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Cognition of Emotion and Awareness of its Function in Decreasing or Increasing Student's Recall Rate

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Abstract

Human beings have always paid attention to emotions, because they are involved in every endeavor and every important human action. Memory is the mental talent to recall materials and events, but emotion is a special interior affective state usually based on some alternations and interpretations. This research aims to find whether emotions influence recall. For this purpose, a research was conducted on 300 grade one students at guidance school, of whom 50 were randomly chosen and divided into control and experimental groups. The methodology was Free Recall of 30 words randomly chosen from a 200 word list. Results of the descriptive statistics indicated that emotions can decrease, rather than increase, recall. But the inferential statistics showed that, because of the measurement error, the results of the descriptive statistics were not supported; hence, emotions do not have any significant effect on recall.

Keywords: Emotions, Memory, Recall, Free Recall, Recognition.

1. Introduction

Most specialists consider emotions as complex psychological states or conditions consisting of particular feelings, states or widespread physical changes (Spielberger, 1966). Approximately, all great philosophers from Aristotle to Spinoza, from Kant to Dewey and from Bergson to Russell, concerned with the nature of emotions, their roots, manifestations, effects and status in the natural system of life, have proposed theories for them.

Memory is the mental ability to recall things. Furthermore all learning indicates memory. In this study, efforts are made to find out whether emotions including joy, happiness and surprise, affect the students' recall of things and events, whether it is possible to avoid the emotional factors subject to forgetting, and to be assisted by those emotions subject to memory enforcement and subsequently to the recall enhancement. This kind of research may be considered important in finding the significance of emotions, increasing the student's recall rate through recognizing different emotions and becoming aware of their functions. Regarding the objective of the current research, the research question was:

Is there any relationship between emotion and grade one students at guidance school's recall rate?

To answer it satisfactorily, the following hypothesis was made:

There is a positive relationship between emotion and grade one students at guidance school's recall rate.

2. Methodology

The aim of this research is to find whether emotions including joy, happiness and surprise affect student's recall rate of materials. For this purpose, the following were done.

2.1. Sampling Population

To perform the test, 300 students studying at Grade One of Bentolhoda Guidance School, located at Lahijan City, were selected. 50 students were selected systematically and divided into two groups at random (the experimental group and the control group), each consisting of 25 students. The systematic sampling method was used, where numbers were assigned to individuals at random (encoding) and while maintaining the appropriate interval (sampling interval: 300/50=6), the samples were chosen.

After selecting a sample of 50 individuals from this population, a code was assigned to any one of the 50 students, and then using the random number table, the first 25 individuals were assigned to the experimental group and the rest to the control group. The age of the subjects, all female students studying at grade one at guidance school, ranged from 12 to 13.Obviously all of them can be regarded at the same level in terms of education.

2.2. Research Tools

Thirty (30) words out of a 200-word list were randomly chosen to carry out the experiment. The design was post-test of the control group.

R	E	X	01
R	C		02

2.3. Research Method

In this research free recall method was used. After selecting the subjects, we had all of them convened in a class and read the word list to them three times, each time in a different order. At the first time, from the first word to the last one, at the second time from the last word to the first one, and at the third time in a scrambled order. After the repetition of words to the subjects, they were divided into two groups, each consisting of 25 individuals: the control group and the experimental group. The control group was asked to write down each word they could recall from the list. But the experimental group was told that they would be taken to a one day trip free of all charges, they would also be given a gift and their scores on mathematics examination would be increased by one point, then they were asked to write down whatever words they could recall of the list read to them aloud.

2.4. Data Analysis

Having carried out the word list test on the students, the data analysis was done by the following procedure:

Experimental Group

8-11-11-12-13-14-14-14-14-15-15-15-15- 16-16- 16- 16- 17-18-18-19-19-20-20-22
∑=25

Control Group

11-12-12-12-13-13-13-13-15-15-16-17-17-17-17-18-18-18-19-21-21-22-23-27-27
∑=25

Experimental Group

8-11-11-12-13-14-14-14-14-15-15-15-15-16-16-16-16-17-18-18-19-19-20-20-22
∑=25
R=22-8+1=15
C=15/3=5

1- The score of 15 had the highest frequency.
2- The alteration range was R=22.5-7.5+1=16
3- The mean limit was in the category in which there was the score of 15
4- The distribution was of normal type.

Table 1: Frequency Distribution of Experimental Group

CL	FI	XC	RL
20-22	3	21	19.5-22.5
17-19	5	18	16.5-19.5
14-16	12	15	13.5-16.5
11-13	4	12	10.5-13.5
8-10	1	9	7.5-10.5
	N=25		

CL: Category Length
Xc: Average Category Limit
RL: Real Limit

Control Group:

11-12-12-12-13-13-13-13-15-15-16-17-17-17-17-18-18-18-19-21-21-22-23-27-27
∑=25
R=27-11+1=17
C=15/3=5

1- The scores of 12&18 had the highest frequency.
2- The alteration range was R=28.5-10.5+1=19
3- The mean limit was in the category in which there were the scores of 12 and 18
4- The distribution was of normal type.

Table 2: Frequency Distribution of Control Group

CL	FI	XC	RL
26-28	2	27	22.5-28.5
23-25	1	24	22.5-25.5
20-22	3	21	19.5-22.5
17-19	8	18	16.5-19.5
14-16	3	15	13.5-16.5
11-13	8	12	10.5-13.5
	N=25		

Table 3: Frequency Distribution of Experimental Group

CL	FI	Xc	FXc	X1	FX1	CF
20-22	3	21	63	2	6	25
17-19	5	18	90	1	5	22
14-16	12	15	180	0	0	17
11-13	4	12	48	-1	-4	5
8-10	1	9	9	-2	-2	1
	N=25		ΣFXc=390		ΣFX1=5	

FXc: FI.Xc
FX1: FI.X1
CF: Cumulative Frequency
X=15.60
Md=15.37
Mo=14.91

Table 4: Frequency Distribution of Control Group

CL	FI	Xc	FXc	X1	FX1	CF
26-28	2	27	54	3	6	25
23-25	1	24	24	2	2	23
20-22	3	21	63	1	3	22
17-19	8	18	144	0	0	19
14-16	3	15	45	-1	-3	11
11-13	8	12	96	-2	-16	8
	N=25		ΣFXc=426		ΣFX1=-8	

$\overline{X}$: Mean $X=\overline{17}.04$
Md: Median Md= 17.06
Mo: Mode Mo=17.10

Table 5: Frequency Distribution of Experimental Group

CL	FI	Xc	FiXc	Fi.C2	X1	FX1	FX2
20-22	3	21	63	1323	2	6	12
17-19	5	18	90	1620	1	5	5
14-16	12	15	180	2700	0	0	0
11-13	4	12	48	576	-1	-4	4
8-10	1	9	9	81	-2	-2	4
	N=25						
			ΣFiXc=390	ΣFi.C2=6300		ΣFX1=5	ΣFX2=25

S=√9=3
Fi.C2: Xc.FiXc
FX2: X1.FX1
S: Standard Deviation

Table 6: Frequency Distribution of Control Group

CL	FI	Xc	FiXc	Fi.C2	X1	FX1	FX2
26-28	2	27	54	1458	3	6	18
23-25	1	24	24	576	2	2	4
20-22	3	21	63	1323	1	3	3
17-19	8	18	144	2592	0	0	0
14-16	3	15	45	675	-1	-3	3
11-13	8	12	96	1152	-2	-16	32
	N=25		ΣFiXc=426	ΣFi.C2=7776		ΣFX1=-8	ΣFX2=60

S=√21.54=4.64
As our group size was less than 30 individuals; hence, we used t-test.

Experimental Group

n 1= 25
$S_2$1=3
S_1=9

a=0.05 1%

$\overline{X}$1=15.60

Control Group

n 2=25
$S_2$2=4.64
S_2=21.54

a=0.05 1%

$\overline{X}$2=17.04

F=2.39

FCr:

df=24 FCr=1.98 level:5%

df=24 FCr=2.67 level:1%

FCr: F Critical

df: degree of freedom

The hypothesis of equivalency of the variances is true at the level of 1 %(99%).

Fob<Fcr

2.39<2.67
2.29>1.98

Fob: F observed

T=1.30
Tcr=1.68 level: 5%
Tcr=2.39 level: 1%
Tcr: T critical

3. Results

After the experiment, the first thing found was that emotions decrease the recall rate in such a way that the minimum and maximum number of words in the experimental group was 8 and 22, respectively. However, in the experimental group who had not experienced any emotion, the minimum and maximum number of words recalled was 11 and 27, respectively. Another point is that the range ofword number was 16 in the experimental group whilethat of the control group was 19. Mean, Median and Mode in the experimental group and in the control group were: X=15.60, Md=15.37 and Mo=14.91 and X=17.04, Md=17.06 and Mo=17.10, respectively.

The descriptive statistics indicated that emotions decrease rather than increase the recall rate. But inferential statistics showed that the results obtained through the descriptive statistics were not supported, due to the measurement error. Therefore, null hypothesis(H0) is approved and the research hypothesis(H1) is rejected; i.e. emotion does not increase recall rate.

4. Discussion and Conclusion

Whereas the T obtained from the experiment (1.30) at the level of 5% was less than that mentioned in the table (1.68); hence, H0 is confirmed.

Tob< Tcr
1.30< 1.68 level: 5%
1.30<2.39 level: 1%

Therefore, at 5 %(95%) and 1 %(99%), there is no significant difference between the experimental and the control groups. This way, our research hypothesis is rejected; i.e. emotion does not influence recall. Accordingly, it can be argued that since the emotional

situations are thought of positive or negative, rather than neutral, they show a high degree of consistency by being registered in man's memory for the whole period of his life. However, this research showed that emotions do not increase recall rate. This means that the emotionalized people's recall rate does not increase, but their learning as well as their memory durability improves. Among the important reasons for rejecting the hypothesis, we can mention that when people are in an emotional mood, they cannot encode words appropriately, nor can they recall them. Whereas emotional factors can cause forgetting, conducting research works in this field seems necessary. Therefore, the occurrence of the factors can be avoided and efforts can be made to benefit from those emotions which lead to memory reinforcement and consequently to recall enhancement, because emotions are typically transient, adaptive and biologic reactions rapidly invoked by external stimuli. Always a physiological and an apparent reaction activity are observed along each reaction pattern, considered as the basis of specifying different emotions. Also together with different emotions, there may, or may not, exist expressible mental feelings in man. These reactions are organized as specific patterns. As emotions whether in isolation or in combination are different, their scientific and essential concepts can be properly explored. Then these themes can change and develop steadily to have general applications, and at the same time to be coherent and coordinated. In fact, it is at this stage where these concepts can be limited in different definition formats. The significance of this research may lie in finding the importance of emotions and trying to increase recall rate of students through cognition of different emotions and awareness of their function. The education administration needs to have relations with the centers having more powerful data sources so that research works can be conducted using better facilities.

Appendix

Vocabulary

1. Sickle	11. Tool	21.Morning
2. Comb	12. Height	22.Pampas
3. Gang way	13. Mountain	23.Hatred
4. Gem	14. Religion	24.Brick
5. Amulet	15. Damson	25.Nox
6. Path way	16. Foot wear	26.Team
7. Season	17. Candle	27.Victory
8. Scissors	18. Ode	28.Sound
9. Infirm	19. Cask	29.Animal
10. Coat	20. Dress	30.Stork

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