

Effect of Transient Sad Experience on Reaction Time

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Introduction

Emotional disturbance can affect concentration and impair psychomotor performance. Judgmental errors could have deleterious effects and can endanger life. Gitter et al., hypothesized that emotions could lead to increased errors and longer reaction times upon viewing graphic scenes.¹

The aim of this study was to determine the effect of transient emotional disturbance resulting from watching a sad movie on the psychomotor skills of Saudi Students.

Methodology

The study took place at the Department of Psychology, King Saud University, Riyadh. The study subjects consisted of male university students without evidence of cognitive impairment, medical ailment and not on medications likely to cause drowsiness or slowness. They gave informed consent after the procedure to be followed had been duly explained to them. Each subject was requested to seat in front of a response time

measurement apparatus (Figure 1). The subject was asked to press the two buttons with his hands and the foot button simultaneously. The subject responded according to the colour shown in the white area when the light comes on. The test colours were red, yellow and blue. The reaction time was recorded automatically and the timer was reset to zero after each attempt. This procedure was repeated 5 times for each colour. The average time taken per colour was recorded. The subject was then shown a 2.5 meter long clip on a VHS video tape over a 10 minute period. The procedure for measuring the response times was repeated immediately after watching the movie.

Statistical Analysis

The mean age of the subjects was determined. The reaction times were recorded for each colour before and after the video film. The number of errors made per colour before and after the video were also recorded. The mean times taken were compared using Student's *t* test. The time taken was correlated with age using Person's correlation coefficient. The overall response times and error rates before and after watching the movie were compared using analysis of variance. All the analyses were done using Stat Pac Gold version 4.4 on IBM compatible PC.

The subject was asked to press the hand buttons and the foot button simultaneously when the light comes on, red and blue. The reaction time was reset to zero and the procedure was repeated 5 times. The time taken per colour was shown on a 2.5 meter scale. The average response times was recorded for the movie.

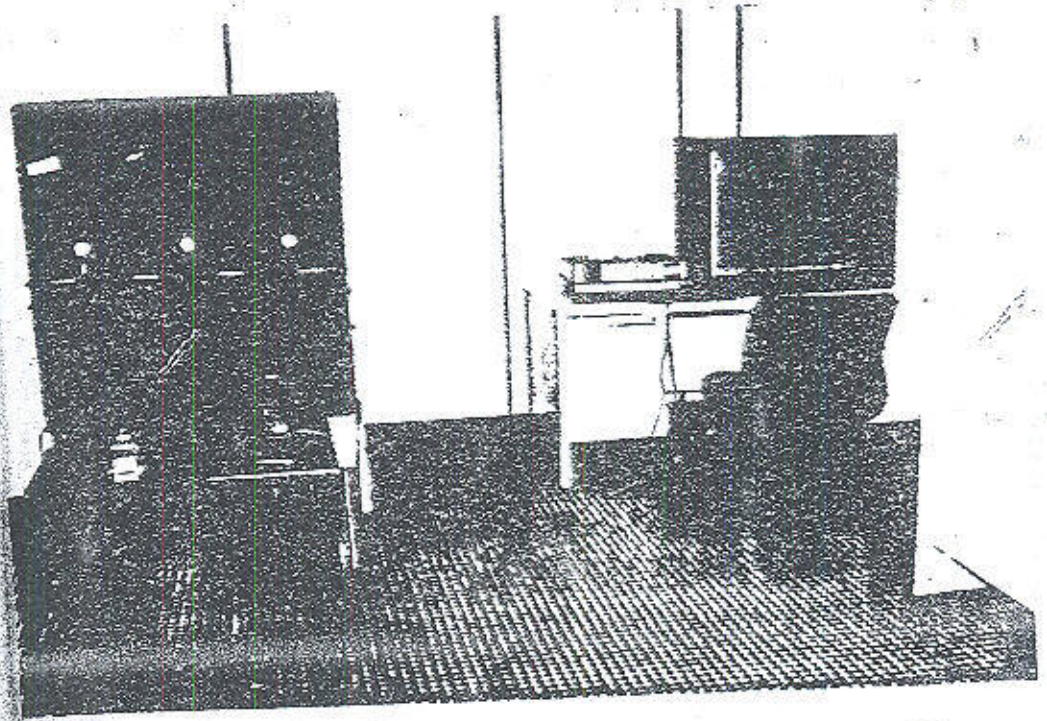


Figure 1: The subject was asked to press the two buttons with hands and the foot button simultaneously

Reaction times were determined. The number of errors made per colour was also recorded. The mean was calculated using Student's t test. The time taken for each colour was compared using Pearson's correlation coefficient. Reaction times and error rates were compared using a two-way ANOVA. These analyses were done using Statistix 4.0 compatible PC.

Results

A total of 65 students were studied. Their ages ranged between 18 and 36 years with a mean of 21 years ($SD=5$ years).

Table 1 shows the reaction times for the various test colours before and after seeing the test movie. These reaction times were significantly lower for blue and red colours but not for yellow colour. Overall, there was a

slight prolongation of the mean reaction times from 11.6 sec. To 12.3 sec. after the video. However the difference was not significant ($P=0.08$). the mean number of errors are shown in Table 2. Overall, the errors were significantly less after watching the video film and especially when the test colour shown was red ($P<0.05$). the one-way ANOVA value yielded in F ratio of 0.201 $P>0.9$ which show no significant change in reaction times and error rate after the video viewing. There was no correlation between error rate and age (Pearsons $R=0.223$ for initial and 0.05e for error rate after video viewing $p>0.05$).

Discussion

The results of this study showed that transient sad experience did not appear to affect judgment or psychomotor skill significantly. Many reasons could be adduced for this observation. Firstly, the duration of the video film was probably too short to seriously influence the individual's performance. Secondly, the subjects might have felt detached from the film as they were not directly involved in the tragic event. The subject could have viewed the film as a fiction and not directly applicable to their life situation thus resulting in detachment and lack of influence on their performance. The situation might have

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been different if known individuals had tragic outcome. Thirdly, the subjects might not have paid attention to the movie and hence one would not expect a change in reaction time. According to Woodworth, peoples emotional response could be categorized into any of these: mirth, surprise, fear, suffering, anger or determination, disgust and contempt². It is likely that none of these responses was applicable to these cases probably because of the earlier reasons alluded to. The individuals personality trait also has to be considered since highly hostile people could react differently to low hostile ones³. Some workers like Korzemy and Felize have shown that perception of reality is important in making violent or tragic scenes significant^{4,5}. Violence as seen on television had little significant effect on performance as this was perceived as unrealistic or unfamiliar and did not correlate with aggressive predisposition. The results of this study appeared consistent with these views. The improvement in performance in terms of lower error rate with repetitive stimulation would be in keeping with familiarity with the procedure and eagerness to achieve psychomotor perfection in educated individuals.

In trying to correlate the results with present day activities, it would appear as if witnessing a sad event like

an automobile accident for a short period of time should not deleteriously affect driving performance. The individuals are more likely to be more cautious. The effect of prolonged episodes or tragic events involving a close relation may be different and would need to be investigated subsequently.

References

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2. Woodworth RS (1938). *Experimental Psychology*, New York: Holt.
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4. Korzenny F. The perceived reality of television and aggressive predispositions among children in Mexico. Paper presented at the A Annual Meeting of the Internal Communication Association (Portland, Oregon, April 14-17, 1976).
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Table 1: Reaction times (in seconds) for different test colours before and after video viewing.

Reaction Times	Blue	Red	Yellow	Overall
Initial	3.5 (0.8)	4.2 (1.5)	3.9 (1.5)	11.6 (2.4)
After	4.7 (1.9)	3.7 (0.8)	4.0 (1.7)	12.3 (3.3)
Paired t test	5.22	3.05	0.28	1.77
Probability*	<0.001*	0.003*	0.78	0.08

* Mean summation of time taken for 5 stimuli. Standard deviation in parentheses.

Table 2: Mean errors made according to test colour before and after video viewing.

Test colours	Mean Errors		t test	P
	Initial	After		
Blue	1.4 (2.3)	1.2 (1.8)	0.69	0.491
Red	0.9 (0.9)	0.3 (0.6)	4.7	<0.001*
Yellow	0.5 (0.8)	0.5 (0.7)	0.13	0.9
Overall	2.8 (2.6)	2.0 (2.2)	2.15	0.04*

* Standard deviation in parentheses

* Statistically significant.

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Abstract: The present study was designed to test the effect transient emotional disturbance resulting from watching a sad movie. A total of 65 male university student without evidence of cognitive impairment or medical ailment. Their ages ranged between 18-36 years. They have been subjected to a through assessment of response time measurement apparatus. Result of the study show no significant in reaction times and error rate after the video viewing that may related to many reasons. These findings may suggested, at least in part, that a witnessing a sad event like an automobile accident for a short period of time should not deleteriously affect driving performance.

ملخص البحث: تهدف الدراسة الحالية إلى التعرف على مدى تأثير رؤية مشاهد مثيرة للإنفصال على شريط الفيديو ولمدة قصيرة على زمن الرجوع. تم تطبيق الدراسة على عينة عشوائية قوامها 65 من طلاب جامعة الملك سعود تتراوح أعمارهم فيما بين 18-36 سنة. لقد دلت الدراسة أنه لا توجد هناك أية علاقة بين رؤية المشاهد المثيرة للإنفصال والتغير في زمن الرجوع بالنسبة للأداء البصري-الحركي، والذي تم مناقشة أسبابه في صلب هذا البحث. وأخيراً خلصت الدراسة إلى أنه يمكن ومن خلال نتائج البحث إقتراح أن رؤية الحوادث المثيرة للإنفصال عامة أو أثناء قيادة المركبات بصورة أحسن ولفترة وجيزة ربما لا تؤثر على قائد المركبة في تأدية مهمة القيادة بصورة سليمة.