

*SOME EXPERIMENTS ON REINFORCEMENT PRINCIPLES
WITHIN A PSYCHIATRIC WARD FOR
DELINQUENT SOLDIERS¹*

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Several experiments exploring the effects of certain behavioral procedures were performed on a psychiatric ward for delinquent soldiers. Within the context of a point economy, the behavioral procedures were examined for their applicability to this patient group in a hospital-ward setting. The following procedures were studied: (1) use of points as consequences for specific behaviors compared with demonstration of "model" behavior by a ward officer; (2) punishment by a point-fine to control undesired behavior; (3) use of a chaining-type reinforcement contingency to increase desired behavior; (4) differential reinforcement of the individual *versus* the group to increase the frequency of a verbal performance; and (5) reinforcement of reports of personal problems *versus* impersonal problems.

A psychiatric ward for delinquent soldiers was the setting for several experiments exploring the application of procedures derived from operant conditioning research. The ward, its patients, and the general ward procedures are described more fully in other papers (Colman and Baker, 1969; Colman and Boren, 1969; and Ellsworth and Colman, *in press*). Briefly, the ward was established to treat soldiers who had been diagnosed by two Army psychiatrists as having character and behavior disorders. Many studies have described the poor response of this patient group to conventional ward treatment (see Quitkin and Klein, 1967). Most of the patients had records of repeated AWOL (absences without leave), and their past histories often included dropping out of high school, convictions for minor crimes, suicide gestures, and difficulty with parents, principals, police, and Army officers. In terms of their age, social class, and record of difficulty with authorities, this patient group was quite similar to delinquents previously studied in behavioral programs by Burchard and Tyler (1965), Cohen (1967), and others. In an effort

to work effectively with this difficult group, a point economy was established whereby the soldiers were awarded points for certain appropriate social behaviors. These behaviors included attending educational classes, dressing neatly, carrying out work projects, delivering verbal reports, *etc.* The soldiers could then exchange the points for a variety of privileges, such as semi-private rooms, free coffee, access to a television set, pool room privileges, and weekend passes. The number of soldiers varied from time to time, as a man was assigned to or transferred from the ward, but, the ward census was usually maintained at 12 to 15 men.

The research was aimed partly at exploring the efficient application of certain behavioral procedures to a hospital ward of character- and behavior-disorder patients, partly at generating experimental evidence convincing to the ward staff and to administrators that the behavioral procedures could be effective on this difficult patient population, and partly at elucidating the reactions of this special patient group to the various procedures. Within the context of the ward system, experiments were performed to examine the following procedures: (1) use of points as consequences (reinforcements) for specified behaviors compared with demonstration of "model" behavior by a ward officer (a psychiatric resident); (2) punishment of undesired behavior by a point fine; (3) use of a chaining-type reinforcement contingency to increase desired behavior; (4) differential reinforcement of the individual speaker *versus* reporting the group to

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increase the frequency of verbal reports; and (5) reinforcement of reports of personal problems *versus* impersonal problems. These experiments and the results are described along with some applications of derived principles to the ward program.

EXPERIMENT I²

A half-mile run was part of the ward's program of activities. This behavior was studied in Exp. I for several reasons. From the viewpoint of the Army's emphasis upon physical fitness, the behavior had practical implications. From an experimental viewpoint, the run could be objectively measured, and it usually had a straightforward past history that would not conflict with current variables. Finally, from the viewpoint of initiating research in a clinical setting, running had little medical significance and therefore could be readily manipulated without touching upon hospital policy.

In Exp. I, the first variable studied was the number of points awarded to each man for completing the run. The run took place at about 7:00 A.M. just after reveille and the morning formation (the men stood in line for a minute or two while a ward technician recorded their names). Then the technician announced: "Those who want to make the run, take off." At the same time he pressed a stopwatch. Each man who completed the run within 5 min was awarded points.

At first, four points were given to each man completing the run (Condition A in Fig. 1). Then, 20 points were given (Condition B).³ The effect of this point manipulation is shown in Fig. 1 in terms of the percentage of men running. With four points, the percentages were quite small. On nine of 14 occasions there were no runners. With 20 points, a considerably larger percentage of the men participated. On only one of nine occasions did the men fail to run. The results in Fig. 1 indicated that 20 points in contrast to four points constituted a more effective reinforcement sup-

porting a moderate but substantial frequency of running behavior. The results of this first experiment seemed valuable not only in indicating how to improve participation in a ward activity but also in convincing the ward staff that "points work".

Under the next experimental condition, the ward's psychiatric resident (an Army captain) participated in the run with the men. The resident was a "pure model" in the sense that he neither gave nor offered any reinforcement for the running behavior of the men who accompanied him on the run. The experimental question was whether the model provided by the ward officer would increase the frequency of running. The answer is shown in Fig. 1 under "Condition C". The frequency of running was unchanged by the model. This conclusion was confirmed when the officer (Dr. Rumbaugh) stopped running (a return to Condition B), and no change was observed. The conclusion concerning modeling was deemed sufficiently important that a replication was performed two months later. At this time, 30 points were awarded to each man making the run (Condition D). When Rumbaugh again ran to provide a model (Condition E in Fig. 1), the percentage of men running was not changed. To be sure that some small effect was not being missed because the baseline running was too strongly maintained by 30 points, the points were lowered to five (Condition F). As a result, after one session, the percentage of men running dropped to zero, even though the model was still demonstrating. When the modeling was discontinued (Condition G) there was again no change. This replication confirmed the conclusion that this type of modeling by a ward officer had no effect on the men's frequency of running. In comparison, the number of points awarded had a major effect.

These negative results from modeling must be considered in view of several facts unique to this situation: (1) alternative activities were available for earning points; (2) the model was an authority figure (a doctor and an Army officer); and (3) the patient group had an intricate past history of difficulties with authority figures. Previous research on generalized imitation by Baer and Sherman (1964), Baer, Peterson, and Sherman (1967), and Peterson (1968) has shown that reinforcement can play a critical role in establishing and maintaining imitative behavior. In addition,

²We gratefully acknowledge the participation of Dr. James Rumbaugh in the design and execution of this experiment.

³The value of the points may be estimated by considering that a man who was actively participating in the ward program might earn and spend 100 to 150 points a day.

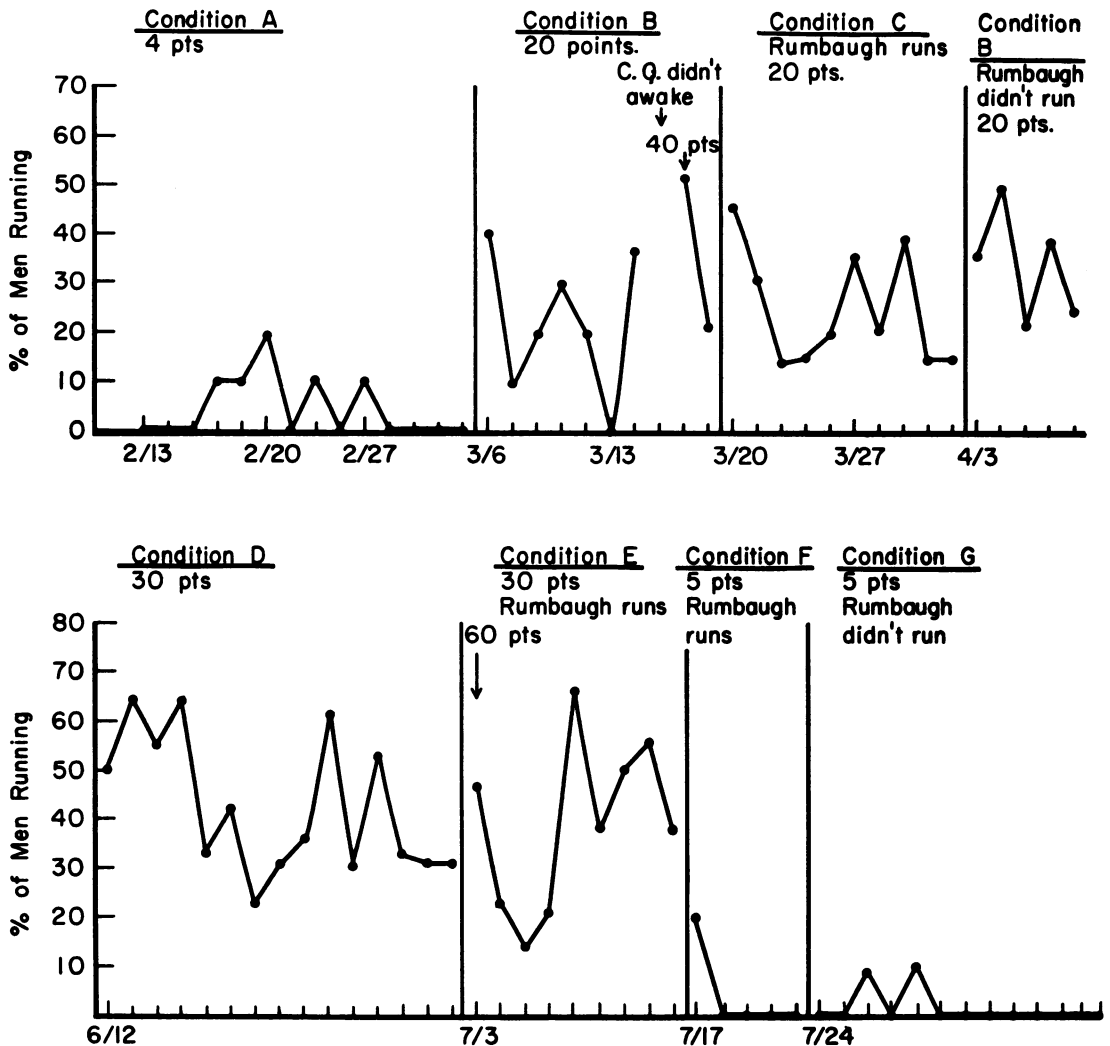


Fig. 1. Changes in the percentage of men participating in the run as a result of point manipulations and of a model (Dr. Rumbaugh). On 3/15 under Condition B the C.Q. failed to awake the men for the morning run, so a data point is missing for this date. The following day, 40 points were awarded for the run.

certain imitative behaviors, though never reinforced directly, can be maintained by being interspersed among other reinforced imitations. On the ward, however, there was no deliberate procedure for differentially reinforcing patients if they modeled their behavior after the ward officer. Furthermore, the patients' special past history of aversive control from authority figures made the probability of imitation even more unlikely.

On several occasions, the senior ward staff questioned the above finding that awarding points was a much more effective procedure than providing a model. Each new psychiatric resident attempted to demonstrate that his

presence and his "model" could generate attendance in the patient group without the use of points. For example, one resident gave a course that he attended and which he "advertised" (by announcements and posted notices) widely but for which no points were paid. A few men attended the first session, but none attended thereafter. Other staff members made similarly unsuccessful attempts. Such observations combined with the data of Exp. 1 had a major impact on ward procedures and showed that the mere presence of a senior staff member seemed to have little effect on attendance at an activity in comparison to points.

EXPERIMENT II

Attendance at the 8:00 A.M. unit meeting was the target behavior of this experiment. The purpose of the meeting was to review point totals, make announcements, plan the day's activities, etc. Even though the meeting was important (at least for the staff) and even though 20 points were given for attendance (Condition A in Fig. 2), sometimes 30% of the men would fail to attend. Some of the absentees were observed to be sleeping. This situation was the occasion for an experiment on punishment. A 10-point fine was levied on each man who stayed in bed instead of attending an activity (Condition B). The first contingency was imposed for one week (Monday through Friday.)

The baseline attendance before the punishment procedure is shown in Fig. 2. The per cent attendance for the prior two weeks varied between 70% and 100%. Then on Feb. 13, when the fine was levied, the attendance decreased to 50%. The next day attendance dropped to zero, for the first time in the ward's history. All of the men were found to be in bed. As shown in Fig. 2, attendance recovered somewhat during the last three days of the week, although not to the original baseline level.

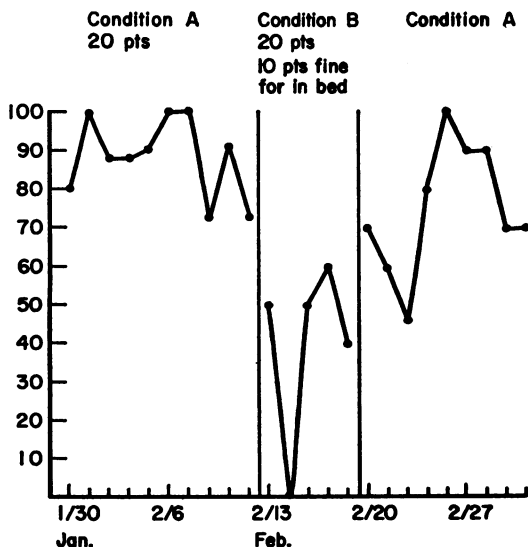


Fig. 2. Changes in the percentage of patients attending the unit meeting as a function of (A) a 20-point award or (B) a 20-point award, plus a 10-point fine for staying in bed.

During the week that the punishment procedure was scheduled, other aspects of the men's behavior were reported to change. On the first day, certain men were overheard whispering, "Rebellion", and ordering the other men to get back into bed. Over the week, rule infractions and fighting among the men seemed to increase. Four men went AWOL whereas none were AWOL the previous week. These events were sufficiently aversive to the ward staff to justify terminating the experiment. Therefore, as shown in Fig. 2, Condition A was reinstated at the end of the first week. The ensuing increase in per cent participation at the unit meeting over the next two weeks was accompanied by a reduction in rule infractions, fighting, and AWOLs. Because the punishment contingency was lifted after one week, it is not known whether the adverse effect might have gradually disappeared. In any case, the initial effect of punishment was sharply to reduce attendance at the unit meeting, an outcome contrary to the intended result.

The results of this experiment appear to be at odds with reports of the effective use of punishment in other settings (Azrin and Holz, 1966; Risley, 1968; Lovaas, Schaeffer, and Simmons, 1965; Phillips, 1968). Part of the discrepancy was that this experiment was concerned only with the early effects of punishment. Other special characteristics of the present setting were: (1) the ward had unlocked doors so that men could easily leave if the aversiveness were great enough. (2) The patients were strong, aggressive young men who could physically damage staff members and each other. (3) These patients reportedly had past histories of destructive behavior in response to aversive control. Thus, working with physically mature and aggressive individuals in this open setting decreased the possible utility of punishment.

EXPERIMENT III

An alternative procedure for increasing attendance at the unit meeting was tried five months later. By this time the percentage of men participating in the meeting for 20 points was often less than 40% (see Fig. 3). One simple solution to this problem might have been to make the point award substantially larger. Though it had an excellent chance of success

(as found in Exp. I), this simple solution had the disadvantage of putting more points into an already inflated point economy. Many of the men earned enough points from participating in part of the available activities that they could buy a great many reinforcers. This inflation was believed to be one factor contributing to the low attendance at unit meeting. Therefore, the procedure of choice was a positive reinforcement technique that would add no more points to the economy. The technique selected was analogous to a chained schedule of reinforcement (Ferster and Skinner, 1957) where the behavior of an organism must meet the requirements of first one schedule and then of a second schedule in order to be reinforced. Within the context of the ward, the chaining required that the men must attend the unit meeting in order to receive points for any other activity during the day. The effect of this procedure on the per cent participation may be seen in Fig. 3. Within the first week, the participation increased to a median of 63%, compared to a median of 38% for the previous week. The attendance continued to rise until the median of the last week shown in Fig. 4 was 87%. Since the data points in Fig. 3 for the chaining condition overlap with only one data point for the previous condition, it is clear that the chaining technique increased attendance at the unit meeting with considerable reliability and without any increase in the points offered.

The character- and behavior-disorder patient is often described as "undependable, seeking immediate gratification, and unable to sustain interest and performance for normal periods of time." Therefore, the chaining

technique was particularly appropriate for this patient group because it provided reinforcement for a sustained and consistent behavioral sequence. The chaining technique and other higher order schedules of reinforcement (Kelleher, 1966) have been applied in a number of ward activities. For example, to receive points for attending the education course the men must also attend the verbal report (where the course was reported upon). This was a simple chaining procedure. A slightly more complicated version was to offer 15 bonus points to any soldier who participated in inspection, the morning formation, and the unit meeting. The 15-point bonus provided extra reinforcement for consistent and sustained performance over a morning. A third example of a higher-order reinforcement schedule required consistent performance over a five-week period. Each man was required to earn at least 700 points per week for five weeks in order to receive an extra day of leave on a holiday weekend. Such a schedule served to reinforce consistent, long-term behavior in a type of man for whom such behavior is unusual.

EXPERIMENT IV⁴

This experiment involved an activity called the "verbal report". In this activity, patients were offered points for delivering a short speech about the preceding activity, usually an educational course. Since the therapeutic aim of the activity was to develop verbal fluency and to teach the patients to deliver a report, it was important to let every man have a chance to speak. We discovered early in the ward's history that if points were simply awarded to any speaker, one or two "spokesmen" made all the reports (and collected all the points). Therefore, to encourage more patients to give reports, a more complex reinforcement contingency was necessary.

This problem gave us the opportunity to deal with a social variable that we recognize as having considerable influence in the patient group but which we had not previously submitted to experimental study. This variable involved a variety of social reinforcements

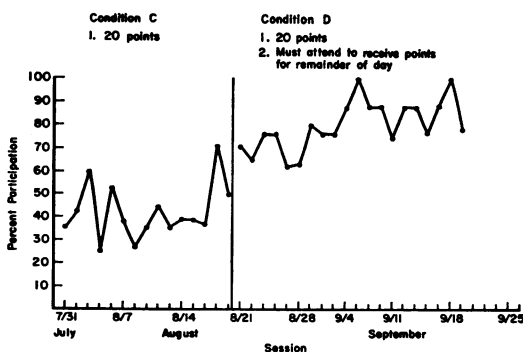


Fig. 3. The per cent participation at the unit meeting as a function of a chaining procedure (Condition D).

⁴The authors are indebted to Dr. Marvin Firestone for his participation in the design and execution of this experiment.

(comments, attention, jibes, threats, *etc.*) which the men administered to each other and which are often summarized under the term "group pressure". The focus of Exp. IV was to arrange a group of reinforcement contingency utilizing group pressure and to compare it with an individual contingency. The object of both was to increase the frequency of first speakers. "First speaker" was defined as a man giving a report for the first time in a given week. A maximum of three first speakers was permitted per day.

The *group contingency* was arranged so that each listener received points depending on the number of first speakers. On any given day, each listener was given 25 points for three first speakers, 15 points for two first speakers, 10 points for one first speaker and five points if no one spoke. Each speaker, however, was awarded only five points. Thus, while the group stood to gain a great many points if first speakers could be found, any individual who spoke forfeited points. Maximum points for all could be obtained if the group members agreed to speak an equal number of times. The *individual contingency* was arranged simply to award a large number of points to each individual for his first report of the week. Each listener was awarded five points, as were men who spoke more than once during a week.

The number of points for the speaker was calculated so that the maximum points available (in case all patients spoke) was the same as under the group contingency. With 12 patients, and a maximum of three first speakers a day, the calculation in round numbers worked out to be 70 points for each first speaker. Five points were given to each member of the audience. In terms of the overall point economy, the group and the individual contingencies offered the same total number of points in case of maximum first speakers. It should be noted that group *versus* individual systems can be arranged in a great many ways, so the two contingencies selected for study were drawn from a much larger number of possibilities.

As the experiment progressed, it was found that the number of points actually awarded was greater for the individual condition than for the original group condition. Therefore, a modified group contingency was arranged so that approximately the same number of points or greater would be *actually awarded*—in con-

trast to the original group contingency by which the same number of points were *offered*. Based on a conservative estimate of two-thirds participation, the point awards to the listener were increased to the following: for three first speakers, 35 points; for two first speakers, 20 points; for one first speaker, 15 points. As before, the audience received five points in the case of no speakers and the speaker received only five points for speaking.

The experimental conditions were scheduled in the following order: (1) the original group contingency; (2) the individual contingency, and (3) the modified group contingency. All conditions were scheduled for four weeks each, but due to a holiday, data for the individual contingency could be used for only three full weeks.

The results may be seen in Fig. 4 where the percentage of possible first speakers is shown week by week. For the first four weeks, the group contingency maintained first speakers at an average level of 65% of maximum. During the fifth to seventh weeks, however, the individual contingency raised the performance to an average of 90%. Finally, during the eighth to eleventh weeks, the modified group contingency held the percentage of possible first speakers at the former level for one week and then progressively reduced the level to 40%. The overall average was 67%. The actual number of points awarded by the modified group contingency was larger the first week than anticipated. In spite of this, the percentage of possible first speakers decreased the next two weeks. Although the points awarded for the second and third weeks were approximately the same as for the prior individual contingency, the fourth week showed a sharp decrease in first speakers. The data in Fig. 4 indicate that the individual contingency was reliably more effective than the group contingency, when either the total available points or the points awarded were equalized.

A formal roster assigning each man a day to speak, which would have been the most efficient long-term arrangement for the group contingency, was never made. Instead, the men attempted to coerce someone to speak at the time of the meeting. The coercion took the form of verbal demands that first one then another patient should speak, with the demands being accompanied by threats. In other words a failure to arrange a cooperative group

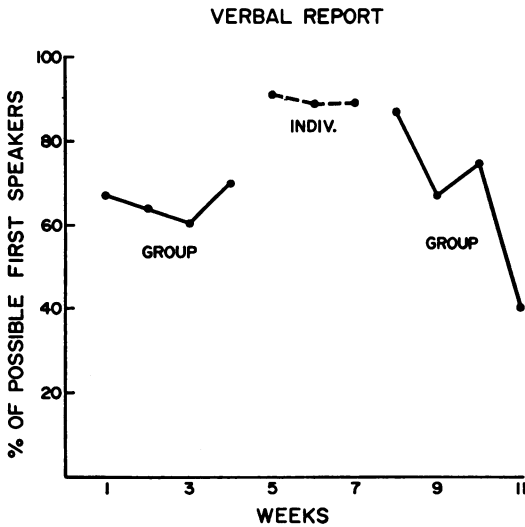


Fig. 4. The effect of a group *versus* an individual reinforcement contingency upon the percentage of first speakers giving a verbal report.

procedure by these men apparently created an occasion for group pressure utilizing aversive control among the members. In support of this analysis were the many patients who complained to staff about the group contingency, stating a strong preference for the individual contingency.

The aversive nature of the group contingency can be clarified by a step-by-step analysis of the procedure. Consider the situation when the group sits around the table awaiting the first speaker. As each man inspects his prospects for points, he will see that getting someone else to speak will net him 10 points; if he speaks himself, he will net only five points. Then consider the situation following one previous speaker. Each man now already has a sure 10 points; but if he rises to speak, his point earnings will drop to five points. On a short-term basis, then, the group contingency favors the man who refuses to speak, even though over a longer time period this reaction results in a much lower payoff for all group members. In addition, it fosters the condition where aversive control is required to generate speakers.

EXPERIMENT V⁵

The final experiment was conducted within a course about personal behavioral problems taught by the ward psychiatric resident. After

a lecture about an interpersonal situation (derived from Eric Berne's *Games People Play*), the instructor asked the patients to write a description of a personal problem on a sheet of paper. After reading the description (and without mentioning the submitter's name), the resident would then discuss with the patients an analysis of that problem, alternative solutions, *etc.* Unfortunately, a common clinical observation of patients with character and behavior disorders is an unwillingness to admit or discuss personal problems. Under the conditions of this course, a large percentage of the problems submitted were trivial or about a "friend" or occurred in the distant past, *etc.* In this way, the therapeutic aim of the course (to describe, analyze, and consider solutions to personal problems of individual patients) was being evaded at the first step.

The purpose of the experiment was to compare two methods of shifting the content of the patients' descriptions toward current, personal problems. The problems submitted for discussion could be classified into three types. (1) "Displaced" type, where the problem happened to someone else (usually at some other place and at some remote time). (2) "Personal" type, where the problem happened to the patient but at some other place or at a remote time. (3) "Here and Now" type, where the problem was the patient's and had occurred on the ward recently. As an indication of the objectivity of the categories, two psychiatrists other than the instructor, independently classified a set of 83 problem descriptions and were in agreement on 95% of the descriptions. On a number of occasions, the instructor carefully described the above categories and requested that the patients submit problems that were "Personal" or "Here and Now". Ward technicians provided examples, so that the patients had considerable information about the type of problem that was most acceptable.

The experiment consisted of comparing two methods of increasing the percentage of "Personal" and "Here and Now" problems. The first method consisted of the instructor making verbal requests and approving comments after reading "Personal" or "Here and Now" prob-

⁵Dr. Marvin Firestone was the instructor of the course that provided the subject matter of Exp. V, and he should be credited with much of the design, execution, and analysis of this experiment.

lems. This method will be referred to as the "Social Reinforcement" method. Data on this method were collected for six weeks (one class per week). Ten points were given to each man attending the class. The second method added to the first different point awards for the different types of problems described. Patients submitting "Here and Now" problems were awarded 10 points, "Personal" problems seven points, and "Displaced" problems five points. This method will be referred to as the "Point Reinforcement" method. Data on this method were collected for four weeks. Five points were given to each man attending the class.

The results of the two methods are shown in Fig. 5. The percentage of problem descriptions falling into each category are illustrated for the two methods. The percentages are based upon 52 problems submitted during the six weeks of the social-reinforcement condition and 31 problems submitted during the four weeks of the point-reinforcement condition. With the social-reinforcement method, 25% of the problems fell into the "Here and Now" and the "Personal" categories, whereas 75% were in the "Displaced" category. With the point-reinforcement method, the two preferred categories totaled 65%, leaving 35% in the "Displaced" category. Thus, in comparison to the social-reinforcement condition, the patients described substantially more "Here and Now" and "Personal" problems under the point-reinforcement condition.

A straightforward interpretation of these results is that points differentially reinforced the preferred problem types more effectively than the verbal approval of a psychiatric resident. However, some caution must be exercised in drawing a conclusion. For one thing, it is possible that simply the time the patients spent in the course could have contributed to the outcome (since the experimental conditions were not reversed a second time). Another question arises as to why the small differential point award among the three classes of problems could cause the rather large effects shown in Fig. 5. A favored explanation rests upon the tendency of the patient group to ridicule those members who complied with the requests of authority figures or who admitted to personal problems. Working for points (like working for money), however, was an acceptable behavior not subject to ridicule by the patient group. Therefore, the proce-

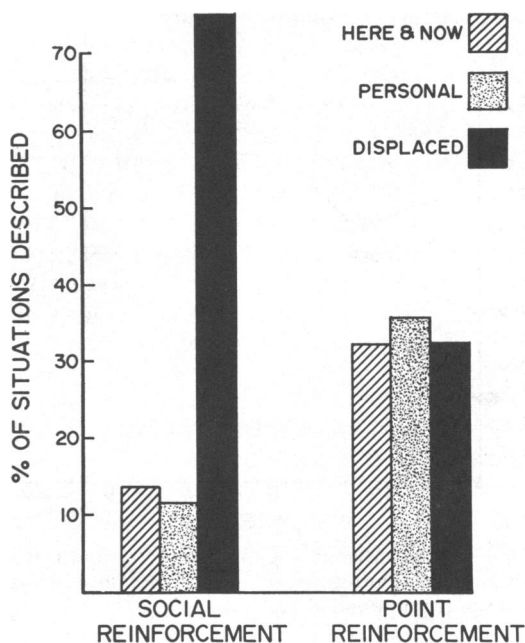


Fig. 5. Changes in the class of problem situations described as a function of a social-reinforcement condition *versus* a point-reinforcement condition.

cedure of offering points for describing personal problems could have been effective not only because of the reinforcing effect of the points but also because the threat of aversive control had been removed.

DISCUSSION

Early in the ward's history, we, in agreement with administrators and staff, chose to do experimental work only with behaviors where no harm could be done. Therefore, the first experiment was done with the behavior of running a half-mile. As a result, variables that increased or decreased the behavior could be readily manipulated, thereby yielding valuable information for application in other parts of the ward program. Later, partly resulting from prior successful experiments, it was possible to work with more psychiatrically important behaviors, such as describing current personal problems. As might be expected, the change to other behaviors did not diminish the applicability of the behavioral procedures.

The results from the five experiments lead us to conclude that certain behavioral procedures can be effectively applied to change the behavior of delinquent soldiers. The proce-

dures of positive reinforcement, differential reinforcement, and reinforcement schedules were used with demonstrable results. While the general effectiveness of these procedures in the laboratory is well established, it is probable that some of our findings are closely tied not only to the ward environment but also to the characteristics of the patients and their past histories. Their reaction to punishment (Exp. II), for example, may well be related to the patients' past history of counter-aggression. At the same time, the particular reactions of this patient group were instructive. It was interesting to note in Exp. IV that the patients did not organize cooperatively a formal roster assigning each man a time to give a verbal report, even though this cooperative arrangement would have maximized point earnings for the entire group over the long term. Instead, individual patients resorted to immediate verbal demands to generate speakers. It was also interesting to note (in Exp. I) that these patients did not follow a model provided by a psychiatrist, who was also a ward officer. The patients' past history of difficulty with parents, principals, Army officers, and other authority figures may well be relevant.

REFERENCES

- Azrin, N. H. and Holz, W. C. Punishment. In W. K. Honig (Ed.), *Operant behavior: areas of research and application*. New York: Appleton-Century-Crofts, 1966. Pp. 213-270.
- Baer, D. M., Peterson, R. F., and Sherman, J. A. The development of imitation by reinforcing behavioral similarity to a model. *Journal of the Experimental Analysis of Behavior*, 1967, 10, 405-416.
- Baer, D. M. and Sherman, J. A. Reinforcement control of generalized imitation in young children. *Journal of Experimental Child Psychology*, 1964, 1, 37-49.
- Burchard, J. D. and Tyler, V. O. The modification of delinquent behavior through operant conditioning. *Behavior Research and Therapy*, 1965, 2, 245-250.
- Cohen, H. L. Educational therapy. *Arena*, 1967, 82, 220-225.
- Colman, A. D. and Baker, S. L. Jr. Utilization of an operant conditioning model for the treatment of character and behavior disorders in a military setting. *American Journal of Psychiatry*, 1969, 125, 1395-1403.
- Colman, A. D. and Boren, J. J. An information system for measuring patient behavior and its use by staff. *Journal of Applied Behavior Analysis*, 1969, 2, 207-214.
- Ellsworth, P. D. and Colman, A. D. The application of operant conditioning principles to work group experience in the treatment of character and behavior disorders. *American Journal of Occupational Therapy*, in press.
- Ferster, C. B. and Skinner, B. F. *Schedules of reinforcement*. New York: Appleton-Century-Crofts, 1957.
- Kelleher, R. T. Conditioned reinforcement in second order schedules. *Journal of the Experimental Analysis of Behavior*, 1966, 9, 475-485.
- Lovaas, O. I., Schaeffer, B., and Simmons, J. Q. Building social behavior in autistic children by use of electric shock. *Journal of Experimental Research in Personality*, 1965, 1, 99-109.
- Peterson, R. F. Some experiments on the organization of a class of imitative behaviors. *Journal of Applied Behavior Analysis*, 1968, 1, 225-235.
- Phillips, E. L. Achievement place: token reinforcement procedures in a home-style rehabilitation setting for "pre-delinquent" boys. *Journal of Applied Behavior Analysis*, 1968, 1, 213-223.
- Quitkin, F. M. and Klein, D. F. Follow-up of treatment failure: psychosis and character disorder. *American Journal of Psychiatry*, 1967, 124, 499-505.
- Risley, T. R. The effects and side effects of punishing the autistic behaviors of a deviant child. *Journal of Applied Behavior Analysis*, 1968, 1, 21-34.

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