

**Do Iranian EFL Left handed students Perform Better than Their
Right Handed Peers in Vocabulary retention.**

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Abstract

The aim of this study was to investigate whether or not the EFL left handed students perform better than their right handed peers in vocabulary retention, in order to learn more about brain function. The participants of the study consisted of 40 secondary school students (10 female left handed , 10 female right handed , 10 male left handed and 10 male right handed).Some new words were taught them by flash card , text and examples . Repeated measurement tests such as a pre-test was taken to find out how much the participants have already know, a post test was taken to find out whether or not they have learned the new words after instruction and delayed posttest was taken after two weeks to discriminate the participants vocabulary retention. The hypothesis stated that lefties versus righties have better performance in vocabulary retention and the data collected showed that there are some differences between left handed and right handed students in vocabulary retention.

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Key terms: Left handed, Right handed, Vocabulary retention, Repeated measurement test and delayed posttest.

Introduction

Handedness is the dominance of one hand over the other, or the unequal distribution of fine motor skills between the left and right hands. It refers to the tendency of humans to be more dexterous or skilled with one hand over the other, or sometimes merely the preference of one hand over the other. It is usually used with reference to fine motor skills and the performance of manual tasks, particularly everyday activities such as writing, throwing, etc. Researchers (Porac, 2014) who study human hand preference agree that the side of the preferred hand (right versus left) is produced by biological and, most likely, genetic causes. The two most widely published genetic theories of human hand preference argue that evolutionary natural selection produced a majority of individuals with speech and language control in the left hemisphere of the brain. Because the left hemisphere also controls the movements of the right hand and notably the movements needed to produce written language--millennia of evolutionary development resulted in a population of humans that is biased genetically toward individuals with left hemisphere speech/language and right-hand preference. Approximately 85 percent of people are right-handed. These theories also try to explain the persistent and continuing presence of a left-handed minority (about 15 percent of humans).

Some researches conducted at the Australian National University (2009) have shown that that left- or right-handedness is determined in the womb and that many lefties process language using both hemispheres of the brain, as opposed to righties, who seem to use primarily the left hemisphere for this purpose. The two hemispheres, or halves, of the brain are pretty much identical, and for the most part, they process the same information, with data passing back and forth between them primarily via one large neural pathway. However, certain tasks, like the language processing mentioned above, tend to take place in one hemisphere or the other. For most people, language

processing happens in the left hemisphere. For left-handed people, it might actually take place in both hemispheres.

The research adds to the slowly growing body of work supporting the hypothesis that people who favor their left hand for writing probably have brains that are more conducive to simultaneous, bi-hemisphere processing of information. The Australian National University ANU (2012) researchers set up tests intended specifically to test the speed of information flow between the two sides of the brain. According to lead researcher Dr. Nick Cherubim in an interview with AM ABC, the results support the anatomical observation that the major "connection between the left brain and the right brain" is "somewhat larger and better connected in left-handers."

So what does this mean? It could mean that left-handers have a slight advantage in sports, gaming and other activities in which players face large volumes of stimuli being thrown at them simultaneously or in quick succession. Theoretically, they could more easily use both hemispheres of the brain to manage that stimuli, resulting in faster overall processing and response time. It could also mean that when one hemisphere of the brain got overloaded and started to slow down, the other hemisphere could more easily pick up the slack without missing a beat. Experts also theorize that left-handed people could fare better mentally as they move into old age and overall brain processing starts to slow down: With a greater ability for one brain hemisphere to quickly back up the tasks of the other, left-handed seniors could retain mental quickness longer than their right-handed counterparts.

Another advantages of being left-handed is that it forces your brain to think more quickly. What this means for everyday life is that those who are lefties may find it easier to multi-task and deal with a large, sometimes unorganized stream of information. Researchers found that conversations between the left and right sides of the brain happen more quickly in left handed people. The more dominant the left handedness is, the better these abilities are.

While it isn't true for all who are left handed, data from recent studies suggests that those who come from families of lefties tend to have better memories, though only of the episodic kind. The odd thing about this study, however, was that individuals didn't necessarily need to be left-handed themselves to have a better memory— just come from a family of lefties. These studies show that traits related to handedness may be passed down separately, though some lefties would prefer to think that their left-handed benefits just rubbed off on their right-handed counterparts.

Members of a family that is dominated by left-handers tend to be better at remembering events than facts, according to experiments reported yesterday. The studies also shed light on why it is that few of us can remember events before we are four years old, according to the American psychologists who described them in the journal *Neuropsychology*. Dr. Stephen Chrisman and Dr. Ruth Proper, of the University of Toledo in Ohio, studied two types of memory - episodic (the recall of events) and non-episodic (factual memory and implicit memory, which concerns things people "just know"). From their results, they believe that the two halves of the brain work together in episodic memory to help remember events because left-handers and those with left-handedness - whose brains' halves work together more actively - recall events better than facts.

They also point out that the onset of episodic memory at the age of around four coincides with the maturation of a structure called the corpus callosum that connects the two halves of the brain. But Dr. Chrisman and Dr. Proper say further research is needed into why episodic memory benefits from the two halves of the brain working together, while implicit memory is better processed in one half.

The available literature is not so rich on the effect of left-handed on EFL students vocabulary retention .This study is trying to find out whether Iranian EFL left – handed perform better than their right- handed peers in vocabulary retention. Therefore the following hypotheses is assumed:

-Iranian EFL left-handed students perform better than their right –handed peers in vocabulary retention.

Methods

About 50 handedness secondary school students select randomly 25 female left and right handed are from Fetrat secondary school and 25 male left and right handed are from Hekmat secondary school (12 of them were female left handed, 13 male left handed, 13 female right handed , and 12 male right handed). They homogenize by T-test and the participants between 2SD select for the study. So The participant of this study consist of 40, including 10 female left handed, 10 male left handed, 10 female right handed , and 10 male right handed . They are about thirteen years old and all the students take part in one classroom. About fifty general new words select to teach them but before teaching words which is going to be taught, a man -made Pre-test take to find out that how much the participants know about the words .The result of the pre-test mean scores shows that the knowledge of the participants is very low.

The teaching is doing by pronouncing and repeating the words and the teacher shows the flash -card of any word to convey the meaning of the words. After teaching, a man-made post- test take to find out that how much the participants have learned the new words. The result of the post-test shows that the scores of the participants is about 18 of 20. After two weeks a delayed post-test take to find out that how much is the vocabulary retention of each group.

T-Test

(Table 1)

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 pre-test score left- handed	2.4000	20	1.18766	.26557
post-test score left-handed	18.2000	20	1.19649	.26754

(Table 2)

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	pre-test score left-handed & post-test score left-handed	20	.274	.242

(Table 3)

Paired Samples Test

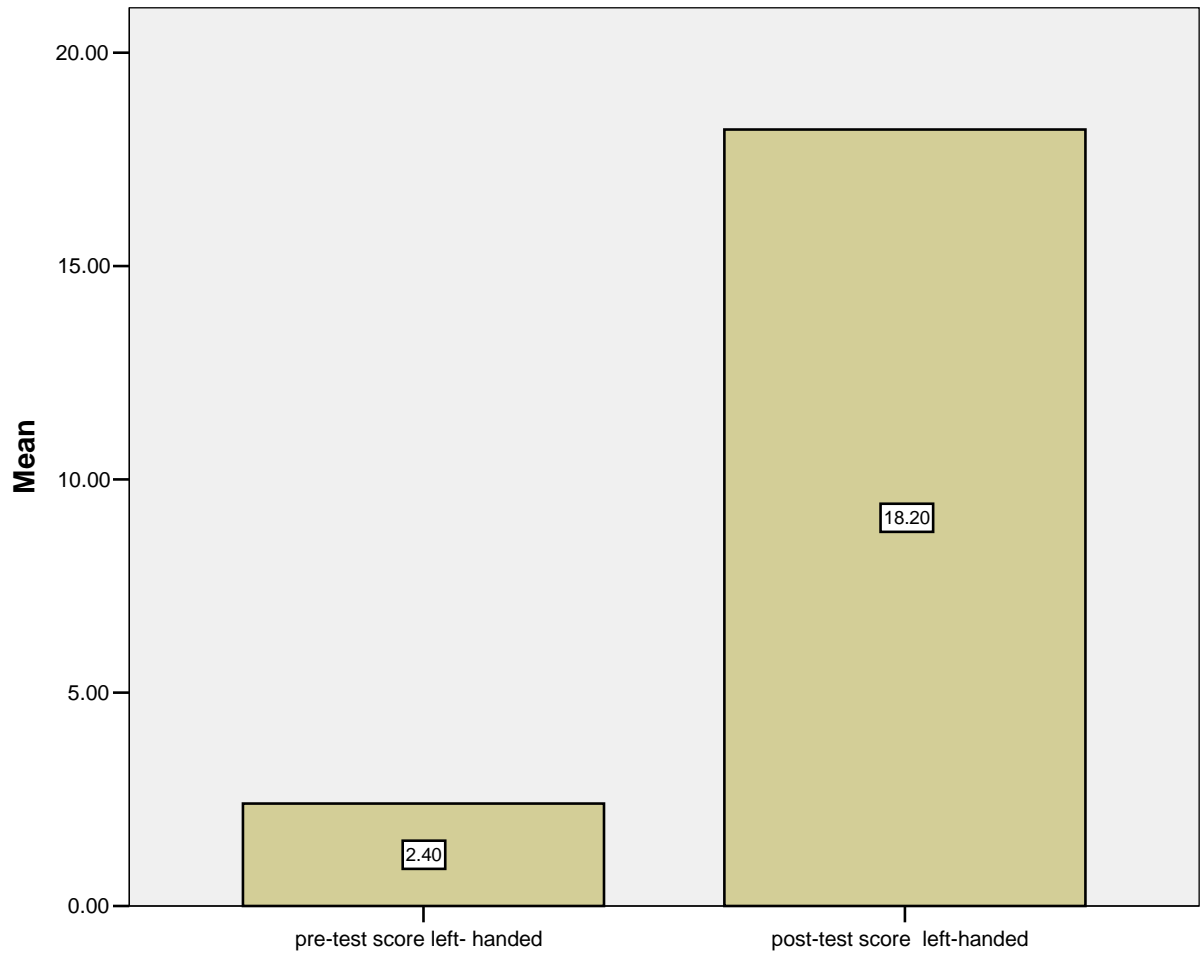
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pre-test score left-handed - post-test score left-handed	-15.80000	1.43637	.32118	-16.47224	-15.12776	-49.193	19	.000

In order to compare the left-handed students' scores in pre-test and post-test, paired sample t-test has used.

paired samples statistics in table 1 shows that the left-handed students mean scores in pre-test is 2.40 and in post-test is 18.20 . So they have learned the new words after teaching.

Paired sample test in table 2 and table 3 shows that $t = -49.193$ and $sig = 0.000 < 0.05$, so there is a significant difference between left-handed students mean scores in pre-test and post-test and this matter shows that the students have learned the new words.

(Diagram 1)



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The diagram (1) compares the left-handed students mean scores in pre-test and post-test.

T-Test

(Table 4)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pre-test score right-handed	2.2500	20	.71635	.16018
	post-test score right handed	18.1000	20	1.07115	.23952

(Table 5)

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	pre-test score right-handed & post-test score right handed	20	-.103	.666

(Table 6)

Paired Samples Test

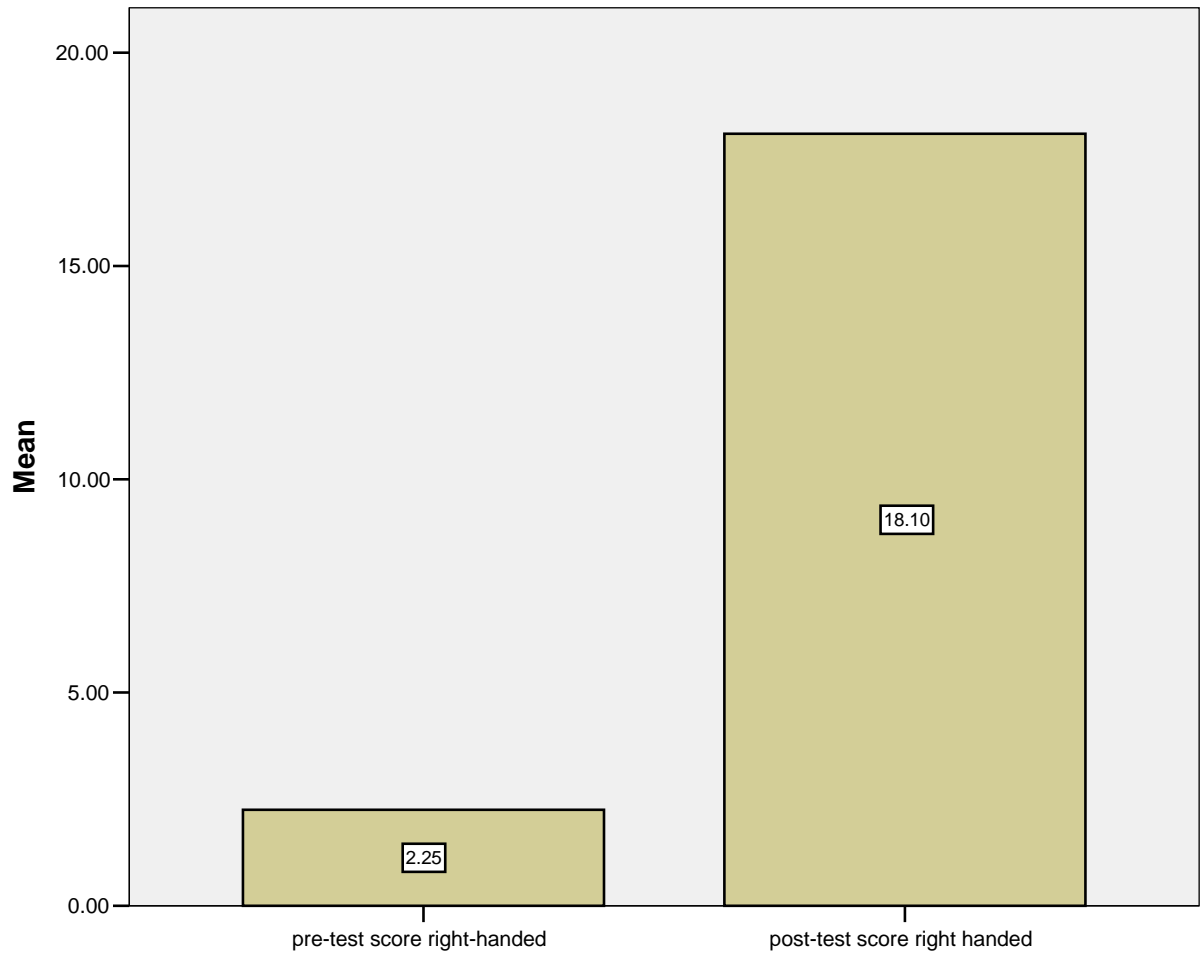
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pre-test score right-handed - post-test score right handed	-15.85000	1.34849	.30153	-16.48111	-15.21889	-52.565	19	.000

In order to compare the right-handed students' scores in pre-test and post-test, paired sample t-test has been used.

paired samples statistics in table 4 shows that the right-handed students mean scores in pre-test is 2.25 and in post-test is 18.10 . So they have learned the new words after teaching.

Paired sample test in table 5 and table 6 shows $t = -52.565$ and $sig = 0.000 < 0.05$, so there is a significant difference between right-handed students mean scores in pre-test and post-test and this matter shows that the students have learned the new words.

Diagram (2)



The diagram (2) compares the right-handed students mean scores in pre-test and post-test.

T-Test

(Table 7)

Group Statistics

group		N	Mean	Std. Deviation	Std. Error Mean
post-test score	left-handed	20	18.2000	1.19649	.26754
	right-handed	20	18.1000	1.07115	.23952

(Table 8)

Independent Samples Test

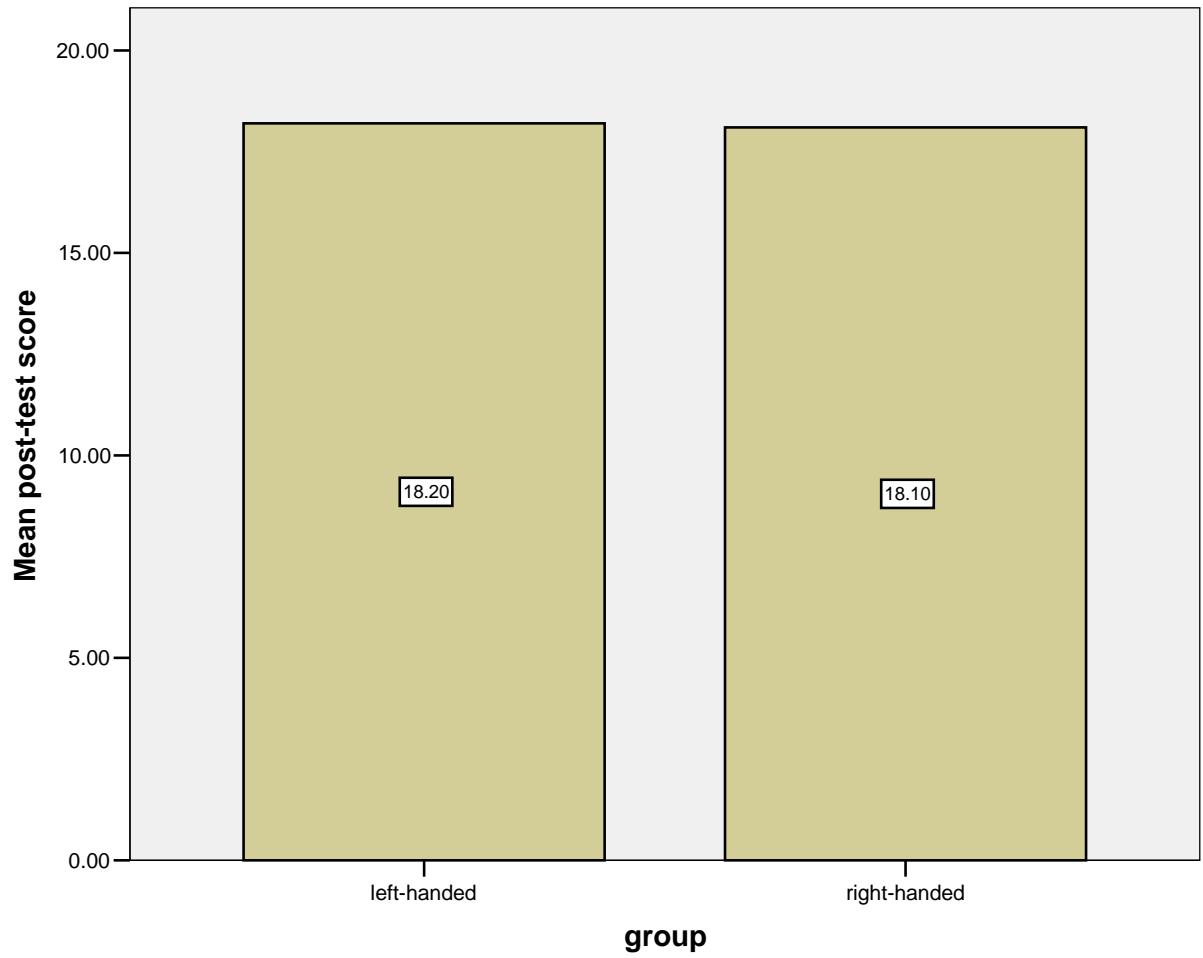
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
post-test score	Equal variances assumed	.382	.540	.278	38	.782	.10000	.35909	-.62694	.82694
	Equal variances not assumed			.278	37.544	.782	.10000	.35909	-.62723	.82723

In order to compare the left-handed and right students' scores in post-test an independent samples t- 10
test has used.

Group statistics in table 7 shows that there is not a significant differences between post-test mean scores in both groups.

independent samples t-test in table 8 shows that with equal variances assumed $t=0.278$ and $sig=0.782 > 0.05$, there is no significant difference between both groups in their post-test mean scores.

Diagram (3)



The diagram (3) compares two groups mean scores in post-test.

T-Test

(Table 9)

Group Statistics

group	N	Mean	Std. Deviation	Std. Error Mean
delayed post-test scores left-handed	20	15.7000	.97872	.21885
right-handed	20	14.3000	1.12858	.25236

(Table 10)

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
delayed post-test scores	Equal variances assumed	.270	.606	4.191	38	.000	1.40000	.33403	.72378	2.07622
	Equal variances not assumed			4.191	37.254	.000	1.40000	.33403	.72334	2.07666

The independent sample t-test has taken for comparing the mean scores of delayed post-test.

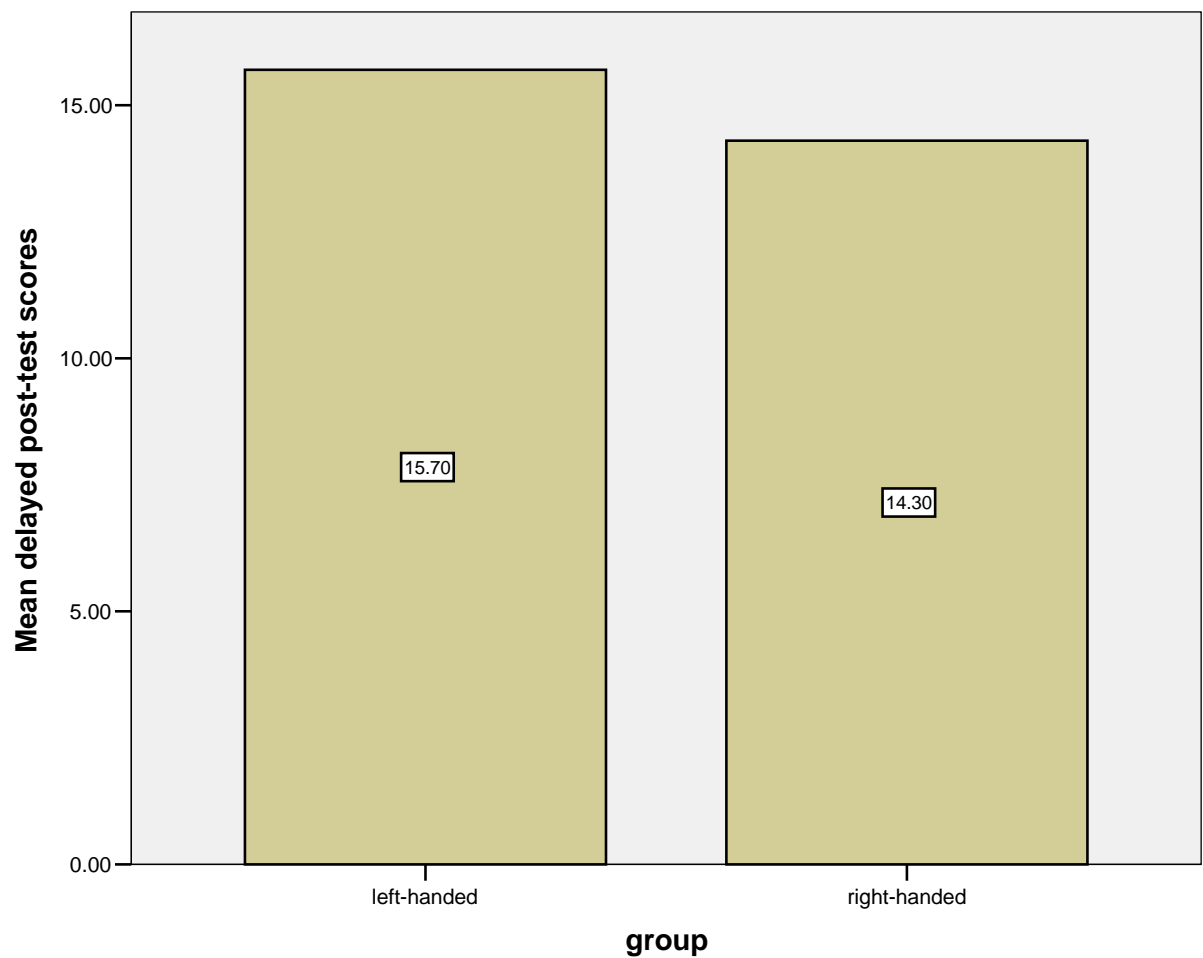
In order to compare the delayed post-test mean scores in both group, the independent samples t-test has used. Group statistics in table 9 shows that the mean score of left handed in delayed post-test is 15.70 and in right handed is 14.30.

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According to table 10 the independent sample t-test shows that with assumed equal variances $t=4.191$ and $sig= 0.000 < 0.05$, there is a significant difference between left handed and right handed students in delayed post –test. In the other word left handed students are better than right handed students in vocabulary retention.

Diagram

(4)



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The diagram(4) shows of left and right handed students mean scores in delayed post –test vocabulary .

Conclusion and Implication:

Some people who favor their left- hand for writing probably have brains that are more conducive to simultaneous, bi-hemisphere processing of information. The researchers set up tests intended specifically to test the speed of information flow between the two sides of the brain. According to the results, support the anatomical observation that the major "connection between the left brain and the right brain" is "somewhat larger and better connected in left-handers." greater ability for one brain hemisphere to quickly back up the tasks of the other, left-handed There may be another advantages of being left-handed is that it forces your brain to think more quickly. What this means for everyday life is that those who are left-handed may find it easier to multi-task and deal with a large, sometimes unorganized stream of information. Researchers found that conversations between the left and right sides of the brain happen more quickly in left handed people. The more dominant the left handedness is, the better these abilities are. In this research the left-handed students showed that they perform better than their right handed peers in vocabulary retention and the hypothesis of the research accepted. The implication of the study is for researchers and scientists who want to learn more about brain function.

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