MOTIVATING STAFF PERFORMANCE IN AN OPERANT LEARNING PROGRAM FOR CHILDREN

DALE A. POMMER AND DARLENE STREEDBECK¹

CHILDREN'S UNIT, PROBLEMS-IN-LIVING CENTER

Staff performance in a residential child-treatment facility was measured by counting the number of jobs completed and number of new procedures implemented within one week of their assignment. Public notices were posted listing each staff member's duties and new procedures to be implemented during the week. The notices produced an immediate increase in performance levels, which quickly tapered off. Staff members were then given tokens worth \$1.00 each for performing jobs and implementing procedures within one week of assignment. The tokens regained and sustained high levels of performance when used in conjunction with the public notices. The use of public notices alone and tokens alone maintained better performance than baseline levels, but neither was as effective in starting and maintaining high-performance levels as was the combined use of the two.

Behavioral programs have been used to reinforce the appropriate behavior of clients, such as couples receiving marriage counselling (Knox, 1971; Stuart, 1969), juvenile delinquents (Stuart, 1971a; Tharp and Wetzel, 1969), and hospital patients (Ayllon and Azrin, 1968); but programs for reinforcing the behavior of staff members of treatment facilities for carrying out behavioral programs with clients has received little investigative attention. One of the earliest studies dealing with staff training and performance (Davison, 1965) centered on the training of inexperienced undergraduate students in preparation for working with autistic children in a day-care facility. Subsequent studies have dealt with the staffs of much larger institutions and have used procedures for increasing staff output and quality of performance, such as individual training (Bricker, Morgan, and Grabowski, 1972), feedback (Bricker *et al.*, 1972), salary increases,

vacation time preference, holiday preference, work-shift preference (Ayllon and Azrin, 1968), achievement plaques (Watson, Gardner, and Sanders, 1971), and time off from work. The present study used both instructional antecedents and monetary rewards to determine whether or not they had differential effects on job performance.

METHOD

Subjects

Nine house parents of the Children's Unit of the Problems-In-Living Center, a small (six children) residential facility for children with severely maladaptive behaviors, served as subjects. The children in the program showed a wide range of maladaptive behaviors, such as severe temper tantrums, excessive activity, aggression toward other children, lack of speech, lack of self-help skills such as dressing, feeding, and toileting, seemingly pointless wandering about the room, gazing at lights, and much self-stimulatory behavior such as masturbation, head-banging, and mouthing of all sorts of objects (see Foxx and Azrin, 1973). The Children's Unit was set up to operate as much as possible like a family. The staff members were

¹The authors express appreciation to Dr. Robert B. Hughes, director of the Problems-In-Living Center for his cooperation. Thanks also to the South Dakota Division of Mental Health and Mental Retardation, which funds the operation of the Children's Unit. Reprints may be obtained from either author at Problems-In-Living Center, 2000 South Summit, Sioux Falls, South Dakota 57105.

responsible for running the Unit like a household: buying groceries, cooking meals, buying clothes, keeping furniture in good repair, and structuring the days' time for the children with activities such as putting together puzzles, going roller skating, going swimming, coloring, pasting, and other activities that preschoolers engage in. All staff members had received training in behavioral principles and their application.

Measures

Each Wednesday at staff meetings, jobs to be done and specific procedures for each child were discussed for the upcoming week. (See Table I for examples of jobs and procedures.) Performance of jobs was checked a week later to find out which had been finished. For instance, if one of the jobs was to fix a toaster, the toaster was checked to see if it worked. Implementation of procedures was measured by watching through one-way mirrors in the playroom at a specific time each morning or dropping in at the Unit at unexpected (randomized) times and

observing staff members at work. If a procedure consisted, for example, of putting a child on the potty chair every 3 hr, random spot checks were made to find out if the child was, in fact, being put on the potty chair at the scheduled times.

Reliability was checked on the job completion aspect of the study by periodically having the junior author check independently to see if jobs had been completed. For the implementation of procedures, the senior author made the observations both through the one-way glass in the playroom and by dropping in at the Children's Unit at random times to see if procedures were being carried out. Periodically, another staff member was asked to check independently, but at the same time, on implementation. Reliability checks are indicated on the graph by an arrow. Agreement was computed by going through the lists of jobs and procedures one by one and computing the per cent of times both observers marked a job or procedure the same way; *i.e.*, either done or not done.

Procedure

Two variables were manipulated. The first, instructional antecedents (Stuart, 1971*b*, pp. 194-5), consisted of posting charts on a bulletin board itemizing each staff member's special duties. Not only did this assure that all staff had an opportunity to read it, but its itemized format assured that everyone would know who was responsible for those jobs that were or were not being done. A second chart was also posted listing all procedural changes for each of the children.

The second variable was reinforcement of staff performance. When a special job was assigned to one of the staff members, he (she) was instructed to fill out a job slip. When the job was completed, this slip was initialled by the supervisor and given back to the child-care worker as a token signifying job completion. These tokens could be turned in at the end of the month for \$1.00 each. Job slips could also be filled out when a worker began a new procedure with one of the children.

Table 1

<i>Sample Procedures</i>
1. Give John allergy medicine t.i.d. beginning Thursday.
2. George's boots should be removed from his bedroom every night.
3. Begin Friday teaching Anne hand-washing using steps outlined in training manual.
4. Collect baseline data on Don's aggressions toward younger children between 3:00 and 5:00 each afternoon.
5. When Don wets his pants, send him to his room to change them with no further interaction until he returns.
6. Julie must make a sound before anyone picks her up.
<i>Sample Jobs</i>
1. Clean the dishwasher.
2. Get toaster repaired.
3. Buy new shoes for Jane.
4. Get two new belts for the children.
5. Make arrangements for Peter to go to be picked up from nursery school.
6. Obtain I.D. bracelets for the children.

After baseline data were gathered for three weeks, the public-notice procedure was instituted for six weeks. Job slips were then made available for six weeks, along with the public notices. The third procedure consisted of stopping the use of the public notices while continuing giving job slips for six weeks. The job slips were then discontinued for three weeks in a return to baseline conditions. The final phase consisted of reinstituting the use of both public notices and job slips.

RESULTS

Reliability throughout all phases was 100%. The results are shown in Figure 1. Each data point is composed of performance on between six and 15 jobs and procedures and between three and six staff members. Baseline recordings indicated that staff performed an average of 42% of assigned jobs and instituted 40% of planned procedures within one week after the decision to begin had been made.

The implementation of public notice resulted in immediate improvements in staff performance; however, these effects decreased consistently in the last half of the period in which this procedure was used. The average percentage of completed jobs increased to 77% during this procedure; however, the average per cent over the first three weeks of the procedure was 86%, dropping to 64% during the second three weeks. Likewise, the percentage of treatment procedures implemented increased to 77%, but showed the same downward trend, the average for the first three weeks being 84% while that for the final three weeks was 67%.

Addition of job slips slightly improved performance of assigned jobs to 88% and implementation of new procedures to 80%. However, there was an upward trend in terms of three-week averages, from 86% to 90% job completion, and from 65% to 85% of new procedures implemented.

The use of job slips alone correlated with a decrease in staff performance from the previous

condition of both job slips and public notices. The percentage of assigned jobs performed dropped to 79% and the percentage of procedures implemented decreased to 77%.

During the three-week reversal, performance in all three areas dropped, but did not return to baseline levels. The percentage of assigned jobs performed dropped to an average of 58% and exhibited a downward trend. The percentage of correctly implemented treatment procedures dropped to an average of 56%.

Reinstating both the public notices and job slips increased staff performance to its highest

Fig. 1. Percentage of assigned jobs and new procedures performed within one week of assignment for each week during the conditions of baseline (B), public notice (PN), job slips (JS), public notice and job slips together (PN + JS), and reversal (R). Reliability checks are indicated by arrows. The number of staff assigned jobs or responsible for implementing procedures during reliability checks is given by the numbers at the top of the graph. The number of jobs or procedures involved is given by the number in parentheses directly below the number of staff involved.

levels. The percentage of assigned jobs completed within one week increased to 93%, its highest average throughout the study, and remained stable with no definite upward or downward trend. The percentage of treatment procedures implemented also increased to 93%.

DISCUSSION

Within each phase of the study, all staff members had an opportunity to contribute to the data points. Although the data are not broken down individually, high performance by one or two individuals would not have had any large effect on the data points because responsibility for doing jobs and implementing procedures was distributed evenly across the staff members. Because of this even distribution, all staff members had approximately the same number of responsibilities during each phase.

The increase in performance that followed procedure one, posting public notices, could be attributed to several factors. The instructional antecedents to performing the behavior were laid out clearly and specifically, which should have facilitated performance. Panyon, Boozer, and Morris (1970) suggested that the behavior of fellow staff members and supervisors that results from reading the notices may have a reinforcing effect on job performance. It is also possible that jobs were done to avoid being looked down upon for not finishing one's work, since under the new conditions it was publicly obvious who had not done their work. Whatever the reason for the increase, there was not enough reinforcement to maintain the higher levels of performance over time. One can hypothesize that noncompletion of jobs during the job slips only phase was due to the staff members not knowing clearly what they were to do. The instructional antecedents were removed, putting a bigger burden on the reinforcer, since it had also to motivate the workers to find out on their own what their assignments were. Stuart (1971*b*, p. 192) stated: "... the failure of acceptable behaviors to appear is explained

in terms of the insufficiency of the events that would have stimulated them . . ."

The return to baseline conditions with no public notices or job slips produced a large enough drop in performance levels to indicate that the procedures were indeed the motivating factor in job performance. By this time during the study, it is possible that more social reinforcement was being given at staff meetings for completion of jobs and implementation of procedures, and this could account for performance not dropping back to baseline level.

Due to the shortness of experimental periods and the trends that appeared, a definite statement about the relative effectiveness of public notices and token reinforcement would be tenuous, but it appears that using both methods is preferable to one or the other alone. The present data show that operant learning techniques can be applied to child-care workers in treatment programs to increase performance levels.

REFERENCES

- Ayllon, T. and Azrin, N. H. *The token economy*. New York: Appleton-Century-Crofts, 1968.
- Bricker, W. A., Morgan, D. G., and Grabowski, J. G. Development and maintenance of a behavior modification repertoire of cottage attendants through T.V. feedback. *American Journal of Mental Deficiency*, 1972, **77**, 128-136.
- Davison, G. C. The training of undergraduates as social reinforcers for autistic children. In L. P. Ullman and L. Krasner (Eds.), *Case studies in behavior modification*. New York: Holt, Rinehart and Winston, 1965. Pp. 146-148.
- Fox, R. M. and Azrin, N. H. The elimination of autistic self-stimulatory behavior by overcorrection. *Journal of Applied Behavior Analysis*, 1973, **6**, 1-14.
- Knox, D. *Marriage happiness*. Champaign, Ill.: Research Press, 1971.
- Panyon, M., Boozer, H., and Morris, N. Feedback to attendants as a reinforcer for applying operant techniques. *Journal of Applied Behavior Analysis*, 1970, **3**, 1-4.
- Stuart, R. B. Operant-interpersonal treatment for marital discord. *Journal of Consulting and Clinical Psychology*, 1969, **33**, 675-682.
- Stuart, R. B. Behavior contracting within the families of delinquents. *Journal of Behavior Therapy and Experimental Psychiatry*, 1971, **2**, 1-11. (a)

Stuart, R. B. *Trick or treatment*. Champaign, Ill.: Research Press, 1971. (b)

Tharp, R. G. and Wetzel, R. J. *Behavior modification in the natural environment*. New York: Academic Press, 1969.

Watson, L. S., Gardner, J. M., and Sanders, C. Shaping and maintaining behavior modification

skills in staff members in an MR institution: Columbus State Institute behavior modification program. *Mental Retardation*, 1971, 9, 39-42.

Received 20 June 1973.

(Revision requested 12 September 1973.)

(Revision requested 12 November 1973.)

(Final acceptance 30 January 1974.)