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Prediction, Control, and Learned Helplessness

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Perceived control over aversive events and perception of the predictability of those events have been confounded in learned helplessness research. The independent effects of perceived control over and perceived predictability of an aversive event on subjects' performance on a memory task and depressive affect were examined. Subjects who received noise blasts that were both uncontrollable and unpredictable displayed performance decrements and depressive affect relative to a no-noise group, whereas subjects who were able either to control or to predict the aversive event did not. The perception of control or predictability concerning the aversive event was thus sufficient to mitigate learned helplessness, suggesting the functional equivalence of perceived control and predictability. Finally, results revealed that subjects high in the "desire for control over events" reacted to the aversive noise more than did subjects low in the desire for control.

Research on the concept of learned helplessness (Abramson, Seligman, & Teasdale, 1978; Seligman, 1975) has been concerned largely with the debilitating effects on task performance following subjects' perception that their outcomes are not contingent on their responses as well as their affective responses to this perception (most notably depression). The individual's subjective reaction to the helplessness situation has often been described as the perception or expectation of having little or no control over the events of concern. Typically, subjects given a degree of actual or perceived control over aversive stimuli perform better on subsequent tasks and show less affective response than subjects who do not perceive that they have control.

However, an interesting confound of control and predictability exists in this research. Subjects provided with control over events characteristically have been accorded a large degree of predictability over the occurrence of those events as well.

In many situations to which the learned helplessness concepts have been applied, control and predictability are inherently confounded, and the practical distinction between control and predictability is therefore relatively unimportant. However, there exist situations in which the degree of predictability and the extent of control an individual perceives that he or she has over events do not covary. For example, an individual suffering from a cold can exert a great deal of control over his or her recovery by taking medication, getting enough rest, eating nutritious foods, and so on. However, when the individual will feel healthy enough to return to his or her regular routine is not predictable. In this example we might suspect that the person perceives some control but little predictability over the course of the illness, and despite the unpredictability of the situation, learned helplessness is not likely to develop.

Conversely, there are many situations in which an individual would perceive a large degree of predictability but little control. For example, prison inmates may proceed through a predictable daily routine over which they have little control. Daily, people hear highly accurate (although far from perfect) predictions of what the weather will be like. Although people respond adaptively to such information, they do not possess the ability to

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control the weather itself. Indeed, there seem to exist people who prefer predictability to control. The religious convert who places his or her life "in God's hands" and the individual who volunteers for military service appear to be relinquishing control over many facets of their lives. Nevertheless, it seems that the predictable orderliness of military life or the solace of knowing that life's traumata are part of an orderly plan may mitigate the development of learned helplessness in these persons.

As these examples suggest, either predictability or control may be sufficient to prevent the development of learned helplessness under some circumstances. Seligman (1975) did speculate that predictability would play a theoretically important role in learned helplessness, but only in situations resulting in fear or anxiety. He argued further that although no study has successfully separated the two, "the effects of uncontrollability on response initiation, on sudden death, and on depression do *not* reduce to the effects of unpredictability" (p. 124).

However, there are several reasons to suspect that predictability plays an important role in the development of learned helplessness (e.g., Kelly, 1955; Seligman, 1968; Weiss, 1971). For example, Kelly proposed that individuals are motivated to obtain cognitive representations of the external world that would allow for an optimal amount of predictability of events. Seligman (1968) has argued that predictability of aversive events provides an organism with information about when *not* to be concerned with the occurrence of those events, thus reducing stress during this "safety" period. Moreover, there is some evidence that the reduction of uncertainty about the nature of an aversive event itself facilitates stress reduction (cf. Averill, 1973). Because the aversiveness of stimuli has been linked to the uncertainty of their occurrence, it is reasonable to suspect that the degree of predictability, as well as the amount of control an individual perceives over some traumatic event, has an influence on his or her reactions to learned helplessness inductions.

Additionally, there are several recent investigations suggesting that predictability may play an important role in learned helplessness research beyond situations resulting in fear or anxiety (Geer & Maisel, 1972; Schulz, 1976; Schulz & Hanusa, 1978; Burger & Cooper, Note 1). For example, Schulz (1976) had individuals visit persons in homes for the aged on schedules that were either predictable, controllable and predictable, or random. Several positive behavioral changes were found in both the predictable and control-plus-predictability conditions that did not emerge when the visitors selected their own (random) schedules for visiting. Furthermore, the individuals who could both control and predict the visitors' schedules experienced no greater positive behavioral changes than did those individuals experiencing predictability alone.

Similarly, Burger and Cooper (Note 1) accorded subjects either control or no real control over aversive noise blasts that the subjects were led to believe were controllable. Other subjects were correctly informed at the beginning of the experiment that the noise blasts were uncontrollable. These authors found performance decrements on subsequent problem-solving tasks and reports of increased depression, anxiety, and hostility only among subjects who found the task to be uncontrollable but had expected the task to be controllable. A predictable inability to control the aversive stimuli was less debilitating. That is, subjects who were able to control the noise and those who were predictably unable to control the noise did not differ in terms of both behavioral and affective measures from a control group of subjects who received no noise at all. Thus, at least in terms of this unique type of predictability, the presence of predictability seemed to mitigate the effects of learned helplessness. Coupled with the study by Schulz (1976), these data provide suggestive evidence for the everyday examples of the importance of predictability as well as control.

The present experiment was designed to examine more directly the roles of perceived predictability and perceived controllability in a learned helplessness setting. The design used to examine the effects of these variables divided the helplessness situation along two dimensions: The aversive stimuli were either controllable or uncontrollable by the subject,

and the aversive stimuli were either predictable or unpredictable for the subject.

Learned helplessness investigators initially induced the expectation of noncontingency through continuous disconfirmation of expected contingency. However, it has recently been argued that the expectation of noncontingency can be induced in other ways. For example, Brown and Inouye (1978) successfully induced helplessness effects vicariously and argued that "it is the *cognition* of 'uncontrollability' rather than the experience of uncontrollability itself that is critical for producing helplessness effects" (p. 906). Similarly, Maier and Seligman (1976) concluded that "a person can show a helplessness effect without being exposed to the contingency as such; he can merely be told that events are uncontrollable" (pp. 17–18).

An inherent feature of the traditional "unsuccessful search for contingency" paradigm is that subjects perceive some degree of unpredictability. However, the recent emphasis on expectancies rather than experience makes it possible to create a situation in which the subject can maintain a perception of predictability but, because he or she has been informed that the events cannot be controlled, can also maintain an expectation of uncontrollability. The perception of noncontingency was induced in the present study by informing certain subjects at the beginning of the experiment that the aversive events were not related to their performance. In this manner, we were able to generate conditions representing a complete crossing of the predictability and controllability variables. A control group receiving no aversive stimulation and no helplessness training was also included in the design.

Another variable included in the present experiment concerns individual differences in the desire for control. Burger and Cooper (in press) constructed a Desirability of Control (DC) scale designed to measure this construct. The DC scale requires subjects to indicate the extent to which they agree with items describing a high or low desire to control 20 general and specific situations (e.g., "I prefer to avoid situations where someone else has to tell me what it is I should be doing"). Factor analyses indicate that the scale measures a general desire to control events, a desire to make one's own decisions, a desire to be prepared for situations, a desire to avoid dependence on others, and a desire for leadership. Subjects' scores on the DC scale have been found to account for significant proportions of variance in gambling, hypnosis, and attitude change experiments; research on the scale has also demonstrated the necessary psychometric properties of internal consistency, test–retest reliability, and discriminant validity (Burger & Cooper, in press). It was speculated that this general individual difference variable might account for some portion of the variance in learned helplessness behavior. Specifically, it was anticipated that subjects high in the desire for control would respond to the helplessness training more (i.e., display more of the helplessness effects) than would low DC subjects. This expectation is consistent with Wortman and Brehm's (1975) suggestion that individuals will react more strongly to a lack of perceived control when the importance of that control is high. To test this notion, subjects were divided via a median split of scores on the DC scale into those relatively high and those relatively low in desire for control.

Method

Subjects

Thirty-four male and 66 female college undergraduates served as subjects in exchange for class credit.

Apparatus

An Eico audio generator (Model 377) was used to generate an aversive tone (3,000 Hz) presented at 90 dB (SPL) through a set of stereo earphones. The aversive stimulus, intended to be irritating but not painful, was comparable to that used in previous learned helplessness research (e.g., Hiroto & Seligman, 1975).

Procedure

Subjects were recruited for what they believed was a "noise pollution" experiment. As each subject arrived, he or she was given the Multiple Affect Adjective Check List (MAACL: Zuckerman & Lubin, 1965), which is said to provide a measure of state depression. After completing the MAACL, subjects were randomly assigned either to one of the four experimental conditions or to the control group.

For every subject assigned to the experimental condition, it was explained that the experimenter was interested in how well people perform certain tasks when exposed to loud noises such as those encountered in noisy urban settings. Subjects were told that they would be presented with anagram problems to solve while loud, but not harmful, noise blasts were delivered at preprogrammed intervals.

Subjects in the *controllable–predictable* condition were told, "You can terminate the noise exposure by solving the problem correctly. If you answer the problem correctly, the noise will be terminated immediately." The noise blasts and the anagram problems were presented to these subjects simultaneously at the beginning of each of the fifty 20-sec trials. The noise continued until the subject indicated that he or she had solved the anagram problem or until 10 sec had elapsed. Thus, to the extent that they were successful at solving the anagram, subjects in this condition experienced some degree of control over the duration of the aversive noise; they also experienced some predictability over the onset and termination of the noise.

Subjects assigned to the *controllable–unpredictable* condition were told that "by solving an anagram problem you will cut the length of the next noise exposure by half. Thus, the amount of noise to which you are exposed is determined partially by you." The anagram problems were presented to the subjects at the beginning of each 20-sec interval. However, the noise blasts were presented at variable intervals and for different durations. The durations of the noise blasts ranged from 3 to 10 sec, and the periods of silence between the noise exposures ranged from 5 to 25 sec. Thus, the onset and termination of the noise was unpredictable for these subjects. However, it was intended that these subjects would perceive that they had some degree of control over the duration (termination) of the noise, even though they did not.

Subjects assigned to either the *uncontrollable–predictable* condition or the *uncontrollable–unpredictable* condition were not told of any connection between their solving the anagram problem and the termination of the noise. Noise blasts were presented, along with the anagram problems, at the beginning of each 20-sec interval for subjects in the uncontrollable–predictable condition. It was intended that these subjects would experience some degree of predictability concerning the noise, but no control. Subjects in the uncontrollable–unpredictable condition received the anagrams at the beginning of each 20-sec interval, but received noise blasts at variable intervals and for differing durations. Similar to the controllable–unpredictable condition, the noise duration ranged from 3 to 10 sec, and the intervals between the noise blasts ranged from 5 to 25 sec. Therefore, these subjects should have perceived little control and little predictability concerning the aversive noise blasts.

Each subject assigned to one of the four experimental conditions participated in 50 20-sec trials of anagram problems paired with noise blasts. The experimenter presented each anagram to the subject by sliding a form portraying the anagram through a small slot in a partition that prevented the subject from seeing the experimenter during the session. Subjects in each of these conditions were instructed to work on the anagram problems whether or not the noise was being delivered, since the experimenter was interested in how long it took them to solve each problem. The subject was instructed to write the solution on the paper and slide it back to the experimenter through the window. Failure to solve the anagram during the 20 sec was signalled by the presentation of another anagram problem. Subjects were instructed to place the unsolved anagram in a box at their side and commence work on the new problem. Subjects in each of the four experimental conditions received the same set of four-letter anagrams of common English words (presented in a random order).

To ensure approximately equal amounts of noise exposure across conditions, the first subject in a block of five was assigned to the controllable–predictable condition. The duration of the noise exposure for this subject was recorded, and the amount of noise presented to the next subject in each of the three experimental conditions was based solely on this duration. The last four subjects within the block of five were randomly assigned to one of the three experimental conditions or to a no-noise control condition. Subjects in the uncontrollable–predictable condition received noise blasts of identical length to those received by subjects in the controllable–predictable condition. Subjects in the two unpredictable conditions were presented with prearranged schedules of noise blasts of varying durations that were determined beforehand to be equal in average length and variance to the noise blasts presented to the controllable–predictable subject to which he or she was yoked. That is, the average duration of noise presented to the controllable–predictable subject was calculated, and the experimenter then used one of several predetermined schedules of variable noise blasts that would present an average noise duration within .5 sec of that received by subjects in the controllable–predictable condition and with nearly similar variance. Therefore, subjects in each of the four experimental conditions within the block received approximately the same amount of exposure to the aversive noise. With the exception of the first subject in each block of five, the experimenter was blind to the subject's condition until the instructions were delivered.

Immediately after the helplessness training trials, subjects completed the MAACL again. Following this, subjects completed a short questionnaire consisting of manipulation check and attribution items, each anchored on 7-point Likert-type scales. The subjects were asked about their perceptions of the aversiveness of the noise and the predictability of the onset and termination of the noise. In addition, subjects were asked about the extent to which they attributed their performance on the anagrams to the noise, to their own level of verbal ability, to the difficulty of the anagrams, and to their motivation. Finally, subjects were asked about the extent to

which they were concerned with their performance on the anagrams.

Subjects assigned to the no-noise control group waited outside the experimental room after filling out the first MAACL for a period of time approximately equal to that required for completing the helplessness training trials. Following this, these subjects completed the MAACL a second time.

Subjects in every condition completed the post-training task. Each subject was given a list of 50 common nouns and was asked to memorize as many as possible within a 2-minute period. After 2 minutes had elapsed, subjects were given three minutes to list as many of the words as they could recall. Following this, subjects completed the Desirability of Control scale, were thoroughly debriefed and dismissed.

Results

Subjects were divided into high and low desire for control groups based upon their DC scale scores. To ensure similarity of cell size, separate median splits were performed within each of the four experimental conditions and the control group.[1] Results were analyzed within a 2 (controllable–uncontrollable noise) × 2 (predictable–unpredictable noise) × 2 (high–low DC) design. Two control groups comprised of no-noise subjects high and low in desire for control were examined in subsequent post hoc comparisons.

Manipulation Checks

Subjects in the experimental conditions were asked how aversive they experienced the noise to be (1 = very much; 7 = very little). Neither the main effects of control or predictability nor any interactions including these variables emerged. However, a highly significant main effect of desire for control emerged on this measure, $F(1, 72) = 7.95$, $p < .006$. Subjects high in the desire for control found the noise less aversive ($M = 4.68$) than did low DC subjects ($M = 3.58$). Overall, subjects appeared to find the noise moderately aversive ($M = 4.13$).

Subjects were also asked how predictable they perceived the onset and termination of the noise to be (1 = very much; 7 = very little). A highly significant effect of predictability emerged, $F(1, 72) = 15.60$, $p < .0002$; subjects in the predictable conditions reported greater predictability ($M = 2.80$) than did subjects in the unpredictable conditions ($M = 4.35$). No other effects emerged on this measure. Thus, subjects accurately perceived the predictable or unpredictable nature of the noise presentation. No check on the control manipulation seemed necessary, because the instructions concerning this manipulation were explicit and all subjects appeared to understand the contingencies during pilot testing.

Performance

The total number of errors of omission and commission for each subject on the free-recall memory task following the helplessness training served as the measure of performance.[2] The means for the 10 conditions are presented in Table 1. The predicted interaction of control and predictability was found on this measure, $F(1, 72) = 4.33$, $p < .04$. An examination of the interaction collapsing across the desire for control variable was still significant, $F(1, 76) = 4.49$, $p < .04$. Dunnett's post hoc comparison of the (pooled high and low desire for control) subjects in the control condition with subjects in each of the experimental conditions revealed that only the performance of subjects in the uncontrollable–unpredictable condition was significantly poorer than the performance of the no-noise control subjects ($p < .05$). Main effects of control, $F(1, 72) = 5.43$, $p < .02$, and of predictability, $F(1, 72) = 4.90$, $p < .03$, also emerged in the overall analysis, although it is clear that these effects are largely

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[1] Although previous research has revealed higher DC scores for males than for females (Burger & Cooper, in press), no sex difference was found in the present sample. The number of high and low DC males and high and low DC females, respectively, and the five medians used to divide the samples were: controllable–predictable, 3, 4, 8, 5, (102.5); controllable–unpredictable, 3, 3, 8, 6, (100); uncontrollable–predictable, 4, 4, 6, 6, (97.5); uncontrollable–unpredictable, 2, 3, 9, 6, (101.5); and no noise, 5, 3, 5, 7, (100). Analysis of variance revealed that the DC distributions for the five conditions were not significantly different ($F < 1$).

[2] Separate analyses of errors of omission and errors of commission revealed patterns of results similar to, yet statistically weaker than, the results of the combined measure. The combined measure is comprised primarily of errors of omission.

Table 1
Mean Total Errors on the Memory Task

Contingency	High DC score		Low DC score	
	Controllable	Uncontrollable	Controllable	Uncontrollable
Predictable	33.0	32.9	30.2	30.9
Unpredictable	34.0	38.5	29.7	36.4
No-noise control	31.4		31.2	

Note. DC = Desirability of Control scale.

attributable to the poor scores of subjects in the uncontrollable–unpredictable condition (see Table 1). In addition, a main effect of desire for control was found, $F(1, 72) = 4.94$, $p < .03$; subjects high in the desire for control made significantly more errors on the memory task than did subjects low in the desire for control.

The total number of seconds subjects took to solve the anagram problems presented during the training trials was also measured. A score of 20 sec was recorded for any trial on which the subject was unable to solve the problem within the 20-sec time limit. An analysis of variance (ANOVA) failed to reveal any significant effects on this measure. Subjects did not differ in terms of their performance across conditions during the helplessness training trials.

Depressive Affect

Subjects' feelings of depressive affect were measured before and after the helplessness training trials. Depression scores on the MAACL did not differ significantly among subjects assigned to the various conditions on the initial administration. As can be seen in Table 2, however, depression scores did follow the predicted pattern following the helplessness training. Analysis of variance, excluding the control conditions, produced a pattern highly similar to the performance measure; however, these effects fell short of significance: interaction $F(1, 72) = 1.95$, $p < .16$; DC main effect, $F(1, 72) = 1.81$, $p < .18$. Nevertheless, Dunnett's post hoc comparisons (pooling high and low desire for control subjects) revealed that only the subjects in the uncontrollable–unpredictable condition reported significantly more depression than did subjects in the control group, $p < .05$, just as was the case for the performance measure.

To examine further the impact of the experimental manipulations on depression, the posttraining depression scores were subjected to an analysis of covariance with the subject's pretraining depression score employed as the covariate. The analysis of covariance produced results similar to, yet stronger than, the ANOVA results. The Control × Predictability interaction again fell short of significance, $F(1, 72) = 2.34$, $p < .13$; however, a large main effect for the DC variable emerged, $F(1, 72) = 7.85$, $p < .006$.

Attributions and Concern

Subjects in the experimental conditions were asked to attribute their performance on

Table 2
Posttraining MAACL Depression Score Means

Contingency	High DC score		Low DC score	
	Controllable	Uncontrollable	Controllable	Uncontrollable
Predictable	16.9	15.2	14.0	14.9
Unpredictable	16.6	18.0	13.9	17.7
No-noise control	13.0		9.6	

Note. MAACL = Multiple Affect Adjective Check List. DC = Desirability of Control scale.

the anagrams to the noise, their verbal ability, the difficulty or ease of the problems, and their motivation and were also asked how concerned they were with their performance. As with the measure of performance on the anagram task itself, no significant main effects or interactions emerged for any of these subsidiary measures.

Discussion

The results indicate a theoretical and practical importance of perceived predictability as well as perceived control in the learned helplessness context. Subjects who experienced controllable aversive stimuli, predictable aversive stimuli, or aversive stimuli that were both controllable and predictable failed to display performance deficits or affective responses characteristic of helpless subjects. Only subjects who perceived both lack of control and lack of predictability over the aversive stimulus displayed performance decrements and depressive affect significantly greater than subjects exposed to no aversive stimulation at all. Thus at least in some situations, individuals must experience both lack of control over a traumatic event and lack of predictability concerning the event before they will sustain the losses associated with helplessness. Conversely, either control or predictability may be sufficient to prevent the development of learned helplessness, at least under some circumstances.

It is important to note the relative nature of perceived control and predictability in the present investigation. The presentation of the noise in the current study was, as with most of life's events, only partially under the subject's control. The schedule of the noise intervals, the intensity of the noise, the difficulty of the anagram problems, and other factors beyond the subject's control influenced the presentation of the aversive noise. Similarly, the inability of the subjects in the predictable-noise conditions to terminate the noise on every trial made the duration of the noise only partially predictable. Thus, the present study represents a somewhat weak test of the proposition that either control or predictability can mitigate the well-documented effects of learned helplessness. Nevertheless, the results of the present investigation show that in some situations even these partial increments in either control or predictability are sufficient to mitigate the losses characteristic of learned helplessness.

The present results suggest that the perception of control over events and the perception of predictability over events are both involved in the determination of learned helplessness. Although these factors appear to influence behavior similarly (perceived control or predictability both reduce performance deficits and negative affect), they also seem to function independently. That is, the findings suggest that the perception of either control or predictability may be sufficient to mitigate helplessness. Thus, it may be useful to draw a distinction between the two variables when examining other helplessness settings. The relative strengths of the perception of control and the perception of predictability and the circumstances under which individuals may opt for one over the other are questions for future investigation.

The results of other measures taken during the experiment help to eliminate several alternative interpretations of the findings. The actual performance of subjects on the anagram problems did not differ across conditions. Similarly, subjects in the various conditions reported equivalent levels of concern about this initial task and comparable attributions of causality for their performance. It can be reasoned from these findings that subjects' experience with the anagram task itself had little influence on their later performance and affect. Instead, the controllability or predictability of the aversive noise appears to have been responsible for the performance and affect effects that emerged.

Learned Helplessness and Stress

The present investigation also illustrates the similarity between learned helplessness research and research employing the Glass and Singer (1972) "urban stress" paradigm. Similar to learned helplessness research, the stress paradigm is concerned with the debilitating effects on performance following experiences with aversive events. Subjects exposed to unpredictable aversive noise designed to be

comparable to a noisy urban setting have been found to perform more poorly and demonstrate greater frustration on subsequent tasks than do subjects exposed to predictable noise or no noise at all (Glass & Singer, 1972). The cognition of perceived control (i.e., the choice to continue or terminate the exposure, operationalized through the introduction of a button the pressing of which would supposedly terminate the experiment) has been found to reduce the debilitating effects of unpredictable noise (Reim, Glass, & Singer, 1971).

Initially, a "psychic cost" concept was introduced to explain these findings (Glass, Singer, & Friedman, 1969). The effort invested in adapting to the aversive stimuli was said to deplete the subject's individual resources for dealing with the environment. The introduction of control or choice was described as lessening the impact of the noise by making it nonstressful. However, a later interpretation (Glass & Singer, 1972, 1973) was that mere exposure to stressful events leads to the aftereffects in spite of adaptation during presentation. The perception of choice concerning exposure was said to lessen the impact of these stressful events because lack of choice created additional anxiety that in turn affected performance.

The Glass and Singer stress research and learned helplessness research therefore appear to examine closely related concepts. Both are essentially concerned with the relationship between exposure to aversive stimuli and subsequent performance. Both have examined the effects of various cognitions (e.g., perceived control through choice, expectancy of noncontingency) on this relationship. The present investigation demonstrates the importance of perceived predictability of the stimuli on learned helplessness, which has also been found to be an important variable in the stress paradigm. There are, however, some important differences between the two approaches.

First, although Glass and Singer (1972, 1973) invoke the constructs of stress and anxiety to mediate the effects of the stimuli on performance, learned helplessness theory (e.g., Abramson et al., 1978) posits only the cognition of an expectancy of noncontingency as the mediator. Any stress and anxiety that may be found in the setting are seen as byproducts of the cognitive mediator within the learned helplessness framework. Second, the perception of control as operationalized by the presence of an escape button in the stress paradigm and the perception of contingency as experienced by the subject in the learned helplessness paradigm are related but different concepts. Although both cognitions serve to lessen the impact of the aversive stimuli, there are, as Averill (1973) has pointed out, conceptual and empirical distinctions between control through choice and control through experience. Some of the circumstances under which the two types of control lead to similar and different effects have been demonstrated, but other distinctions and similarities remain an area of future investigation. As is illustrated in the present study, for example, the effects that Glass and Singer hypothesize for the perception of lack of control or choice are not entirely comparable to the perception of noncontingency in the learned helplessness paradigm. According to the Glass and Singer (1973) analysis, unpredictable noise creates stress and a perception of lack of control creates anxiety, the two affects supposedly combining in an additive fashion to elicit the aftereffect phenomena. In the present investigation, however, there were no increments in performance or affect among subjects who experienced both control and predictability beyond that found for subjects receiving noise that was either controllable but unpredictable or predictable but uncontrollable. Thus, contrary to the Glass and Singer interpretation based on affective reactions, no additive effect for these two variables was found.

The Desire for Control

The results of the present investigation also provide some insight into the desire for control concept as measured by the DC scale.[3]

[3] Some readers will perceive a conceptual similarity between "desire for control" and the "Type A behavior pattern" (Glass, 1977). This relationship has not yet been explored. However, aspects of the present data seem inconsistent with findings based on the Type A distinction (Krantz, Glass, & Snyder, 1974). Thus, it seems likely that the two diverge to some degree in their components.

High and low DC subjects in the no-noise conditions did not differ significantly on their performance on the memory task. However, high DC subjects in the four conditions in which subjects were exposed to the noise trials made significantly more errors on the postnoise task than did the low DC subjects in the comparable conditions. Furthermore, this effect was consistent across each of the four experimental conditions. Individuals high in the desire for control appear to have had a greater reaction to the aversive stimuli than did low DC persons. However, because a three-way interaction was not found (i.e., with high DC individuals in the uncontrollable–unpredictable condition sustaining the greatest losses), the prediction that high DC subjects would be more susceptible to learned helplessness was not supported.

A tendency for high DC subjects to report higher levels of depression than low DC subjects in the experimental and no-noise control conditions was also found. This suggests that individuals high in the desire for control may generally be more susceptible to depression than are low DC individuals. The high DC subjects appeared to have had a greater desire for control over events than it was possible to realize within the constraints of the experiment and found this fact depressing.

Interestingly, subjects high in the desire for control reported the noise stimuli as less aversive than did the low DC subjects. Two explanations consistent with the desire for control concept can be suggested. First, high DC subjects may have been more strongly motivated to adapt to the noise and thus were genuine in describing it as less aversive. Alternatively, high DC subjects may have wished to downplay the impact of salient external influences. They may have found the noise as aversive as did the low DC subjects, but may have been motivated to deny its aversiveness, and thus assert their control over it, when answering the questionnaire item. It should be noted, however, that the Desirability of Control scale was administered after both the helplessness training and the memory task. It is not clear, therefore, whether the circumstances of the experiment influenced subjects' responses on this measure. Regardless of the ambiguities inherent to the present methodology, the findings relating to the DC scale can be interpreted in a manner consistent with the desire for control construct (Burger & Cooper, in press). Nevertheless, it is clear that these data are amenable to alternative explanations.

In closing, it should be noted that the distinction between control and predictability proposed here has practical as well as theoretical implications. In some situations, such as in hospitals or prisons, increasing the amount of control the individual has over traumatic events may be impractical or even impossible. However, the predictability of events in such settings may be controlled by the staff or administration in some cases, and helplessnesslike reactions may therefore be attenuated to some extent. Behavior such as religious conversion and volunteering for military service, which appear at first to defy a learned helplessness analysis, may eventually be rendered more understandable by distinguishing clearly between prediction and control in future research.

Reference Note

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