

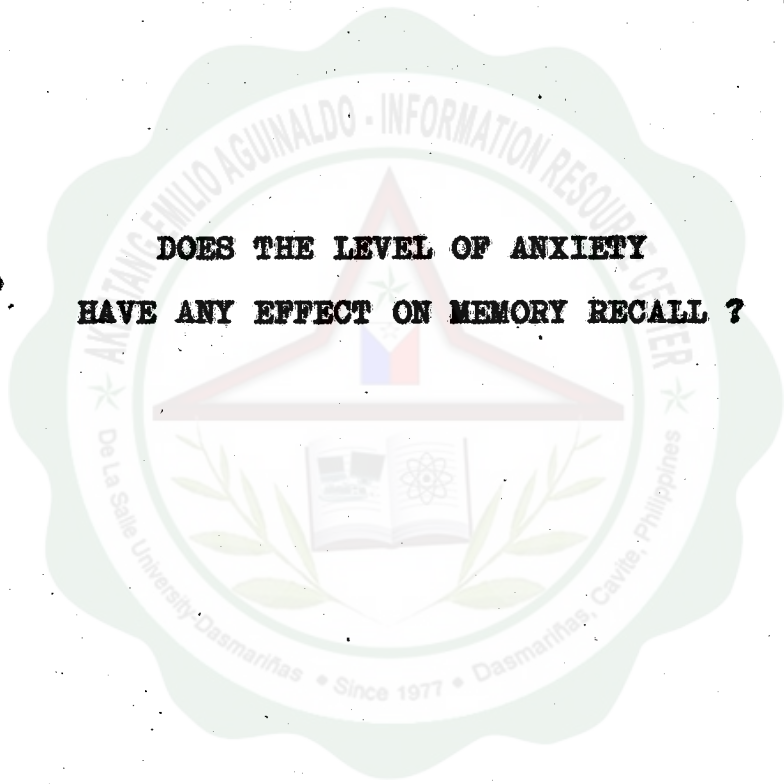
**COGNITIVE
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DOES THE LEVEL OF ANXIETY
HAVE ANY EFFECT ON MEMORY RECALL ?



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EXPEPSY S1

RESULTS

The experimenter hypothesized that the subjects ability to recall material would be significantly affected by the level of anxiety the person has been exposed to so that the second group (the high anxiety group) are expected to have significantly different recall scores from the first group (the low anxiety group).

To determine the average score (the average number of recalled words) of each group, their means and standard deviations were computed. Presented in Table 1 are the means and standard deviations of the scores of both conditions.

Table 1. Mean and Standard Deviation of Scores

	GROUP 1 (LOW ANXIETY)	GROUP 2 (HIGH ANXIETY)
Mean	5.45	6.5
S.D.	1.56	1.5

As can be seen from the table, the second group obtained higher average scores as compared to the first group. The standard deviation shows that the scores of both groups tend to cluster around the mean.

For further analysis of data, a T-test for independent groups was used to determine the significance of the difference between the scores of the two groups (see Table 2 for the computation). Results showed that there was a significant difference between the scores of the two groups ($t_{comp.} = 2.17$, $p = .05$, $t_{crit.} = 1.68$, $df = 38$).

TABLE 2. T - TEST COMPUTATION

Group 1 (low)	Group 2 (high)
Mean = 5.45	Mean = 6.5
S.D. = 1.56	S.D. = 1.50
N = 20	N = 20
1	2
$df = 38, p = .05$	

$$t_{comp} = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left(\frac{(N_1 - 1)S_1^2 + (N_2 - 1)S_2^2}{(N_1 + N_2) - 2} \right) \left(\frac{1}{N_1} + \frac{1}{N_2} \right)}}$$

$$= 2.17$$

conducted about how the student was feeling, whether she was worried about taking a test for a particular course later in the day, etc. Obviously enough, the subjects would reveal very scanty information about their own personal disposition to someone they don't even know. As such, even if the subject said that he/she was not worried about anything, he/she may in fact be feeling anxious about something which he/she does not want the researcher to know, e.g. problems with her boyfriend, conflicts with his friends, etc. As such, the experimenter would recommend that in addition to the pre-test, the subject be given a test prior to the experiment to find out if he/she is anxious and the level of his/her anxiety.

Another factor to look into would be the subjects' cognitive level. Although the experimenter tried to take this into account by conducting a pre-test, this procedure fails to cover a lot of other areas. A student may be poor in recalling items under stress conditions but this does not altogether mean that he/she would not perform better in other tests under stress conditions. Nor can this mean that this particular student may be lacking in cognitive ability. Comprehension encompasses more than understanding words and encoding them (Kintsh & Van Dijk, 1978).

The experimenter also used the Mann-Whitney U-test for ordinal data (see Table 3 for the computation). Results showed that there was no significant difference between the two groups ($U_{comp} = 200$, $U_{crit} = 138$, $p = .05$).

TABLE 3. MANN-WHITNEY U-TEST COMPUTATION

GROUP 1 (LOW LEVEL ANXIETY)		GROUP 2 (HIGH LEVEL ANXIETY)	
8	33.5	5	6.5
5	6.5	7	29.5
10	40	5	6.5
6	17.5	9	39
5	6.5	5	6.5
5	6.5	8	33.5
6	17.5	6	17.5
5	6.5	6	17.5
7	29.5	8	33.5
6	17.5	8	33.5

$\Sigma R_1 = 405$
 $\Sigma N_1 = 20$

$\Sigma R_2 = 285.5$
 $\Sigma N_2 = 20$

$$U_1 = N_1 N_2 + \frac{N_1(N_1+1)}{2} - R_1$$

$$= 200 \checkmark$$

$$U_2 = N_1 N_2 + \frac{N_2(N_2+1)}{2} - R_2$$

$$= 324.5$$

$\therefore U_{comp} = 200$

Based on these figures, it seems that the test was not powerful enough to detect any differences between the two samples because of the small sample size. As such, in cases like these, the t-test would be a more appropriate test to use. If research is to be done in this area, the experimenter would like to recommend that a larger sample size be used in order to be able to make more accurate inferences about the sample and population characteristics.

The experimenter would also recommend increasing the level of anxiety for the second group. The experimenter earlier ruled out the use of electric shock instead of a high intensity flash for ethical reasons. As such, if any other viable methods could be thought off that would provide a very high level of anxiety, would prove to be very helpful for the experiment.



D I S C U S S I O N

The results obtained from the experiment showed that there was a significant difference between the scores of the low anxiety group and those from the high anxiety group. Having a between subjects design, the study evaluated the scores obtained from the t-test. The results support the hypothesis that the subjects from the high level anxiety group would have significantly lower scores than those from the low level anxiety group.

A post debriefing conducted by the experimenter revealed some of the reasons as to why the high anxiety group obtained lower recall scores.

The higher scores of the low level anxiety group can be attributed to the fact that the level of anxiety that the subjects had been exposed to was such that it was not high enough to affect their performance. During the debriefing conducted by the experimenter, the subjects from the low level anxiety group revealed that they were not affected so much by what the experimenter had said, i.e. their scores would reveal their IQ level. For them it was just another requirement that they had to fulfill in order to pass their course in GENPSYC. Although a number did feel apprehensive about what the experimenter had told them, this in turn motivated them to try to do well in the test.

The high anxiety level group on the other hand revealed that they had been very much affected by what the researcher had said about their scores being an indicator as to whether the standards of the school have gone up or down. The majority of them were affected by this more than the threat of being exposed to a high intensity flash. Most of them argued that since the flash would be brief (a fraction of a second), they did not feel too threatened by this. The subjects however did feel apprehensive when their ego was threatened. This might prove to be an interesting area to pursue should anyone wish to do research along this line.

Looking at the scores of the high level anxiety group, one can note that the mean score value was pulled down by one of the subjects who got a score of 1. This certainly affected the whole sampling distribution of the group. Based on the debriefing information that she had given the experimenter, the subject revealed that she was very much affected when she was told that she would receive a powerful flash of light if she failed the test. Further probings revealed that she was afraid of bright flashes, having spent most of her life in an army camp.

Other factors to consider would be whether the subject being tested was actually not feeling apprehensive prior to the experiment. The experimenter tried to take this factor into consideration by inquiring casually before the experiment was