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AN ANALYSIS OF TIMEOUT AND RESPONSE COST IN A PROGRAMMED ENVIRONMENT[1]

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A group of mildly retarded adolescents with high rates of antisocial behavior was exposed to two parameters of timeout and response cost within the context of a programmed environment. For five of the six subjects, the two higher values (30 tokens response cost or 30 min timeout) were significantly more suppressive than the lower values (five tokens or 5 min). For the one remaining subject, there was a strong relationship in the opposite direction. Also, the timeout and response cost of higher value became increasingly more suppressive over time, whereas those of lower value did not. There were few appreciable differences between the timeout and response cost of similar magnitude. A discussion of these results is presented in support of the notion that the functional aversiveness of timeouts (and response costs) appears to be critically dependent upon interactions with the environmental conditions in which they are implemented and the reinforcement histories of the subjects.

In recent years, there has been an increasing use of timeout and response cost as therapeutic aids for the suppression of a wide variety of undesirable behaviors. The timeout procedure is a response-contingent event that involves timeout from positive reinforcement. In applied human settings this has typically taken one of two forms; either the experimenter discontinues the administration of reinforcement (Barton, Guess, Garcia, and Baer, 1970; McReynolds, 1969; Risley and Wolf, 1967) or the subject is placed in a restricted, allegedly less reinforcing environment (Birnbrauer, Bijou, Wolf, and Kidder, 1965; Burchard, 1967; Buchard and Tyler, 1965; Wolf, Risley, and Mees, 1964). In both instances, the administration of the timeout consequence is contingent upon the occurrence of the undesirable behavior and usually lasts for a prescribed period of time. Response cost, on the other hand, generally refers to the removal of reinforcers (*e.g.*, points, tokens, money, *etc.*) from the subject, and is likewise contingent upon the emission of prespecified, undesirable behaviors (Burchard, 1967; Halvorson, *unpublished;* Siegel, Lenske, and Boren, 1969; Weiner, 1962).

Although extensively used with humans, there have been relatively few evaluative studies of timeout and response cost and little has been done to determine what aspects of these procedures are responsible for any subsequent response suppression. In addition, there appear to be no studies that involve a comparison of both techniques. Therefore, the purpose of the present experiment was to analyze the effectiveness of several values of timeout and response cost and, additionally, to compare their relative effectiveness in suppressing undesirable behavior.

An additional aim of this study, which was made possible because of the implementation of the experiment in a controlled programmed environment (*i.e.*, a token economy system), was to analyze the conditions under which time-

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outs or response costs become effective. The exploration of this possibility was prompted by a study by Kaufman and Baron (1968), which stated that perhaps the functional aversiveness of timeouts (and conceivably of response costs) may not be a function of the procedures themselves, but rather of the conditions under which these procedures are implemented. These authors thus argued that perhaps we should ask: "Under what conditions are timeouts aversive?", rather than, as the question was posed a few years ago (Leitenberg, 1965), "Is timeout aversive?" Although studies of the conditions accompanying timeout (*e.g.,* schedule and density of reinforcement, alternative availability of reinforcement, discriminitive properties, duration) have been conducted under laboratory control (Ferster and Appel, 1961; Holz and Azrin, 1962; Holz, Azrin, and Ayllon, 1963; Martin, *unpublished;* McMillan, 1967; Zimmerman and Ferster, 1963) such an analysis had not been reported in the applied literature.

Because of our interest in the possibility that the conditions under which timeouts are implemented could be an important dimension that should be explored in applied human research, an experiment was conducted (Burchard and Barrera, *unpublished*) in which the amount of response cost (involving the removal of 0, 5, 10, or a random selection of any of these numbers of tokens) was varied in conjunction with an invariable 5-min timeout period. The purpose of that experiment was to determine if higher response costs (*i.e.,* more substantial reinforcement reductions) resulted in higher suppressions of antisocial behavior. Although the results were negative in that higher response costs did not result in greater supression of undesirable behaviors, several analyses of the data strongly suggested that the supressive effect of response cost may have been a function of the number of tokens in the subject's possession and/or his opportunity to earn tokens. In other words, while the number of tokens that were removed from the subject during each timeout was controlled, the number of tokens in his possession and his opportunity to earn more tokens was not. In general, it appeared that when subjects had many tokens in their possession or when they had ample opportunity to earn more tokens, the response cost (which was either 0,5, or 10 tokens) was relatively ineffective, regardless of its magnitude. Similarly, under the opposite conditions *any* response cost (greater than zero) resulted in some suppression.

Due to the failure to control for the variables noted above it is still uncertain as to whether the magnitude of response cost is related functionally to response suppression. It is conceivable that such a relationship would exist if the number of tokens in possession and the opportunities to earn tokens were held relatively constant. However, since it would be difficult to control completely the number of tokens in a subject's possession, an adequate alternative to investigate the relation between response cost and response suppression could consist of implementing substantially different magnitudes of response cost. If these differences are made sufficiently large they may then override or attenuate the effect of the number of tokens in the subject's possession. Such then, was the purpose of this study. In addition, different magnitudes of response cost were compared with different durations of time in timeout in terms of their effects on response suppression.

METHOD

Setting

The study was conducted in the Intensive Training Unit (Burchard, 1967) at Murdoch Center, a state institution for the mentally retarded. The Intensive Training Unit consists of a programmed environment, *i.e.,* a token system, designed for the rehabilitation of mildly retarded, adolescent boys who display a high frequency of antisocial behavior. The frequent emission of undesirable behaviors, such as stealing, fighting, swearing, bullying, constituted an ample baseline for the analysis of timeout and response-cost procedures.

Within this residential program, behaviors that resulted in timeout and/or response cost were classified into the following four different categories: (1) *Swearing,* which was defined as the verbal emission of specific, obscene and vulgar words regardless of the situation or the context in which they were expressed; (2) *Personal Assault,* defined as any negative physical contact between two or more residents, or between a resident and a working, visiting, or residential individual, in which the victim reacted with a specific indication of pain or disapproval; (3) *Property Damage,* defined as the deliberate or reckless behaviors that resulted or could have resulted in the unnecessary damage of an object; and finally (4) *Other Behaviors,* defined by exclusion as a catchall category for punished behaviors that could not fit into any of the previous categories. Recording a behavior in this category consisted of describing briefly and objectively the behaviors that led to punishment. Typically included were behaviors involving disobedience, trying to escape, being too noisy, and taking things from others.

Timeout consisted of sitting down on a bench behind a partition (the timeout area) for a predetermined period of time. The time period was controlled by an inexpensive kitchen timer with a bell. Any subject who refused to go immediately to timeout, or created a disturbance while in timeout, was fined 15 tokens and taken to seclusion (an empty 8 by 16 ft room) where he remained until he was silent for 30 consecutive minutes.

Response cost consisted of the removal of tokens. There tokens were small aluminum disks functionally equivalent to money within the Unit's programmed environment. Most tokens were earned through achievement in the Unit's workshop and were spent for meals, store items, privileges, clothes, recreation trips, bus tickets, *etc.* Upon receiving a response cost, subjects could fill out a purchase order (required in all token transactions in the Intensive Training Unit) and turn it in with the appropriate number of tokens to a staff member; or, if they did not have enough tokens or did not want to pay immediately, they could wait and pay later, accumulating an additional five-token response cost for the delay.

Subjects

Eleven boys residing in the Intensive Training Unit at the onset of the experiment, were used, but data for only six of these are reported (Subjects 6, 7, 8, 14, 15, and 17). Of the other five, two were absent during a substantial part of the study (10 and 12), two had neglible frequency of punishments (2 and 11), and the remaining one (4) was discharged before the end of the study.

All subjects had histories of various types of delinquent and anti-social behavior. In general those behaviors included theft, arson, escape, frequent fights, assault, absence without leave (AWOL), and most had been expelled from previous job assignments and/or school. The subjects were between the ages of 15 and 19 yr and their intelligence quotients were within the mildly retarded range (WAIS scores between 50 and 70). Before this study, the subjects had been in the residential program for varying periods of time, ranging from three months to aproximately 4 yr.

Procedure

The experimental design, which was similar to the one used in our previous study (Burchard and Barrera, *unpublished*), involved four separate groups of subjects (I, II, III, IV) and four different timeout—response-cost conditions (1, 2, 3, and 4), with each condition being in effect for four consecutive days. The four different timeout—response-cost conditions are shown in Table 1.

Subjects were arbitrarily assigned to four different experimental groups, differing from each other only in the order of their exposure to each of the four experimental conditions. A schedule was devised so that each group went through all

Table 1
The Four Different Timeout and Response Cost Conditions

Condition	*Minutes in Timeout*	*Response Cost*
1.	0	5
2.	0	30
3.	5	0
4.	30	0

four different timeout—response-cost conditions in a counterbalanced order. Hence, on any given four-day period, each group of subjects was exposed to timeout or response-cost consequences different from the other three groups. The schedule for the first 16 days is shown in Table 2. The first four-day period was designated by a blue square posted in the dayroom. During that condition, the timeout—response-cost for Group 1 was 0 min and 30 tokens; for Group II, 5 min and 0 tokens; for Group III, 0 min and 5 tokens, and for Group IV, 30 min and 0 tokens. At the end of the four-day period, the blue square was replaced by a yellow triangle, which signified that the timeout—response-cost for each group changed to the condition shown in column two of Table 2. In this manner, it took 16 days for each group to be exposed to each of the four timeout—response-cost conditions, but each in a different order.

During the experiment, each group was exposed to each condition three times. This, therefore, took 48 days. However, in order to minimize the subject's ability to determine which condition came next, the order of the sequence through each set of four experimental conditions was changed (see bottom of Table 2). This schedule was designed to equate the number of weekend days across all conditions. In addition to posting the visual stimulus for each condition, each subject was taught what each visual stimulus meant for him before the experiment began.

The two variables that were analyzed in the following experiment are the amount of time in timeout and the amount of the token cost. Both forms of punishment, however, were referred to as timeout. Staff were instructed to say "timeout" in a matter-of-fact voice whenever they observed a subject emit one of the previously defined behaviors. They would then report to the office to see what constituted timeout for that particular subject on that particular day. If timeout involved sitting on the timeout bench, the timer would be set accordingly. If timeout involved a token cost (response cost), the amount would be noted and payment would be accepted when presented. In the event that timeout did not involve a token cost, the subject was still required to turn in a purchase order (for zero tokens) immediately after leaving the timeout area. If this was not done, he was charged a five-token fine. Not only did this control for any aversive characteristics associated with fill-

Table 2
Timeout and Response-Cost Conditions for the Four Different Visual Stimuli

Group	*Blue Square (S)*	*Yellow Triangle (T)*	*Red Circle (O)*	*Green Cross (+)*
I	2	1	3	4
II	3	2	4	1
III	1	4	2	3
IV	4	3	1	2

Order of conditions (four days each) throughout the 48-day period: S,T,O,+,O,S,+,T,S,+,O,T

ing out a purchase order, but it also provided an additional, independent record of the timeout incident for reliability purposes.

Upon administering a timeout, staff recorded the time of the incident, the subject, the behavior that resulted in the timeout, and the required time in timeout or the token cost involved. The administration *per se* of the timeout involved only a few seconds, during which no unnecessary attention was given to the subject. The basic timeout–response-cost procedures that were being used, as well as the definitions of target behaviors, had been in effect for several years. During this time, staff had participated in numerous training sessions and weekly discussion groups in order to enhance their efficiency and consistency in the administration and recording procedures. Before this study, an analysis of timeout administrations had revealed a fair consistency across cottage parents; in addition, each staff member was found to be very consistent and predictable in his/her pattern of administering punishment at different times. The records and purchase orders were reviewed on a daily basis and any omissions, miscodings, or confusions were promptly rectified.

This particular experimental design was chosen for two reasons. In the first place, the simultaneous administration of all conditions (but to different groups of subjects) enabled uncontrolled variables such as staff assignments, daily activities, weather conditions, *etc.,* to influence all conditions equally. Secondly, the design permitted each subject to be informed of his own individual consequences, while minimizing the possibility of a bias in the administration of punishments on the part of the staff. With subjects on different conditions at the same time, it had been found previously (Burchard and Barrera, *unpublished*) that it was extremely difficult for the staff to keep track of each subject's condition before delivery of punishment, thereby attenuating any selectivity in the administration of timeouts and/or response costs. In order to assess the extent to which the design accomplished this goal, subjects and staff were periodically questioned to determine their awareness of each subject's timeout condition.

Baseline data were recorded for 12 days. On the basis of the earlier study (which involved a baseline of 48 days), this period of time was considered to be sufficiently representative of each subject's individual pattern of anti-social behaviors. All subjects had exhibited, during this period, stable patterns of responding, although these rates differed from subject to subject. During baseline, the combined 5-min, 5-token cost procedure used during the previous 2 yr was in effect.

RESULTS

The subjects' ability to discriminate the various timeout conditions was evidenced by their average of 77% correct responses when questioned with respect to ongoing conditions and consequences. On the other hand, the staff were unaware of these conditions 88.5% of the time they were questioned. Therefore, as in our previous study, it was concluded that while the subjects usually knew what would happen if they were to be punished (*i.e.,* which consequence was in effect for each of them each day), the staff did not.

As shown in Figure 1, data from the 12 days of baseline for all subjects were grouped into one 12-day block, together with the 12-day totals for each experimental response cost or timeout condition. The baseline level was extrapolated across the four experimental conditions (right side of Figure 1). Figure 1 illustrates that the higher response costs and the longer time in timeout resulted in greater response suppressions.

An unexpected result, however, was the fact that the two lower conditions (the five tokens and the 5 min) actually resulted in an increase of timeouts with respect to the baseline. Since the baseline constituted a combination of both low-value procedures, this result suggests that their combined effect was more suppressive than either presented in isolation. Because of this increase in timeouts, the mean daily emission of

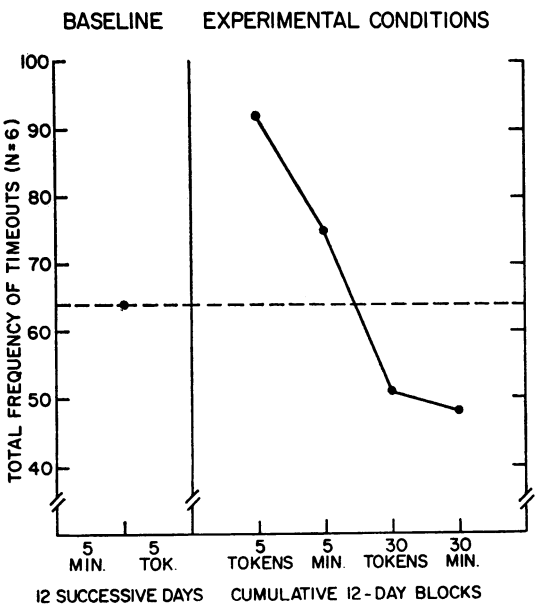

Fig. 1. Total frequency of timeouts for all six subjects during the 12 days of baseline and the 12-day period for each experimental condition.

antisocial behavior while all four experimental conditions were in effect was almost identical to that observed during the baseline (5.33 and 5.54, respectively).

The fact that the 30-min and 30-token conditions resulted in similar degrees of suppression suggests that each involved similar amounts of reinforcement reduction. It is possible, however, that this observed suppression in the case of the 30-min timeout condition could have been a function of the decrease in the number of opportunities to emit behavior that would result in punishment. That is, if one subject went to timeout three times in one day while in the 30-min condition, thus totalling 90 min, he would have had fewer opportunities to engage in antisocial behavior because of his extensive period of time spent in timeout. Therefore, by considering only the first timeout per day for each subject, any bias in the opportunity to emit timeout responses is eliminated. The results of this comparison can be seen in Figure 2, where it is shown that there is no substantial change with respect to the pattern depicted in Figure 1. It should also be pointed out that the results of Figure 2 provide additional evidence that there was not a significant bias in the administration of timeout on the part of the staff. If the staff was being influenced by a subject's timeout condition, it would seem likely that this influence would be less during the first timeout each day, because the staff would be less apt to know a subject's timeout condition before he was placed in timeout. The fact that a similar effect was obtained when the first timeout each day was compared with all timeouts suggests that such a factor was not operative to a significant degree.

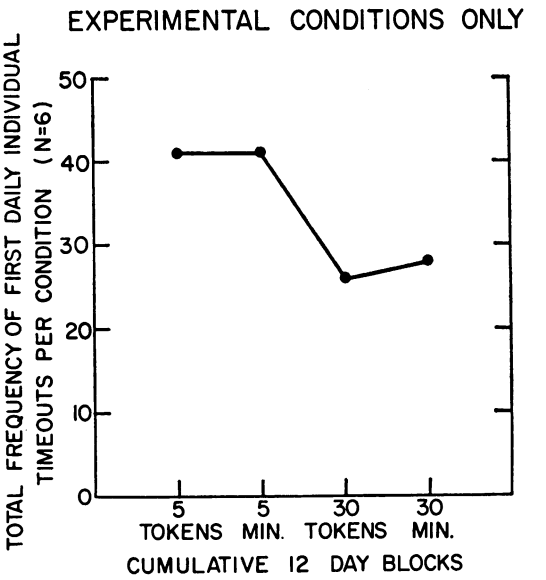

Fig. 2. Total frequency of the first daily timeout for each subject for the four experimental conditions.

Although the group data demonstrate a relatively strong differential effect between the higher and the lower values of both timeout and response-cost procedures, this effect was not consistent for all subjects. As shown in Figure 3, the trends for Subjects 14, 17, 15, 8, and 7 are strikingly similar, producing the group effect shown in Figures 1 and 2. However, for one subject (S6) data were obtained in the opposite direction, indicating that for that particular subject the time in timeout and the response cost of lesser intensity were more suppressive than the timeouts of greater intensity. Possible explanations for this discrepancy are discussed below.

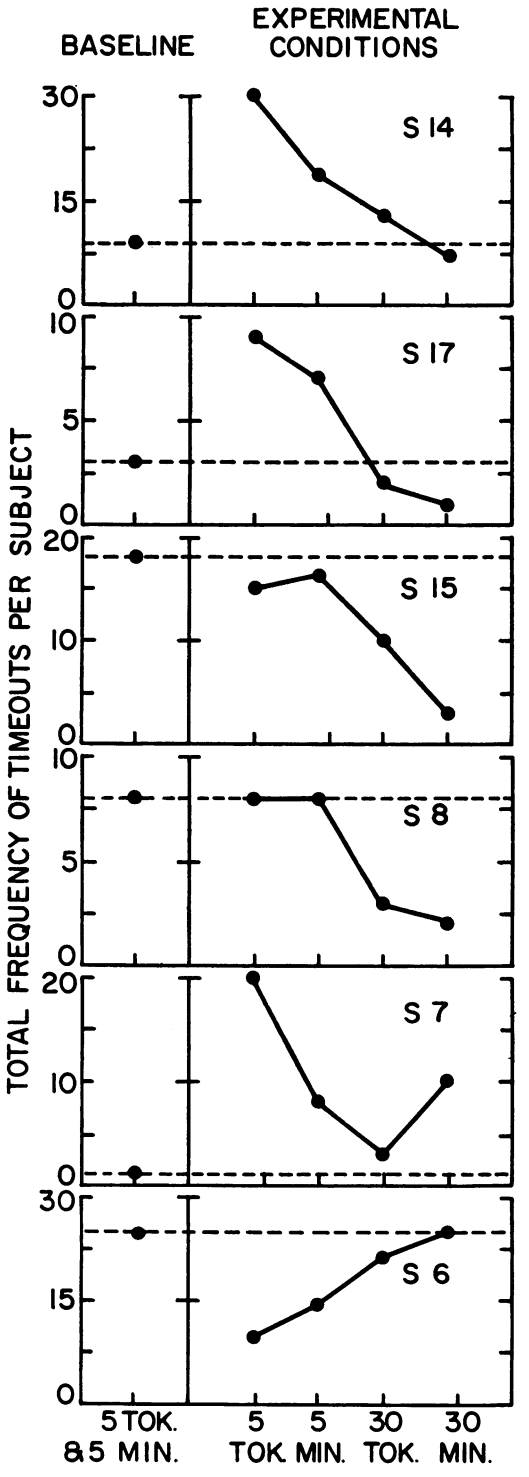

Fig. 3. Total frequency of timeouts per individual subject for the baseline period and each of the four experimental conditions. Note that scales vary among subjects.

Having demonstrated a strong differential effect between timeouts of high and low intensity (although not always in the same direction) a related question pertains to the temporal effects of the four timeout conditions. Did the differential effect between high- and low-intensity timeouts appear during the first 16 days of exposure or did it develop over time?

Figure 4 shows the results of the four experimental conditions across successive 16-day blocks. During each of these blocks, each of the four conditions was presented once for four days to every group of subjects. As it can be seen, the 30-token and 30-min conditions resulted in greater suppression with each consecutive presentation. A relatively higher incidence of 30-token and 5-token timeouts is apparent in the first 16-day block, in comparison with the 5-min and 30-min conditions. By the second 16-day block, however, the 5-min condition increased and the 30-token condition began showing signs of strong suppression. During the last 16-day block, both 5-token and 5-min conditions were occurring with similarly high frequencies, and at a rate of more than twice as often as the 30-min and 30-token conditions. These results indicate that increasing exposure to the latter type of punishment leads to higher degrees of suppression, in contrast to increasing exposure to the 5-token and 5-min conditions.

It should also be noted that this trend was consistent for all subjects. However, for S6, the relative positions of the two different timeout values was reversed. Across the three time periods, there was a consistent increase in the suppressive effects of the higher-value timeouts to the point where the suppressive effect of all four conditions was similar in the third 16-day time period. In other words, for S6, there was a convergence over time, as opposed to the divergence shown in Figure 4.

In order to study more closely the facilitation of timeouts when the 5-token or 5-min conditions were in effect, it was decided to analyze the four different conditions in terms of what we referred to as response bursts. Response bursts

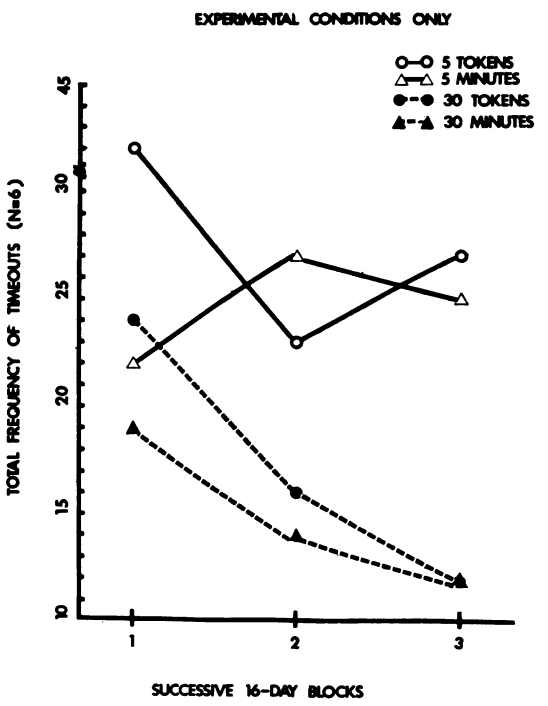

Fig. 4. Total frequency of timeouts per successive 16-day blocks for each of the four experimental procedures.

were days in which the same subject went to timeout three or more times. As Figure 5 illustrates, there were more days with response bursts and more timeouts within those days during the 5-token conditions than for any of the other three conditions. It is conceivable that this is at least in part a function of the subject's rapid reentry into the situation in which he was just punished. If so, the reason that it did not occur during the 30-token no-time condition, is probably due to the substantial difference in response cost. Some support for this explanation is the fact that most of the response bursts that did occur in the 30-token no-time condition occurred during the first 16-week period.

As mentioned above, our previous failure to establish a functional relationship between the magnitude of timeout and response suppression was thought to be a function of uncontrolled variation in the opportunity to earn tokens and the number of tokens in a subject's possession. While the number of tokens in possession was not systematically controlled or manipulated, in

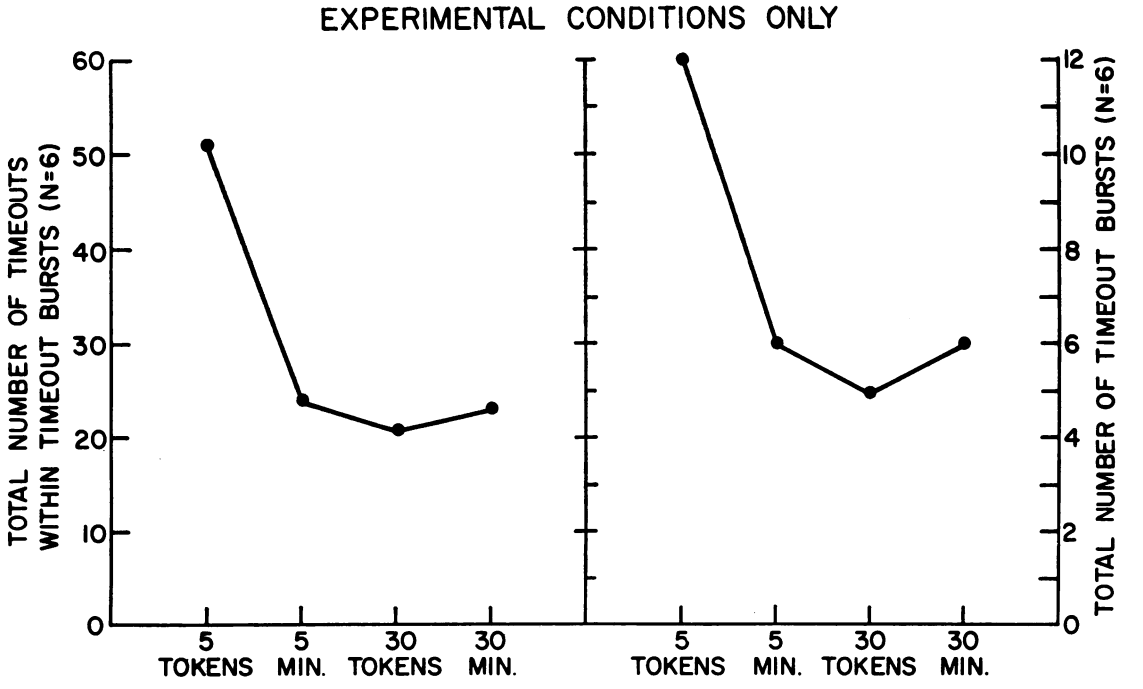

Fig. 5. Total number of timeouts that occurred in groups of three or more per day per subject (left panel), and number of instances (response bursts) in which there were three or more timeouts per day per subject (right panel).

this study the opportunity to earn tokens was. A final analysis was performed to see if the number of tokens in one's possession was related to the frequency of timeouts. This was done by arranging the conditions in terms of average daily token earnings and then calculating the total number of timeouts for each condition with data from both the present and previous experiments (Burchard and Barrera, *unpublished*).[2]

Although the results of this analysis were in accordance with the notion that the degree of suppression of a response cost or timeout is a function of the "economic" condition within which it is implemented, the data were not sufficiently clear to warrant graphic representation. Therefore, if such a relationship does exist (and it would still appear likely), its exact nature must be clarified through additional research.

DISCUSSION

As anticipated, the present results provide substantial evidence of a functional relationship between response suppression and the magnitudes of response cost and timeout duration. For five of the six subjects, the higher magnitudes of each condition consistently resulted in the greatest suppression. However, for the remaining subject there was an equally strong relationship in the opposite direction. In attempting to account for this apparent contradiction, it should be noted that this subject's performance was characteristic of his response to most other programs, contrary to the performance of most of the other residents in the program. After considerable effort to attribute such peculiar behavior to procedural artifacts, inconsistencies in staff behavior, medications, *etc.*, we are now inclined to regard this type of behavior as typical of this subject and a function of his particular (and peculiar) reinforcement history. At this point, the extent to which his performance is representative of other mildly retarded adolescents who display high frequencies of antisocial behavior is unknown. Nevertheless, it is probable that for some individuals, timeouts and response costs of relatively high intensity are less suppressive than those of low intensity.

In general, there are several aspects of the results of this study that have implications for the use of punishment in other applied settings. First, there is some evidence in support of a contrast effect similar to the one reported by White, Nielson, and Johnson (1972). As shown in Figure 1, the 5-token and 5-min condition resulted in a greater frequency of timeouts, as compared to the baseline, whereas the 30-token and 30-min condition produced a comparable suppression. Because the magnitude of the increase and the decrease in timeouts were comparable, the average rate of timeouts across four experimental conditions was almost identical to the baseline condition. The question is, why was there an increase in the frequency of timeouts during the 5-token and 5-min conditions?

One explanation is that the baseline condition involved *both* the 5-token and the 5-min conditions and that the combination of these two had a greater suppressive effect than either condition separately. A second possibility is that when contrasted with a magnitude of 30, the 5-token or 5-min conditions become functionally less suppressive. This particular explanation is supported by the findings of White, Nielson, and Johnson (1972) in which it was found that a 1-min timeout duration had a marked suppressive effect over a no-timeout condition until it was contrasted with a 15- and a 30-min duration whereupon its effect became facilitative rather than suppressive.

If this contrast effect is real, and it would appear that additional research is needed to warrant such a claim, it would suggest that the consistency of a timeout or response cost is more critical than the intensity. It is conceivable that maximum or sufficient suppression can be ob-

[2]This pooling of the data is possible because the design, order, and number of experimental conditions were equivalent for both experiments. The main difference was the response cost for the previous experiment was 0, 5, or 10 as compared to 0 or 30 in the present experiment.

tained with a mildly aversive stimulus as long as a more-aversive condition is not introduced. If it does turn out that a contrast effect does exist, it would be of interest to know how long the effect would persist after the more-intense punishing stimulus had been removed. In other words, does a mildly aversive stimulus recover its suppressive influence after the use of a more aversive stimulus has been discontinued?

A second implication from the present study pertains to the use of a response cost in comparison to temporary isolation in a timeout area. In general, the results indicate that both types of aversive control are similarly suppressive, even when the opportunity to emit a timeout offense is controlled. However, from a practical standpoint, one could point to at least two advantages favoring the use of a response cost. One advantage is that a response cost does not remove the subject from the opportunity to engage in desirable behavior (Sailor, Guess, Rutherford, and Baer, 1968). From that standpoint, any time spent in timeout is wasted time and because a response cost does not remove the subject from the ongoing situation it avoids this particular problem. The second advantage is that by not removing the subject from the ongoing situation, the subject is provided with a more realistic learning situation. He is given the opportunity either to continue to emit the behavior and be punished, or not persist in the undesirable behavior and experience no punishment, or preferably some reinforcement. By placing the subject in timeout and not giving him the opportunity to make such a decision, the control becomes more artificial. The individual who places the subject in timeout has made the decision for the subject and by the time the subject returns, the provocative aspects of the situation are apt to have diminished. This distinction between allowing the subject the opportunity to control his own behavior and removing the opportunity to engage in additional unacceptable behavior is analogous to what others refer to as internal *versus* external control (Aronfreed, 1968; Rotter, 1966).

On the other hand, a possible disadvantage exists with the response-cost procedure if the individual is unable or unwilling to suppress the behavior under question. Occasionally, there are instances in intense emotional situations where the accumulation of the response cost is temporarily reinforcing. Frequently in such situations, individuals will make such verbal responses as "Go ahead and charge me 1000 tokens, I could care less", while actively engaging in behavior in an effort to obtain an additional response cost. Obviously if such behavior does result in the accumulation of a large response cost, it might create an untenable situation as soon as the individual recovers from the immediate crisis. Therefore, in some instances, isolating the individual from the immediate situation, and thereby giving both he and the staff an opportunity to "cool off", could be a desirable procedure. An important, unanswered question in this regard is whether or not it is essential for the individual to be isolated in addition to being removed from the ongoing situation. It is conceivable that merely requiring the individual to go from one location to another (*i.e.,* from the day room of the dormitory or TV room) might prove to be equally suppressive. A study is being conducted to compare these alternatives.

An additional problem with a response cost is that if the response cost is only minimal, it may have little effect upon the subject, whereupon placing him back into the same situation only leads to further timeouts. While it is expected that the subject would eventually control his behavior, there is some indication (Figure 5) that the acting out might intensify.

In selecting the methodology for this study several issues were considered. The main concern pertained to developing a system that would yield reliable data. This in turn required consideration of the response class. Basically, we found that antisocial behaviors occurred in each subject with a fairly consistent rate across time. That is, before this study, the daily frequency of timeouts per subject did not change considerably from day to day. What did change unpredictably

was the time of occurrence of each antisocial incident. This type of event, one that may often occur only once or twice per day, obliterates the use of traditional procedures of obtaining reliable recordings (*e.g.,* time-sampling systems). Thus, in order to obtain a direct measure of the reliability of the data it would have been necessary to restrict the study in terms of time and place. That is, it would not have been possible to observe reliably either the staff or the residents on a continuous, 24-hr basis. With 12 to 15 boys and 3 to 4 staff frequently on the move within and between four large rooms and the outdoors, such observation did not seem feasible. On the other hand, we felt that to restrict the study to a specific activity (*i.e.,* during mealtime) would have given us an artificial picture. Under such conditions, both the staff and the residents are apt to know they are being observed (unless there are adjoining rooms with one way mirrors or closed-circuit TV, *etc.,* which in this case there was not) and therefore respond differently than they did in other situations. Also, it is conceivable that the effects of timeout or response cost during mealtime are different than their effects in other situations. Informal spot-checks were carried out during mealtimes, when all the subjects and most of the staff were together in a single location. The data collected from these short periods of observation constituted, however, too small a number of observations to make any meaningful statements about the reliability of either administering and/or of recording all punitive episodes.

The present methodology not only controlled for any staff bias in the administration of timeout and response cost but it was also arranged so that any uncontrolled temporal variables would have a constant effect across all four experimental conditions. Therefore, it is regarded as a viable research methodology for similar applied settings involving a group of subjects.

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