best sequence in which your ideas should be presented.

- 1). Choosing the best method of development
- 2). Defining
- 3). Creating and using illustration
- 4). Selecting an appropriate format

d. Writing draft

When you have established your objective, readers need, and scope and have completed your research and your outline, you will be well prepared to write your first draft.³³

- 1). Choosing a point of view
- 2) Developing topic sentences
- 3) Writing paragraph
- 4) Using quotation and paraphrasing
- 5) Writing introduction

³³*Ibid.*

- 6) Writing the body
- 7) Writing conclusion
- 8) Choosing a title
- 9) Using word processor

e. Revising

The final step of writing is revision. Don not try to do all your revising at once. Read your draft several times. Each time looking for and correcting a different set of problem or errors.

- 1) Checking for completeness and accuracy
- 2) Checking for unity and coherence
- 3) Making smooth transition
- 4) Emphasizing main idea
- 5) Checking for clarity
- 6) Checking for logic
- 7) Defining terms
- 8) Eliminating ambiguity
- 9) Checking for appropriate word choice
- 10) Eliminating affection and jargon
- 11) Achieving conciseness
- 12) Eliminating clichés and title language
- 13) Making writing active (voice)
- 14) Checking for parallel structure

3. Purpose of Writing

Purpose in writing determines the nature of the writing. Writers who gain control over various genres have a broader repertoire of writing abilities and an increased understanding of the value of writing for interpersonal communication, for achieving their own ends than those who do not.

There are at least three purposes in writing: informative writing, expressive/narrative writing, and persuasive writing. The three purposes described are similar to the purposes used national assessments (NAEP 1987) and encompass the major types of writing in programs for ELL students as well as in many state writing assessments.

- a. Writers use expository or informative writing to share knowledge and give information, directions, or ideas. Example of informative writing include describing events or experiences, analyzing concepts, speculating on causes and effects, and developing new ideas or relationships. This type of writing could include a biography about a well-known person or someone from the writer's life.
- b. Expressive/narrative writing is a personal or imaginative expression in which the writer produces stories or essay. This type of writing is often based on observations of people, objects, and places and may include creative speculations and interpretations.
- c. In persuasive writing, writers attempt to influence others and initiate action or change. This type of writing is often based on background

information, facts, and examples the writer uses to support the view expressed.³⁴

Its purpose is both to express and impress. Writers typically serve two masters: themselves and their own desires to express an idea or feeling, and readers, also called the audience, who need to have ideas expressed in certain ways³⁵.

4. Process of Writing

It is both a process and a product. The writer imagines, organizes, drafts, edits, reads, and rereads. This process of writing is often cyclical, and sometimes disorderly. Ultimately, what the audience sees, whether it is an instructor or a wider audience is a product-an essay, letter, story, or research report³⁶.

According Hudelson 1989, In process writing, students are involved in the construction of narratives on topics in which they have a personal interest³⁷. Sometimes Written can interest because reader feel what reader feel. Usually the children like narratives story.

In conclusion, writing is an activity that is productive and expressive. Therefore a writer should be skilled use of graphology, grammar, and

³⁴ *Ibid*, p. 137.

³⁵ David Nunan, *Op Cit*.

³⁶ *Ibid*.

³⁷ George E. Wishon & Julia M. Burks, *Lets Write English Revised Edition* (New York: Mei Ya Taiwan Edition, 1980),. p.53.

vocabulary. Writing skills will not come automatically, but through a lot of training and practice and regular³⁸.

5. The direct Testing of Writing

For a student in an EAP context it might involve search reading of an academic text to extract specified information for use in a written summary.³⁹

a. Essay Test

The stimulus is normally written and can vary in length from a limited number of words to several sentences.

b. Editing Task

The student is given text containing a number of errors of grammar, spelling and punctuation of the type noted as common by remedial teachers of students in the target group and is asked to rewrite the passage making all the necessary corrections.

c. Controlled Writing Tasks

To omit a writing task in situations where writing tasks are an important feature of the student's real life needs might severely lower the validity of a testing programmer.

d. Summary

Summary can be a valid test in certain domains.

³⁸Prof. DR. Henry Guntur Tarigan, *Menulis Sebagai Suatu Keterampilan Berbahasa* (Bandung: Angkasa, 1986), p. 3-4.

³⁹Cyril J. Weir, *Communicative Language Testing* (New York: Prentice Hall, tt.), p. 160.

C. The Review of Related Finding

There was a researchers that has done a research same with mine but different technique. The related findings were firstly, a thesis of Somakim in FKIP Universitas Sriwijaya 2008 with the researchers' title "Pembelajaran Matematika Dengan Melibatkan Manajemen Otak (Suatu Alternatif Pembelajaran Interaktif)"⁴⁰. This research used pre-experiment method. He Concludes are "Manajemen Otak atau *Brain Management* merupakan kemampuan menggunakan fungsi otak secara seimbang antara otak kiri dan otak kanan. Pembelajaran matematika dengan melibatkan manajemen otak akan mengembangkan pembelajaran yang interaktif, sehingga pelajaran matematika menjadi menyenangkan bagi siswa".

Secondly, a thesis was done in Fakultas Bahasa dan Seni in Universitas Medan. The researcher's name is Nurilam Harianja with the researchers' title "Hubungan Bahasa Dengan Otak"⁴¹. This Concludes are:

Hasil- hasil penelitian tentang penderita kerusakan otak itu mengarah kepadakesimpulan bahwa belahan kiri otak dilibatkan dalam hubungannya dengan bahasa. Krashen, dalam (cahyono, 1995 : 259) menyebutkan lima alasan yang mendasari kesimpulan itu.

1. Hilangnya kemampuan berbahasa karen kerusakan otak sebelah kiri.
2. Ketika belahan kiri otak disanastesia, kemampuan berbahasa hilang, namun ketika belahan kanan otak dianastesia kemampuan tidak hilang.

⁴⁰ Somakim, *Pembelajaran Matematika Dengan Melibatkan Manajemen Otak (Suatu Alternatif Pembelajaran Interaktif)*, (Thesis Universitas Sriwijaya 2008). From Internet

⁴¹Nurilam Harianja, *Hubungan Bahasa Dengan Seni*, (Thesis UNIMED tt). From: Internet

3. Ketika bersaing dalam menerima input bahasa secara bersamaan melalui tes menyimak dikotis, telinga kanan lebih unggul
4. Ketika materi bahasa disajikan melalui penglihatan kanan dan kiri makan penglihatan kanan lebih tepat dan cepat dalam menangkap materi
5. Pada saat melakukan kegiatan berbahasa, baik secara terbuka atau tertutup, belahan otak kiri menunjukkan kegiatan listrik yang lebih hebat.

Finally, a thesis of Elly Fajarwati in Fakultas Psikologi Universitas Katolik Soegijapranata Semarang 2009 by “Hubungan Antara Bermain Balok Dengan Kreativitas Anak”⁴². This research used Kuantitatif thod. She concludes that “Berdasarkan hasil penelitian, analisis data dan pembahasan maka dapat diambil kesimpulan bahwa terdapat hubungan antara bermain balok dengan kreativitas anak. Dari hasil tersebut dapat dikatakan bahwa semakin tinggi kemampuan siswa bermain balok maka semakin tinggi tingkat kreativitasnya, demikian sebaliknya”.

D. Hypotheses

Suharsimi Arikunto said Hypotheses derived from two words, namely "Hypo" means "under" and "Thesa" yan means "truth". So then how to write hypothesis adapted to Indonesian Spelling a hypothesis, and a hypothesis developing. The hypothesis can be interpreted as a temporary answer to the problem of research, until proven by the data collected.⁴³

⁴²Elly Fajarwati, *Hubungan Antara Bermain Balok Dengan Kreativitas Anak* (Thesis UNIKA Semarang 2009). From internet

⁴³Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik* (Jakarta: Rineke Cipta, 2006), p. 71.

In accordance with the formulation and limitation of the problem above and in order to provide a guidance for this research which specifies the correct processing, acquiring and analyzing of the data, it needs to formulate hypotheses of this research are as follows: There are correlation significantly between left and right brain to student's writing ability at grade X SMA Negeri 2 Padangsidempuan.

CHAPTER III

RESEARCH METHODOLOGY

A. The Location and Time of the Research

This study was conducted at SMA Negeri 2 Padangsidempuan as a place of research and it was located on Sudirman Street Padangsidempuan. In addition to its implementation was planned for the first semester of academic year 2013 / 2014 or in the period from October to November 2013. Selection of place and time was based on the activities of Field Experience Practice PPL which was conducted from January to March 2012, in the same school as the study site. Then from the interview was known that in addition to academic achievement in the field, SMA Negeri 2 students also excel in the field of arts and sports.

B. The Kinds of the Research

The research method was a process undertaken to complete a study, for it was necessary to take measures in order to study systematically realized, planned and followed a scientific concept, In this case the writer used a method of quantitative descriptive correlation approach. According to Moh. Nazir descriptive methods were:

“Suatu metode dalam penelitian suatu kelompok manusia, suatu objek, suatu set kondisi, suatu sistem pemikiran, ataupun suatu kelas peristiwa pada masa sekarang. Tujuan penelitian deskriptif ini adalah untuk membuat deskripsi, gambaran atau lukisan secara sistematis, aktual, akurat mengenai fakta-fakta, sifat-sifat serta hubungan antara fenomena yang diselidiki”¹

¹ Moh. Nazir, *Metode Penelitian* (Jakarta: Ghalia Indonesia, 2005), hlm. 54.

"Is a method in the study of a group of people, an object, a set of conditions, a system of thought, or a class of events in the present. Purpose of this descriptive study was to create a description, picture, or drawing systematically, actual, accurate regarding facts, properties and relationships between phenomena under investigation".

From above opinion could be taken the opinion research was a descriptive study using quantitative correlation approach which aims to investigate the correlation of the left brain and the right brain of the students' writing skills in SMA Negeri 2 Padangsidempuan.

C. The Population and Sample

1. Population

Population was all members of well defined class of people, event, or object of population was the elements of research as target of result research theoretically. The population was generalization area consist of object / subject was special quantity and characteristic which determined by researcher to get concluding. So, every human was researched by researcher that was population that taken of the sample.

Joko Subagyo says the population is the object of study as a target to acquire and collect data. Samples were taken into consideration in the study of efficiency and lead to the centralization of the problem by focusing on the

portion of the population.² According to Bambang Prasetyo whole population was symptom / unit you want investigated.³

The population that was researched in this occasion was class X in SMA Negeri 2 Padangsidimpuan. The students limited to those who belong to class X SMA Negeri 2 Padangsidimpuan.

The calculation can be seen in the following table:

Table. 5

The calculation of population

No.	Class	Total Students'
1	X-1	28
2	X-2	29
3	X-3	29
4	X-4	28
5	X-5	29
6	X-6	31
7	X-7	30
8	X-8	30
Total		236

2. Sample

Sample is sub group taken from a population. As Suharsimi explains, "Sample is a partly of population which is researched in a research."⁴ In other word, sample was part or presented of the population. Because the population more than 100 students. Then, the researcher chose some of them as the

²Joko Subagyo, *Metode Penelitian Dalam Teori dan Praktik* (Jakarta: Rineke Cipta, 2004), p. 23.

³Bambang Prasetyo & Lina Miftahul Jannah, *Metode penelitian Kuantitatif* (Jakarta: Raja Grafindo Persada, 2007), p. 119.

⁴*Ibid*, p. 117

sample in the research. Sudjana determines, cluster sampling “It’s used a large population, so that must be divided into classes, or groups. In the other word the analysis of unit is not individual but classes or groups which is consist of some individuals”⁵. Therefore, based on the quotation previously, the writer chose cluster sampling to take the data.

For this technique, the researcher used lottery technique that was by selecting the sample writing each class name on slips of paper, and places all the slips in container, the container was shaken and the slip selected from the container until the desire number of class was gained. Based on the opinion above, so group of population was class parallel, they were classes. The class which was chosen in class X-5 that consist of 29 students but there were two students’ who did not come. So that, the samples became twenty seven students.

D. The Instrument of Data Collecting

Instrument is a very important to be learned to ensure data retrieval really. Suharsimi Arikunto states research instrument is an instrument or facility used to collect the data so that the work easier and the results better, in terms of more accurate, complete, and systematically so more easily processed.⁶

⁵ Nana Sudjana, *Penelitian dan Penilaian Pendidikan*, (Bandung: Sinar Batu Algesindo, 2001), p. 92

⁶ Suharsimi Arikunto, *Op. Cit.*, p. 136.

1. Questionnaire

Questionnaire in this study used to determine the use of hemispheric dominance, held by the sampled students, called Questionnaire left Brain Hemisphere Dominance use. To questionnaire prepared by the researcher, although some questions quoted from the book which was written by Ippo Santosa and internet, quoted from the book, and then held a slight change shape and editorial sentences for easy using.

Questionnaire used a questionnaire that covered already provided the answer questionnaires so that respondents chose to live. In this case, used Likert scale with five alternative answers in multiple - choice form, namely a, b, c, d and e by using the positive form of the question was to use the types of questions that build the classification;⁷

The classification can be seen in the following table:

Table 6.
The Classification of Scale Likert

Option	Score
Always	5
Often	4
Sometimes	3
Almost never	2
Never	1

⁷ Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif dan R & D*, (Bandung: Alfabeta, 2010), p. 94.

Grating research questionnaire the correlation between left brain and right brain students of SMA Negeri 2 Padangsidempuan the following table:

Table.7

Grating research questionnaire relationship between left brain and right brain students of SMA Negeri 2 Padangsidempuan.

Variable X	Indicator	Item	No. Item
The left and Right Brain	1. IQ	30	1, 2, 3, 4, 5
	2. Logic		6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18
	3. Planning		19, 20, 21, 22
	4. Quantitative		23, 24, 25, 26
	5. Sequential		27, 28, 29, 30
	1. EQ	30	1, 2, 3, 4, 5, 6, 7, 8
	2. Qualitative		9, 10, 11, 12, 13, 14
	3. Planning		15, 16, 17, 18
	4. Visual		19, 20, 21, 22, 23
	5. Not Planning		24, 25, 26, 27, 28, 29, 30
	Total	60	60

2. Test

Test is the treatment that used to measure knowledge, intelligence, and ability or skills of someone or groups. The essay test form consisted of one question. The test was a story about writing practice: Description. Writing was lessons dealt with paragraph development by time sequence, listing or describing events in the order in which they occurred. The used of sequence expression, such as first, then, next, afterwards, was also stressed⁸. It was done to know the students writing ability.

⁸George E. Wishon & Julia M. Burks, *Op. Cit.*, p. 128

The research test grating writing skill can be seen in the following table:

Table. 8
Research Test grating writing skills of students of SMA Negeri 2

Padangsidimpuan:

Variable Y	Indicator	No. Item	Score
Writing Ability	Writing Practice:	1	25
	1. Vocabulary		
	2. Tenses (Simple Present Tense)		
	3. Sequence Expression		
	4. Topic		25
Total		1	100

E. The Test Validity and Instrument Reliability

Questionnaire was an instrument that needs to be tested to determine the reliability and validity of the questionnaire to be used in this study. The steps were:

1. Test Validity

To know validity each question will be refer to list r product moment with $\alpha = 0,05$. If r account $> r$ list Question valid.

$$r_{xy} = \frac{N(\sum XY) - (\sum X)(\sum Y)}{\sqrt{\{N(\sum X^2) - (\sum X)^2\}\{N(\sum Y^2) - (\sum Y)^2\}}}$$

r_{xy} = Effect coefficient of total question

N = Total Respondent

x = Element score

y = Total score

Further tested by t-test, with the formula $t_{\text{count}} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$

Description:

t = t_{count}

r = Coefficient of correlation of results r_{count}

n = Number of respondents

Rule-making: if $t_{\text{count}} > t_{\text{table}}$ means valid, and if otherwise $t_{\text{count}} < t_{\text{table}}$ means invalid.⁹

2. Question Reliability

To know reliability each question, so that was refer to list product moment with $\alpha = 0,05$. If $r_{\text{count}} > t_{\text{table}}$ so question reliable.

$$r_{11} = \left[\frac{k}{k-1} \right] \left[1 - \frac{\sum \delta_b^2}{\delta_t^2} \right]$$

Descriptions:

r_{11} = Reliability instrument

k = total score each item

$\sum \delta_b^2$ = total varians score each item

δ_t^2 = varians total¹⁰

The formula of varians $V_1 = \left[\frac{\sum x^2 - \frac{(\sum x)^2}{N}}{N} \right]$ ¹¹

⁹ Riduwan, *Belajar Mudah Penelitian untuk Guru-Karyawan dan Peneliti Pemula* (Bandung; Alfabeta, 2000), p. 98.

¹⁰ Suharsimi Arikunto, *Manajemen Penelitian, Op. Cit.*, hlm. 235-236.

Then from score r_{count} that was equivalent with r_{table} If $r_{\text{count}} > r_{\text{table}}$ so the questionnaire was reliability and soon.

F. The Data Analysis

After collecting the data, the writer analyzed the data, using techniques as follows:

- a. Brainstorming was students list all they can think of related to a topic, either in writing or aloud, quickly and without much planning.
- b. Word mapping was a more visual form of brainstorming. When students created word maps, they began with idea at the top or center of a blank piece of paper.
- c. Quick writing was students began with a topic, then write rapidly about it. These strategies theoretically judged to be good to apply in writing ability.

In this data processing stage of research, the stages can be formulated in the following explanation:

1) Descriptive Statistic Analysis

Descriptive statistics is a static function to describe or give a picture of the object being investigated through the data sample and the population as it is without doing analysis and making conclusions or generalizations apply to the public.¹² Descriptive statistics are the ways of presenting the data analyzed by the following data:

¹¹ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik, Op. Cit.*, hlm. 160.

¹² Sugiyono, *Opcit*, p. 80.

a) Mean (average)

The formula used: $M_x = \frac{\sum fx}{N}$

Description:

M_x = Mean (average)

$\sum fx$ = the sum of the multiplication of each score with a frequency

N = number of samples.¹³

b) Median

The formula used:

Median = $\ell + \left(\frac{1/2N - fk_b}{f_i} \right) xi$

Description:

ℓ = lower limit of the real-containing median score

fk_b = cumulative frequency lies below the median score containing

f_i = original frequency (frequency of scores containing median)¹⁴

c) Modus

The formula used: $M_o = \ell + \left(\frac{f_a}{f_a + f_b} \right) xi$

Description:

M_o = mode

ℓ = lower limit of the interval containing the real-mode

f_a = frequency located at the interval that contains the mode

85. ¹³ Anas Sudijono, *Pengantar Statistik Pendidikan* (Jakarta: PT: Grafindo Persada, 2008), p.

¹⁴ *Ibid*, p. 97.

f_b = frequency located below the interval containing mode

i = class interval¹⁵

d) Standard Deviation.

The formula used: $SD = \sqrt{\frac{\sum fx^2}{N}}$

Description:

SD = Standard Deviation

Fx^2 = number by multiplying the frequency of each score with the squared deviation

N = Number of samples.¹⁶

e) Histogram (bar chart)

The results of measurements in the form of figures from the mean results were then analyzed to give the interpretation of the distribution of the data obtained on population, to seek the categorization was done by formula:

a) Strong: M (mean) + 1 SD to rank up

b) Medium: M (mean) - 1 elementary to middle ranking

c) Weak: lower rank.¹⁷

¹⁵ *Ibid*, p. 106.

¹⁶ *Ibid*, p. 159.

¹⁷ *Ibid*, p. 176.

2) Furthermore, to determine whether there was correlation between left and right brain to students' writing ability, used the formula of Jaspens's¹⁸ correlation as follow:

$$M = \frac{\sum(Y_i)(O_b - O_a)}{(S_y) \sqrt{\sum\left(\frac{O_b - O_a}{P}\right)^2}}$$

Where :

Y_i = Average for each level group

P = Proporsi each sampel with all the sampel.

C_p = Cumulatif proporsi.

O_b = Ordinat value with P .

O_a = Value in each ordinat for O_b

S_y = Standard deviation Y

$$S_y = \sqrt{\frac{\sum y - \frac{(\sum y)^2}{NT}}{NT}}$$

To know significantly between ordinal variable and interval variable or ratio, by change to Jaspens's value before r (used):

$$r = (m) \sqrt{\sum\left(\frac{O_b - O_a}{P}\right)^2} \quad \text{With } db = nr - 2$$

¹⁸ Iqbal Hasan, *Analisa Data Penelitian Dengan Statistik*, (Jakarta: Bumi Aksara, 2004) p. 59

The Categories value correlation coefficient and strength correlation

¹⁹can be seen in the following table:

Table. 9
Categories value correlation coefficient and strength correlation

No	Value of high r	Interpretation
1	0.90-1.00	Very Good
2	0.70-0.90	Good
3	0.40-0.70	Enough
4	0.20-0.40	Low
5	0,00-0,20	Lowest

¹⁹*Ibid*, p. 40

CHAPTER IV

THE RESULT OF RESEARCH

In this chapter the author discussed the results of testing the research instrument in the form of a questionnaire and discuss the results of research on the correlation between left and right brain to students' writing ability at grade X SMA Negeri 2 Padangsidempuan.

A. The Description of Data

To facilitate understanding of the results of this study, then the data described by a sequence of variables. Description of research results started from variable (X) was the left and Right brain, and variable (Y) was the writing ability.

1. Data Questionnaire of Left and Right Brain

This research was conducted at grade X-5 students of SMA Negeri 2 Padangsidempuan. In collecting the data, the researcher gave students questionnaire to get the data about left and right brain. After collecting the data of this research the researcher found the score of student's left and right brain for variable (X) as below:

Table. 10

The Score of Respondents' Left and Right Brain.

NO.	Initials of Respondents	Left and Right Brain (X)				
		5	4	3	2	1
1	RD		√			
2	AM	√		√		
3	MH	√	√	√		√
4	AI		√			√
5	DS	√	√			
6	AMH			√		
7	SLN			√	√	√
8	ET		√		√	
9	JT		√		√	
10	AR	√	√			
11	AG					
12	FRI			√		
13	DS		√	√		√
14	PIN					√
15	YEC			√	√	√
16	RR		√	√		
17	TRS	√	√		√	
18	CRC					
19	SM	√		√	√	
20	LS	√	√		√	
21	ER			√		√
22	FW			√		√
23	EP		√	√		√
24	YN				√	
25	IO					√
26	YO		√	√	√	√
27	LY		√	√		
Total		7	14	14	9	11

From the calculation of the respondents' answers to the questions asked in the questionnaire, the scores derived from left and right brain variables as contained in the following table:

Table. 11

Summary Description of Left and Right Brain Data

No	Option	Score	Frequency	Percentage
1	Always	5	7	0.13 %
2	Often	4	14	0.26 %
3	Sometimes	3	14	0.26 %
4	Almost Never	2	9	0.17 %
5	Never	1	11	0.20 %
Total			54	100%

The spread of data between left brain on the next could be described with a histogram as contained in the following figure 1:

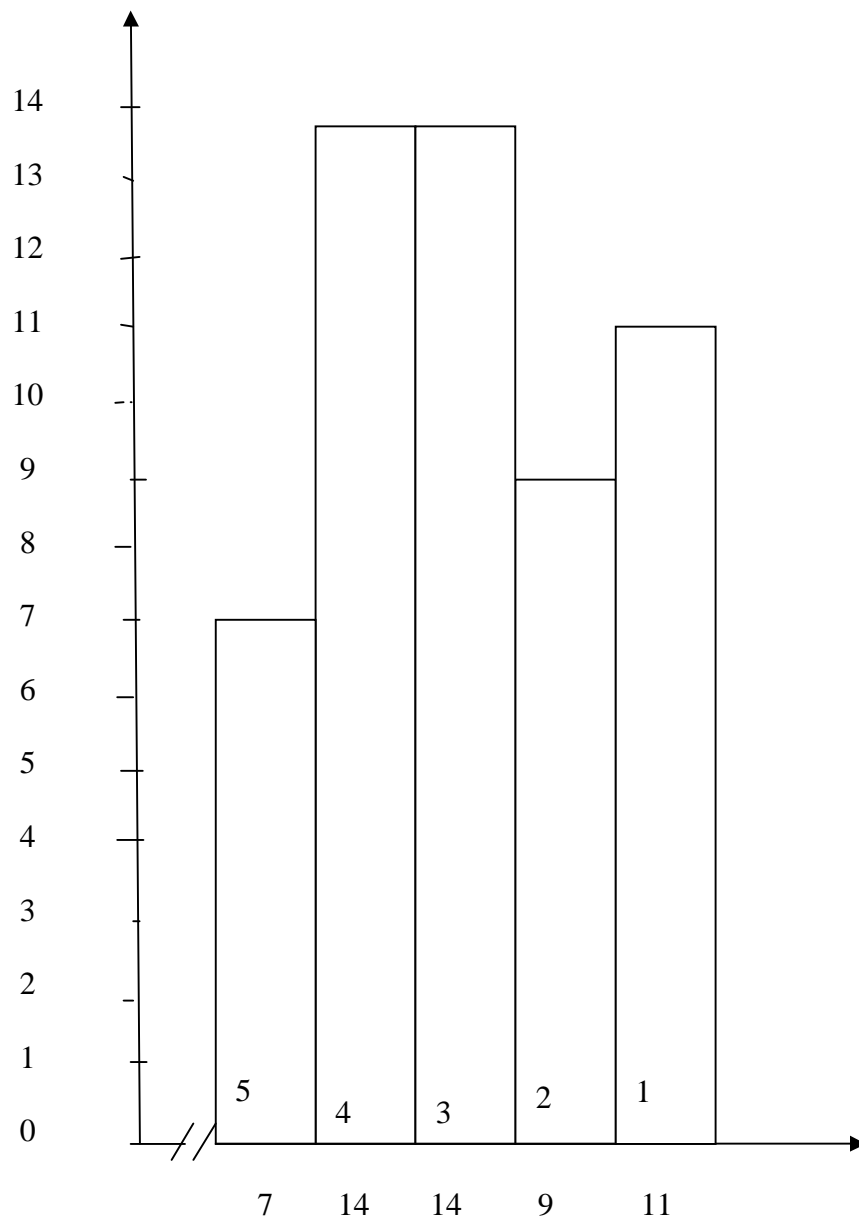


Figure 1. Histogram of Left and Right Brain Score.

2. Data Test of writing description

Based on the last of the report result that was the writing description the students' lowest 55, and the highest was 93. The report result of the students' writing ability can be seen on the table below

Table 12.

The Score of Respondents' Writing Ability

N0.	Initials of Respondents	Writing Ability (Y)
1	RD	70
2	AM	78
3	MH	66
4	AI	63
5	DS	68
6	AM H	66
7	SLA	69
8	ET	62
9	JT	55
10	AR	70
11	AG	70
12	FRI	67
13	DS	68
14	PIN	93
15	YEC	60
16	RR	61
17	TRS	72
18	CRC	77
19	SM	66
20	LS	73
21	ER	78
22	FW	82
23	EP	77
24	YN	73
25	IO	70
26	YO	88
27	LY	76

From the calculation of the respondents' answers to the questions asked in the questionnaire, the scores derived from writing ability variables as contained in the following table:

Table 13.

Summary Description of writing ability Data

No	Statistic	Variable
1	High Score	93
2	Low Score	55
3	Range	38
4	Many Class (k)	6
5	Interval (i)	6
6	Mean (rata-rata)	71.3
7	Median	69.7
8	Modus	68.5
9	Standard Deviation	10.5

From the above data it could be seen that the highest score variable writing ability achieved by the sample amounted to 27 people were the highest at 93 and the lowest score of 55, a mean of 71.3 a median of 69.7 and mode of 68.5. Thus the frequency distribution of the data presented was a frequency distribution that was normal or symmetrical. While a standard deviation of 10.5. This table for easier could be help the write in written.

From the table above, the writer made it clearer the students' achievement in English was shown in the distribution of frequency as follows:

Table 14.

Frequency Distribution of Writing Ability Score.

No	Class Interval	Frequency	Percentage
1	55-60	2	0.074 %
2	61-65	3	0.111 %
3	66-70	11	0.407 %
4	71-75	3	0.111 %
5	76-80	5	0.185 %
6	81-85	1	0.037 %
7	86-90	1	0.037 %
8	91-95	1	0.037 %
Total		27	100 %

Further, the explanation of the description of students' achievement in

English was shown in the figure 2:

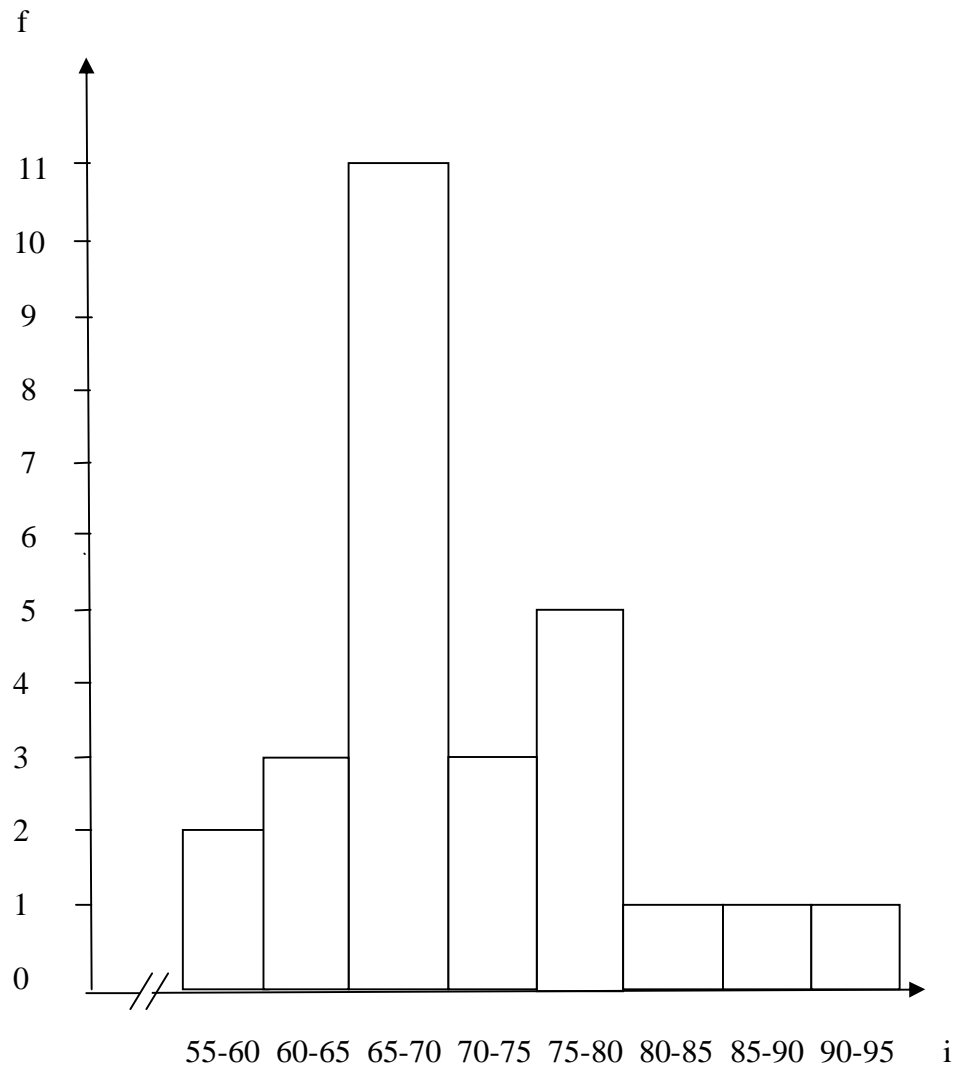


Figure . The Histogram of Writing Ability Score.

a) Strong : M (mean) + 1 SD to rank up (93)

$$71.3 + 1(10.5) = 81,8$$

$$= 82 \text{ to up } (93)$$

b) Medium: M (mean) - 1 elementary to middle ranking

$$71.3 - 1 (10.5) = 60.8$$

$$= 61 \text{ to } 81$$

c) Weak: lower rank.

Score 60 to under (55-60)

The categorization was shown in the following table:

Table 15.

Quality Score Writing Ability

Class Interval	Frequency	Percentage	Category
82 – 93	3	12%	Strong
61 – 81	22	81%	Medium
55 – 60	2	7%	Low
Total	27	100 %	

Based on the results of such categorization was known that the mean left and right brain of 71.3 were "medium".

B. The Hypotheses Testing

Hypothesis testing aims to determine the correlation between left and right brain to students' writing ability at grade X in SMAN 2 Padangsidempuan using the product moment formula. Before testing the hypothesis, first performed the calculation of the scores obtained by the respondents as the table below:

Table 16.

The correlation between left brain and right brain to students' writing ability at grade

X SMA Negeri 2 Padangsidempuan

NO.	Initials of Respondents	Left and Right Brain (X)					Y
		5	4	3	2	1	
1	RD		√				70
2	AM	√		√			78
3	MH	√	√	√		√	66
4	AI		√			√	63
5	DS	√	√				68
6	AMH			√			66
7	SLN			√	√	√	69
8	ET		√		√		62
9	JT		√		√		55
10	AR	√	√				70
11	AG						70
12	FRI			√			67
13	DS		√	√		√	68
14	PIN					√	93
15	YEC			√	√	√	60
16	RR		√	√			61
17	TRS	√	√		√		72
18	CRC						77
19	SM	√		√	√		66
20	LS	√	√		√		73
21	ER			√		√	78
22	FW			√		√	82
23	EP		√	√		√	77
24	YN				√		73
25	IO					√	70
26	YO		√	√	√	√	88
27	LY		√	√			76
Total		7	14	14	9	11	1918

Table 17.

The calculation also can be seen on the following:

The Level of Involvement				
High				Low
5	4	3	2	1
Value				
66	70	67	72	66
68	66	61	60	63
72	68	66	62	69
78	70	78	55	93
73	68	72	73	68
70	72	88	88	60
66	73	76	66	78
	88	66	69	82
	76	69	73	72
	72	68		70
	81	60		88
	55	66		
	62	78		
	63	82		
Σ 493	964	997	618	809

From the table can be known:

$$Y_1= 70.4 \quad Y_2= 68.8 \quad Y_3= 71.2 \quad Y_4 = 68.7 \quad Y_5= 73.5$$

$$N_1= 7 \quad N_2= 14 \quad N_3= 14 \quad N_4= 9 \quad N_5= 11$$

$$\Sigma Y= 3881 \quad \Sigma Y^2= 277741 \quad NT= 54$$

$$S_y = \sqrt{\frac{\Sigma Y^2 - \frac{(\Sigma y)^2}{NT}}{NT}}$$

$$= \sqrt{\frac{277747 - \frac{(3881)^2}{54}}{54}}$$

$$= 7.290$$

Table 18.

Below is the table for data of coefficient correlation Jaspén's:

Tgt	Y _i	P	CP	O _b	O _a	O _b -O _a	(O _b -O _a) ²	$\frac{(O_b - O_a)^2}{P}$	Y _i (O _b -O _a)
5	70.4	0.12	0.12	0.2000	0	0.2000	0.04	0.333	14.08
4	68.8	0.26	0.38	0.3808	0.2000	0.1808	0.032	0.123	12.43
3	71.2	0.26	0.64	0.3741	0.3808	0.0667	0.000	0.001	-0.477
2	68.7	0.17	0.81	0.2714	0.3741	-0.1027	0.010	0.058	-6.86
1	73.5	0.20	1.01	0	0.2714	-0.2714	0.0736	0.368	-14.94
Σ						0		0.883	5.187

$$M = \frac{\sum(y_i)(O_b - O_a)}{(S_y) \sum \left(\frac{(O_b - O_a)^2}{P} \right)}$$

$$= \frac{5.187}{(7.290)(0.8834)}$$

$$= 0.8055$$

Value M = 0.8055 the meaning that the correlation between left and right brain to student's writing ability at grade X SMA Negeri 2 Padangsidempuan was positive and good.

Test statistic coefficient correlation Jaspén's (m):

$$r = (m) \sqrt{\sum \left[\frac{(O_b - O_a)^2}{P} \right]} \text{ with } db = RT - 2$$

$$= (0.8055) \sqrt{0.883}$$

$$= 0.756$$

The correlation between left and right brain to student's writing ability at grade X SMA Negeri 2 Padangsidempuan (The measure skala interval/ rasio) with total sample 27 gave the value Left and Right Brain was $M = 0.8055$ and value $\left(\frac{(O_b - O_a)^2}{P}\right) = 0.883$. Found out what is the correlation that significant or not at fact standard 5%.

The conclusion : Because r_0 left and right brain = $0.756 > r_{0.05: 25} = 0.396$, it received, this meaning that left and right brain there was significant correlation. So, hypothesis said that if H_1 = hypothesis can received and if H_0 = hypothesis can not received, but the result of this research was H_1 . So, there was correlation between left and right brain to student's writing ability and significant correlation also hypothesis can received.

C. The Discussion of Results

Based on the Data analysis above, it has proven that left and right brain gave significant correlation for writing ability, cognitive theory evidence left and right brain significant correlation for writing ability, because learn event someone not bound solely between response stimulus but engage cognitive theory. "The left hemisphere of the brain is associated with IQ (Intelligence Quotient) of man. IQ includes the ability to mathematic, formulate speech, reading, writing, logic, and

analysis¹. While the right brain is random, irregular, intuitive and holistic². So, based definition above researcher was made the conclude that left and right brain is the acctivity of physical and mental in writing that was often done and has become brain every time.

Recomended by McWhorter. Kathleen T says that “writing is an excellent means of monitoring and improving your comprehension and retention³. Then according Hamps-Lyons 1990. Writing is personal act in which writers take ideas or prompts and transform them into “self-initiated” topics⁴. For the supporting that, it was proved by hypothesis of this research left and right brain meaning had the significant correlation to writing ability.

Result of the research also has evidence that cognitive theory support hypothesis in this research and the correlation between left and right brain to student’s writing ability is true have significant correlation.

D. The Limitation of the Research

As it was the first time for the writer to conduct a research, the writer realizes that there were some mistakes and weaknesses that can be seen in this research. These weaknesses were caused by lacking of the references books, fund, and the ability of the writer in analyzing the data, writer time, also the writer knowledge. For those mentions above, the writer realized and asking apologies.

¹As’adi Muhammad, *Op Cit*, p. 26.

²Bobbi Deporter dan Mike Herracki, *Opcit*, p. 38.

³ David Nunan, *Log. Cit*

⁴J. Michael O’Malley & Lorraine Valdez Pierce, *Op Cit*, p.136.

In spite of those weaknesses, however, the writer can make it as the first experience to do further research. Hopefully, this research might be as a reference for other researches in carrying out other research.

CHAPTER V

THE CONCLUSION AND SUGGESTION

A. The Conclusion

Based on the result analyzed data, the researcher concludes as follows:

1. Students' left and right brain at grade X SMA Negeri 2 Padangsidempuan in 2013 academic year there was 54 students after mixed, 43 (80%) always used left and right brain, there were 11 (20%) never used left and right brain.
2. Students' writing ability at grade X SMA Negeri 2 Padangsidempuan 2013 academic year was there was one of twenty seven students get score 93 it was highest score and 55 was lowest in SMA Negeri 2 Padangsidempuan.
3. The result of the calculation based on the analyzed data show that ($r_0 = 0.756 > r_{0.05 : 25} = 0.396$), it means that hypothesis is accepted. It concluded that there was a significantly the correlation between left and right brain to students' writing ability in 2013 academic year.

B. The Suggestion

Based on the conclusion and implication of the research that have been mention previously, the researcher offer some suggestion as follows:

1. English teacher should improve their English teaching and learning process especially in stimulation hemisphere brain.

2. The headmaster should give motivation to the teachers so that teaching and learning process can be improved.
3. Suggested to the next researchers of this study should be taken into consideration if you want to research about left and right brain to students' writing ability.
4. For the reader who wants to make the similar topic in future, the researcher suggest to make another variable that correlation between and right brain to students' writing ability.

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