

MEASURING CLIENT GAINS FROM
STAFF-IMPLEMENTED PROGRAMS

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Confidence in the adequacy with which staff implement training programs requires an analysis of the impact on the client. In two experiments, measures were devised to reflect this impact. In the first, a measure of the consistency with which clients participated in a toilet-training program revealed their participation to be erratic. Consistent participation occurred after a public display of the consistency of participation was introduced. In Experiment II, detailed measures were devised to reflect the client's performance during the implementation of two physical-therapy programs: range-of-motion and ambulation. Additionally, standardized measures of the benefits that accrued from their participation in these programs were devised. Improvements in both measures were slight and unstable during a condition of immediate feedback (supervisor praise) to staff but substantial improvements were obtained with the addition of a public display of the client's performance.

DESCRIPTORS: program implementation, staff: training, management, feedback, workshops; management, physical therapy training, retardates

The task of delivering behavior training services to retarded clients in institutions has provoked an extensive amount of research. At least two facets of this research are discernible: program development and program implementation. The first facet of research, program development, has emphasized the identification of procedures that effect changes in behavior skills essential to the client (*e.g.*, social skills, self-help skills). It is important to note that determinations regarding the effectiveness of a procedure have been based on systematic behavior analyses of the recipient, *i.e.*, the client, before, during, and after deployment of the procedure. This facet of research has culminated in the availability of numerous programs for effecting a wide array of client skills (Azrin and

Foxx, 1971; O'Brien and Azrin, 1972; Keilitz, Tucker, and Horner, 1973).

Program implementation research has emerged from the recognition that the actual implementation of these programs depends on the efforts and skill of line staff (Balthazar, 1972; Kazdin, 1973; Quilitch, 1975). Consequently, most program implementation research has been concerned with devising techniques for encouraging staff to implement available programs. It is important to note, however, that although line staff must mediate the delivery of behavior programs, the ultimate recipients of the service remain the clients. Accordingly, the behavior of the client remains the most relevant unit of analysis for determining the effectiveness of program implementation and hence, techniques intended to encourage it. Unfortunately, most program implementation research has focused exclusively on the behavior of the staff (Gardner, 1972; Panyan, Boozer, and Morris, 1970; Pommer and Steedback, 1974; Pomerleau, Bobrove, and Smith, 1973).

Measuring the impact on clients has been fruitful in evaluating and improving the pro-

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vision of other services. For example, in one study, measures of client hygiene (*e.g.*, clean clothes, brushed teeth) were devised to reflect the quality of custodial care (Iwata, Bailey, Brown, Foshee, and Alpern, 1976). These measures provided a sound basis for evaluating a lottery incentive intended to foster custodial care.

In another study, a measure of client activity was devised to assess the quality of recreational services (Quiltich, 1975). Staff tended to engage more clients in an activity when the number of clients observed to be *active* was publicly posted. The definition of *active* did not distinguish between a client who may actually have participated in a therapeutic program from one engaged only in conversation, however. Thus, a conclusion regarding the implementation of a specific training program is precluded. Such a conclusion might be possible if a definition were formulated to reflect precisely the behavior targeted by a specific program.

Quiltich's study (1975) was a cogent analysis of the functional controlling properties of public posting. Other analyses also have demonstrated these properties with respect to such staff behaviors as doing routine chores (Kreitner, Reif, and Morris, 1977) and duties related to program implementation, such as completing data sheets (Panyan *et al.*, 1970; Welsch, Ludwig, Radicker, and Krapfl, 1973). Furthermore, a detailed analysis in the classroom revealed that the number of different words students used in composing an essay increased substantially when the number was posted on a chart (Van Houten, Hill, and Parsons, 1975). Only a small increment ensued with the addition of teacher praise. Performance posting also has been demonstrated to be effective in reducing classroom tardiness (Hall, Cristler, Cranston, and Tucker, 1970) and improving the attendance and performance of competitive swimmers (McKenzie and Rushall, 1974).

In the present experiments, an attempt was made to apply the functional controlling properties of public posting to the implementation

of specific behavior programs. The units of analysis in both experiments were formulated to allow some conclusion regarding impact on the client. The measures in Experiment II were particularly detailed to allow assessments of the client's performance during program implementation (process evaluation), as well as the long-range benefits that accrued (outcome evaluation).

EXPERIMENT I

The analysis of Experiment I focused on the implementation of a toilet-training program. Consistent client participation is fundamental to the success of virtually all toilet-training programs (Azrin and Foxx, 1971; Baumeister and Klosowski, 1965; Dayan, 1964). Accordingly, consistent participation (or the regularity with which staff place clients on the toilet) represents an appropriate initial measure to evaluate the implementation of a toilet-training program and thus was used as the primary unit of analysis in Experiment I.

METHOD

Subjects and Setting

Sunland Hospital at Tallahassee is a 400-bed facility for the mentally retarded. Most clients are nonambulatory and suffer from multiple handicaps. The living unit on which the study was conducted housed male and female clients at opposite ends.

Subjects were three male and three female afternoon staff responsible for toileting two severely retarded males and two severely retarded females, respectively. Staff ranged in age from 19 to 56 yr and in education from tenth grade to 2 yr of college. Each staff had attended an in-house workshop designed to teach programming techniques. Each client, due to a major disability (*e.g.*, severe spastic paralysis, quadriplegia), required physical assistance in being placed on the toilet.

Behaviors and Observation System

The observer was the program director, a Unit Supervisor who routinely monitored all unit programming activity including toilet training. At scheduled toileting intervals, he recorded whether a client was *participating* in the program (defined as having been placed on the toilet or bedpan). Reliability on client participation conducted twice during baseline and twice during treatment equalled 100%. This coefficient was computed by dividing the number of clients the observers agreed were participating by the combined number of clients the observers agreed and disagreed were participating and multiplying by 100.

Experimental Procedures

Baseline. During a weekly unit meeting, the program director apprised staff of their programming responsibilities. He reminded staff to toilet the clients every 2 hr beginning at 3 p.m. and lasting until 9 p.m. Due to the medical condition (sporadic neurogenic bladder) of one female subject, the Unit Physician also stressed at this meeting the importance of toileting every

2 hr. He urged the program director to ensure consistent toileting. Throughout the study, the program director reminded staff at each weekly meeting that he expected clients to be placed on the toilet at each interval. Also, all work assignments, including toileting duties were posted daily.

Public posting. At each end of the unit the program director conspicuously posted a large (58.6 cm by 80.3 cm) acetate-covered graph that depicted "Per cent of Clients Participating". Each staff's name was printed on the graph under the label "Therapists". The name of the particular staff responsible for the day's training was printed adjacent to the obtained data point.

Each day, eight consistent training efforts were required of the staff (two clients \times four toileting intervals). Thus, a client participation measure was derived by dividing the sum of the number of clients participating at each interval by eight and multiplying by 100.

Research Design

A multiple-baseline analysis of the effects of performance posting was provided by sequentially introducing the posters to the male and female sections of the unit.

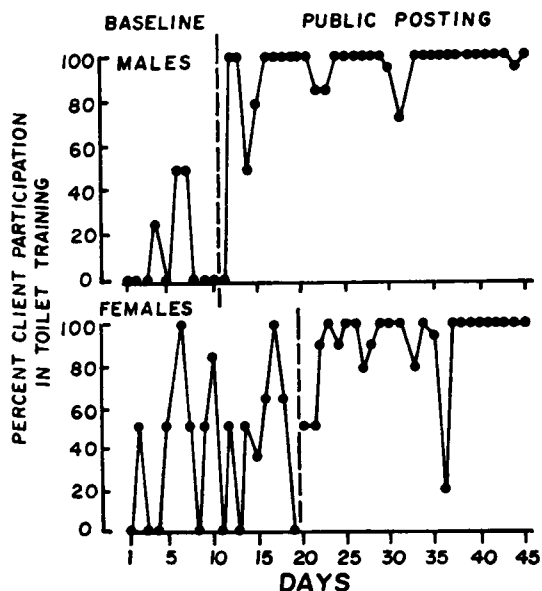


Fig. 1. Per cent of clients participating in toileting program during baseline and public posting.

RESULTS

The percentage of client participation in the toilet program is shown in Figure 1. During baseline, participation averaged only 12.5% and 38.6% for the males and females, respectively. After the first day of public posting, participation by the males increased to 89.5%; female participation averaged 97%. (On the thirty-sixth day a dip in the females' participation occurred. This followed issuance of a reprimand to the responsible staff for an unrelated incident.)

The improvement in implementation of the toilet-training program after public posting is consistent with previous research (Panyan *et al.*, 1970; Quilitch, 1975; Welsch *et al.*, 1973). This improvement was reflected in the consistency with which clients were toileted. However,

"an even more important question that should be asked . . . concerns the effect of improved daily project performance on the rate at which client behaviors are developed. This could be done by taking concurrent measures of project completion as well as resident's rate of improvement in the targeted behavior" (Welsch *et al.*, 1973, p. 26).

An analysis that incorporated such measures would testify to the effectiveness of staff's implementation and would underscore the relationship of the staff management technique with improved program implementation.

Such an analysis was performed in Experiment II. Measures were devised to evaluate the implementation of two physical-therapy programs, ambulation and range-of-motion. These measures reflected the impact on the behavior of the client during program implementation as well as the long-term changes.

Some discussion of the observational tactics frequently employed in staff management research is warranted at this point. Ideally, the observation system does not itself influence the behavior that it is designed to monitor but rather merely reflects the natural occurrence of the behavior under existing contingencies. However, the possibility exists that the nature of the observations may actually affect the behavior's occurrence by causing the subjects to react, particularly if there is some consequence associated with a high or low observed occurrence of the behavior. Just such a situation exists in most staff management studies. During baseline, observations are made with no associated consequence; indeed, often without the knowledge of the staff or at least their knowledge of the behavior being observed. However, the treatment intervention usually entails associating some consequence with the observed occurrence of the behavior. Thus, it is quite possible that staff's learning of being observed and the presence of the observer does more to change the behavior than the intervention itself. There

may be no reasonable alternative to using data gathered through an obtrusive and potentially reactive observation system to consequate staff behavior. However, it would be a serious mistake to present these data in an experimental analysis as representative of the effects obtained from a given treatment. Unfortunately, this is exactly what has been done in virtually every staff management study.

Avoiding these difficulties may not be entirely possible, but some refinements are. For example, if an observation system is employed for the purpose of providing staff with performance feedback (*e.g.*, public posting), then it might be desirable to have a completely independent observation system associated with no consequences. Data from such an independent observation system would probably better represent the actual effect of the intervention. Furthermore, since it would be difficult to employ this observation system unobtrusively throughout the experiment, it would be more desirable to inform staff of its existence from the beginning (baseline) than to have them discover and possibly react to it during treatment. The observation tactics in Experiment II included these refinements.

Finally, the preceding discussion raises the possibility that an observational/treatment system that provides immediate feedback to staff may be sufficient to produce the desired performance (*e.g.*, implementing programs), thus obviating the need to post the observed performance. Since there is some evidence that supervisor feedback (praise) can affect staff behavior (Montegar, Reid, Madsen, and Ewell, 1977) the analysis of Experiment II isolated its effects before introducing public posting.

EXPERIMENT II

METHOD

Setting

The study was conducted on a unit housing profoundly retarded, predominantly nonambulatory, and multiply handicapped clients. The unit was rectangularly shaped, 63 m long with

ample space for ambulation between beds along two 5.1-m wide corridors.

Subjects

Attendant staff. All afternoon staff (totaling four to eight each day) conducted training. However, only four (Staff-1, Staff-2, Staff-3, Staff-4) were targeted for observation. The program director considered them to be representative of the range of proficiency in programming ability. Their ages ranged from 22 to 52 yr and education from eight grade to 2 yr of college. Each staff member, in conjunction with the program director, selected an ambulation and a range-of-motion client to train. (For convenience, the ambulation and range-of-motion clients are hereafter referred to as AMB and ROM, respectively, and are designated with a number to indicate the corresponding staff member. For example, ROM-3 and AMB-3 were trained by Staff-3).

Ambulation. The four AMB clients who participated in the study were able to bear their own weight, and their participation was approved by the physical-therapy department. None was independently ambulatory, *i.e.*, ever initiated walking. AMB-1, the most independent walker, could maintain balance with light support from the trainer or by gripping the back of a wheelchair. AMB-2, due to generalized spasticity, required the support of a walking apparatus and/or physical assistance from the trainer.² AMB-3 was able to maintain balance in the apparatus and ambulate with only slight tugs on the apparatus. AMB-4 would bear weight only reluctantly. Inducing her to walk usually required the use of the walking apparatus, manually stiffening her knee to encourage standing, and physically guiding one foot before the other. Each subject, except AMB-2, could locomote by other means, *e.g.*, wheelchair or crawling. Beyond this, they rarely received any exercise.

²AMB-2 was transferred from the facility late in the experiment. A new client was assigned soon after (see Figure 5).

Range of motion. ROM-1, ROM-2, ROM-3, and ROM-4 suffered multiple handicaps and moderate to severe muscle contractures in upper and/or lower extremities. Because these clients were virtually bedridden, exercise was available to them only via participation in range-of-motion training.

Program Implementation Behaviors

Because most of Sunland's clients were nonambulatory or minimally ambulatory, the physical-therapy department there strongly advocated ambulation training. Successful implementation of an ambulation program is characterized by an extremely complex behavior interaction between staff and client, in which each performs the behavior targeted by the program (Horner, 1971; Meyerson, Kerr, and Michael, 1967; O'Brien, Azrin, and Bugle, 1972). However, as illustrated in Figure 2, such an interaction is only one of the four possible interactions a staff/client pair could exhibit. For example, staff might attempt to train a client who proves uncooperative ($T-\cancel{A}$), or perhaps neither staff nor client exhibit the program-targeted behavior ($\cancel{T}-\cancel{A}$), or a less probable interaction is represented by ($\cancel{T}-A$) in which the client ambulates in the absence of any training from staff. Therefore, to perform an on-line evaluation of the training process, definitions were formulated to represent precisely each element of the training interaction. Thus:

Training (T) was defined as staff's providing reinforcement to the client, or instructing the client to walk, or providing physical guidance for the client to walk. Any other staff behavior was defined as *not training* (\cancel{T}).

Ambulating (A) was defined as the movement of the client's feet one before the other along the floor with body weight supported. Any other client behavior was defined as *not ambulating* (\cancel{A}).

The physical-therapy department also advocated range-of-motion exercises for Sunland's multiplihanded clients who were unable to participate in ambulation training. These

exercises have been prescribed to induce the benefits of exercise and increased blood circulation, such as maintaining tissue, minimizing fatigue, providing greater movement of afflicted limbs, preventing anoxic pain, and reducing the accumulation of excess fluid or edema (Avignon and Avignon, 1952; Hines and Randall, 1950; Knott, 1952). Figure 2 also represents the implementation of this program as an interaction of staff and client, with each element defined as follows:

Exercising (E) was defined as staff's physically moving a client's limb, or verbally prompting the movement of a limb, or reinforcing the movement of a client's limb. Any other staff behavior was defined as *not exercising* (\bar{E}).

Ranging (R) was defined as the client's moving a limb (with or without staff assistance) fully within the range of tension and relaxation. Any other client behavior was defined as *not ranging* (\bar{R}).

Thus, the ideal range-of-motion interaction (E-R) is characterized by staff's moving a client's limb in such a manner that it ranges between the point of relaxation and the point of tension. However, staff may use other exercising procedures (e.g., massaging or patting) that do not induce limb movements between the client's tension and relaxation points (E- \bar{R}); or the client, without the assistance of the staff, may range the limb as prescribed (\bar{E} -R). Finally, perhaps neither staff nor client perform the targeted behaviors (\bar{E} - \bar{R}).

Experimental Procedures

Workshop. Before any observations were made, staff were instructed in the implementation of the physical-therapy programs. First, written descriptions of the training procedures required by both programs were prepared and distributed to all staff. The ambulation description stressed the proper use of the walking apparatus, reinforcement, prompts, and physical guidance. The range-of-motion description, provided by the physical-therapy department, in-

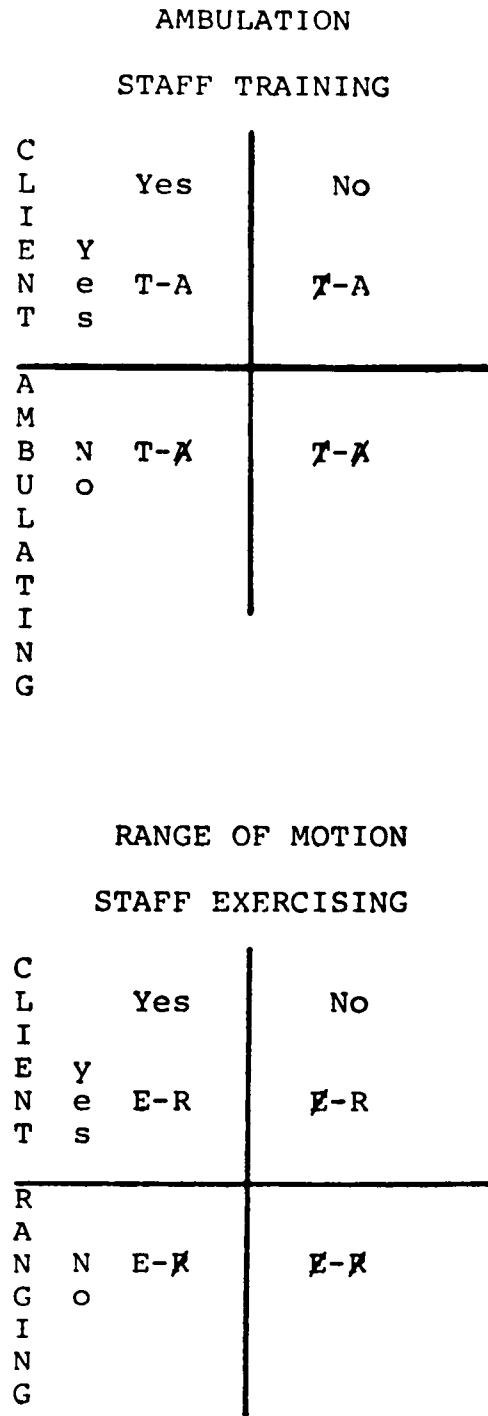


Fig. 2 2 x 2 representation of four possible staff-client training interactions.

cluded diagrams and brief instructions for properly exercising six joints: wrist, elbow,

shoulder, ankle, knee, and hip.³ Four to six repetitions of each joint on both sides (a total of 12 joints) were recommended. Next, staff were allowed 25 min to study the program descriptions. Then, for 30 min, the staff practised implementing the program while the Director provided performance feedback. Finally, the program director instructed the staff to follow a time schedule posted in three conspicuous places throughout the unit on 28 cm by 36 cm cardboard. Range-of-motion exercise was scheduled for 3:15 p.m. to 3:30 p.m. daily and ambulation from 3:35 p.m. to 3:50 p.m. daily.

During weekly unit meetings, the program director reminded all staff to adhere to the posted training schedule and to conduct training according to the descriptions. He also informed them that extra copies of the descriptions were available in an office just off the unit.

Immediate feedback. The program director praised all staff who commenced training promptly. During training he walked along the unit independently of the observers and consequated training interactions as follows:

Ambulation:

T-A or ~~T~~-A. If the client was walking, the trainer was praised. If the trainer was not reinforcing the client's ambulation, he/she was cued to do so.

T-~~A~~. The Director cued and/or modelled the technique of guiding (either the apparatus or the client's legs).

~~T~~-A. Any such off-task behavior was ignored.

Range-of-Motion:

E-R or ~~E~~-R. The trainer was praised if the client's limbs ranged properly. However, during baseline, trainers often repeatedly exercised the same joint (e.g., wrist) excluding all others. Therefore, if the Director observed a repeated exercise, he cued the staff to exercise another joint listed in the description.

E-~~R~~. The director cued and/or modelled the proper exercise technique.

E-R. The director ignored off-task behavior.

Public performance posting. The immediate feedback procedure continued. Additionally, the director announced that he felt that staff deserved more feedback for client performance. Thus, for each staff-client pair, a public poster was constructed. The names of the client and staff were printed on the poster, with the latter identified as "Therapist". The ROM posters were 58 cm by 80 cm. Each listed the 12 exercises down the side and the days of the week across the top. Every day after training, the program director checked the exercises he had observed each staff-client pair perform. Additionally, he entered a performance grade on the poster, derived by dividing the number of different exercises performed by the number of observations he had made. For example, if five exercises were observed during six checks, a performance grade of 83% was entered.

The AMB posters were large graphs (90 cm by 78 cm) with similar identifications of the staff and client. Each day, a data point was fixed to the graph to represent the "Per cent of Time (Client's Name) Walked". The program director determined this by dividing the number of times he observed the client ambulating by the number of checks he made and multiplying by 100.

As in Experiment I, the posters afforded the program director the opportunity to deliver positive feedback to staff, both informally and at weekly unit meetings.

Evaluation (Observation) Systems and Reliability

Process evaluation. Staff were informed that two observers would be monitoring the programs to determine the progress of the clients. Two weeks of informal data collection preceded baseline to allow the observers to refine their definitions and staff to adapt to their presence. The observation system, which was independent from the program director's observation/feedback system, was designed to evaluate the behavior interactions (Figure 2) during range-of-

³These diagrams are available on request from the authors. They served in defining what constitutes an appropriate range-of-motion movement for each joint.

motion and ambulation. Two observers (approximately 0.6 m apart) walked casually from one end of the unit to the other, observing each staff-client pair. Each carried a clipboard and a stopwatch. Along the corridor of the unit were columns every 4.3 m. Upon arriving at a column one 4.3-m length from the pair, the reliability observer lightly tapped his pencil twice against his clipboard. On the second tap, the observers activated their stopwatches and recorded which training interaction occurred within a 5-sec interval. During ambulation, the observers also recorded the specific training technique employed by the staff (*e.g.*, guiding, prompting, reinforcing). During range of motion, the observers recorded the specific joint that was exercised.

At the end of each training session, the per cent of observations that each interaction occurred was computed for each staff/client pair by dividing the number of times that interaction was observed by the number of observations made. These data were used only for experimental evaluation, never for feedback.

Reliability was assessed for at least one-third of the sessions of each condition. Each of the 5-sec observation intervals was compared and scored as an agreement or disagreement. (Since one of the interactions was recorded for each interval, there were no intervals of nonoccurrence.) A reliability coefficient was derived by dividing the number of agreements on the occurrence of an interaction by the number of agreements plus disagreements. Ambulation reliability coefficient means were: Workshop—0.93 (T-A), 0.93 (~~T-A~~); Feedback—0.91 (T-A), 0.97 (~~T-A~~); Feedback and Public Posting—0.97 (T-A), 1. (~~T-A~~). Range-of-motion coefficient means were: Workshop—0.93 (E-R), 0.98 (~~E-R~~); Feedback—0.95 (E-R), 1. (~~E-R~~); Feedback and Public Posting—0.98 (E-R), 0.94 (~~E-R~~).

Outcome evaluation. At three points during the study, Before Workshop, After Workshop, and After Feedback/Public Posting, the ROM and AMB clients were evaluated to determine

whether any benefits had accrued concurrent with improvements in program implementation. To evaluate ambulatory ability, the program director placed the AMB client in the walking apparatus, stood before the client, prompted him/her to walk, and provided praise for compliance. An observer marked the farthest point of progress at the end of 60 sec. The observer then measured the distance the client had walked and the program director provided a check on this measurement by remeasuring.

ROM clients were evaluated by the physical-therapy department. Twenty goniometric measurements were made to determine the functional range of movement each client had in the six joints. This information was recorded and delivered to the program director. The physical therapists were unaware of the purpose or the nature of the experiment. It was not uncommon for a program director to request re-evaluations of clients. Figure 3 illustrates the measurement of limited motion in one joint, the knee (AAOS, 1965).

Employee Satisfaction Questionnaire

At the end of the experiment, the program director distributed anonymous questionnaires to all staff. They were asked to evaluate the ambulation and range-of-motion programs on nine different dimensions pertaining to the value of public posting from staff and client perspectives.

Research Design

The immediate feedback condition was introduced sequentially across the ambulation and range-of-motion programs to provide a multiple-baseline analysis. The public posting procedure was then simultaneously introduced to both programs.

RESULTS

Process Evaluation

Figures 4 to 7 illustrate the effects of each intervention on two training interactions (T-A;

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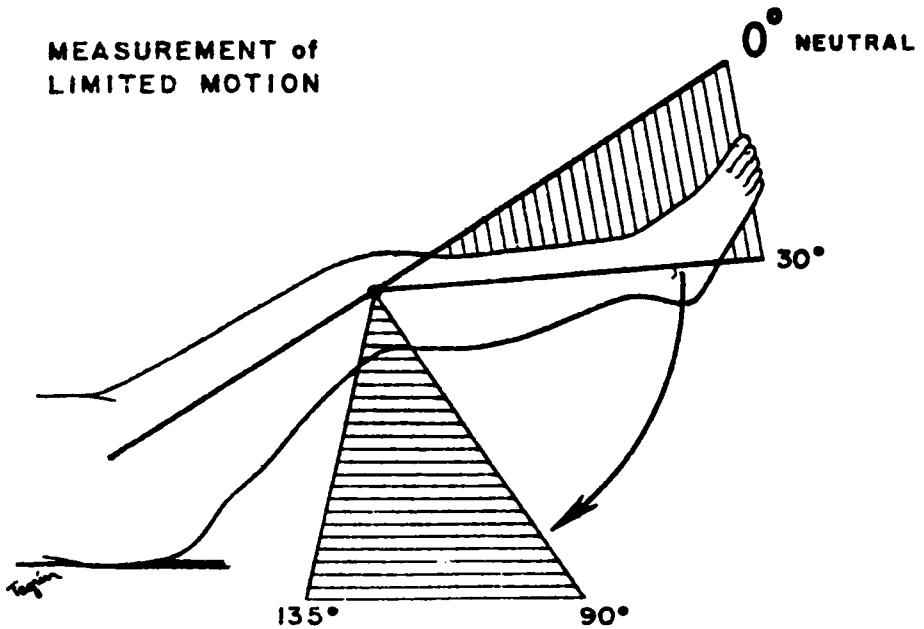
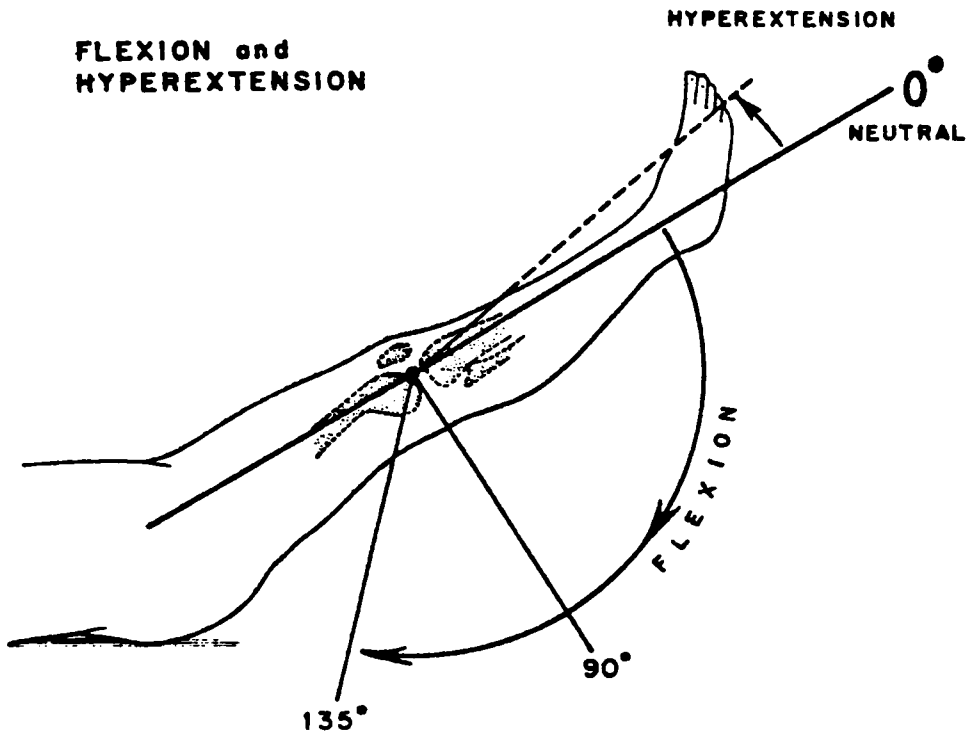


Fig. 3. Measurement of limited Range of Motion in knee.

~~T-A~~). The performance of Staff-3 with his AMB and ROM clients is representative. During the Workshop condition, AMB-3 was observed walking an average of 51.7% of the intervals. Following Feedback, ambulation increased to 56.1%, but remained variable. When Public Posting was added, a consistently high level of ambulation ensued (94.6%). A corresponding decrement in off-task (~~T-A~~) was observed; Workshop, 29.2%; Feedback 26%; Feedback/Posting, 4.1%.

Similar performance improvements were observed during range-of-motion training. The desired interaction (E-R) increased from a baseline level of 16.7% to 40.6% during Feedback, to 84.1% with the addition of Public Posting. Meanwhile, off-task behavior (~~E-R~~) decreased from 48.1% to 30.2% to 2.5%.

Outcome Evaluation

Table 1 presents the distances the AMB clients were able to walk in 60 sec. With the exception of AMB-1, ambulatory abilities of the clients following the Workshop condition did not improve. However, there were noticeable improvements in ambulation for all clients after the Feedback/Public Posting condition.

Before the Workshop, the ROM clients lacked an average of 370 degrees of motion on their left sides and 442 degrees on their right sides. At the next evaluation (After Workshop), the therapist recorded an additional loss of 13 degrees of movement on their left side and a gain of 25 degrees on their right. At the final assessment (After Feedback/Public Posting), there was an average gain in movement of 140

degrees on the left side and 115 degrees on the right. These results are illustrated in Figure 8.

The results from the employee satisfaction questionnaire (Table 2) indicate a generally positive reception to public posting. Staff indicated a sense of esteem from seeing their clients' performances posted. Also, staff acknowledged that the AMB and ROM programs had been conducted more consistently than other programs.

GENERAL DISCUSSION

The behavior of the retarded client has been one of the most frequently measured variables in applied behavior analysis (Kazdin, 1975). However, excepting two investigations of recreational and custodial services delivery (Iwata *et al.*, 1976; Quilitch, 1975), the measurement of client behavior has been confined to studies of program development (*i.e.*, research emphasizing the identification of effective therapeutic procedures). In contrast, no study of program implementation (by staff) has provided measures of client performance (Gardner, 1972; Kreitner *et al.*, 1977; Panyan *et al.*, 1970; Watson, Gardner, and Sanders, 1971; Welsch *et al.*, 1973). Thus, the most fundamental data for evaluating the adequacy of program implementation (and hence, management techniques intended to improve implementation) have never been provided. The present study provided these data. The measures of client impact devised to evaluate the adequacy of two staff-implemented programs yielded fundamental evidence that staff can indeed be managed to implement programs effectively.

The study included two measures of client impact. First, the performance of the client each day during the actual training process was accurately reflected in a measure of staff-client interactions (T-A; E-R). This measure afforded a means of immediately assessing the effect of each experimental manipulation. Second, a measure of long-term client gains (degrees of motion gained; distance ambulated) indicated

Table 1
Outcome evaluation: number of feet AMB clients walked in 60 seconds.

	Before Workshop	After Workshop	After Public Posting
AMB-1	36.9	61.3	72.3
AMB-2	24.8	18.5	66.4
AMB-3	4.8	2.3	96.9
AMB-4	0	0	3.3

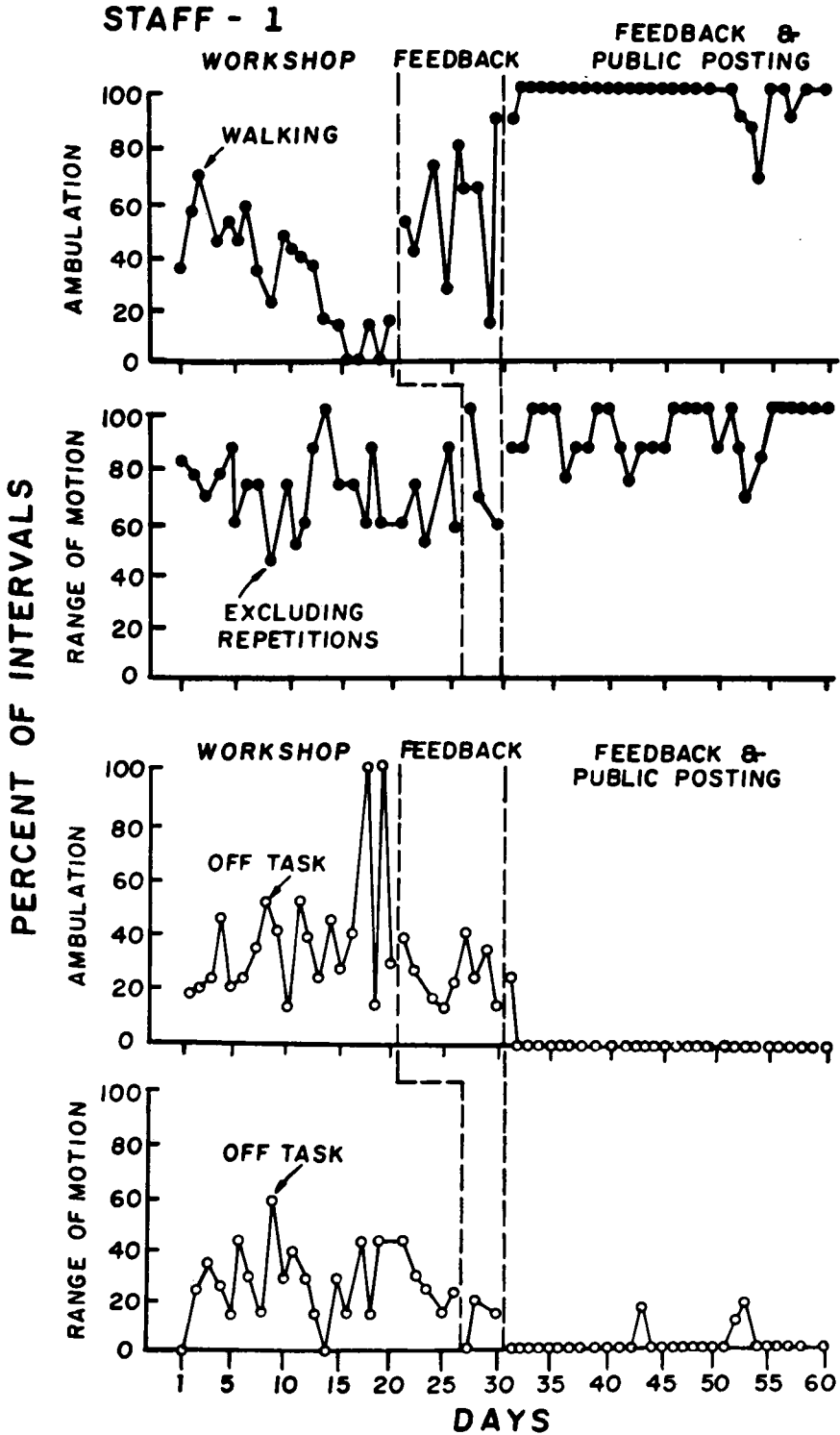


Fig. 4. Staff-1: process evaluation of optimal and minimal training interactions during Workshop, Feedback, and Feedback and Public Posting.

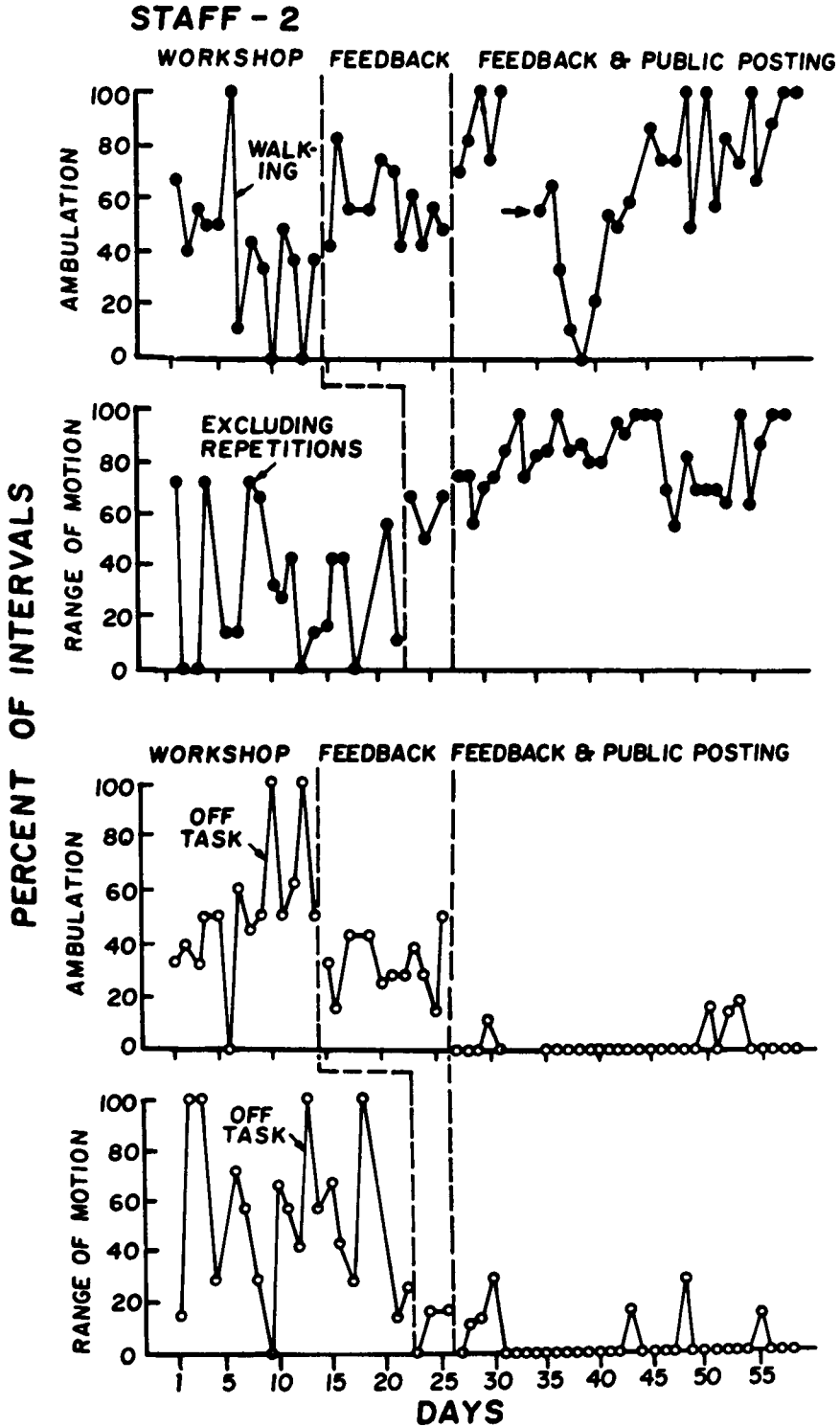


Fig. 5. Staff-2: process evaluation of optimal and minimal training interactions during Workshop, Feedback, and Feedback and Public Posting. Arrow indicates new client.

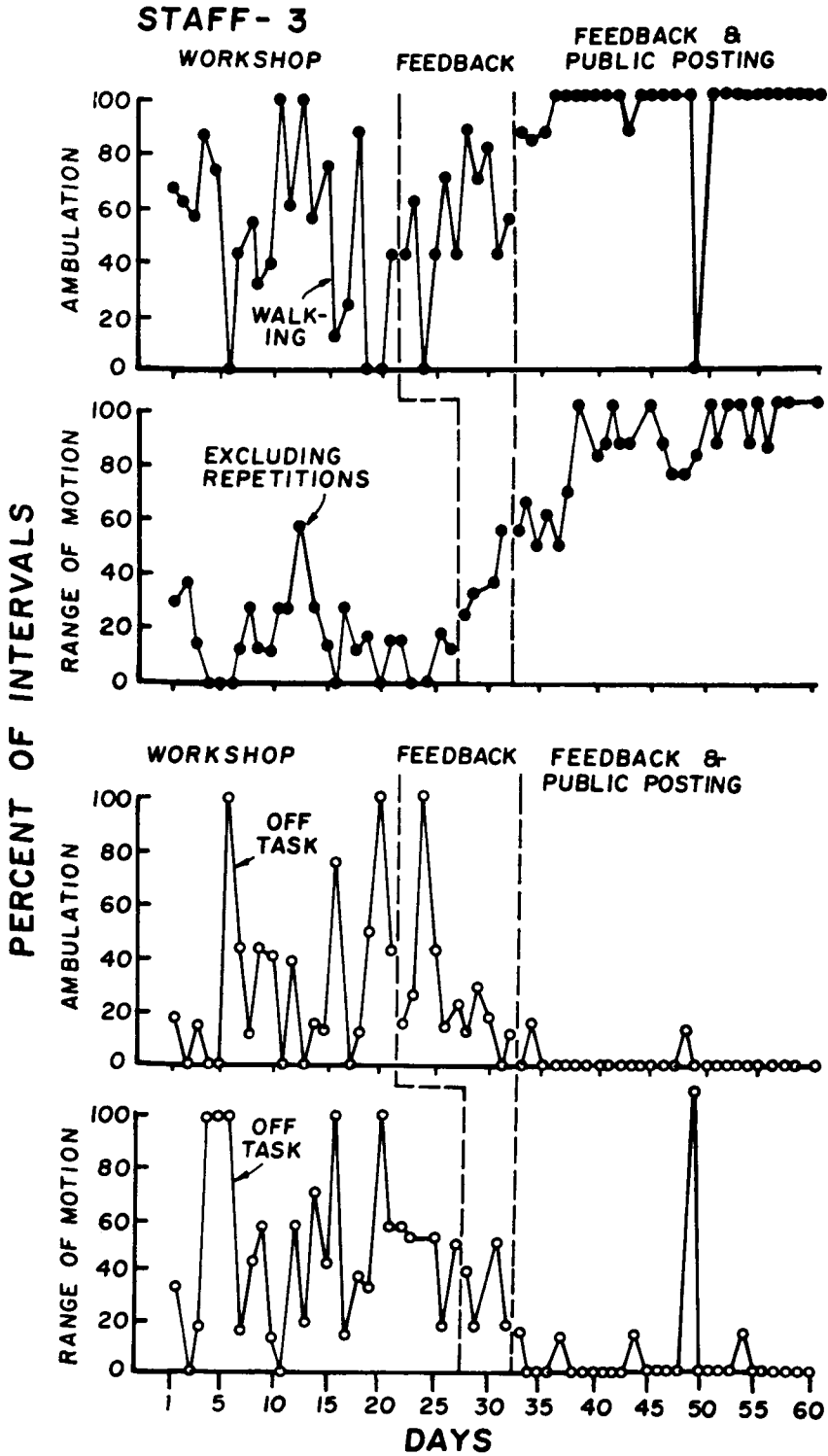


Fig. 6. Staff-3: process evaluation of optimal and minimal training interactions during Workshop, Feedback, and Feedback and Public Posting.

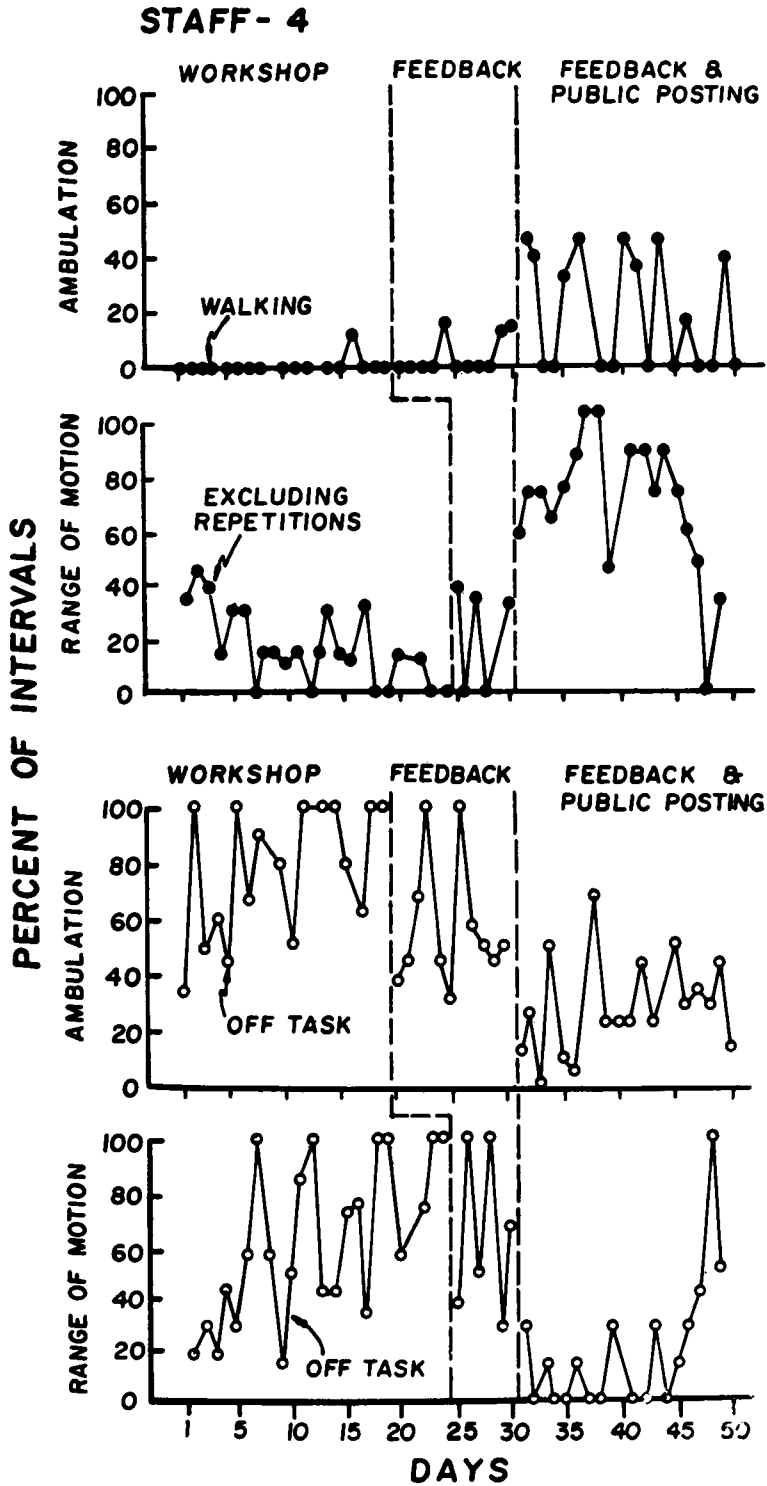


Fig. 7. Staff-4: process evaluation of optimal and minimal training interactions during Workshop, Feedback, and Feedback and Public Posting.

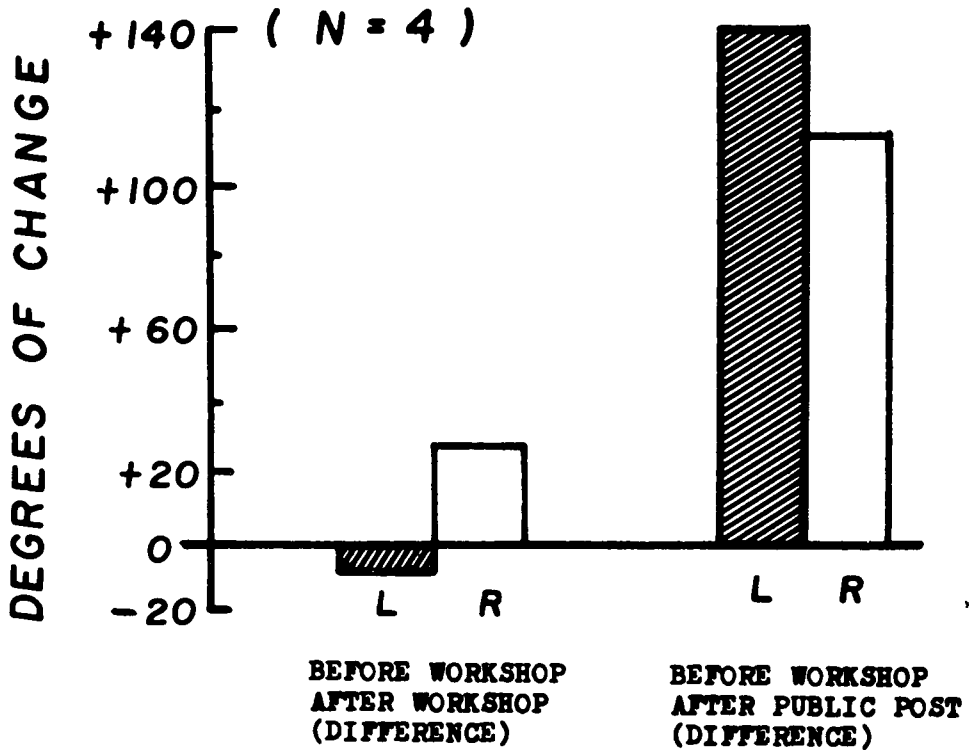


Fig. 8. Outcome evaluation of Range-of-Motion. Mean change in degrees of motion relative to the Before-Workshop evaluation. Experimental subjects initially lacked an average of 370° (left) and 442° (right).

the benefits that accrued to clients under different conditions of staff management.

Collectively, these measures revealed the effect of several staff management techniques on the quality of program implementation. During the Workshop condition, for example, program implementation was minimally effective. Staff and clients were observed to be disengaged entirely from program-targeted behaviors during an average of 25% to more than 75% of the observations. Furthermore, the outcome evaluation revealed little or no benefits to clients by the end of the Workshop condition.

The effects of immediate feedback on program implementation were then isolated in a multiple-baseline analysis. Although immediate feedback appears to be inherent in performance posting and may itself produce desired staff performance (Montegar *et al.*, 1977), its effects on program implementation were neither substantial nor stable.

Feedback/Public Posting produced a prominent and stable improvement in program implementation. This improvement was associated with substantial gains in outcome measures. ROM clients showed greater range-of-motion in afflicted limbs and AMB clients gained the capacity to ambulate greater distances.

The experimental design could have been strengthened by including the Feedback/Public Posting condition within a multiple-baseline analysis. However, the results were clear and dramatic and entirely consistent with the extensive literature pertaining to performance posting (Kreitner *et al.*, 1977; Panyan *et al.*, 1970; Quilitch, 1975; Van Houten *et al.*, 1975; Welsch *et al.*, 1973). Additionally, the functional controlling properties of performance posting were confirmed by Experiment I. Thus, in this respect, the analysis of Experiment II represented a systematic replication (Sidman, 1960) of the effects of performance posting.

Table 2
Employee Satisfaction Questionnaire

I think that charting my clients' progress on the wall helps them progress:				
Much Faster	Faster	No Difference	Slower	Much Slower
	2	4		
By charting my clients' performances, I can tell how they are progressing:				
Much More Easily	More Easily	No Difference	Less Easily	Much Less Easily
	5	1		
When I see my clients' performances on the wall, I feel:				
Very Proud	Proud	No Difference	Less Proud	Much Less Proud
2	2	2		
When guests and others from off the Unit see my clients' charts, I:				
Like It Very Much	Like It	No Difference	Dislike It	Dislike It Very Much
3		3		
Compared to other programs I've worked on, Ambulation and Range of Motion have been run:				
Much More Consistently	More Consistently	No Difference	Less Consistently	Much Less Consistently
4	2			
I think charting client performance in other programs would be a:				
Very Good Idea	Good Idea	No Difference	Bad Idea	Very Bad Idea
2	2	1	1	
The feedback and suggestions the Director gives me during training:				
Help Progress A Lot	Help Progress Some	No Difference	Hurt Progress	Hurt Progress A Lot
2	3	1		
When I know the Director is watching the program, I feel:				
Very Comfortable	Comfortable	No Difference	Uncomfortable	Very Uncomfortable
2		4		
When I know the two observers are watching the program, I feel:				
Very Comfortable	Comfortable	No Difference	Uncomfortable	Very Uncomfortable
2		4		

The credence of the demonstration is supported in other ways. First, the results from the outcome and process evaluations were mutually corroborative. Second, the data from the process evaluation represented a conservative indication of the effect of Feedback/Public Posting when compared to the same data collected by the program director. Third, the effects of Feedback/Public Posting maintained for a period of two months.

Finally, the results from the staff satisfaction questionnaire suggested that the posting technique was well received. This information is particularly important considering the recent proliferation of state employee unions and the legal history of behavior modification in institutions (Martin, 1975). Thus, if researchers and administrators are to advocate the adoption of behaviorally based management techniques, they must be prepared to furnish evidence that

such techniques are both effective and well received by staff.

This study should not be interpreted as endorsement for the indiscriminate use of performance posting. It can be a viable technique so long as it is not abused. The factors that could contribute to its abuse have not been researched, but some may be anticipated. For instance, performance posting may be resented by staff if it is unhesitatingly employed at the peeve of every administrator. In the present study, it was employed only after some more benign techniques had failed. Additionally, when it finally was used, care was taken to ensure that it was presented to staff as a means of recognizing their efforts, not humiliating them for shortcomings. Thus, staff efforts were recognized by posting occurrences of desired training interactions and not the nonoccurrence of such interactions (*i.e.*, off-task behavior). There is probably no limit to the factors that can affect the success of public posting. Generally, however, administrators and researchers are likely to meet with greater success if they make their own actions public as readily as they publicize the actions of others.

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