

A TEST OF THE SET DISRUPTION INTERPRETATION OF PERCEPTUAL DEFENSE

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ABSTRACT

Sixteen Ss were trained as to the affective signal value of two symbols. One symbol served as a signal for taboo words, and the other as a signal for neutral words. The results showed that when words in the test phase were preceded by the taboo signal a higher recognition threshold was obtained than when words were preceded by a neutral signal. This effect was found to be independent of the affect of the word that followed the signal. The results were interpreted as casting doubt on the possibility that data supporting perceptual defense can be interpreted on the basis of some form of set disruption.

THE CONCEPT OF perceptual defense was put forward by McGinnies (1949), who found that the recognition threshold for taboo words was higher than that for neutral words. His belief was that these results indicated the presence of an unconscious inhibitor. This implies two stages—unconscious recognition and later conscious recognition. When a taboo word is presented near threshold, it is first recognized unconsciously, and through some mechanism the presence of this emotion-arousing stimulus is prevented from reaching awareness.

McGinnies' conclusions have been criticized on the basis that his results might be attributable to word-frequency effects (Howes & Solomon, 1951; Solomon & Postman, 1952), or to response bias (Howes & Solomon, 1950). Postman, Bronson, and Gropper (1953) attempted to control the influences of word frequency and response suppression on word-recognition thresholds. Their results lend no support to the concept of perceptual defense. However, word frequency was derived from the Thorndike-Lorge semantic count (1944), and it is questionable whether or not this estimate would apply to a select group of Ss (university students) such as used by Postman, et al. (1953). Lazarus (1953) was also critical of their lack of control over the effects of familiarity.

Although the studies cited above do establish the fact that recognition thresholds of words are affected by response suppression and familiarity, Lazarus (1953), and Minard (1965), suggest that the available evidence supports the retention of the perceptual-defense hypothesis. However, Forrest, Gordon, and Taylor (1965) have demonstrated that evidence supporting this hypothesis may be due to a disruption of set rather than to a defense mechanism. Taylor and Forrest (1966) provide data which suggest that we have a set to see neutral, as opposed to taboo, words.

Thus it may be that the threshold for taboo words is higher than that for neutral words because the neutral words do not disrupt the set, while taboo words do. The work of these authors questions the existence of a generalization of perceptual defense, as postulated by McGinnies and Sherman (1952). McGinnies and Sherman found that neutral words preceded by taboo words had a higher visual recognition threshold than those preceded by neutral words. They hypothesized that these results represented the persistence of an autonomic avoidance response to threatening stimuli.

Forrest, Gordon, and Taylor (1965) replicated the study of McGinnies and Sherman (1952), with the same results. Next they repeated the experiment, but substituted nonsense words for the taboo words. The nonsense words produced an effect similar to that of the taboo words in the previous experiment. As the nonsense words were not thought to arouse an avoidance response, the authors suggest that a defense process need not be hypothesized. In a third study, Ss were given practice trials on neutral and taboo words before the actual test trials. The authors report no differential effects on neutral-word thresholds due to the affect of the words preceding them. They state that a defense hypothesis would have predicted a greater threshold for words preceded by a taboo word, while the set-disruption hypothesis would predict no difference. The results then, appear to support their hypothesis that the data of McGinnies and Sherman (1952) can be explained in terms of set disruption. However, the results are inconclusive. In the second experiment, as the authors state, an explanation in terms of set is not adequate. That is, the set-disruption hypothesis predicts that the first stimulus in a series of nonsense words would have a greater disrupting effect than later ones. In fact there were no serial position differences among the words preceded by the nonsense words. Further, the affective value of the nonsense words is not known. A problem with the third experiment was that, although measures were taken to remove the set to see neutral words, it was not actively controlled.

The present experiment was designed to test the hypothesis that data supporting perceptual defense can be explained by set disruption. Subjects were trained as to the affective signal value of two symbols. One symbol indicated that a taboo word (τw) was about to be presented, and the other that a neutral word (nw) was to be presented. Following this the recognition thresholds of a mixed group of taboo and neutral words were determined. These test words were preceded immediately by one or the other of the symbols. Symbol affect and word affect were combined factorially. The perceptual-defense hypothesis predicts that those words (taboo or neutral) preceded by the taboo symbol (τs)

would have a higher threshold than those preceded by the neutral symbol (NS), since the TS would arouse a defense reaction and the NS would not. The set-disruption hypothesis would make a prediction identical to that of the perceptual-defense hypothesis in the case of neutral test words, but an opposite prediction in the case of taboo test words. In the former case, the presentation of the TS would produce a disruption in set when paired with a NW, while the NS-NW pairing would not produce a disruption. However, in the case of taboo test words it would be the NS that would produce the disruption in set.

METHOD

Subjects

Eight female and eight male introductory psychology students served as Ss.

Apparatus

Two symbols (an x and an o), 14 taboo words, and 19 neutral words were used as stimuli. Each was printed on a separate card. The words were printed with a 3/4-inch gothic stencil. The symbols were 1 1/2 in. in height. The following made up the taboo word pool: shit, cock, rape, piss, nude, vomit, bitch, whore, kotex, penis, belly, thigh, urine, suck. The neutral word pool consisted of: road, bill, tent, vote, spoon, stage, ridge, roof, porch, path, glove, fence, fold, crow, brow, boat, army, apple, gray.

The stimuli were presented in a three field, Scientific Prototype tachistoscope, model #320G.

Procedure

The Ss were first trained to use a neutral symbol, either an x or an o, as an index of the affect of the words that were subsequently presented. For example, the x served as a TS which signalled S that a TW was about to be presented, and the o served as the NS which signalled the presentation of a NW. For half of the Ss, the x was the NS and the o the TS; the reverse was true for the remainder of the Ss. Eight words were selected from the TW pool, and eight from the NW pool. Each word was presented for 200 msec immediately following a 200-msec presentation of the appropriate symbol. The intertrial interval was determined by the time required to change the stimulus cards (approximately 5 sec). Symbol presentation order was randomized, with the restriction that neither symbol was presented on more than two successive trials. Before the training trials began each S was instructed to associate each of the two symbols with the affect of the words that followed them. That is, they were asked to anticipate whether a TW or NW would follow each symbol presentation. Subjects were instructed not to verbalize their anticipations to E. An inquiry was made with each S upon completion of the experiment to confirm that the correct associations had been made.

Following the training trials the recognition threshold of the NS was determined for each S. An ascending method of limits was used in all threshold measurements. Threshold was taken to be the shortest exposure, to the nearest five msec, required for recognition.

In the final stage of the experiment the Ss were tested for their recognition threshold on 12 words. Words presented to S during the training trials were not

repeated during testing. Presentation order of the test words was randomized. Six test words were selected from the *rw* pool, and six from *nw* pool. Three of the words from each of these two groups were preceded by the *ts*, and the remaining three words from each group were preceded by the *ns*. For half of the *Ss* the symbols were assigned to the *tw*s in the order *TNNTN*, and to the *nw*s in the order *NTNNT*. The reverse was true for the remainder of the *Ss*. Symbol exposure duration was set at one-half of the previously determined *ns* recognition threshold for each *S*. Subliminal presentation of the symbols was used in order to reduce the possibility of the *S*'s becoming aware of the fact that a symbol-word pair need not be of the same affect. The use of subliminal stimulation in perceptual defense studies has been suggested by Spence (1967), and has been shown to be effective by Walters, Banks, and Ryder (1959). The test word was presented immediately following the termination of the symbol. Word exposure duration began at the level of the *ns* threshold for each *S*, and was increased in steps of five msec until the word was recognized correctly. Subjects were told that they were to be presented with a group of new words that were similar in type to those presented during training. Subjects were instructed to attempt to recognize each word and report it to *E*. Guessing was encouraged with the reservation that only one guess would be allowed per exposure of the test word. A random selection of words (for the training and testing stages) was made for every two *Ss*. Random assignment was restricted in that the number of four and five letter words was equated for each condition.

The data for the analysis of variance were derived by computing the mean of the three recognition scores in each of the four treatment conditions for each *S*.

RESULTS AND DISCUSSION

Table 1 gives the mean exposure durations for each of the four treatment conditions. For both the taboo and neutral words, those preceded by the *ts* required a greater exposure duration than those preceded by the *ns*. The results of the analysis of variance are presented in Table 2. That the recognition threshold for taboo words is significantly higher than that for neutral words is of little consequence. It represents a replication of the McGinnies (1949) study, and is subject to the same criticisms. The lack of an interaction indicates that set disruption cannot account for these findings, and lends support to a defense explanation.

As stated above, the perceptual-defence hypothesis would predict a higher threshold for all words preceded by the *ts*. The set-disruption hypothesis would make the same prediction in the case of the neutral test words, but in the case of the taboo test words, would predict a higher threshold for those preceded by the *ns*. As can be seen, the predictions of the perceptual-defence hypothesis correspond with the results, while the predictions of the set-disruption hypothesis do not.

The contradictions between the present findings and the results of the third experiment of Forrest, et al. (1965) may be due to the different methods of manipulating the *Ss*' set. In the Forrest, et al. experiment an attempt was made to eliminate the effects of set disruption, but not to

TABLE I
MEAN THRESHOLD (IN MSEC) FOR EACH OF THE
FOUR TREATMENT CONDITIONS

Symbol affect	Word affect	
	Neutral words	Taboo words
Neutral symbol	43.54	48.96
Taboo symbol	47.87	53.65

TABLE II
SUMMARY OF ANALYSIS OF VARIANCE
OF RECOGNITION THRESHOLDS

Source	df	MS	F
Subjects	15	1650.46	
Word affect (WA)	1	501.20	13.42*
Symbol affect (SA)	1	325.35	8.71**
WA X SA	1	0.55	NS
Error	45	37.36	
Total	63		

* $p < 0.001$

** $p < 0.01$

produce it in opposition to a defense situation. The present study actively controlled the expectancy of the Ss, and provided a situation where the two hypotheses could be tested in the same experiment.

The data from this experiment support the view that perceptual defense does occur, and cast doubt upon the hypothesis that set disruption can account for previous data that suggest the presence of a perceptual defense mechanism. The demonstration by Forrest, et al. (1965) that a similar reaction occurs with nonsense words suggests that an avoidance response need not be postulated to explain this phenomenon. The process by which the defense reaction operates has yet to be determined.

RÉSUMÉ

Seize sujets sont entraînés à reconnaître la valeur de signal affectif de deux symboles dont l'un à signaler des mots tabous et l'autre des mots neutres. Les résultats montrent que le seuil de reconnaissance est plus élevé lorsque les mots présentés au moment du test sont précédés d'un signal tabou que lorsqu'ils sont précédés d'un signal neutre. L'effet s'avère indépendant de la valeur affective du mot suivant le signal. L'interprétation proposée met en doute la possibilité que les données appuyant la défense perceptive s'expliquent par une forme quelconque de réorientation brusque des attitudes (*set*) du sujet.

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