

Quasi-Experimental Test

**The Effect of Awareness of Results on
Performance**

Experimental Psychology Unit

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Introduction

Learning is considered one of the most important abilities of humans that distinguishes them from other beings. Learning is defined as a relatively stable change in behavior or behavioral capacity resulting from experience. The difference between performance and learning is that performance is the product of learning. As Hilgard and Bower put it, "the difference between learning and performance is the difference between knowing how to do something and actually doing it."

Our goal in the experiment we have designed is that if a student or learner is informed of their performance results during learning, their behavior will change based on their performance, leading to improvement in their current and future performance.

Experiment Objectives

General Objective

The overall objective of this experiment was to investigate whether the awareness of the participant about their performance results during the experiment influences their behavior.

Specific Objectives

- 1) To examine the impact of awareness of results on current performance.
- 2) To investigate the effect of awareness of results on future performance.

Hypotheses

- 1) Awareness of results influences current performance.
- 2) Awareness of results influences future performance.

Variables

Independent Variable: Awareness of Results

Dependent Variables: Current Performance, Future Performance

Operational Definitions

Awareness of Results: Knowledge of the measurement of drawn lines

Performance: Measurement of drawn lines

Experimental Design

The current experiment utilized a quasi-experimental design.

Experiment Description

Tools and Materials Required

1. Two 30-centimeter rulers
2. Three sheets of millimeter graph paper
3. Blindfold
4. Two pens

Sample

The current experiment involves a single female participant.

Age: 28

Experimental Procedure

Stage 1

The participant's eyes are blindfolded. Two 30-centimeter rulers are placed 10 centimeters apart. The participant is asked to draw the first 5 lines as a warm-up exercise as instructed. These 5 drawings will serve as practice. Then, the top ruler is removed, and the participant's hand is positioned at the starting point, where they are requested to draw 20 more 10-centimeter lines.

During stage 1, no information about the height of the drawn lines is provided to the participant.

Stage 2

This stage aims to measure the effect of awareness on current performance. Similar to stage 1, after drawing 5 practice lines, the top ruler is placed 10 centimeters away. The participant is then asked to draw 20 10-centimeter lines, but after each line is drawn, the participant is informed of the height of the drawn line.

Stage 3

Exactly like stage 1, the participant draws 5 practice lines, followed by drawing 20 more lines, during which no information about the height of the lines is given to the participant.

The purpose of this stage is to show that awareness of results in stage 2 has improved performance in stage 3 (the impact of awareness of results on future performance).

Data Collection Method

Row	X_1	X_2	X_3	X_1^2	X_2^2	X_3^2	$D1=X_2-X_1$	$D2=X_3-X_1$	$D1^2$	$D2^2$
1	10/2	10	8/1	104/04	100	65/61	-0/2	-2/1	0/04	4/41
2	11/1	9/8	8/8	123/21	96/04	77/44	-1/3	-2/3	1/69	5/29
3	11/3	9/3	9/7	127/69	86/49	94/09	-2	-1/6	4	2/56
4	12/2	8/9	8/6	148/84	79/21	73/96	-3/3	-3/6	10/89	12/96
5	11/7	12/2	8/3	136/89	148/84	68/89	-0/5	-3/4	0/25	11/56
6	12/7	10/8	9/2	161/29	116/64	84/64	-1/9	-3/5	3/61	12/25
7	12/5	10/1	10/1	156/25	102/01	102/01	-2/4	-2/4	5/76	5/76
8	13/5	11/6	8/1	182/25	134/56	65/61	-1/9	-5/4	3/61	29/16
9	12/1	11/4	8/1	146/41	129/96	65/61	-0/7	-4	0/49	16
10	12/6	12/7	9/8	158/76	161/29	96/04	0/1	-2/8	0/01	7/84
11	12/5	10/6	12/3	156/25	112/36	151/29	-1/9	-0/2	3/61	0/04
12	11/8	12	9/5	139/24	144	90/25	0/2	-2/3	0/04	5/29
13	12/4	11/9	7/8	153/76	141/61	60/84	-0/5	-4/6	0/25	21/16
14	11/9	9/7	7/8	141/61	94/09	60/84	-2/2	-4/1	4/84	16/81
15	10/4	10/5	9/8	108/16	110/25	96/04	0/1	-0/6	0/01	0/36
16	12/5	12/2	11	156/25	148/84	121	-0/3	-1/5	0/09	2/25
17	12/5	10/6	10/6	156/25	112/36	112/36	-1/9	-1/9	3/61	3/61
18	12/9	10/4	10/6	166/41	108/16	112/36	-2/5	-2/3	6/25	5/29
19	12/7	10/1	9/9	161/29	102/01	98//01	-2/6	-2/8	6/76	7/84
20	13/7	9/9	11/2	187/69	98/01	125/44	-3/8	-2/5	14/44	6/25

n=20

$$\sum X1 = 243.2$$

$$\bar{X1} = 12.16$$

$$\sum X2 = 214.7$$

$$\bar{X2} = 10.7$$

$$\sum X3 = 189.3$$

$$\bar{X3} = 9.46$$

$$\sum x1^2 = 2972.54$$

$$\sum x2^2 = 2326.7$$

$$\sum x3^2 = 1822.33$$

$$s_1 = \sqrt{\frac{\sum x_1^2}{n} - (\bar{x}_1)^2} = \sqrt{\frac{2972.54}{20} - (12.16)^2} = 0.87$$

$$s_2 = \sqrt{\frac{\sum x_2^2}{n} - (\bar{x}_2)^2} = \sqrt{\frac{2326.73}{20} - (10.7)^2} = 1.35$$

$$s_3 = \sqrt{\frac{\sum x_3^2}{n} - (\bar{x}_3)^2} = \sqrt{\frac{1822.33}{20} - (9.46)^2} = 1.27$$

$$\sum D1 = -29.7$$

$$\sum D1^2 = 70.25$$

$$\sum D2 = -53.9$$

$$\sum D2^2 = 176.69$$

Hypothesis Test 1: The awareness of results influences current performance.

$$T1 = \frac{\bar{D1}}{Se1} = \frac{\bar{D1}}{\frac{Sd1}{\sqrt{n}}} = \frac{|-1.48|}{\frac{1.14}{\sqrt{20}}} = \frac{1.48}{0.25} = 5.92$$

$$\bar{D1} = \frac{\sum d1}{n} = \frac{-29.7}{20} = -1.48$$

$$Sd1 = \sqrt{\frac{\sum d1^2}{n} - (\bar{D1})^2} = \sqrt{\frac{70.25}{20} - 2.19} = \sqrt{3.51 - 2.19} = 1.14$$

Two tailed $\alpha=5\%$

$$DF=n-1=20-1=19 \rightarrow \text{table } T=2.093$$

$$5.92 > 2.093 \rightarrow \text{calculated } T > \text{table } T$$

*Since the calculated T-value is greater than the T-critical value from the table, the null hypothesis is rejected, and the alternative hypothesis is accepted. Therefore, it can be concluded that awareness of results had a significant impact on current performance .

Hypothesis Test 2: Awareness of Results has a significant impact on future performance.

$$T2 = \frac{\overline{D2}}{Se2} = \frac{\overline{D2}}{\frac{Sd2}{\sqrt{n}}} = \frac{|-2.69|}{\frac{1.26}{\sqrt{20}}} = \frac{2.69}{0.28} = 9.6$$

$$\overline{D2} = \frac{\sum d2}{n} = \frac{-53.9}{20} = -2.69$$

$$Sd2 = \sqrt{\frac{\sum d2^2}{n} - (\overline{D2})^2} = \sqrt{\frac{176.69}{20} - 7.23} = \sqrt{8.83 - 7.23} = 1.26$$

Two tailed $\alpha=5\%$

$$Df=n-1=20-1=19 \rightarrow \text{table } T=2.093$$

$$9.6 > 2.093 \rightarrow \text{calculated } T > \text{table } T$$

Based on the fact that the calculated T-value is greater than the T-critical value from the table, the null hypothesis is rejected, and the alternative hypothesis is accepted. Therefore, it can be concluded that awareness of results had a significant impact on performance.

Conclusion

Hypothesis 1: Awareness of results affects current performance.

Based on the calculations performed using the collected data and comparing it with the critical value at the 5% significance level, we found that the null hypothesis was rejected, and we accepted the alternative hypothesis, meaning that awareness of results affects current performance.

Hypothesis 2: Awareness of results impacts future performance.

Based on the calculations performed using the collected data and comparing it with the critical value at the 5% significance level, we found that the null hypothesis was rejected, and we accepted the alternative hypothesis, meaning that awareness of results impacts future performance.