5-1987

The Effects of Reprimands and Work Observation with Pay Loss on the Maintenance and Generalization of High-Quality Work by Developmentally Disabled Adults in Community Work Settings

Benjamin Lignugaris/Kraft
Utah State University

THE EFFECTS OF REPRIMANDS AND WORK OBSERVATION WITH PAY LOSS ON THE MAINTENANCE AND GENERALIZATION OF HIGH-QUALITY WORK BY DEVELOPMENTALLY DISABLED ADULTS IN COMMUNITY WORK SETTINGS

by

Benjamin Lignugaris/Kraft

A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Special Education

UTAH STATE UNIVERSITY
Logan, Utah

1987

DEDICATION

This work is dedicated to my parents, Edythe and Louis Kraft, who taught me that confidence and pride come from always giving one's best effort. Thank you.

ACKNOWLEDGEMENTS

I am pleased to have the opportunity to acknowledge those whose invaluable contributions made this dissertation possible. Foremost, I wish to thank Charles Salzberg, whose confidence in my skills has been unfailing. He has been and continues to be a source of inspiration as a teacher, a colleague and as a friend. My appreciation is also extended to the members of my doctoral committee: Grayson Osborne, Joseph Stowitschek, Dan Morgan, Alan Hofmeister, and Richard Young for their guidance and professional support.

A sincere thank you is also extended to Betty, Terry, Rhonda and Clara for providing me the opportunity to learn from them. My appreciation and thanks are also extended to Eunice Gittins, Trina Balls, Jay Robinson, Fay Larsen and the rest of the staff at the Sunshine Terrace Nursing Home and the University Inn. Their expertise and continued cooperation made this study possible.

I am also grateful to my friends John and Marilyn who have been a source of support since that fateful day when we landed on their doorstep.

Without Terri Parker's typing skills, I'd still be floundering. Her attention to detail is greatly appreciated.

A heartfelt thanks to the numerous data collectors who participated in this project. This could not have been accomplished without their astute observations, consistency and attention to detail.

Finally, I wish to express my loving gratitude to Janet, my wife. Her understanding, commitment and confidence in my skills has been and continues to be a source of inspiration.

This research was supported by Grant #G008400604 from the Office of Special Education.

Benjamin Lignugaris/Kraft

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ABSTRACT

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by Developmentally Disabled Adults in
Community Work Settings

by

Benjamin Lignugaris/Kraft, Doctor of Philosophy
Utah State University, 1987

Major Professor: Charles L. Salzberg, Ph.D.
Department: Special Education

The purpose of these studies was to examine the effects of reprimands, a mild disciplinary procedure, and work observation and pay loss, a severe disciplinary procedure on the maintenance of high-quality work among mild developmentally disabled individuals employed as housekeepers. In general, participants were more responsive to reprimands after work observation and pay loss was applied. In addition, the increased sensitivity to reprimands appeared to generalize to other work settings for one participant. While participants' work quality varied across conditions, their work rate was relatively stable. These results are discussed in terms of other research that examined the use of reprimands in work settings.

(135 pages)

INTRODUCTION

Consistent high-quality work is an ongoing concern among employers (Adam & Scott, 1971). It is estimated that industry spends about $35 billion annually to detect and correct poor quality work (Johnson, 1975).

Work quality is a traditional concern of product manufacturers. Quality standards are generally set by an industry or through federal regulation. The standards reflect the minimum market quality for products such as cars or appliances. However, the focus of the American work force has shifted from product manufacturing to service (Jackson, 1980; Jenkins & Shimada, 1981; Mills, Chase & Margulies, 1983; Wool, 1976). In the service sector, employer-based rather than industry-based work quality standards are generally established. Service sector quality standards reflect the accuracy with which a worker completes assigned tasks, the rapidity with which tasks are completed, or the adequacy of a worker's interactions with customers. One common problem in service sector industries is that quality standards vary from employer to employer. This is due largely to the labor intensiveness of service work and the difficulty in identifying meaningful measures of output (Mills et al., 1983).

Another more serious problem, however, is that after quality standards are determined and high-performance levels are achieved, they are not necessarily maintained (Adam, 1972; Brown, Malott, Dillon, & Keeps, 1980). Procedures used to maintain high-quality work in service occupations include contingent bonus systems (Komaki, Waddell, & Pearce, 1977; Newby & Robinson, 1983), performance feedback (Bacon, Fulton, & Malott, 1982; Brown et al., 1980; Kreitner, Reif, &

Morris, 1977; Lamal & Benfield, 1978; Prue & Fairbank, 1981; Prue, Krapfl, Noah, Cannon, & Maley, 1980; Quilitch, Longchamps, Warden, & Szczepaniak, 1977), and organizational policy changes (Andrasik & McNamara, 1977; Andrasik, McNamara, & Abbott, 1978; Conrin, 1982). Contingent bonuses have increased cashier accuracy in a grocery store (Komaki et al., 1977; Yukl & Latham, 1975) and improved customer relations in a department store (Brown et al., 1980). Contingent bonus systems can be effective, but their implementation generally requires modification of existing accounting and support systems (Reppucci & Saunders, 1974). Performance feedback procedures and organizational policy changes, on the other hand, do not interfere with existing business systems or policies regarding work incentives. Further, they are less expensive and simpler to implement than contingent bonus systems (Prue & Fairbank, 1981). Performance feedback procedures include work checklists, performance postings, and job reminders. Policy changes include public posting of organizational policies and written reminders for employees.

In one study, Andrasik et al. (1978) implemented a policy change directing staff to discipline residents who were absent from activities in a mental health setting. During baseline, day staff reported an average of only 4% of the resident's unexcused absences. The policy revision required staff members to complete an Unexcused Absence Form that described the disciplinary action taken. Copies of the form were given to the resident, to the superintendent, and to an observer. After the policy change was implemented, day staff reported an average of 80.5% of the residents' unexcused absences. Other researchers also note improved work quality following the initiation

of policy changes (Conrin, 1982), of job feedback with public performance posting (Quilitch et al., 1977; Newby & Robinson, 1983), and of job feedback with work checklists (Bacon et al., 1982; Lamal & Benfield, 1978).

Several researchers suggest that the success of performance feedback and policy interventions is related to the perceived consequences of not complying with feedback or with a policy change (Andrasik et al., 1978; Skinner, 1953; 1969). That is, people might comply with instructions and obey rules, in part, to avoid censure for failing to do so. Workers might be motivated to comply with a policy change to avoid supervisory criticism or possible job termination. Thus, performance feedback and policy changes might serve to clarify the contingencies that are operating in the work setting.

Work Quality of Mentally Retarded Individuals in Service Occupations

The expansion of service industries has provided numerous opportunities for mentally retarded people to enter competitive employment (Salzberg, Likins, McConaughy, & Lignugaris/Kraft, 1986). Mentally retarded individuals have been trained as kitchen helpers (Davis, Bates, & Cuvo, 1983; Schutz, Jostes, Rusch, & Lamson, 1980), janitors (Cuvo, Leaf, & Borakove, 1978), and housekeepers (DeHaven, Corley, Hofeling, & Garcia, 1982). Employers report, however, that some mentally retarded individuals have difficulty sustaining work quality when job placement specialists are absent (Rusch, 1983; Wehman, 1981). Moreover, employment termination reports indicate that employment failures of mentally retarded workers are often due, at

least in part, to difficulties in sustaining work quality (Ford, Dineen, & Hall, 1984; Hanley-Maxwell, Rusch, Chadsey-Rusch & Renzaglia, 1986; Olshansky, 1969; Stodden, Ianacone, & Lazar, 1979; Wehman, Hill, Goodall, Cleveland, Brooke, & Pentecost, 1982). For example, Ford et al. (1984) report that 47% of competitive job losses over a six-year period involved problems with the quantity and quality of work. In one competitive job placement program, poor task completion or poor work quality were involved in 20% of the job losses (Brickey, Browning, & Campbell, 1982).

Some researchers suggest that, following initial training, mentally retarded workers are capable of working independently and producing high-quality work (Cuvo et al., 1978; DeHaven et al., 1982; Rusch, Martin, & White, 1985; Rusch & Menchetti, 1981; Schutz et al., 1980). For example, Cuvo et al. (1978) trained six moderately retarded students to clean the public bathrooms in a school. Termination of instruction occurred when the subjects met the criteria of performing 90% of the required responses at acceptable quality standards for three consecutive days. Consistent high-quality performance was evident for at least two weeks following training and the skills generalized to a second restroom. Similar findings are reported in other competitive employment research with mentally retarded workers (DeHaven et al., 1982; Rusch & Menchetti, 1981; Schutz et al., 1980). However, in these studies, performance maintenance was measured over a short time. Moreover, it is possible that the consistent job performance reported in these studies was related to the presence of trainers or observers in the work setting. Rusch, Menchetti, Crouch, Riva, Morgan, and Agran (1984) compared the

effects of known or overt observation and covert observation on the amount of time spent working by five mentally retarded kitchen trainees. Work performance of each subject was higher when an overt observer was present than when a covert observer was present.

In some instances, an observer or a trainer may become a discriminative stimulus for high-quality work. Horner, Lahren, Schwartz, O'Neill, and Hunter (1979) trained a severely handicapped woman to paste cushioning tape on the inside of an apparatus used to shield elements from heat. During training, assistance was provided when the subject pasted the cushioning tape incorrectly. Training assistance was discontinued after an acceptable performance rate and error frequency was achieved. Post-training production data indicated, however, that the subject's production rate was decreasing. Although these data are open to several interpretations, it is possible that during training the subject learned to complete work quickly and accurately to avoid trainer prompts and corrections.

The available data suggest that during initial placement and follow-up, mentally retarded workers can produce high-quality work. However, the long-term prognosis for many individuals may be poor if they do not continue to work consistently.

Problem Statement and Research Questions

Lack of consistent high-quality work often contributes to job termination of mentally retarded individuals. Success in the competitive work sector requires training that will ensure that prospective employees are responsive to typical management procedures such as reprimands from co-workers and supervisors. There are few

investigations that examine how individuals might learn that mild disciplinary actions, such as reprimands, may lead to more severe consequences, such as suspension or dismissal.

The purpose of these studies, then, is to examine the effects of reprimands, a mild disciplinary procedure, and pay loss, a severe disciplinary action, on the maintenance of high-quality work among developmentally disabled individuals in community employment. In addition, these studies will examine how reprimands might become a generally effective management procedure with developmentally disabled workers in community employment.

The following questions will be investigated:

1. What effects do reprimands from co-workers to improve work have on the consistency of cleaning quality of developmentally disabled hotel and nursing home maid trainees?
2. What effects do reprimands from supervisors have on the consistency of cleaning quality of hotel and nursing home maid trainees?
3. Do reprimands and work suspension with pay loss on one job increase the subsequent effect of reprimands from co-workers or from supervisors on the consistency of cleaning quality in a different job?
4. Do reprimands and work suspension with pay loss in one job site increase the subsequent effect of reprimands from co-workers or from supervisors on the consistency of cleaning quality in a different job site?

REVIEW OF THE LITERATURE

The review of literature includes studies that examined: the maintenance of work performance by developmentally disabled workers; the management of entry-level employees; the use of co-workers as performance managers; and the management of problem behaviors using supervisory reprimands.

Maintenance of Work Performance by Developmentally Disabled Workers

An important contribution of behavioral research would be to identify training procedures that produce significant behavioral changes over long periods of time (Skiba & Casey, 1985; Gifford, Rusch, Martin, & White, 1984). Only a handful of studies, however, report long-term maintenance data or examine the conditions that might enhance the durability of desired behavior changes (Guevremont, Osnes & Stokes, 1986; Koegel & Rincover, 1977; Kohler & Greenwood, 1986). Hall and Broden (1967), examined the effects of adult attention on the social behavior of a child and found that improvements in the child's behavior were still evident six months later. In another study, Harris, Johnston, Kelley, and Wolf (1964) reported maintenance of behavioral changes with a preschool child a year after intervention.

In the vocational literature, the short-term success in training work skills to mentally retarded workers is evident (Gold, 1976; Bellamy, 1976; Bellamy, Horner, & Inman, 1979; Rusch, Schutz, & Heal, 1983). Few studies, however, assess the maintenance of work skills beyond one or two months (Bellamy, Inman, & Yeates, 1978; Crosson, 1969; Gold, 1972). In one study, Gold (1972) noted that workers

retained their assembly skills one year after being trained to assemble bicycle brakes in a sheltered workshop. In another study, Bellamy, Inman, & Yeates (1978) used a timer contingency to increase the rate of assembling a cable harness for three severely retarded adults. Twelve to eighteen months after acquisition, two of three workers still produced at or near industrial standards. It is not known, however, if these workers would continue to produce at industrial levels without the timer contingency; a condition more typical of competitive industry.

Several researchers suggest that work performance might be maintained if workers were trained to respond under the same contingencies that operate in the natural environment. (Baer & Wolf, 1970; Crosson, 1969; Kohler & Greenwood, 1986; Stokes & Baer, 1977; Wacker & Berg, 1986). For example, Crosson (1969) trained severely retarded individuals to operate a drill press. During training, clients received tokens for each correct response in the drill press sequence. When the clients' performance stabilized, the token reinforcement schedule was gradually adjusted to match the token reinforcement schedule generally used in that work environment.

The token system used by Crosson (1969) was response contingent; however reinforcement in competitive work settings is generally time based (i.e., weekly or biweekly paychecks). In a recent study, Rusch, Connis, and Sowers (1978) trained a mildly retarded woman to attend to job tasks in a food service setting during three time periods: (1) setting up for service; (2) serving the public; and (3) shutting down for the day. The client's work performance was examined under a number of conditions that included social reinforcement, token

reinforcement, token reinforcement with response cost, and a weekly pay check.

In baseline, attending ranged from 60% to 100% during the set-up time period and did not exceed 50% while serving the public. During the shutdown time period, attending was high with little variability. The use of a token system alone produced some increase in attending while serving the public. However, responding was not consistent until a response cost was added to the token system. During this phase, points were lost when the subject was observed not attending. However, token economies are not used by employers. Therefore, pay was systematically substituted for the point system with this subject until, finally, a more normative noncontingent weekly paycheck was provided.

It should be noted that in this study, positive reinforcement (i.e., points) alone did not produce an acceptable level of attention. The addition of a response cost (i.e., remove points) for poor attending resulted in consistent work at an acceptable level. Moreover, continued high attention levels were subsequently maintained even when the woman's pay check was not contingent on job performance. Since poor performance had led to a point loss previously. This subject may have inferred that poor performance would also lead to monetary loss. High-quality work was maintained for this worker, at least in part, by a work history in which poor performance resulted in a loss of reinforcement.

Skinner (1953) suggests that wages simply create a standard economic condition that may then be withdrawn. The threat of wage loss may maintain desired performance with individuals who have

previously lost wages in other similar situations. Thus, sustained work quality might be controlled, at least partially, by the implication that poor work will result in an aversive consequence. Tennant, Hattersley and Cullen (1978) argue that training developmentally disabled individuals to enter normal environments must include some means of bringing behavior under the control of naturally occurring aversive as well as positive reinforcement contingencies. For many developmentally disabled workers, long-term employment success may rest on their responsiveness to the disciplinary procedures typically used in competitive businesses.

Managing Entry-level Employees

Supervisory procedures used with entry-level and marginal employees include: job redesign; job transfer; demotion; job retraining; changes in supervision; counseling; changes in compensation; threats of disciplinary actions or reprimands; and disciplinary actions such as suspension without pay or termination (Menchetti, Rusch, & Lamson, 1981; Miner & Brewer, 1976; Oberle, 1978; O'Reilly & Weitz, 1980; Rusch & Menchetti, 1981; Stowitschek, Salzberg, McConaughy, Agran & Lignugaris/Kraft, 1985). The most frequent procedure identified is a warning of possible disciplinary action. In one survey of a hundred businesses, 44% used threats of discipline to correct problems (Miner & Brewer, 1976). Moreover, these businesses considered the procedure highly effective.

O'Reilly and Weitz (1980) suggest that reprimands and dismissals are effective because they clarify the prevailing quality standards and the consequences of violations of those standards. One management

sequence often used by employers begins with an informal discussion of the problem with the employee. If the problem is not rectified, a formal reprimand is then given, and, if necessary, suspension or dismissal follow (Miner & Brewer, 1976; O'Reilly & Weitz, 1980; Stowitschek et al., 1985). In one study, Stowitschek et al. (1985) asked supervisors in service, restaurant, and manufacturing occupations to describe problematic work-related social situations and to identify the disciplinary actions taken in those situations. The problem situations described most often were not following instructions, not getting necessary information before beginning a task, making weak excuses for errors, and conversing in "small talk" on the job. For three quarters of the situations, workers were fired only as a last resort. The employers indicated that, on the average, five disciplinary actions preceded dismissal. In 56% of the situations, the disciplinary sequence included talking with the employee or a formal reprimand, followed by probation, and a reduction in hours or dismissal. Furthermore, in approximately half of the situations, supervisors indicated they would fire employees if the offenses reoccurred once or twice after a formal reprimand was given.

Clearly, employers rely on informal and formal reprimands and, if necessary, dismissal to control problem behaviors at work. Successful integration of mentally retarded individuals in competitive work settings will require that they learn to respond appropriately to suggestions to improve their work and, especially, to formal reprimands or threats of possible job suspension or dismissal.

Co-workers as Performance Managers

Typically, initial job placement and follow-up is carried out by job trainers or social service case workers. Procedures include periodic site visits and direct observation of employees, phone interviews with employers and periodic written employer evaluations (Shafer, 1986). However, as previously suggested, the presence of overt observers such as job trainers may be discriminative stimuli for high-quality work (Horner et al., 1979; Rusch et al., 1984). Suggestions by co-workers to improve work or reprimands concerning poor-quality work may be a more normal approach to maintaining high-quality work. In one small midwestern retail firm, for example, a co-worker "buddy system" is used to train new employees for a period of up to 90 days (Levine, 1981).

Several researchers advocate enlisting co-workers as performance managers for developmentally disabled persons (DeMars, 1975; Rusch, 1983; Shafer, 1986; Wehman, 1981). However, few studies are reported that examine the use of co-workers as job performance managers (Clark, Greenwood, Abramowitz, & Bellamy, 1980; DeMars, 1975; Knapczyk, Johnson & McDermott, 1983; Rusch, Weithers, Menchetti, & Schutz, 1980). In one study, Knapczyk et al., 1983, taught severely handicapped workers to act as peer supervisors to monitor production quality in a sheltered workshop. The interactions of peer supervisors with workers were generally limited to gestures such as handing an item back to a worker. Peer supervision resulted in improved work quality as well as increased work production for each worker. The application of this program to competitive employment is limited, however, because little or no interaction occurred among workers.

Moreover, total production in the workshop decreased because peers were assigned only a performance management function.

In a competitive employment study, Rusch et al., (1980), utilized co-workers to reduce the frequency of topic repetition of a moderately mentally retarded student working in a cafeteria. Observational data indicated that the co-workers alone were minimally effective in reducing the student's verbal repetitions. Training assistance by the experimenters was necessary to decrease the number of verbal repetitions by the student.

In another program, co-workers were used to train janitorial skills to three moderately retarded individuals (DeMars, 1975). The co-workers were expected to complete their assigned tasks as well as to train the new employees. Training procedures included modeling combined with verbal instruction and praise. Although task performance increased for two of the three subjects, they required close supervision. Instructions had to be repeated frequently for one client, while another client required constant prodding to complete tasks.

The use of co-workers as performance managers in competitive employment settings represents a normative approach that ensures performance maintenance in a competitive employment environment. The mixed results obtained by DeMars (1975) and by Rusch et al. (1980), however, suggest the need for training developmentally disabled individuals to be more responsive to co-workers' recommendations and reprimands.

Management of Problem Behaviors Using Supervisory Reprimands

In many businesses, supervisors reprimand employees who do not improve their work after co-worker recommendations or informal reprimands (Miner & Brewer, 1976; Stowitschek et al., 1985). Control of problem behaviors by reprimands has received less attention from behavioral scientists than other forms of punishment such as timeout and overcorrection (Van Houten, Nau, MacKenzie-Keating, Sameoto, & Colavecchia, 1982). Researchers have examined primarily how reprimands are used by teachers (Hall, Axelrod, Foundopoulos, Shellman, Campbell, & Cranston, 1971; Heller & White, 1975; Kounin & Gump, 1958; O'Leary, Kaufman, Kass, & Drabman, 1970) and by parents (Forehand, Roberts, Doleys, Hobbs, & Resnick, 1976). Factors found to influence the effectiveness of reprimands in the classroom include eye contact between the teacher and the child, grasping the child firmly, and maintaining close proximity to the child. O'Leary et al. (1970) found that quiet reprimands delivered privately to a child were more effective than public reprimands. In another study, Forehand et al. (1976) used negative attention and repeated commands by mothers to modify the noncompliant behavior of four- to six-year-old children. Negative attention and repeated commands reduced noncompliant behavior. Moreover, the level of noncompliance remained below baseline levels throughout a four-session recovery period.

Cunningham (1980) suggests that reprimands in the work place should include several components. First, reprimands should be given in a private place. Second, reprimands should be as specific as possible, pointing out actual incidents of incorrect behavior. Third,

supervisors should identify the correct or desired behaviors. Finally, the consequences of continued misconduct should be identified so the employee is aware that other instances of misconduct will lead to further disciplinary action.

There are few studies that have examined how reprimands might be established as generalized conditioned punishers. In one study, Birnbrauer (1968) examined the effects of warnings and response-contingent electric shock to eliminate unpredictable biting and a variety of destructive acts from the repertoire of a profoundly retarded boy. First, warnings and shock were used to control incorrect button pressing in a controlled laboratory situation. Incorrect button responses were consequated initially with the verbal reprimand "No, don't press that button" and a slap on the back of the hand. When these interventions proved ineffective the subject was shown the shock prod and warned not to touch the incorrect button. Thereafter, a verbal reprimand and shock followed an average of every sixth incorrect button response. After 11 shocks, incorrect button responses decreased to approximately one per session. These procedures were then applied sequentially to balloon breaking, picture tearing, and pant wetting. Balloon breaking was eliminated with only a verbal reprimand; while picture tearing and wetting were eliminated with three and one shocks respectively. The application of a verbal reprimand alone to eliminate napkin tearing during meal hours, however was ineffective. Similarly, reprimands alone did not eliminate undesirable behaviors on the word. For each behavior, except balloon breaking verbal reprimands were effective only after shock was administered. These results suggest that the application of shock to

incorrect button responses had no automatic effects on other behaviors. Further, the pairing of a verbal reprimand with shock did not immediately enhance the power of a verbal reprimand.

In another study, Schutz, Rusch, and Lamson (1979) used reprimands and suspensions to eliminate verbal abuse by three moderately retarded adults in a vocational training program. A reprimand in conjunction with suspension was applied to two subjects; while a reprimand alone followed by a reprimand plus suspension was applied to a third subject. For these individuals, a reprimand was effective in reducing verbal abuse only when it was delivered in combination with a severe disciplinary procedure such as suspension.

In a recent study, Rusch and Menchetti (1981) examined the effect of response practice, formal warnings, and job suspension on the instruction-following of a mentally retarded kitchen helper. During baseline, the subject responded inconsistently to instructions from supervisors, other kitchen helpers, and cooks. Response practice and a reprimand resulted in 95-100% compliance when successively applied to supervisor's instructions and to kitchen helper's instructions. However, the subject's compliance with cook's instructions continued to be inconsistent. A one-day work suspension for noncompliance with a supervisor's instruction, resulted in compliance to the cook's instructions. With this subject, a reprimand and response practice resulted in compliance with supervisor's and kitchen helper's instructions. The addition of a work suspension was required to gain compliance with the cook's instructions. It is not clear, however, that this individual would respond to reprimands alone without response practice; would respond to reprimands in a different job

situation; or would respond to instructions from other cooks unless the suspension procedure were re-applied. Moreover, it is not known if one or more of the treatment components (i.e., response practice, reprimands, and job suspensions) would be required in a similar situation with other noncompliant workers.

It seems likely that weekly, biweekly, or monthly wages alone are insufficient to maintain consistent high-quality work with many entry-level, handicapped workers. For these workers, long-term employment success may rest on their becoming responsive to typical supervisory procedures, such as recommendations by co-workers to improve work and reprimands from supervisors. An employment training history that may promote more consistent high-quality work and more responsiveness to common supervision practices is one in which individuals learn that mild disciplinary actions, such as reprimands, if unheeded, may lead to more severe actions, such as suspension or termination. The purpose of these studies then is to examine how reprimands might be established as a generally effective management procedure with developmentally disabled workers.

EXPERIMENT 1

The first experiment served to develop the job skill training procedures and the format for co-worker and supervisor reprimands.

Method

Participant

Betty, a 36-year-old woman, agreed to participate in this study. Betty had a full scale WAIS-R I.Q. of 74 and lived in an apartment with her husband and niece. Placement personnel indicated that Betty had failed in previous job placements because constant supervision was required to sustain high-quality work.

Setting

The research was conducted in two community employment training sites. Betty worked approximately one-hour in each site daily. The first site was a motel. The motel rooms were divided into two job assignments: a) bedroom cleaning and b) bathroom cleaning. The bedroom cleaning tasks included making a bed, dusting the furniture, vacuuming, adjusting window blinds and closet hangers, and arranging items on the nightstand. The bathroom cleaning tasks included washing the sink, the counter, the mirror, and shower area, mopping the floor, and replacing the soap, towels, and toilet paper. (See Appendix A for a complete list of the bedroom and bathroom cleaning tasks.) The manager of the hotel indicated that following initial training, 45 minutes would be required to clean a bedroom and bath.

The second community employment site was a nursing home where Betty was a housekeeper trainee. Housekeeping assignments included:

a) cleaning a public restroom, and b) mopping bedrooms. (See Appendix B for a complete list of the public restroom and bedroom cleaning tasks.) The public restroom required approximately 20 minutes to clean and each bedroom required approximately 15 minutes to mop.

Measures

Betty's work quality and work rate were measured in both employment settings.

Work quality. Work quality was the primary dependent variable. A list of cleaning tasks with quality criteria for each job assignment was developed in cooperation with the supervisors in the employment sites. Task lists with quality criteria that were used to inspect bedrooms and bathrooms in the hotel and task lists for public restrooms, and bedroom floors in the nursing home are included in Appendix C.

In order to insure consistency in the measures of cleaning, observers prepared the bedroom, bathroom, public restrooms, and mopping job assignments each day using a standard set-up procedure. For example, bathroom floors were spotted with sugar water, and baby powder was sprinkled lightly on the sink. (See Appendixes A and B for a list of the cleaning set-ups in the hotel and nursing home.) After Betty finished cleaning each day, observers inspected the floor for sticky spots and the sink for powder. A plus (+) was recorded for each task that met the quality criteria and a minus (-) for each task that did not meet the quality criteria.

Betty was not present during work inspections. However, she had been informed that her work would be inspected periodically without

her knowledge. Work quality for the bedroom, bathroom, public restroom, and mopping jobs was expressed as the percentage of tasks completed to specified quality criteria.

Time to complete work. The second measure of performance was the time required for Betty to complete each work assignment. In the hotel, cleaning time for bedrooms and baths began when Betty entered the hotel room and ended when she left the room after completing the job. In the nursing home, the cleaning time for restrooms was the time required to clean one of two bathrooms with facilities for handicapped people. Similarly, the cleaning time for mopping was the average time required to mop a bedroom. An observer, posing as a co-worker, surreptitiously timed the participant's work on each job assignment a minimum of twice a week.

Observer Training

Observers participated in two phases of training in each work site. In the first phase observers were trained in the bedroom, bathroom, public restroom and mopping jobs by regular workers in the job sites. This training phase continued until the regular workers indicated that the observer was completing the work tasks acceptably. In the second phase of training, observers learned the standard set-up procedures and the inspection procedures for each work task. A training criterion on setting-up rooms of 100% agreement with another observer and on work inspection of at least 90% agreement with another observer for two consecutive days was required before beginning data collection. Observers required two to three weeks of training to each this criterion.

Procedures

Betty worked each day in both the hotel and nursing home. In the hotel, Betty was assigned to clean one room. In the nursing home, she was assigned to clean either the men's or women's public restroom and to mop three bedrooms. The restroom job assignment and the mopping assignments were selected randomly each day.

Betty was exposed to three experimental conditions during the study: a) work training; b) independent work; and c) reprimands.

Work training. During the work training condition, Betty was taught how to clean hotel rooms by an observer posing as a regular hotel employee. In the nursing home, a regular worker conducted the training in four phases in each work site. Initially, the cleaning sequence for each job assignment and the essential cleaning steps for each task were modeled. Betty then attempted each task. Praise was provided for correct performance, and corrective feedback was provided for incorrect performance after each task. Criterion was met on the first phase of training when Betty correctly sequenced the tasks within each job assignment. In the second phase, the co-worker praised and provided corrective feedback after half the tasks in each job assignment were completed. In the third training phase, praise and corrective feedback were withheld until after the entire job assignment was completed. In the final training phase, praise was also withheld until the entire job assignment was completed. However, in this case, praise was provided for three tasks selected randomly. Moreover, cleaning errors were not identified and corrective feedback was not provided. However, the co-worker trainer was available to answer questions. At the end of each work session, the supervisors in

the hotel and nursing home paid Betty a wage in cash.

In the final phase of the work training condition, interactions between Betty and the co-worker trainer were audiotaped. The tapes were examined for task reminders or corrective feedback from the co-worker trainer. At no time during the final phase of training was assistance requested from or provided by the co-worker trainer. A criterion of at least 80% accuracy with no co-worker assistance or corrective feedback on each job assignment for a minimum of three consecutive sessions was required before beginning the independent work condition.

Independent work. On the first day of the independent work condition, Betty was told that she would be allowed to work independently of the co-worker trainer. The co-worker trainer was not present while Betty was cleaning, nor did Betty receive feedback on her work performance. However, she was told where the co-worker might be found if questions arose.

After working independently for several weeks, a second independent work condition was imposed. The supervisor in each work site told Betty that since training was completed, she would be expected to do as much work as any other employee. Prior to work each day, the co-worker trainer completed a work assignment slip that specified the assigned work tasks and the time schedule for each job. The work assignment slip was read to Betty when she arrived at each employment site.

Throughout this condition, Betty continued to receive a daily wage, regardless of the quality of her work. The observer inspected Betty's work and assessed the quality of each task after Betty

finished work. Errors found during these inspections were corrected by the observer without Betty's knowledge.

The independent work condition continued until a pattern of inconsistent work quality was established. Inconsistent work quality was defined as work performance that met the following conditions:

1. The mean percentage of work quality was less than 60% across 5 consecutive work sessions.
2. Work quality on at least three of the previous 5 work sessions was below the performance criteria of 80%.
3. The work quality in the last work session was equal to or less than the mean of the previous 4 work sessions.

Reprimands. During this intervention condition, the effects of co-worker and supervisor reprimands for poor-quality work were examined. Initially, a reprimand was provided by the co-worker on the bedroom job assignment in the hotel. The co-worker trainer gave Betty her work assignment slip and followed her to the room she was assigned to clean. Prior to beginning work, Betty was told that work quality had been deteriorating and that it was critically important to improve cleaning quality. Betty was told to make sure: there were no dirt or crumbs remaining after dusting and vacuuming; the bedroom mirrors were not streaked; there was no stickiness, dirt, powder or hair in the bedroom sink or on the counter; and the bedspread was even and did not touch the floor. In addition, she was told to try harder to meet the work time on the work assignment slip. Additional rationales stressed the importance of quality work in maintaining a job. Finally, Betty was warned that poor-quality work might result in someone else getting paid to do her job. (A sample co-worker reprimand is provided in

Appendix D.) The co-worker reprimand was audiotaped to verify that specific tasks were identified for improvement and that Betty was warned of the possibility of wage suspension. Inspection of the audiotape transcript indicated that Betty was told about each error and warned that poor-quality work might result in a loss of pay.

When work quality deteriorated again, Betty received a reprimand from the supervisor. The content of the supervisor's reprimand was the same as that provided by the co-worker. (A sample supervisor reprimand is provided in Appendix E.) The reprimand was given in the supervisors office, with the co-worker trainer present. The supervisor reprimand was audiotaped to verify that specific tasks were identified for improvement and that Betty was warned of the possibility of wage suspension. Inspection of the audiotape transcript indicated that the specified tasks were identified and that Betty was informed that poor-quality work would result in loss of pay.

Interobserver-Agreement

Whenever it is necessary to use human observers, there is a possibility of introducing idiosyncratic or systematic bias in the study. Inconsistent or erroneous recording may result from inadequately operationalized response measures or inattentive observers (Johnson & Bolstad, 1973). For that reason, a second observer independently verified bedroom, bathroom, and public restroom cleaning set-ups 5% of the time and independently inspected the participant's work 30% of the time. The cleaning set-ups and the participant's completed work were examined on a task-by-task basis. Interobserver agreement was calculated by dividing the number of

agreements between the observers by the number of agreements plus disagreements and multiplying the result by 100. The mean percentage agreement on cleaning set-ups and work inspections for each job assignment is presented in Table 1.

Table 1

Percent Agreement Index for Cleaning Set-ups and Work Inspections

	Motel Bedroom	Motel Bathroom	Nursing Home Bedroom	Public Restroom
Cleaning Set-up	$\bar{x}$=91 Range=82-100	$\bar{x}$=97 Range=93-100	$\bar{x}$=98 Range=94-100	$\bar{x}$=99 Range=95-100
Work Inspection	$\bar{x}$=97 Range=95-100	$\bar{x}$=98 Range=91-100	$\bar{x}$=96 Range=88-100	$\bar{x}$=94 Range=89-100

Interobserver agreement was also assessed on the time required to complete each job assignment. A second observer independently timed Betty's work. An agreement between the observers was recorded if the work time reported by the second observer was within 30 seconds of the time reported by the first observer. Interobserver agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying the result by 100. The percentage agreement on the time required to clean the hotel room and mop a bedroom was 100% and the percentage agreement on the time required to clean the public restroom was 88%.

Results

Work Quality

Betty's work quality on each job assignment is presented in Figure 1. Betty readily acquired the job tasks in both work sites. The mean performance levels for the last five sessions of the work training condition were: bedroom cleaning 88%; bathroom cleaning 89%; bedroom mopping 92%; and public restroom cleaning 87%. During the independent work condition, a gradual decrease in performance was evident for the hotel cleaning jobs. Addition of the work assignment slip in work session 37 did not appear to effect the downward trend in work quality. Work quality decreased in the hotel bedroom to a mean performance level of 69% for the last five sessions of the independent work condition and in the hotel bathroom work quality decreased to 74%. Work performance in the nursing home appeared not to decline during the independent-work condition.

The independent work condition continued in the hotel bedroom until two of three conditions for inconsistent work quality were met. First, three of the last five work sessions in the independent work condition were below the training criteria of 80%. Second, the work-quality in the last work session (58%) was less than the mean of the previous four work sessions (72%). The third condition was not met; that is, the mean of the last five work sessions in the independent work condition was not less than 60%. However, the reprimand condition was administered in the hotel bedroom since Betty's work quality had stabilized at a level below the training criteria.

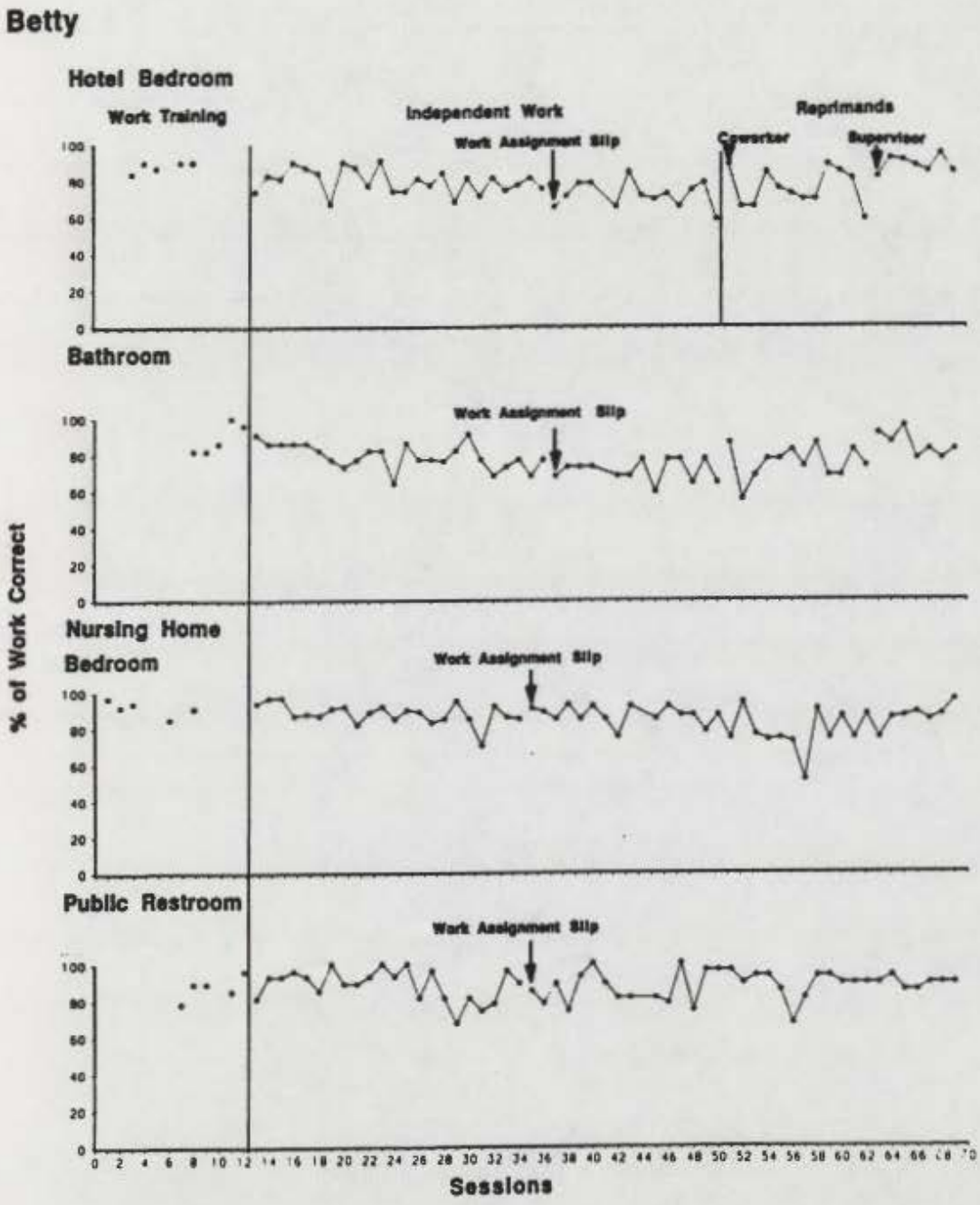

Figure 1. Percentage of work correct (i.e. work quality) for Betty in the hotel bedroom, hotel bath, nursing home bedroom and nursing home restroom.

A co-worker reprimand about bedroom cleaning resulted in improved work quality for only a single session. In the next 11 work sessions, Betty's work quality exceeded the performance criteria of 80% only four times. Her mean performance level was 73%. To promote more consistent work quality, a supervisor reprimand was administered. An improvement in Betty's work quality was noted immediately after the supervisor's reprimand. The mean work quality for the last five sessions of this condition (88%) equaled the mean work quality during the work training condition.

Improved quality in bathroom cleaning coincided with improved work quality in bedroom cleaning. Work quality increased immediately following the co-worker reprimand for bedroom cleaning. However, this level was not sustained until after the supervisor reprimanded Betty for poor-quality work in the bedroom.

Time to Complete Work

In the hotel, Betty required approximately 75 minutes to clean a room (see Figure 2). When the work assignment slip was introduced, Betty's cleaning time decreased to approximately 45 minutes. However, that lower cleaning time was not maintained. Following the co-worker reprimand on the bedroom, Betty regained her previous cleaning time of approximately 75 minutes. This cleaning time was maintained following the supervisor's reprimand.

In the nursing home, Betty required an average of 16 minutes to mop a room. An average of 28 minutes was required to clean a public restroom. Those rates remained stable throughout the study.

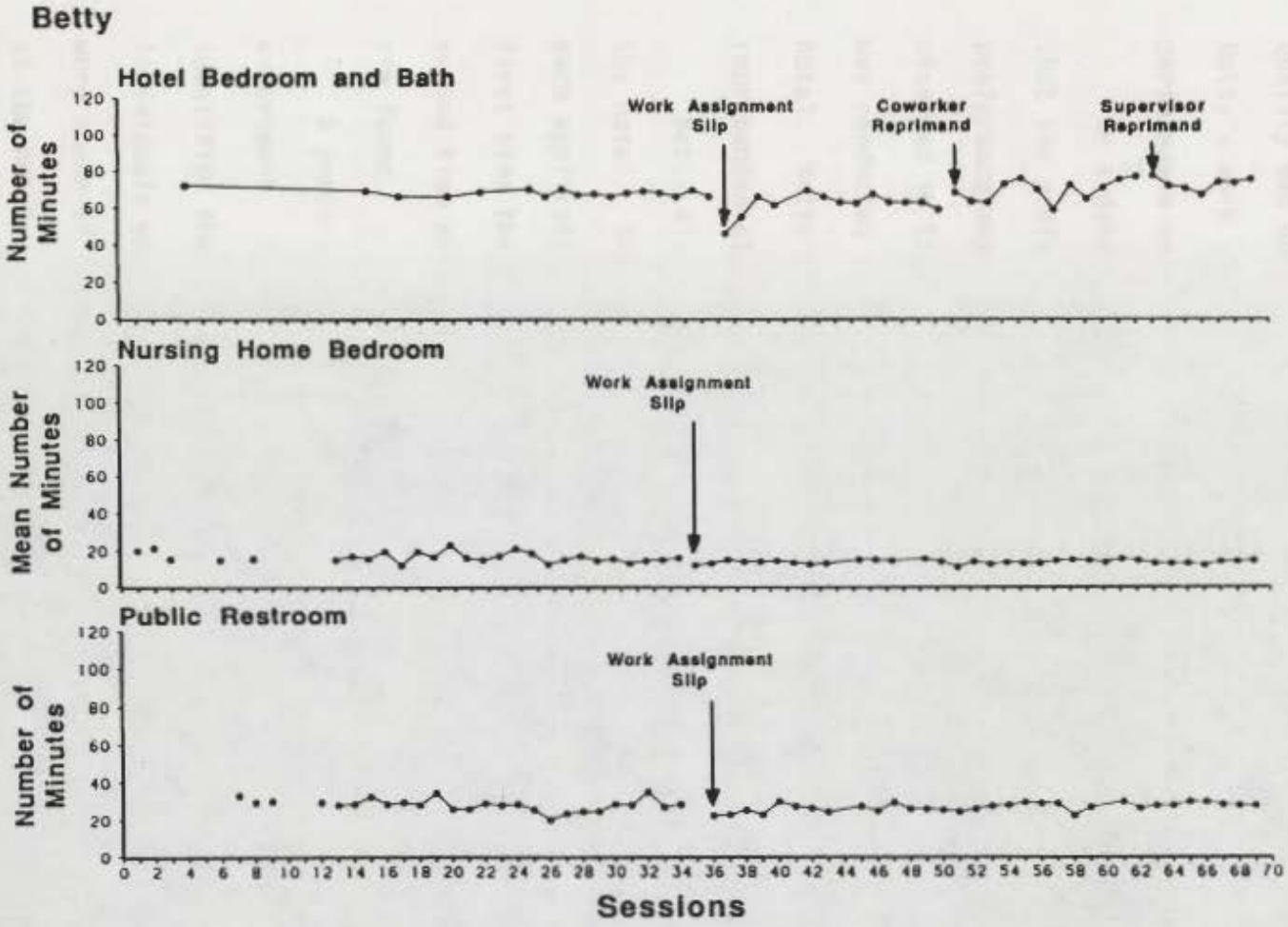

Figure 2. Minutes required for Betty to clean a hotel bedroom and bath, mop a bedroom, and clean a public restroom.

Discussion

Betty's work quality decreased in the hotel when she was permitted to work independently. Sustained improvement in work quality was observed only after a supervisor warning. In contrast, Betty's work quality at the nursing home was consistently above the performance criteria throughout the study.

In a debriefing interview following the study, Betty indicated that she preferred the working atmosphere at the nursing home. This preference may have contributed to the difference in work quality observed in the hotel and in the nursing home. However, the interview was conducted after Betty was reprimanded for poor-quality work at the hotel. Betty's preference may reflect simply that she was not reprimanded at the nursing home.

Betty also accurately described the disciplinary sequence used at the hotel. She reported that discipline increased in severity with each application indicating that, "they tell you about errors" the first time they occur; "they tell you again with more force" the second time errors are found; and "you're fired" the third time errors are found.

A photo interview was also conducted with Betty following the experiment. The purpose of the photo interview was to assess if Betty identified the observers at the hotel as regular workers or as individuals who were responsible for checking her work. Photographs were shown of the observers, co-workers, supervisors and the manager at the hotel as well as photographs of people Betty had never seen before. Betty identified the observers and co-workers in the hotel as maids. The housekeeping supervisor and the manager of the hotel were

also labeled correctly.

The results of this study extend previous research conducted by Schutz, et al., (1979) and Rusch and Menchetti (1981). In those studies, a supervisory reprimand was effective only when it was delivered with response practice or work suspension. The participant in the present study was responsive to supervisory reprimands alone without the addition of response practice or work suspension. Moreover, improved work quality generalized to the bathroom job assignment after reprimands were provided on the bedroom job assignment. These results, however, must be interpreted cautiously since only a moderate decrease in work quality was evident in the hotel, and work quality remained high in the nursing home. It is possible that an event other than the supervisor reprimand produced improved work quality in the hotel bedroom, particularly since improved work quality in the bathroom occurred at the same time without a co-worker or a supervisor reprimand. In addition, it is not known if other individuals would be more responsive than Betty to co-worker reprimands.

Finally, it was not possible to assess responsivity to co-worker reprimands after the supervisor reprimand since Betty maintained high-quality work in both employment sites. Following the completion of the study, Betty was retained as a regular housekeeping employee at the nursing home. Monthly work inspections by the supervisor indicated that work quality remained high for as long as six months after the study was completed.

EXPERIMENT 2

The purpose of the second experiment was to replicate and to extend the findings of the first experiment. Only those individuals whose work quality deteriorated in both work sites were retained as subjects for this experiment. This provided an opportunity to examine the extent to which a disciplinary history that included co-worker and supervisor reprimands and eventual pay loss would result in improved work quality on other tasks with only reprimands.

Method

Participants

Three developmentally disabled adults recruited from the local sheltered workshop participated in this study. Terry, a 22-year-old man, had a full-scale WAIS-R I.Q. of 89. He lived in a foster home and had been employed at the workshop for approximately two years. His employment records indicated that Terry did not adapt to routine schedule changes and had difficulty initiating tasks in a timely manner after lunch or after breaks. He had been employed previously as a janitor at an elementary school. Terry was fired from that job because he refused to complete his required work.

Rhonda, a 44-year-old woman, had a full-scale WAIS-R I.Q. of 83. She lived in a nursing home and had been employed at the sheltered workshop for 11 years. Her employment records indicated adaptive behavior defecits in the areas of community and personal living. She was reported as being impulsive, highly dependent, and lacking stability. Rhonda was never competitively employed.

Clara, a 20-year-old woman, had a full-scale WAIS-R I.Q. of 65.

She lived in a group home and had been employed at several different sheltered workshops for 2 years. A recent vocational assessment (PACG) indicated that Clara generally performed above the average level of the workshop. Clara had never been competitively employed.

Prior to beginning the study, participants indicated they wanted to work outside the workshop and were interested in learning housekeeping and janitorial skills. The participants also indicated that they needed money for room and board and to cover personal expenses. Terry wanted to save for a color television. Rhonda needed money for cigarettes, and Clara wanted to save money for a trip to Yellowstone National Park.

Setting

The research was conducted at the hotel and nursing home described in Experiment 1.

Measures and Procedures

The cleaning tasks and measures were the same as those described for Experiment 1. The participants worked each day in both the hotel and nursing home. In the hotel, each participant was assigned to clean one room. The manager indicated that 45 minutes were typically required to clean rooms that were particularly dirty. In the nursing home, each participant was assigned to clean a public restroom and to mop two or three bedrooms. The public restroom required 20 minutes to clean while mopping a bedroom required approximately 15 minutes. Terry and Clara's restroom job assignment and mopping assignments were selected randomly each day. Rhonda cleaned the same restroom and mopped the same bedrooms daily. Moreover, the restroom assigned to

Rhonda did not have railings to accomodate nonambulatory patients and was smaller than the restrooms assigned to Terry and Clara. The supervisor indicated that regular housekeepers typically required 15 minutes to clean this restroom. The participants were exposed to four experimental conditions during the study: (a) work training; (b) independent work; (c) reprimands; and (d) work observation with pay loss.

Work training. During the work training condition, the participants were taught how to clean hotel rooms, and public restrooms, and how to mop floors. The training procedures in the hotel and nursing home were the same as those described for Experiment 1. At the end of each work training session, the supervisor in the hotel and nursing home paid each participant a wage in cash.

Interactions between participants and co-worker trainers were audiotaped in the final phases of training. The tapes were examined for task reminders or corrective feedback from the co-worker trainers. At no time during the final phase of training was assistance requested from or provided by the co-worker trainer. A criterion of at least 80% accuracy without co-worker assistance or corrective feedback on each job assignment for a minimum of three consecutive work sessions was required before beginning the independent work condition.

Independent work. The independent work condition was the same as that described for Experiment 1. The participants continued to receive a daily wage in the hotel and nursing home regardless of the quality of their work. Observers assessed the work quality of the completed job assignments after the participants left for the day. Errors found during the inspections were corrected by the observer

without the participants' knowledge.

The independent work condition continued until a pattern of inconsistent work quality was established. The definition of inconsistent work quality was the same as that described for Experiment 1.

Reprimands. The effects of co-worker and supervisor reprimands on poor-quality work were examined during this intervention condition. The procedures for delivering reprimands in the hotel were the same as those described for Experiment 1. The participants were told that it was critically important that cleaning be improved. Further, they were told to make sure: there was no dirt or crumbs remaining after dusting and vacuuming; the bedroom mirrors were not streaked; there was no stickiness, dirt, powder, or hair in the bedroom sink or on the counter; and the bedspread was even and did not touch the floor. Terry was also told to try harder to meet the times on his work assignment slip. Finally, participants were warned that poor-quality work might result in someone else getting paid to do their job.

A reprimand was also given to Clara for continued poor-quality work in the hotel bathroom. She was told that it was important to make sure: there was no hair or powder in the bathroom sink; the counter was not sticky; there was no powder on the sides or in the corners of the shower; and there were no toothpaste or shaving cream spots on the floor. She was also warned that poor-quality work might result in someone else getting paid to do her job. (A sample reprimand for poor-quality work in the hotel bathroom is provided in Appendix F.)

In the nursing home, each participant was reprimanded for mopping

the bedrooms inadequately. In addition, Terry and Clara were reprimanded for poor cleaning in the public restroom. Co-worker reprimands were given in the nursing home in the same way as those given in the hotel. First, participants were given their work assignment slip. Second, prior to beginning work, each participant was told that the quality of cleaning in the bedrooms was deteriorating and that it was critically important to improve work. Participants were told that the floor was sticky under the bed, the chair and the dresser, and the lights were not wiped off. Further, each participant was told: to move all the furniture; to mop in a figure 8; to overlap mop strokes; and to wring out the mop after each section of the room. Finally, participants were also warned that poor-quality work might result in someone else getting paid to do their job. (A sample co-worker reprimand for poor-quality mopping is provided in Appendix G.)

Reprimands to Terry for poor-quality work in the public restroom included recommendations to make sure: there was no stickiness or streaks on the chrome; there was no powder or dirt on the toilet or on the sink; and the spots on the wall were scrubbed clean. He was also told to try to work faster.

Reprimands to Clara for poor-quality work in the public restroom included recommendations to check that: there was no stickiness or streaks on the chrome; there was no stickiness on the hand railings; and there was no paper left on the floor. Co-workers also stressed the importance of quality work in maintaining a job and warned the participants that poor-quality work might result in someone else getting paid to do their job. (A sample co-worker reprimand for poor-

quality work in public restrooms at the nursing home is provided in Appendix H.)

Co-worker reprimands in the hotel and nursing home were audiotaped to verify that specific tasks were identified for improvement and that participants were warned of the possibility of wage suspension. Inspection of the audiotape transcript indicated that participants were told about each error and warned that poor-quality work might result in a loss of pay.

When work quality deteriorated again, participants received reprimands from the supervisors. The content of the supervisor reprimand was the same as that provided by the co-worker. The reprimand was given in the supervisor's office with the co-worker trainer present. Supervisor reprimands were audiotaped to verify that specific tasks were identified for improvement and that participants were warned of the possibility of wage suspension. Inspection of the audiotape transcript indicated that the specified tasks were identified and that the participants were informed that poor-quality work would result in loss of pay.

Work observation with pay loss. Employers generally use severe disciplinary actions such as work suspension or termination when a reprimand is not effective (Stowitschek et al., 1985). In this study, the severe disciplinary action of work suspension included work observation with pay loss (defined below).

The work observation with pay loss condition was used when, following a supervisory reprimand, participants' performance continued to be inadequate. This intervention condition also served as a baseline for examining the effects of future reprimands for poor-

quality work. Work observation with pay loss was applied to each participant one or more times. During this condition, co-worker trainers completed the participants' job assignment and received their pay for that job. Supervisors told participants when they arrived at work that their performance on a particular job assignment continues to be inadequate; therefore, they would have to watch a co-worker do the job correctly (work observation). After observing the completion of that job assignment, participants were permitted to complete the second job assignment at the work site. Participants were also required to split their daily pay with the co-worker trainer. That is, supervisors gave half the participants' pay to the co-worker trainers who completed the job assignment in one of the two locations (pay loss). When poor-quality work recurred on the job assignment for which work observation with pay loss was applied, then additional work observation sessions were imposed. However, after observing the co-worker complete one job assignment, the participant was not permitted to complete the second job assignment at the work site. In addition, supervisors gave all the participants' pay to the co-worker trainers following these work sessions.

For each participant, work observation with pay loss was used initially to promote improved work quality in the hotel bedroom. Work observation with pay loss sessions were also conducted subsequently in response to poor-quality work in the hotel bathroom, in the nursing home bedroom and in the public restroom.

During work observation sessions, the co-worker trainer assessed whether the participant was watching before beginning each task. If necessary, the co-worker told the participant that it was necessary to

watch how a specific task should be completed. The co-worker made errors on each task that had been included previously in a reprimand. During a task inspection, those errors were identified verbally for the participant and the co-worker made the necessary correction. For example, when making the bed, a wrinkle was left in the spread. When the co-worker inspected the bed, the wrinkle was identified, and the error was corrected. Lists of tasks and the prescribed errors in the hotel and nursing home job assignments are presented in Appendix I.

The work observation procedure was repeated when poor-quality work reocurred. However, during these sessions, the participants were asked to check for errors after each task was completed. If participants identified the errors, they were thanked for checking, and the co-workers made the necessary corrections. If the participants did not identify the errors, then the co-workers identified the errors and made the necessary corrections.

A sample of approximately 40% of the work observation sessions were audiotaped to verify that co-workers made and identified the specified errors. Inspection of the audiotape transcripts indicated that the specified errors were made by the co-worker trainer and identified by either the co-worker trainer or the participant. In addition, the co-workers' work quality was assessed after completing each job assignment. The co-worker trainers' work quality averaged 96% with a performance range of 91% to 100%.

Experimental Design

A multiple baseline design across participants within each job site was the primary design used to assess the effects of the interventions. In the hotel setting, the intervention conditions were

initiated first with Terry, then with Rhonda, and finally with Clara. The intervention sequence was repeated in the nursing home.

Interobserver Agreement

A second observer independently verified bedroom, bathroom, and public restroom cleaning set-ups 5% of the time and independently inspected the participants' work 30% of the time. The cleaning set-ups and the participants' completed work was examined on a task-by-task basis. Interobserver agreement was calculated by dividing the number of agreements between the observers by the number of agreements plus disagreements and multiplying the result by 100. The mean percentage agreement on cleaning set-ups and work inspections for each job assignment is presented in Table 2.

Table 2

Percent Agreement Index for Cleaning Set-ups and Work Inspections

	Motel Bedroom	Motel Bathroom	Nursing Home Bedroom	Public Restroom
Cleaning Set-up	$\bar{x}$=98 Range=83-100	$\bar{x}$=97 Range=82-100	--[a]	$\bar{x}$=100
Work Inspection	$\bar{x}$=96 Range=84-100	$\bar{x}$=98 Range=86-100	$\bar{x}$=97 Range=74-100	$\bar{x}$=93 Range=74-100

[a] Reliability for cleaning set-ups in the nursing home bedroom was not assessed.

Interobserver agreement was also assessed on the time required to complete each job assignment. A second observer independently timed the participants' work. An agreement between the observers was

recorded if the work time reported by the second observer was within 30 seconds of the time reported by the first observer. Interobserver agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying the result by 100. The percentage agreement on the time required to clean the hotel room was 94%; to mop a bedroom was 97%; and to clean a public restroom was 94%.

Results

Work Quality

Participants' work quality for the bedroom and bathroom cleaning in the hotel is presented in Figures 3 to 5.

Bedroom cleaning. The participants readily acquired the cleaning tasks in the bedroom. Terry's mean performance level for the last five sessions of the work training condition was 90% (see Figure 3), Rhonda's mean performance level was 84% (see Figure 4), and Clara's mean performance level was 84% (see Figure 5).

During the independent work condition, work quality in the bedroom decreased for each participant. Terry sustained high-quality work in the hotel bedroom for 29 work sessions. A gradual decrease in cleaning performance coincided with the introduction of a work assignment slip that specified the assigned work task and when the job should be finished. By work session 59, work quality had decreased to a mean level of 55%.

Rhonda's work quality decreased steadily during the independent work condition. The decreasing performance trend appeared to be unaffected by the addition of the work assignment slip in work session 36. She worked independently for 54 sessions. Work quality decreased to a mean performance level of 54% during the independent work condition.

In contrast, Clara's work quality decreased rapidly in the bedroom during the independent work condition. The addition of a work assignment slip in work session 36 coincided with a decrease in performance in work sessions 37 and 38. By work session 58, work

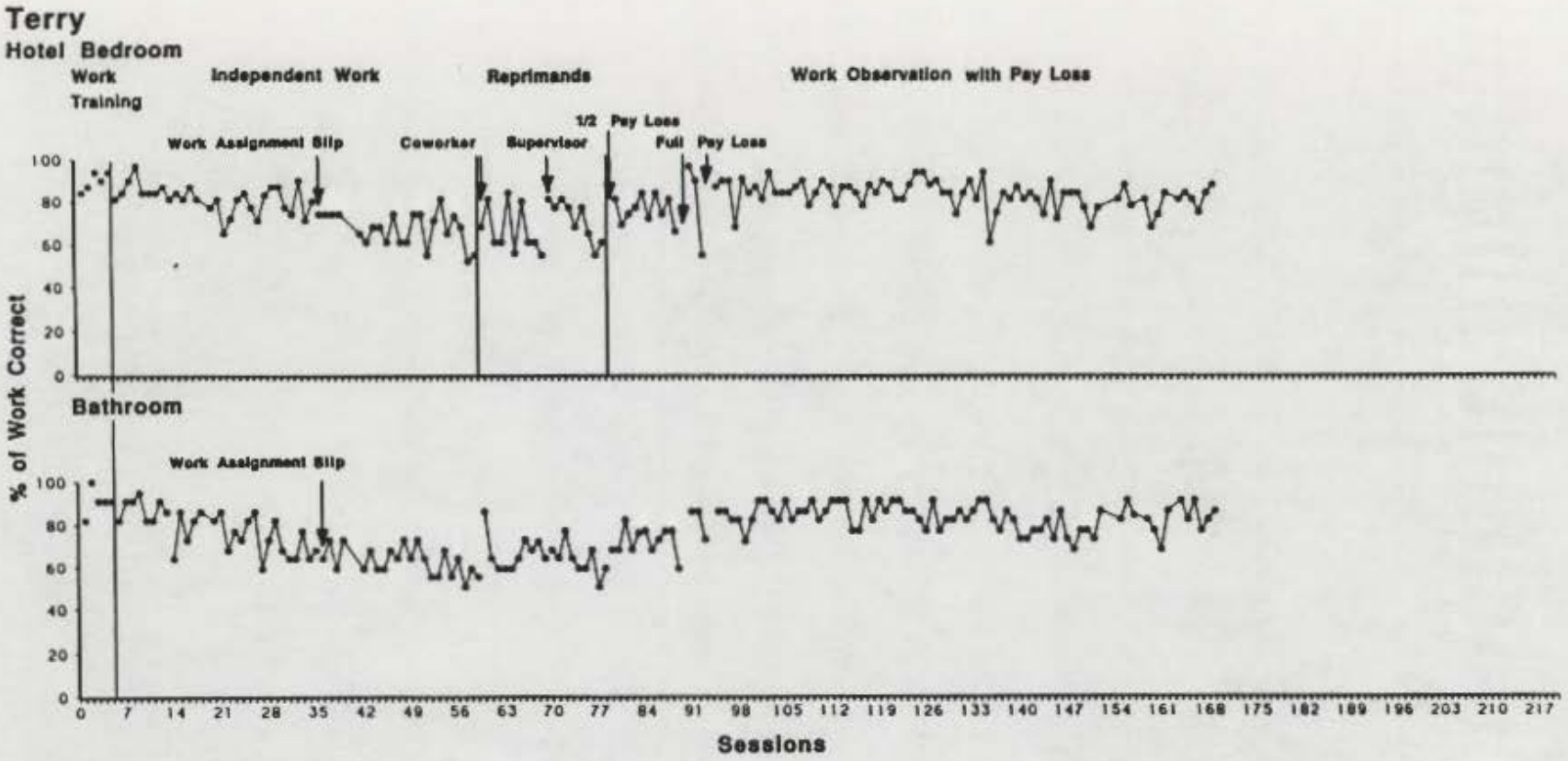

Figure 3. Percentage of work correct for Terry in the hotel bedroom and bath.

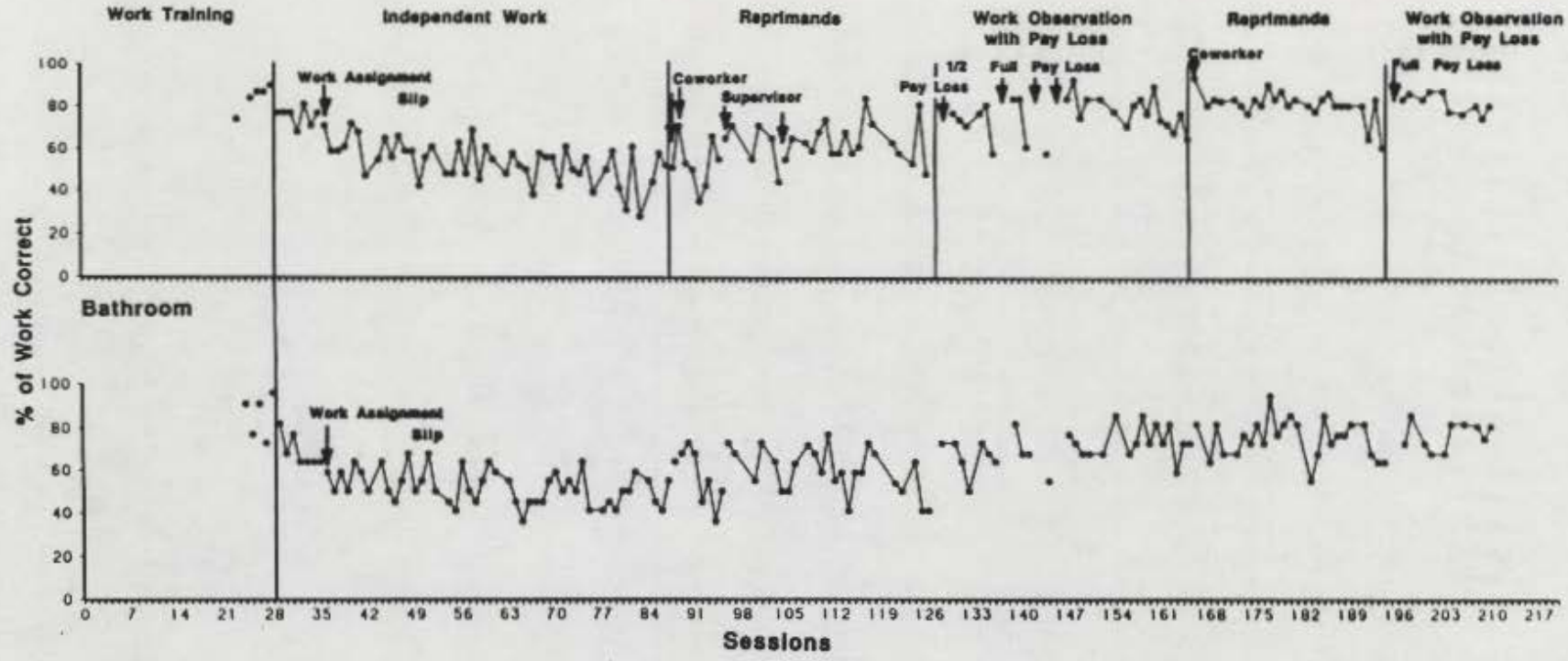

Figure 4. Percentage of work correct for Rhonda in the hotel bedroom and bath.

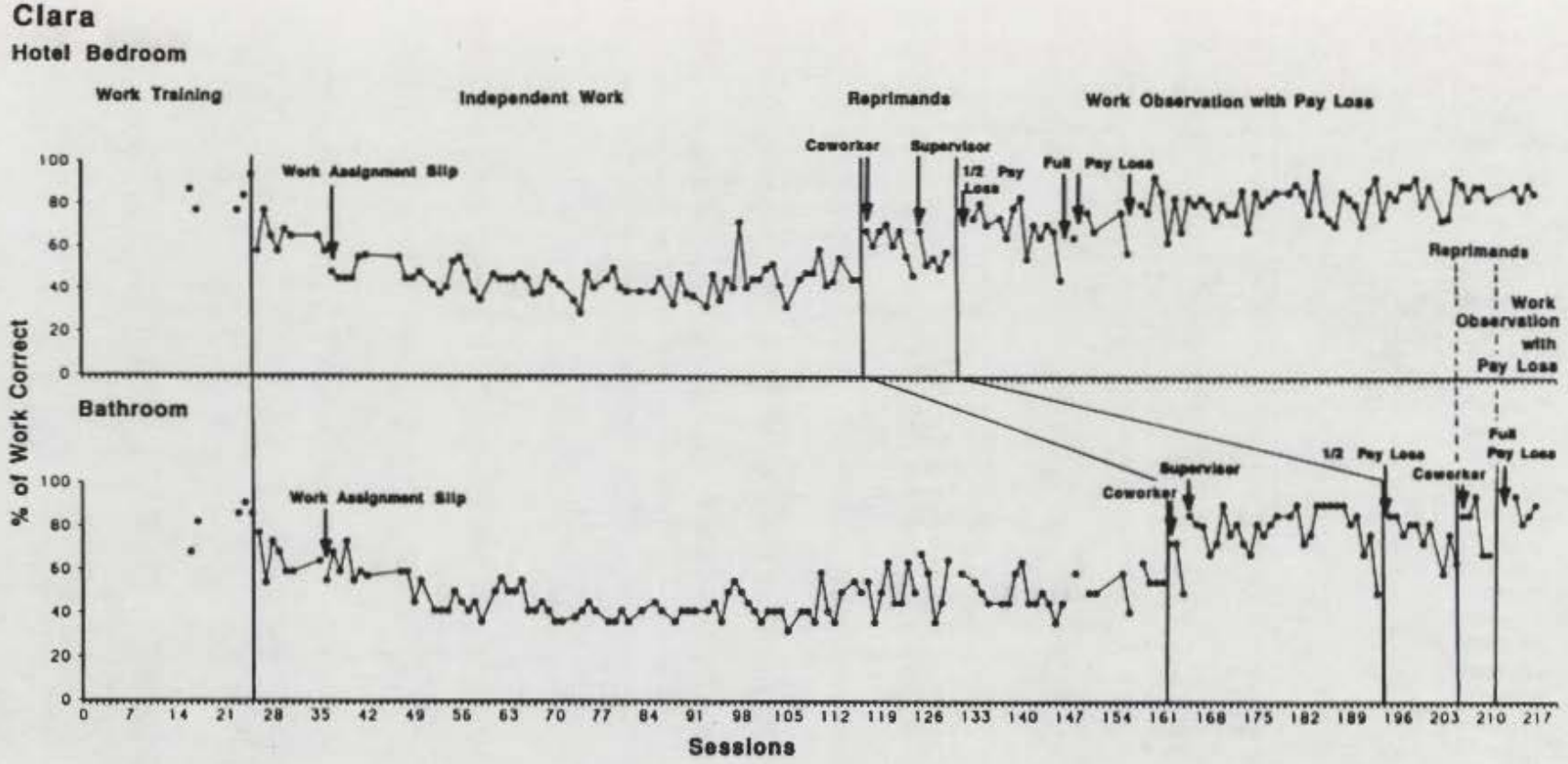

Figure 5. Percentage of work correct for Clara in the hotel bedroom and bath.

quality in the bedroom had decreased to a mean of 47%. This performance level was maintained for the remaining 49 sessions of the independent work condition.

The reprimand condition was applied with each participant after a pattern of inconsistent work quality was established. That is, work quality was less than 60% across five consecutive work sessions; work quality during at least three of the previous five work sessions was below 80% and work quality in the last work session was equal to or less than the mean of the previous four work sessions. A co-worker reprimand about bedroom cleaning resulted in improved work quality for Terry in work sessions 60 and 61. However, in the next 8 work sessions, Terry's work quality exceeded the performance criteria of 80% only two times. A supervisor reprimand was then administered to promote more consistent work quality. Terry approached or exceeded the performance criterion of 80% in the next four work sessions. However, this performance level was not sustained. Within two weeks of the supervisor's reprimand, Terry's work quality had decreased to approximately 60%.

A similar pattern of work quality was observed also with Rhonda and Clara. Rhonda was given two co-worker reprimands and two supervisor reprimands. After the first co-worker reprimand, no improvement was noted. Following the second co-worker reprimand, however, Rhonda's work quality increased for a single session. In the next six work sessions, Rhonda's work quality never exceeded 70%. Work quality improved slightly, after the first supervisor reprimand. A second supervisor reprimand was administered when Rhonda's work quality decreased to 44% in work session 105. Although work quality

improved slightly to a mean level of 63%, Rhonda's work quality continued to be inconsistent. For example, work quality in session 125 was 81%; however work quality in session 126 was 48%.

Clara sustained improved work quality for six sessions following the co-worker reprimand. When her work quality deteriorated rapidly, a supervisor reprimand was administered. The supervisor reprimand about bedroom cleaning resulted in improved work quality for only a single session. Clara's mean level of work quality after the supervisor reprimand was 57%.

Co-worker and supervisor reprimands for poor-quality work resulted in improved performance levels for each participant. However, these performance levels were not maintained. Work observation with pay loss was applied to each participant to promote more consistent cleaning quality in the bedroom. Terry's work quality improved markedly immediately after a work observation session with a half-pay loss. In the next 9 sessions, Terry's work quality ranged from 70% to 80% and exceeded the performance criteria in 4 sessions.

When Terry's work quality decreased to 66%, a second work observation session with full-pay loss was conducted. After the second work observation with pay loss session, work quality improved to well above the criteria of 80% for 2 work sessions. When Terry's cleaning quality decreased to 55%, a third work observation session with full-pay loss was imposed. After the third work observation session, Terry exceeded the performance criterion in 80% of the next 71 work sessions. A low performance level of 68% occurred 3 times, while a high performance level of 94% occurred 4 times. Mean work quality during this time was 81%.

A similar performance pattern was observed with Rhonda and Clara during the work observation with pay loss condition. Rhonda's work quality improved immediately after imposing a work observation session with a half-pay loss. Similar to Terry's performance, Rhonda's work quality ranged from 71% to 81%. When work quality decreased to 58%, a second work observation with full-pay loss was applied. Following 2 work sessions above the performance criterion of 80%, work quality decreased to 61%. When, after a third work observation session with full-pay loss, work quality did not improve immediately, a fourth work observation session was imposed. In 7 of the next 11 work sessions, Rhonda exceeded the performance criterion; however, a downward trend in work quality was noted. In work sessions 161 to 166 her work quality was below the performance criterion of 80%.

Since work quality had improved after the fourth work observation with pay loss, a co-worker reprimand was administered when Rhonda's work quality decreased to 65%. After this reprimand, consistent high-quality work was noted. In 19 of the next 22 work sessions, work quality exceeded the performance criterion of 80%. In contrast, earlier co-worker reprimands resulted in improved work quality for only a single session. Work quality, however, deteriorated once again and a final work observation session with full-pay loss was applied. Following this session work quality exceeded the performance criterion in 7 of 10 work sessions.

Clara's work quality in the bedroom replicated that of Terry and Rhonda. Immediately after the initial work observation with half-pay loss, work quality improved from 43% to 75%; however, a decreasing trend was observed over the next 12 work sessions. When work

performance had decreased to 45%, the second work observation session with full-pay loss was applied. Clara's cleaning quality improved less after that work session than after the initial work observation with pay loss session. A third work observation session with full-pay loss resulted in immediate improvement that was not sustained. A fourth work observation with full-pay loss resulted in immediate and sustained work quality. In 73% of the work sessions, Clara's work quality exceeded the performance criterion of 80%. In only 12% of the work sessions was the bedroom cleaning quality less than 75%.

For each participant, improved bedroom cleaning was sustained only after work observation with full-pay loss was imposed. Terry required three work observation sessions and Clara required four work observation sessions. Rhonda's work quality slowly deteriorated after the fourth work observation session. A second co-worker warning and a fifth work observation session was required to sustain high-quality work.

Bathroom cleaning. The participants readily acquired the cleaning tasks in the bathroom. Terry's mean performance level for the last 5 sessions of the work training condition was 91%. Rhonda's and Clara's mean performance levels were 86% and 83%, respectively.

The quality of bathroom cleaning coincided with improved bedroom cleaning for Terry and Rhonda. Terry's work quality in the bathroom decreased to a mean performance level of 71% during the independent work condition. For the 5 sessions prior to the co-worker reprimand in the bedroom, the mean work quality was 57%. The decreasing performance trend in the bathroom appeared to be unaffected by the addition of the work assignment slip in work session 36. Rhonda's

work quality in the bathroom also decreased steadily. Prior to the co-worker reprimand in the bedroom, her mean work quality was approximately 50%.

For Terry and Rhonda, work quality increased following the co-worker and supervisor reprimands for bedroom cleaning. However, criterion performance levels were not maintained. Terry's mean performance level in the bathroom was 67% after a co-worker reprimand in the bedroom and 63% after a supervisor reprimand. Rhonda's mean performance levels were 57% and 60% respectively. Bathroom work quality was not sustained until after the third work observation session was imposed on Terry for poor-quality work in the bedroom and until after the fourth work observation with pay loss session was imposed on Rhonda for poor bedroom work quality. Terry's mean performance level in the bathroom was 83% after the third bedroom work observation sesssion and Rhonda's mean work quality was 74% after the fourth work observation session in the bedroom.

Clara's mean work quality in the bathroom was 47% during the independent work condition in the bedroom. The addition of a work assignment slip in work session 36 appeared to have little effect on Clara's performance. Further, unlike Terry and Rhonda, only marginal improvements were evident in bathroom work quality after each intervention was applied in the bedroom. Bathroom work quality had improved to a mean of only 57%, after the fourth work observation session with full pay loss in the bedroom.

Since Clara's bathroom work quality was still well below the criterion of 80%, she was reprimanded by the co-worker. The co-worker reprimand had little effect on work quality in the bathroom; however,

a supervisor reprimand increased work quality to 80%. Generally, work quality was maintained at a mean level of 80% for the next 25 work sessions. When work quality deteriorated once again to 50%, a work observation session with half-pay loss was applied. Following the work observation with half-pay loss session, a decreasing performance trend was observed. Clara was reprimanded for poor-quality work in the bathroom, since a reprimand by the supervisor had been effective previously. However, on this occassion the reprimand was administered by the co-worker. The co-worker reprimand resulted in improved work performance immediately, but it was not maintained. A work observation with full-pay loss session was then imposed and work quality in the bathroom improved again. Clara's mean performance level after the second work observation session in the bathroom was 89%.

In the hotel, reprimands for poor-quality work by co-workers and supervisors resulted in brief performance improvement for each participant. The improved performance levels were not sustained for more than 8 sessions. For Rhonda and Clara, sustained high-quality work followed a second co-worker or supervisor reprimand. These data suggest that the disciplinary history in the hotel might have enhanced the effect of reprimands on work quality for Rhonda and Clara.

The reprimand condition and work observation and pay loss condition was re-applied to each participant in the nursing home to examine if the disciplinary history at the hotel would result in improved responding to reprimands about poor-quality mopping in the nursing home bedroom and poor-quality cleaning in the nursing home restroom.

Nursing home bedroom mopping. Participants work quality for bedroom mopping and restroom cleaning is presented in Figures 6 to 8. The participants readily acquired mopping skills in the nursing home bedroom. Terry's mean work quality for the last 5 sessions of the work training condition was 94% (see Figure 6). Rhonda's mean work quality was 89% (see Figure 7) and Clara's mean work quality was 91% (see Figure 8).

During the independent work condition, inconsistent work quality was evident with each participant. That is, the mean percentage of work quality was less than 60% across five consecutive work sessions; work quality on at least three of the last five work sessions was below 80%; and work quality in the last session was equal to or less than the mean of the previous four work sessions. Terry's work performance declined steadily over 60 work sessions to a performance level of approximately 40%. His mean work quality during the independent work condition was 55%. Rhonda's work performance decreased more rapidly than Terry's during the independent work condition. The addition of a work assignment slip in work session 34 coincided with the beginning of a rapid decrease in performance. By work session 57, Rhonda's work quality had deteriorated to approximately 20%. Her performance level continued to range between 20% and 40% until the work observation with pay loss condition was introduced in the hotel bedroom. Bedroom mopping quality then slowly improved to approximately 50%. Her mean work quality during the independent work condition was 36%.

Clara's mopping in the bedroom deteriorated rapidly. In 23 work

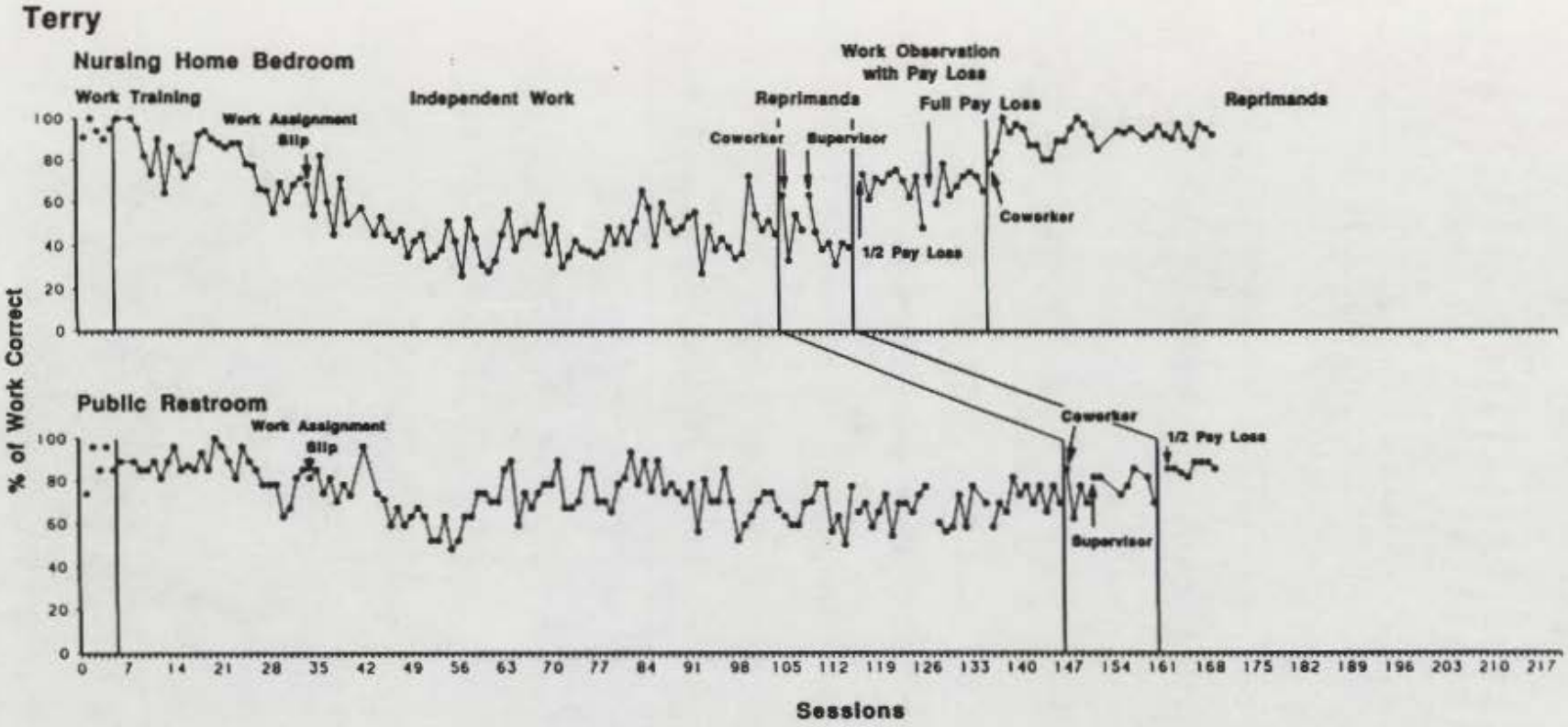

Figure 6. Percentage of work correct for Terry in the nursing home bedroom and public restroom.

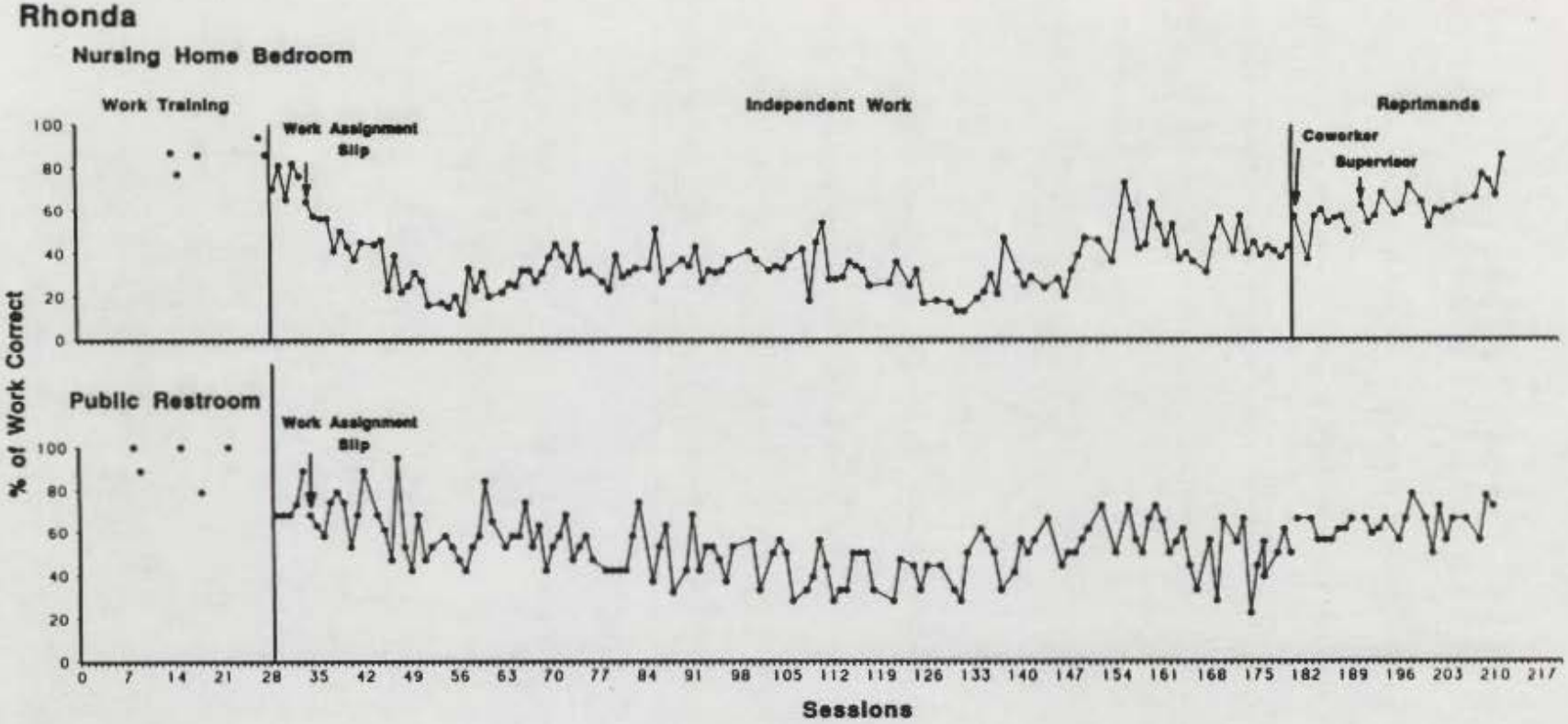

Figure 7. Percentage of work correct for Rhonda in the nursing home bedroom and public restroom.

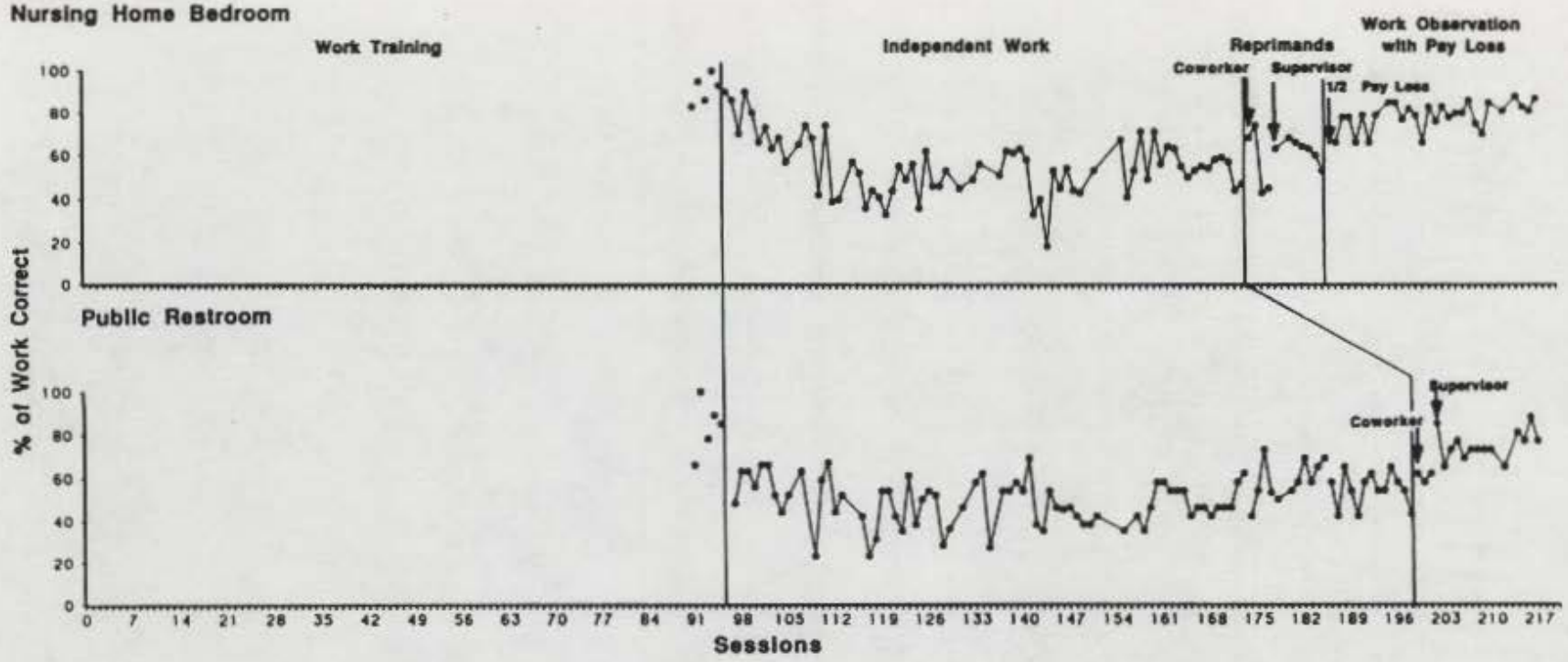

Figure 8. Percentage of work correct for Clara in the nursing home bedroom and public restroom.

[a]There are no data for work sessions 1 to 90 because Clara began work in the nursing home after Terry and Rhonda.

sessions, Clara's work quality decreased to 33%. For the remainder of the independent work condition her mopping quality ranged from 33% to 71%. Clara's mean work quality during the independent work condition, was 55%.

Terry and Clara responded to co-worker and supervisor reprimands for poor quality mopping in the same way that they responded to reprimands in the hotel. That is, work quality improved immediately after a co-worker or supervisor reprimand but the improved performance level was not sustained. Terry's work quality improved from 45% to 63% following a co-worker reprimand, but then decreased to a performance level of 40% within 5 work sessions. After a supervisor reprimand, work quality improved from 47% to 63% but then declined rapidly to 39%. Similarly, Clara's mopping improved from 47% to 74% following a co-worker reprimand and from 45% to 68% following a supervisor reprimand. Her performance following a supervisor reprimand decreased steadily over 6 work sessions to 53%.

Both Terry and Clara required more intensive disciplinary procedures to promote consistent high-quality work. Terry's mopping quality improved from 39% to 73% following a work observation with half-pay loss. His work quality improved from a mean of 43% after the supervisor reprimand to a mean of 67% after work observation with pay loss. A second work observation session with full-pay loss resulted in little improvement. The disciplinary sequence was initiated a second time. After the second co-worker reprimand, Terry met or exceeded the mopping quality criteria in 97% of the next 31 work sessions. Terry's mean work quality was 81%.

Clara's mopping quality improved from 53% after a supervisor

reprimand to 66% following work observation and half-pay loss. Mopping quality continued to improve over the next 29 work sessions. In 73% of her last 15 work sessions, Clara's mopping quality met or exceeded the performance criterion. Her mean performance level was 76% after work observation with pay loss.

In contrast to the other participants, Rhonda's mopping quality improved from an average of 36% during the independent work condition to an average of 54% following the co-worker reprimand. After a supervisor reprimand, Rhonda's mopping quality steadily increased for the next 19 work sessions. Her mean performance level for the reprimand condition was 65%; her mean performance level for the last five sessions of the reprimand condition was 77%.

Public restroom cleaning. The participants readily acquired the cleaning tasks in the nursing home public restroom. Terry's mean performance level for the last five sessions of the work training condition was 87%. Rhonda's and Clara's mean performance level was 94% and 84% respectively.

During the independent work condition, Terry's work quality decreased until work session 55 (see Figure 6). In the next 9 work sessions, work quality improved from 48% to 89%. The mean performance level during that time was 71%. For the remainder of the independent work condition, Terry's work quality was inconsistent with a performance range from 50% to 93%. His mean performance level during the independent work condition was 76%. Mean work quality in the restroom decreased to approximately 64% after the co-worker and supervisor reprimands and work observation with pay loss for bedroom mopping. Restroom work quality improved to a mean of 71% after the

second co-worker reprimand for bedroom mopping.

Co-worker and supervisor reprimands in the restroom resulted in an increase in mean performance to 78%. A work observation session with half-pay loss was then applied to decrease the variability in work quality. After the work observation session, Terry's cleaning quality exceeded the performance criteria of 80% for 8 consecutive sessions.

Rhonda's and Clara's work quality decreased during the first 5 work sessions of the independent work condition to a mean performance level of 73% and 57% respectively (see Figures 7 and 8). The introduction of a work assignment slip in work session 34 appeared to have little effect on Rhonda's performance. Her work quality continued to decrease slowly until work observations and pay losses were initiated in the hotel bedroom (work session 128). Although her average work quality gradually improved, her performance was inconsistent, ranging from 28% to 72%. A small improvement in mean work quality and a decrease in variability coincided with co-worker and supervisor reprimands for poor-quality mopping in the nursing home bedroom. Following the supervisor reprimand for poor mopping her performance ranged from 56% to 78% with a mean of 65%. Rhonda's mean performance was 70% during her last five work sessions.

Clara's mean work quality in the public restroom was 47% during the independent work condition for bedroom mopping. A marginal performance increase to approximately 58% was observed following co-worker and supervisor reprimands and work observation with pay loss for poor-quality bedroom mopping. However, her performance was generally inconsistent ranging from 28% to 69%. A co-worker reprimand

was not effective in improving her work quality; however, a supervisor reprimand resulted in improved cleaning. Following the supervisor reprimand, Clara's cleaning quality ranged from 65% to 88%. Her mean performance level was 75%.

In general, co-worker reprimands for poor-quality work had a similar effect in the nursing home as in the hotel for Terry and Clara. That is, performance improvements were not maintained until after work observation with pay loss was imposed. Sustained improvement in Terry's mopping quality was evident after two work observation sessions with pay loss and a second co-worker reprimand. For Clara, sustained improvement on mopping was evident only after a work observation session with a half-pay loss; however, a supervisor reprimand resulted in a gradual improvement in cleaning quality in the restroom. In contrast, Rhonda's mopping quality gradually improved after a supervisor reprimand without imposing work observation with pay loss sessions in the nursing home.

Time to Complete Work

Participant's work rate for the bedroom and bathroom cleaning in the hotel is presented in Figure 9.

Bedroom and bathroom cleaning. During the independent work condition, Terry required approximately 75 minutes to clean a hotel room. His cleaning time ranged from 60 minutes to 105 minutes. In contrast, the manager reported that the regular hotel maids typically cleaned the dirtiest rooms in approximately 45 minutes. The Pearson Product Moment Correlation between the cleaning time and the cleaning quality in the bedroom and bath was 0.31 ($t = 1.96$, $df = 36$, $p \leq$

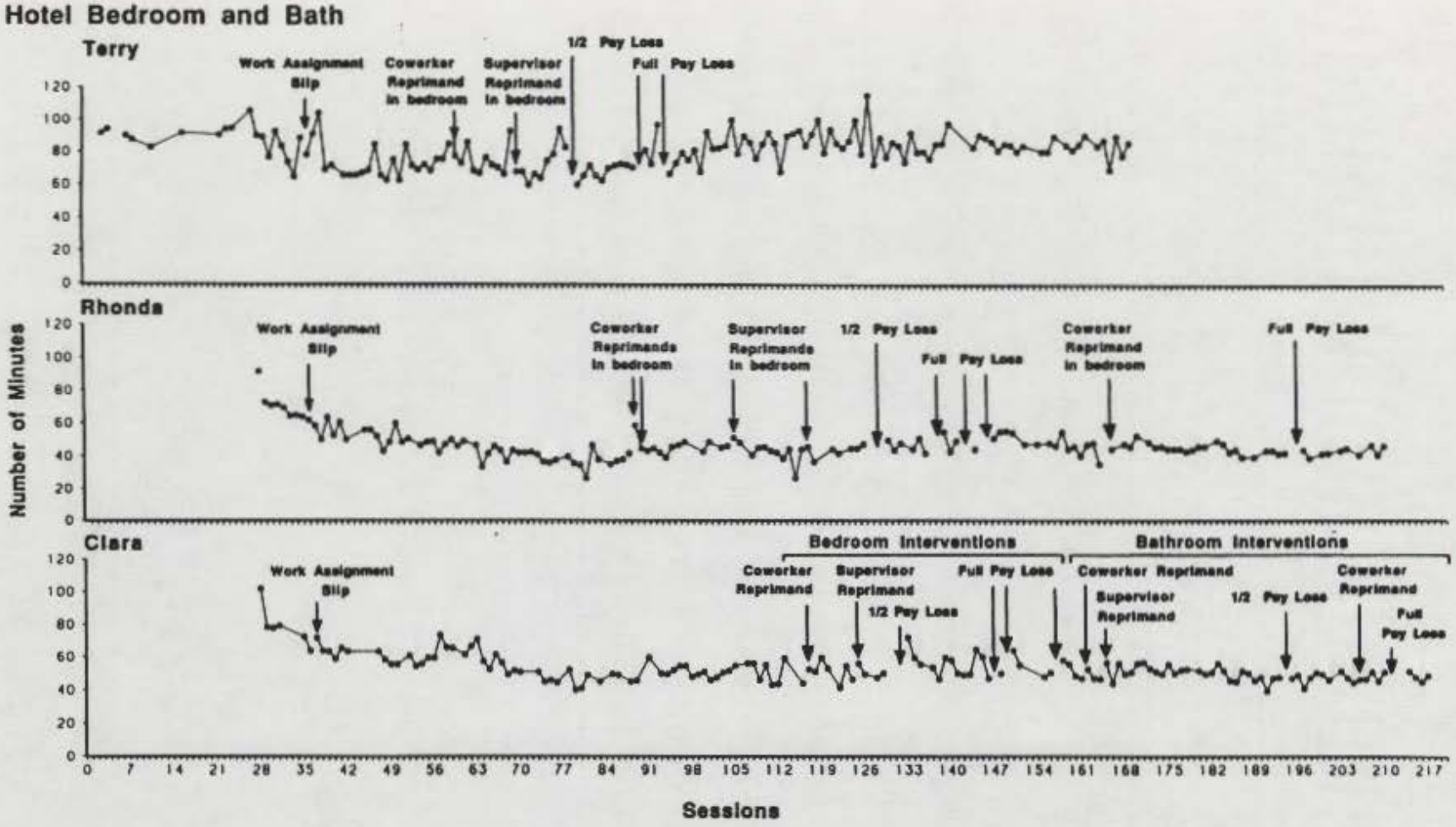

Figure 9. Minutes required to clean the hotel bedroom and bath.

0.10).

Following a co-worker reprimand, Terry's work time decreased to approximately 65 minutes. Terry regained his previous work time of approximately 75 minutes after the supervisor's reprimand. This cleaning time was then maintained. There was no correlation between work time and cleaning quality during the reprimand condition ($r = 0.09$, $t = 0.37$, $df = 17$) and a slight correlation during the work observation and pay loss condition ($r = 0.35$, $t = 3.28$, $df = 79$, $p \leq 0.01$).

Rhonda required approximately 65 minutes to clean a hotel bedroom and bath at the beginning of the independent work condition. Her cleaning time gradually decreased to approximately 35 minutes. During this period, work time was moderately correlated ($r = 0.49$, $t = 4.01$, $df = 51$, $p \leq 0.01$) with cleaning quality in the bedroom and bathroom. Thus, to some extent, the faster Rhonda worked, the poorer her work quality.

Following the co-worker reprimand, Rhonda's mean work time increased to approximately 45 minutes. There was no correlation between work time and cleaning quality during the reprimand condition ($r = 0.15$, $t = 0.83$, $df = 30$) or after work observations with pay losses were initiated ($r = 0.01$, $t = 0.11$, $df = 131$).

Clara required approximately 85 minutes to clean a hotel bedroom and bath at the beginning of the independent work condition. Her work time gradually decreased to approximately 50 minutes. This cleaning time was generally maintained throughout the study.

Work time was moderately related to cleaning quality in the bedroom and bath during the independent work condition ($r = 0.51$, $t =$

4.85, df = 67, $p \leq 0.01$) and during the reprimand condition ($r = 0.53$, $t = 1.88$, df = 9, $p \leq 0.10$). There was no correlation between work time and cleaning quality after the work observation with pay loss condition was initiated; however, after each work observation and pay loss in the bedroom, an increased work time coincided with improved work quality.

For each participant, the cleaning time for a hotel room decreased during the independent work condition. Rhonda's and Clara's work times were moderately correlated with their work quality while Terry's work time was slightly correlated with his work quality.

During the reprimand condition, Clara's work time was moderately correlated with her work quality in the hotel. There was no correlation between time and quality for either Terry or Rhonda during the reprimand condition. After work observations with pay losses, however, Terry's work time was slightly correlated with work quality ($r = 0.35$, $t = 3.28$, df = 79, $p \leq 0.01$) while there was no correlation between cleaning time and quality for either Rhonda or Clara.

Nursing home bedroom mopping. Participants work time for mopping a bedroom in the nursing home is presented in Figure 10. The supervisor indicated that on the average, housekeepers needed to mop a room in 15 minutes. Terry required approximately 15 minutes to mop a room at the beginning of the independent work condition. Work time gradually decreased to approximately 9 minutes. The decrease in work time was moderately correlated ($r = 0.51$, $t = 5.43$, df = 84, $p \leq 0.01$) with the decrease in mopping quality during the independent work condition. For the remainder of the study, work time was stable with little day to day variability.

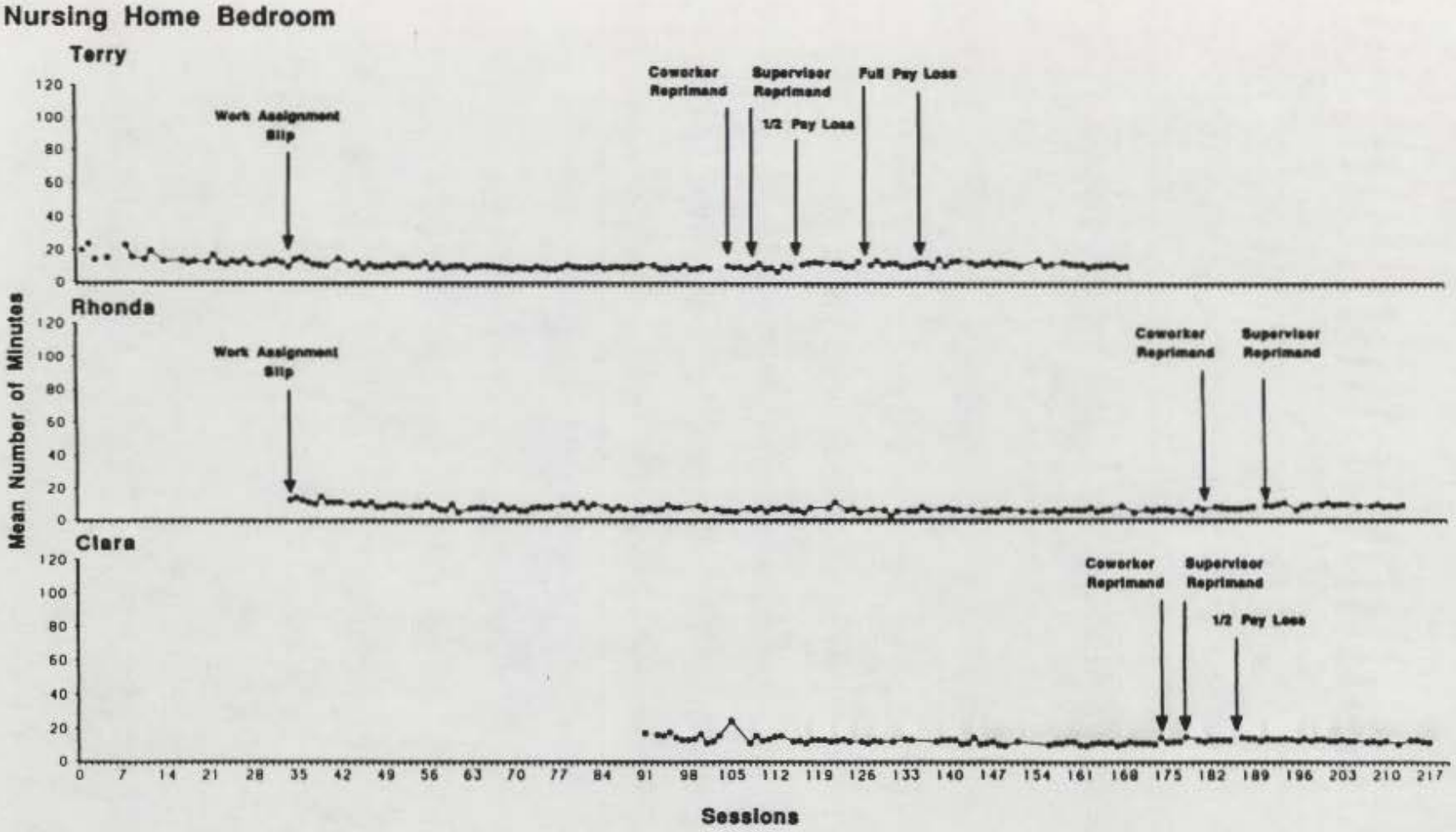

Figure 10. Minutes required to mop a bedroom in the nursing home.

Rhonda and Clara required approximately 15 minutes to mop a room at the beginning of the independent work condition. Rhonda's work time decreased to approximately 6 minutes per room during the next 20 work sessions. During this period, work time was highly correlated with work quality ($r = 0.69$, $t = 3.44$, $df = 13$, $p \leq 0.01$). Work time increased to approximately 9 minutes after the supervisor reprimand.

Clara's mopping time decreased to approximately 12 minutes during the independent work condition. This time was maintained throughout the study. There was little correlation between Clara's mopping time and mopping quality ($r = 0.06$, $t = 5.90$, $df = 98$).

Public restroom cleaning. Participant's work times for cleaning the public restroom in the nursing home are presented in Figure 11. Terry's cleaning time in the nursing home restroom averaged 35 minutes and ranged from 23 minutes to 59 minutes. The typical cleaning time for the public restrooms was 20 minutes. There was no correlation between Terry's cleaning time and cleaning quality.

Clara's cleaning time was less variable than Terry's cleaning time. Clara required between 23 minutes and 37 minutes to clean the public restroom. Her cleaning time was 32 minutes after a supervisor reprimand for poor-quality work; however, her cleaning time decreased to approximately 28 minutes within two work sessions.

The restroom cleaned by Rhonda was smaller than the restrooms cleaned by Terry and Clara. The typical cleaning time for this restroom was 10 minutes. Rhonda required approximately 10 minutes to clean the restroom. Her cleaning time ranged from 6 minutes to 16 minutes during the study. Cleaning time was moderately related to work quality ($r = 0.47$, $t = 2.72$, $df = 28$, $p \leq .02$) for the first 30

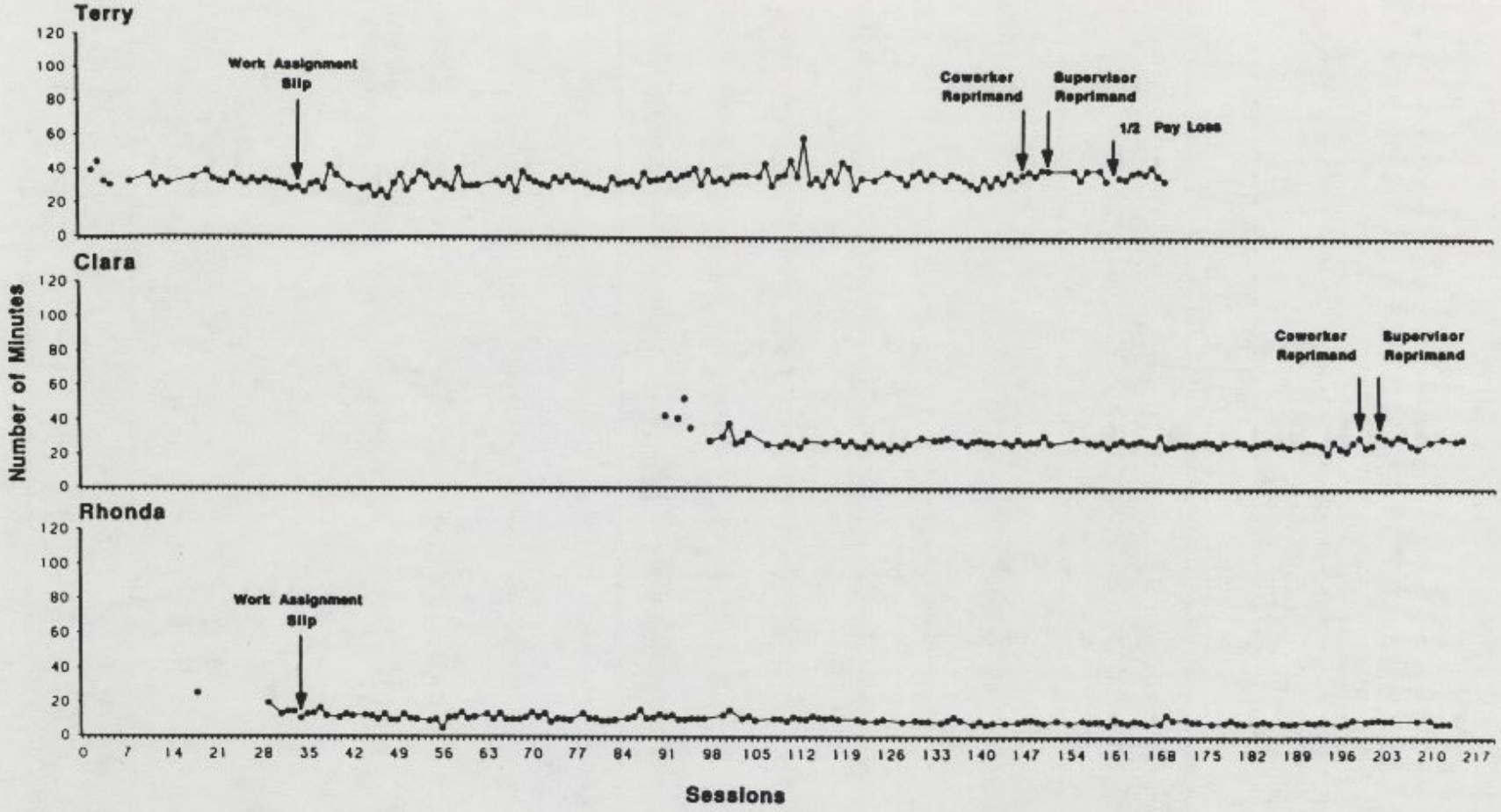

Figure 11. Minutes required to clean a public restroom in the nursing home.

work sessions of the independent work condition. Thereafter, work rate and work quality were not correlated ($r = .01$, $t = 0.11$, $df = 119$).

Social Validity of Work Performance

The purpose of validating work performance is to determine what goals are socially significant, what training procedures are socially appropriate, and what effects are socially important (Wolf, 1978). Kazdin and Matson (1981) suggested two procedures to evaluate the social validity of goals, training strategies, and outcomes. The first, social comparison, involves observing nonhandicapped workers to determine typical or normative performance levels. The second, subjective evaluation, consists of obtaining "expert" opinions from significant others regarding essential work behaviors or skill levels.

In the present study, the quality criteria for each job task were identified by the supervisors in the hotel and nursing home. Similarly, the hotel and nursing home supervisors were surveyed to determine if the participants' cleaning quality was acceptable.

During each experimental condition, supervisors were asked to inspect the participants' work at least two times. The supervisors were aware of the experimental conditions since they participated in the reprimand and work observation with pay loss interventions. If a particular task was completed adequately, the supervisor scored a (+). If the task was not completed adequately, the supervisor scored a (-). In addition, supervisors were asked to rate the quality of each participants' work relative to that of other employees. A rating of 1 indicated that the individual's work was below average; a rating of 3

indicated that the individual's work was average; a rating of 5 indicated that the individual's work was equal to that of the best worker; and a rating of 7 indicated that the individual's work was better than that of the best worker. The social validation measures used by the supervisors are included in Appendix J.

The percentage of tasks in each job assignment and the quality ratings of each supervisor across experimental conditions are presented in Table 3.

Supervisor evaluations in the hotel. During the independent work condition, supervisors indicated that Terry and Rhonda adequately completed 59% to 89% of the tasks in the hotel. Quality ratings ranged from slightly below average (2.5) to average (3.0). Supervisor's ratings indicated that each participant's cleaning improved after work observations with pay losses were administered.

In the hotel bedroom, the percentage of tasks cleaned adequately by Terry improved from 60% during the reprimand condition to 70% during the work observation and pay loss condition. His quality ratings for both bedroom and bathroom cleaning were average relative to other employees.

Rhonda adequately cleaned 54% of the bedroom tasks during the reprimand condition and 80% of the bedroom tasks during the work observation with pay loss condition. Similar improvements were noted in Rhonda's bathroom cleaning. Quality ratings in the bedroom and bathroom improved from "average" during the reprimand condition to "equal to best worker" after the last work observation with pay loss session.

Table 3. Supervisor Evaluations of Work-Quality for Hotel and Nursing Home Job Assignments

Participant	Setting	Experimental Condition: Independent Work Mean % (+)	Independent Work Mean Rating	Reprimand Mean % (+)	Reprimand Mean Rating	Work Observation with Pay Loss Mean % (+)	Work Observation with Pay Loss Mean Rating	Reprimand Mean % (+)	Reprimand Mean Rating	Work Observation with Pay Loss Mean % (+)	Work Observation with Pay Loss Mean Rating
Terry	Hotel Bedroom	69%	3.0	60%	3.0	70%	3.0				
	Hotel			68%[a]	2.8[a]	66%[a]	2.9[a]				
	Bathroom	89%[b]	3.0[b]								
	Nursing Home Bedroom	38%	2.5	45%	1.9	58%	2.4	84%	4.5		
	Nursing Home Restroom			50%[a]	2.3[a]	45%[a]	2.2[a]	68%[a]	4.0[a]		
				50%	2.5	55%	3.0				
Rhonda	Hotel Bedroom	59%	3.0	54%	2.75	80%	3.6	77%	3.5	89%[b]	5.0[b]
	Hotel			58%[a]	2.5[a]	74%[a]	3.5[a]	72%[a]	3.5[a]	100%[ab]	5.0[ab]
	Bathroom	61%	2.5								
	Nursing Home Bedroom	33%	1.9	78%	2.8						
	Nursing Home Restroom	34%[a]	1.75								
Clara	Hotel Bedroom			35%	1.7	63%	2.9				
	Hotel			52%[a]	2.0[a]	50%[a]	2.3[a]				
	Bathroom			47%	2.3	66%	4.0				
	Nursing Home Bedroom	59%	2.5			62%	3.0				
	Nursing Home Restroom					30%[a]	2.0[a]				
		55%	2.4	69%	3.5						

[a] Represents the mean for data collected after the reprimand condition or work observation with pay loss condition was administered on the other job assignment in that work site.

[b] Represents one supervisor evaluation.

Clara adequately cleaned 35% of the bedroom tasks during the reprimand condition and 63% of the bedroom tasks during the work observation with pay loss condition. In the hotel bathroom, the supervisor indicated that work had improved only after the work observation with pay loss condition was administered. Quality ratings in the bedroom improved from "below average" during the reprimand condition to "average" during the work observation with pay loss condition. Bathroom work quality improved from slightly below average (2.3) to slightly above average (4.0).

Supervisor evaluations in the nursing home. During the independent work condition, participants' adequately performed 33% to 55% of the cleaning tasks in each job assignment. In addition, the work quality ratings for each participant were below average.

The supervisor noted improvement in Terry's work during each experimental condition. Bedroom mopping improved from 38% correct during the independent work condition to 84% during the second reprimand condition. Improved cleaning quality was also noted in the public restroom after the second co-worker reprimand for poor bedroom mopping. Quality ratings in the nursing home bedroom and public restroom improved from slightly below average to above average.

Rhonda cleaned one-third of the tasks adequately during the independent work condition in the nursing home. Moreover, quality ratings were below average. During the reprimand condition, the supervisor indicated that bedroom mopping had improved substantially and that work quality was approaching that of an average worker.

The supervisor judged that Clara's mopping improved during the work observation and pay loss condition. Similarly, the supervisor

indicated that public restroom cleaning improved during the reprimand condition. Quality ratings for both bedroom mopping and cleaning the public restroom improved from slightly below average to average.

In the hotel and nursing home, supervisor evaluations of cleaning quality generally coincided with the objective measures of work quality. This is not surprising since the list of cleaning tasks and quality criteria for each job assignment were developed in cooperation with supervisors in the employment sites.

Discussion

The purpose of this dissertation was to examine a procedure for teaching developmentally disabled individuals that mild disciplinary actions may lead to more severe consequences. Specifically, these studies investigated how reprimands, a mild disciplinary action, might become an effective procedure for maintaining high-quality work with developmentally disabled workers in community employment.

In the discussion, the results are summarized, implications of the research are examined and the limitations of the study and suggestions for future research are discussed.

Summary of Results

Two major research questions were investigated. The first question addressed whether reprimands from co-workers or supervisors would result in consistent high-quality work with developmentally disabled persons. The second question addressed whether reprimands would result in consistent high-quality work on a second job assignment or a new job site after a severe disciplinary action was applied to one job assignment. The results are discussed in terms of these research questions.

The effects of co-worker and supervisor reprimands. In both Experiment 1 and Experiment 2, the participants required from 1 to 2 months to acquire the necessary job skills for the hotel and nursing home job assignments. However, during the independent work condition work quality decreased in the hotel and in the nursing home for three of four participants. Betty maintained high-quality work in the

nursing home but her cleaning quality decreased in the hotel.

The effects of reprimands on improving work quality were examined initially with the hotel bedroom job assignment. For each participant, co-worker reprimands in the hotel bedroom resulted in a brief improvement in work quality. Performance levels approached or exceeded the criteria of 80% immediately after the co-worker reprimand. Even though mean performance levels improved for Terry and Clara, work quality was inconsistent.

Work improvement was again noted for each participant after a supervisor reprimand. Betty's work quality exceeded the performance criterion of 80% for 7 consecutive days. Terry's, Rhonda's and Clara's work quality increased initially; however, work performance was inconsistent in subsequent work sessions.

In general, work quality improved soon after a reprimand was administered. However, only Betty maintained high-quality work after the initial supervisor reprimand. The remaining participants required more severe disciplinary actions to produce high-quality work in the hotel bedroom.

After four work observation and pay loss sessions, a co-worker reprimand was re-administered to Rhonda. High-quality work in the bedroom was observed for the next 22 work sessions. This result suggested that after severe disciplinary actions (i.e. work observation with pay loss), co-worker reprimands might produce sustained high-quality work on some jobs with some individuals. However, it is important to note that eventually it was necessary to readminister the work observation with pay loss intervention.

Reprimands applied to new job assignments. Reprimands were applied to a second job assignment in the hotel (bathroom cleaning) only with Clara. Improvements in hotel bathroom cleaning for the other participants coincided with improved cleaning in the hotel bedroom.

A co-worker reprimand for poor bathroom cleaning resulted in a brief improvement in work quality; however, work performance decreased once again within several days. For this participant, a co-worker reprimand applied to a second job assignment did not result in consistent work performance. A supervisor reprimand, however, resulted in high-quality work in the bathroom for 27 work sessions. In contrast, the co-worker and supervisor reprimands administered previously for poor bedroom cleaning produced marginal work improvement lasting only 6 and 1 sessions respectively. It appears that supervisor reprimands were more effective after the disciplinary sequence had been applied to another job assignment. It should be noted, however, that it was necessary to readminister work observation with pay loss when work quality decreased. The results must be interpreted cautiously since replications with other job assignments in the hotel or with other workers were not possible. Moreover, reprimands were applied in the bathroom after they were applied in the bedroom. It is possible that improved bathroom performance might have coincided with improved bedroom performance if reprimands were applied first in the bathroom.

Reprimands applied in a new job site. For three participants, reprimands were applied to the job assignments in the nursing home after the complete disciplinary sequence was applied to the job

assignments in the hotel. Thus, in the nursing home, the effect of reprimands on work performance was examined in the context of a disciplinary history that included reprimands, as well as, the more severe consequences of work observation with pay loss.

Reprimands for poor work in the nursing home resulted in effects similar to those observed when reprimands were applied in the hotel. That is, co-worker and supervisor reprimands resulted in only brief work improvement until a severe disciplinary action was administered.

Initially, a co-worker and supervisor reprimand was not effective with Terry. Reprimands for poor restroom cleaning produced some improvement in work quality after work observation with pay loss was administered for poor bedroom mopping. The improvement in work quality might have been limited, however, by a relatively high mean performance level (71%) during the independent work condition. This initial performance level left little room for improvements in cleaning quality.

In contrast to Terry, Rhonda appeared to gradually improve her mopping quality after a supervisor reprimand. These data should be interpreted cautiously, however. It is possible that the disciplinary actions in the hotel also affected work performance in the nursing home. During the independent work condition, a cycle of work improvement in bedroom mopping coincided with the administration of work observation and pay loss for bedroom cleaning in the hotel. Similarly, the final work observation with pay loss session in the hotel might have resulted in improved bedroom mopping in the nursing home without the supervisor reprimand for poor quality mopping.

For Clara, the effects of the disciplinary sequence on work

quality in the nursing home replicated the effects of the disciplinary sequence in the hotel. Sustained improvement in mopping quality was observed only after work observation with pay loss. A supervisor reprimand for poor restroom cleaning resulted in improved work only after a co-worker reprimand, a supervisor reprimand, and work observation with pay loss were applied to bedroom mopping.

In general, reprimands for poor-quality work were no more effective in the nursing home than in the hotel. Reprimands for poor work resulted in improved work only after a severe disciplinary action was administered in that job site. Thus, for these individuals, reprimands may produce sustained high-quality work only after severe disciplinary actions.

Other Findings

Time to complete work. In the hotel and nursing home, work time for each job assignment decreased during the independent work condition. During subsequent work conditions, Rhonda's and Clara's work times were generally stable. Moreover, the supervisors in the hotel and nursing home reported that Rhonda's and Clara's work time equaled that of other employees.

Terry, however, persisted in watching television or lying on the bed in the hotel and looking at himself in the mirror while mopping bedroom floors or cleaning the restroom in the nursing home. There was little sustained reduction in Terry's work time during either the reprimand conditions or during the work observation with pay loss conditions. Supervisors reported that although Terry's work quality improved during the course of the study, his slow work time made him

an unacceptable employee.

During the independent work condition, work time and work quality in the hotel were moderately correlated for Rhonda and Clara. Clara's work time and work quality in the hotel were also moderately correlated during the reprimand condition. In the nursing home, Terry's mopping time and mopping quality was moderately correlated during the independent work condition.

In general, work time and work quality were not correlated during the reprimand conditions or during the work observation with pay loss conditions. DeHaven et al. (1982) also found little covariation between work quantity and work quality in a study examining procedures to increase the rate of hotel room cleaning with three mentally retarded adults. Work time varied across conditions while work quality remained stable.

In the present experiments, reprimands for poor-quality work and work observation with pay losses were contingent on work quality rather than work time. Thus, work quality was observed to vary across experimental conditions while work time was relatively stable.

Response generalization. Baer and Guess (1973) defined a response class as a set of responses such that interventions that produce changes in the occurrence of some members of that class also produce changes the occurrence of the remaining members of the class. DeHaven et al. (1982), in a study that examined procedures to improve the hotel cleaning rates of three mentally retarded adults, found that an increased bathroom cleaning rate coincided with an increased bedroom cleaning rate. It was suggested that a response class of work behavior had developed. Although the required cleaning responses in

the bathroom and bedroom were dissimilar, the authors reasoned that the responses were functionally similar in terms of returning the rooms' appearance to a clean setting.

In the present studies, the findings by DeHaven et al. (1982) were replicated in that improved bathroom cleaning covaried with improved bedroom cleaning for three of four participants. This suggests that the bedroom and bathroom cleaning tasks were organized as a response class for these participants. Thus, when reprimands or work observation with pay loss produced improved bedroom cleaning, bathroom cleaning improved also. The cleaning response class, however, was limited to the hotel site.

Work quality on the job assignments in the nursing home, bedroom mopping and restroom cleaning, did not improve when reprimands or work observation with pay loss were applied intitially in the hotel. After reprimands were applied in the nursing home, bedroom mopping and restroom cleaning might have organized as a response class only for Rhonda. Terry's restroom cleaning improved slightly after the second co-worker reprimand for poor bedroom mopping. Similarly, marginal improvements were observed in bedroom mopping when co-worker reprimands and work observation with pay loss were applied to restroom cleaning. Although the work improvements are consistent, it is not clear that the job assignments were organized as a response class. Improvements in work quality were slight and within the performance range of previous work sessions.

The job assignments did not appear to be organized in response classes for Clara in either work site. It is not clear from these data what variables contribute to the organization of response classes

among job assignments within a job site or across job sites.

Social validation. Supervisor ratings of work performance generally paralleled the objective evaluations of work quality. That is, supervisor evaluations improved for each participant as their work quality improved. This is not surprising since the work quality criteria were developed in cooperation with the supervisors. It is also possible that the supervisors' ratings were influenced by their direct involvement with the reprimand intervention and the work observation with pay loss intervention.

In a debriefing interview that followed each study, two participants indicated that they preferred the working atmosphere at the hotel and two participants preferred the working atmosphere at the nursing home. Each participant also described the disciplinary sequence used in the job sites. The first time errors are found, the participants reported that the co-worker or supervisor tells you how to do the job correctly. The second time errors are found the participants reported that "they do it and you watch" or you get "laid off and lose a day's pay" or "someone else gets paid." For a third infraction, the participants indicated that they would be fired.

A photo interview was also conducted with each participant. The purpose of the photo interview was to assess if the participants identified the observers at the hotel or nursing home as co-workers or as individuals responsible for checking their work. In the hotel, the observers were identified either as "maids" or as people who "helped train us." In the nursing home, Terry identified the observers as people "from the college [who watched] me and the ones on the project [to] make sure we were doing the job right [and to] keep track of what

we did." However, when asked how these individuals kept track of his work, Terry said that he "didn't know." Rhonda and Clara also identified one observer as someone who "wrote on paper all the time" and as someone who "times people in jobs." They did not identify two other observers used in the nursing home.

In both the hotel and the nursing home, other co-workers and the supervisors were labelled correctly. In addition, Betty, Clara, and Rhonda correctly identified the manager at the hotel.

Implications

Research in the vocational literature generally addresses the acquisition and the short term maintenance of work performance in community work settings. The experiments conducted for this dissertation address the problem of long-term maintenance of high-quality work. During the work training condition, the participants demonstrated proficiency in each job assignment. One purpose of these investigations was to extend the vocational literature by examining conditions that might enhance the durability of desired behavior changes in community work situations. The data presented in this dissertation represent work performance for as long as eight months after participants initially acquired the targeted job skills.

The results of this research extend previous research conducted by Schutz et al. (1979) and Rusch and Menchetti (1981). In those studies, the subjects were taught how to respond to reprimands from supervisors and co-workers. However, it was not shown that reprimands alone would result in sustained improvement of the desired behaviors.

In the first study of this dissertation, the participant was

responsive to supervisor's reprimands alone without the addition of response practice. In the second study, however, the participants required a severe disciplinary action, work observation with pay loss, before improved work quality was sustained. Thus, it appears that reprimands alone are not sufficient to promote improved work quality with some developmentally disabled individuals. Rather, reprimands paired, at least initially, with response practice or work suspension are likely to produce sustained work improvement. From this standpoint, reprimands may only function to remind workers to be aware that stronger contingencies are operating in the work setting. Thus, a reprimand might signal the occasion to improve work quality to avoid a more aversive situation (i.e., work observation with pay loss).

A co-worker reprimand was effective only after the disciplinary sequence was completed for a particular job assignment. Supervisor reprimands were required to produce sustained work improvement for other job assignments in the same work site. It appears that the disciplinary history within a job is one variable that influences the effectiveness of co-worker or supervisor reprimands. In using co-workers as performance managers, it will be necessary to provide training such that co-worker reprimands might become more effective conditioned punishers. One procedure that might be effective is to pair the co-worker reprimand with a work observation with pay loss. In the present study, co-worker reprimands were administered at least one week prior to work observation with pay loss sessions. As such, the association of the co-worker reprimand with work observation and pay loss might have been too remote. In general, a punisher is most effective when it coincides with response onset (Azrin & Holz, 1966;

Aronfreed & Reber, 1965). However, even if the immediate application of work observation with pay loss paired with reprimands produces rapid improvement in work quality, it does not necessarily follow that reprimands delivered alone will also result in improved work quality.

In the second job, it was necessary to repeat the disciplinary sequence with two participants before sustained improvements in work quality were observed. Thus, for some developmentally disabled individuals, the disciplinary history from one job is not sufficient to establish supervisor reprimands as an effective management procedure in other jobs. These results replicate the findings of Birnbrauer (1968). In that study, verbal reprimands and electric shock were paired in an attempt to establish verbal reprimands as generalized conditioned punishers. The pairing of reprimands and shock in the laboratory did not enhance the power of reprimands on the ward either from the experimenter or from another person. Other researchers also report that the effects of punishment are specific to the setting in which it is administered (Corte, Wolfe & Locke, 1971; Risley, 1968). It is not known if training across one or more additional job sites would be sufficient to produce generally sustained work improvement in response to reprimands.

The results of this research also systematically replicate the findings of DeHaven et al. (1982). That study addressed procedures to improve the bathroom cleaning rate in a hotel maid training program. When the intervention procedures were applied in the bathroom, the cleaning rate in both the bathroom and bedroom decreased. It was proposed that a response class developed in reference to the response characteristic of cleaning speed. In this study, a response class

related to work quality in the hotel might have formed for three participants. This finding does not replicate research in which punishment was used with severely handicapped individuals (Birnbrauer, 1968; Risley, 1968). In those studies, the application of electric shock to one behavior had no automatic effect on the suppression of other behaviors in the same setting.

The establishment of a response class related to work quality has important practical implications. With individuals for whom a response class develops, reprimands on one job task might produce general work improvement on similar tasks within a job site. However, even for these individuals, broad improvements in work quality might not occur on dissimilar tasks within a job site.

Finally, there are practical implications from these experiments for three of the four participants. Betty was retained as a regular housekeeping employee at the nursing home. Similarly, Rhonda and Clara are currently stable members of a supervised work crew in a local hotel. Anecdotal reports from supervisors indicate that each participant maintained high-quality work for six months after training. Terry is the only participant in this research who is not currently working in the community. Although Terry's work quality improved, his poor work time requires a placement in which constant supervision is available. Repeating the disciplinary sequence for Terry with work time as well as work quality might result in sufficient work improvement such that a community placement is possible.

Limitations and Future Research

The present studies demonstrated that for some developmentally disabled individuals, reprimands followed by a severe disciplinary action may result in reprimands becoming a more effective disciplinary tool. However, this finding is limited in several respects.

First, the participants in this research were mildly handicapped. Additional research is necessary to examine the effects of reprimands and work observation with pay loss with moderately and severely handicapped individuals.

Second, conclusions concerning the acquired effectiveness of reprimands within a job site must be considered tentative. It was possible to repeat the disciplinary sequence on another job with only one participant in the hotel and with two participants in the nursing home. The same job assignments and co-workers were involved in only two of these situations. Additional replications in which reprimands are applied across a number of jobs within a job site are necessary.

Third, the conclusions concerning the effectiveness of reprimands across job sites must also be considered tentative. For Rhonda and Clara, a modest improvement in work quality in the nursing home appeared to coincide with implementation of work observation with pay loss conditions in the hotel. It is possible that the job assignments in the hotel and nursing home were not independent. Work observation sessions were conducted in the hotel after reprimands were administered in the nursing home with both Rhonda and Clara. Thus, it is possible that the gradual improvements in work quality, in response to reprimands, in the nursing home were influenced by the work observation sessions conducted in the hotel. Replications are

necessary to examine this possibility.

Fourth, response classes based on the dimension of cleaning quality were suggested for three of the four participants in these experiments. It is not clear, however, under what conditions, one might predict response generalization to other job assignments or to other job sites. That is, what training is both necessary and sufficient for response class development of job assignments such that disciplinary consequences on one assignment would lead to general improvement in work quality? Research in this area is particularly important since reduced supervision is a likely result from the organization of job assignments into response classes.

Fifth, contingent use of reprimands and work observation with pay loss to reduce cleaning errors may lose potency over time. Decreased performance was observed in Clara's hotel bathroom cleaning quality after reprimands and work observation with pay loss was applied repeatedly in the hotel and nursing home. It is possible that the work observation with pay loss intervention eventually was viewed as a tolerable situation that occurred infrequently.

Research is necessary to examine how the effects of reprimands and work observation with pay loss might be enhanced when used with generalized conditioned reinforcers such as praise, monetary incentives and positive performance posting.

Sixth, the severe disciplinary action used in this study included work observation as well as pay loss. It is possible that either work observation or pay loss alone might result in similar effects on work quality. Additional research is warranted that examines the separate and combined effects of work observation and pay loss.

Finally, the work quality measures developed for these studies employed the quality criteria described by the supervisors in the hotel and nursing home. These measures did not capture how well or how poorly a task was completed. It is possible that qualitative work improvements occurred in response to initial co-worker and supervisor reprimands; however, these improvements were not recorded because the minimum quality criteria were not met. A daily quality rating conducted by trained observers as well as the work quality measures used in these studies would be useful in future research.

Summary

This dissertation examined the effects of reprimands and work observation and pay loss on the maintenance of work quality by developmentally disabled individuals. In general, severe disciplinary action such as work observation with pay loss resulted in improved responsivity to reprimands within a work setting. Generalization to other work settings was suggested for one participant. The results are discussed in terms of other research that examined the use of reprimands in work settings. Finally, limitations and suggestions for future research were presented.

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APPENDIXES

Appendix A

Hotel Bedroom and Bathroom Cleaning Assignments

Task List and Cleaning Set-up for Hotel Bedrooms

Cleaning Task	Cleaning Set-up
Couch	Sprinkle several crumbs on the couch cushions
Dusting	Sprinkle several crumbs on the dresser or T.V., Table, and at least 2 or 3 chairs
Vacuum	Sprinkle crumbs in 4 locations: 1 - under a chair; 2 - under the table, 3 - in a corner accessible to the vacuum; and 4 - near the couch, bed or sink
Window blinds	Close
Nightstand	Set-up 2 of 3: 1 - Ashtray dirty, no matches; 2 - stationary pack removed; or 3 - questionnaire and pen removed
Lights by bed	Turn lights on and pull forward
Mirror	Water spot
Sink	Apply baby powder to porcelain
Counter	Spot with sugar water

Task List and Cleaning Set-up for Hotel Bathrooms

Cleaning Task	Cleaning Set-up
Sink	Apply baby powder to porcelain
Chrome towel rack	Spot with sugar water
Counter	Spot with sugar water
Mirror	Water spot
Shower	Apply baby powder to tub; spot chrome handles with sugar water
Floor	Spot with toothpaste in lower left corner of 4 tiles
Toilet	Apply baby powder around rim and base
Garbage	At least one waste basket should have garbage
Restock	Remove shoe shiner, extra roll of toilet paper, cups and soap that have not been used

Appendix B

Nursing Home Public Restroom and Bedroom Cleaning Assignments

Task List and Cleaning Set-up for Nursing Home Public Restrooms

Task	Cleaning Set-up
Toilet	Apply baby power around rim and base
Sink	Apply baby power to porcelain
Pipe under sink	Spot with sugar water
Wall near toilet, sink or light switch	Spot 1 with chocolate bit
Mirror	Water Spot
Chrome tray under mirror	Spot with sugar water
Towel holder	Spot with sugar water
Chrome toilet paper holder	Spot with sugar water
Chrome railing	Spot with sugar water
Floor	Spot with sugar water near the toilet (3) and between the sink and the door (4)
Chrome edge of bathroom	Apply baby powder to a 12-inch section
Toilet paper	Insert empty roll
Paper towel	Insert empty roll
Trash container	Spot with sugar water on chrome

Task List and Cleaning Set-up for Nursing Home Bedrooms

Task	Cleaning Set-up
1. Chair	spot under with sugar water
2. Dresser	spot under with sugar water
3. Nightstand	spot under with sugar water
4. Bed	spot under with sugar water, spot corner of one bed
5. Wheelchair	spot under with sugar water
6. Walker	spot under with sugar water
7. Table	spot under with sugar water
8. T.V. stand	spot under with sugar water
9. Light	spot under and spot base with sugar water
10. Wastebasket	spot under with sugar water
11. Center of floor	spot sugar water at the front of the room in 2 places and at the back of the room in 2 places

Appendix C

Hotel and Nursing Home Inspection Forms

Motel ...room

Subject: _____ Observer: _____

Phase: _____ Date: _____

Room #: _____

Set-up

	Inspection Item	Quality Criteria	Parts	Total
___	spread	A. even at bottom, sides cannot be laying on floor B. no wrinkles; no folds C. folded over pillows	A. ___ B. ___ C.	
	pillow	A. cases completely on pillow zipper on closed end B. on outside edge of bed	A. ___ B.	
	bed	A. blanket even; side within 2" B. bottom sheet tucked C. corner near nightstand tucked	A. ___ B. ___ C. ___	
___	couch (Krispies)	A. dirt or dust brushed off		
___	dusting (Krispies) (set 2 of 3 chairs)	A. no dust on dresser, T.V. B. table C. chairs D. nightstand E. top of closet F. top of mirrors G. top of light boarder H. railing	A. ___ B. ___ C. ___ D. ___ E. ___ F. ___ G. ___ H. ___	
___	vacuum (Krispies (4))	A. no dirt; note corners(4)		
___	window blinds (closed, or up, or window open)	A. open, down, window closed		
___	lights (turn on and pull forward by bed)	A. turned off B. lights by bed pushed back	A. ___ B. ___	
___	nightstand set-up (set-up 2 of 3)	A. ashtray clean w/matches B. stationary pack C. questionnaire under ashtray w/pen	A. ___ B. ___ C. ___	
___	closet (spread hangers)	A. hangers on right side		
___	mirror 1 (water)	A. no streaks or spots		
___	mirror 2 (water)	A. not streaks or spots		
___	sink 1 (powder, water spot chrome)	A. no hair, dirt, powder, spots, dry B. chrome without spots, dry	A. ___ B.	
___	counter 1 (sugar)	A. no hair, dirt, spots, dry		
___	room arrangement (turn 1 chair)	A. chairs and table left in correct positions		
	initial	A. write initials on room sheet		

Total parts +: _____

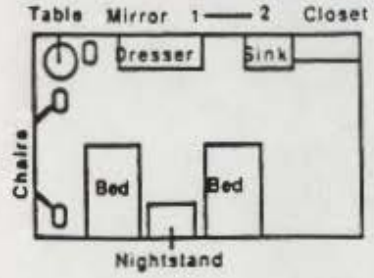
Total parts -: _____

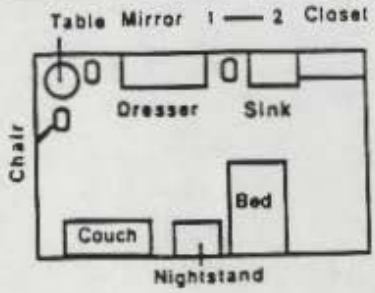
# of parts: _____

Percent correct: _____

Percent error: _____

Time/room: _____





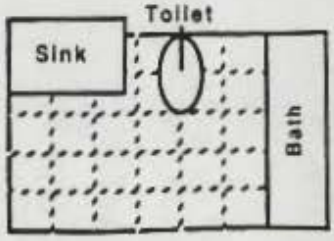
Hotel Bathroom

Subject: _____ Observer: _____

Phase: _____ Date: _____

Room #: _____

Set-up	Inspection Item	Quality Criteria	Parts	Total
___	sink (powder, water spot chrome)	A. no hair, dirt, powder, spots, dry B. chrome without spots, dry	A. _____ B. _____	
___	chrome towel rack (sugar)	A. wiped clean; no spots; dry	A. _____	
___	counter] (sugar)	A. no hair, dirt, spots, dry	A. _____	
___	mirror]	A. no streaks or spots		
___	shower (powder) (sugar on chrome handles)	A. no hair, dirt, powder, dry B. chrome without spots, dry C. bath mat and towel mat hanging; shower curtain in tub	A. _____ B. _____ C. _____	
___	floor (paste)	A. left dry without paste		
	general floor (paper)	A. no hair, dirt, paper	A. _____	
___	toilet (powder)	Bowl, rim, and lid free of: A. hair, dirt, powder, dry B. toilet paper folded	A. _____ B.	
___	garbage	A. empty		
___	remove stock	A. old towels, soap, old cups picked up		
A. ___ B. ___ C. ___ D. ___ E. ___	restock (remove)	A. towels folded in rack; open side toward shower B. soap next to sinks (1&2) and shower C. cups next to sink 1 D. shoe shiner E. extra roll of toilet paper	A. _____ B. _____ C. _____ D. _____ E.	



Total parts +: _____

Total parts -: _____

# of parts: _____

Percent correct: _____

Percent error: _____

Time/room: _____

Nursing Home Bedroom
("Check for spots and paper or dirt")

Subject: _____ Observer: _____

Phase: _____ Date: _____

Room #: _____

	Left Side of Room	Right Side of Room
__ 1. Chair		
__ 2. Dresser		
__ 3. Nightstand		
__ 4. Bed (spot corner on one side)		
__ 5. Wheelchair		
__ 6. Walker		
__ 7. Table		
__ 8. Table		
__ 9. T.V. Stand		
__ 10. Under Lights		
__ 11. Base of Lights		
__ 12. Under Wastebasket		
__ 13. Light, Wastebasket Returned to Marked Positions		
__ 14. Center Section (4)		
__ 15. Wet Floor Sign		

Total + : _____

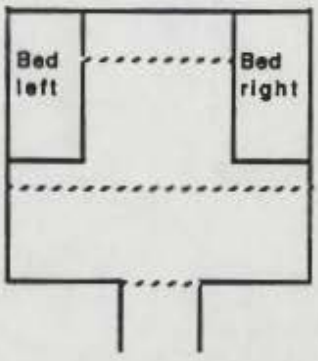
Total - : _____

# of Items: _____

Percent Correct: _____

Percent Error: _____

Time/Room: _____



Public Restrooms
(Betty, Terry, Clara)

Subject: _____ Observer: _____

Phase: _____ Date: _____

Bathroom: _____

		Parts	Total
__ 1. Toilet (powder rim & base)	Rim, lid, & base free of: A. Hair, dirt, powder & dry		
__ 2. Sink (powder, pull faucets forward, spot chrome with water	A. Faucets pushed back B. No hair, dirt, powder & dry C. Chrome without spots	A. B. C.	
__ 3. Chrome pipe under sink (sugar on front)	A. No stick		
__ 4. Mirror (water)	A. No spots or streaks		
__ 5. Chrome tray under mirror (sugar)	A. No spots, dry		
__ 6. Towel holder (water)	A. No spots, dry		
__ 7. Chrome toilet paper holder (sugar)	A. No spots		
__ 8. Chrome railing 1 (sugar)	A. No spots, dry		
__ 9. Chrome railing 2 (sugar)	A. No spots, dry		
__10. Chrome railing 3 (sugar)	A. No spots, dry		
__11. Chrome railing 4 (sugar)	A. No spots		
__12. Floor Area 1 (toilet) (sugar)	A. Sticky spots (3)		
__13. Floor Area 2 (sink to door) (sugar)	A. Sticky spots (4)		
__14. General floor (paper)	A. No paper, dirt		
__15. Chrome edge of bathroom (powder)	A. No powder, dry		
__16. Replace toilet paper			
__17. Replace paper towels			
__18. Chrome on the trash container (sugar)	A. No spots, dry		
__19. Wall near toilet, sink, light switch (chocolate bits to 1 of 3)	A. No spots toilet, sink, light		
20. Wet floor sign			

Total parts +: _____

Total parts -: _____

# of parts: _____

Percent correct: _____

Percent error: _____

Time/room: _____

Appendix D

Co-worker Reprimand Used in the Hotel Bedroom

Co-worker Reprimand for Poor-quality Work in the Hotel Bedroom

Subject:

You'll be working in Room ___. I'll walk with you up there. (Walk him to the room.)

I need to talk with you for a moment. I needed to replace a bulb in room ___. I noticed that your work has not been as good as when you were working with (co-worker). You need to:

1. Check your dusting and vacuuming so you don't leave any dirt or crumbs; (show how by running hand over closet, mirrors, dresser, lightboard, rail, and nightstand). If the vacuum does not pick up crumbs, you need to pick them up by hand.
2. Check the mirrors for streaks.
3. Make sure there is no stickiness, powder, dirt, or hair on the sink or on the counter. Pay special attention to the corners of the counter and around the faucets on the sink.
4. Make sure the spread is even on all sides and that it does not touch the floor.

It's important that each part of the job is done right. If the job is not done well, customers will complain. If that happens, someone else might get paid to do your job.

Read the work assignment slip and let the subject get to work.

Appendix E

Supervisor Reprimand Used in the Hotel Bedroom

Supervisor Reprimand for Poor-quality Work in the Bedroom

Subject:

Target: Bedroom

I need to talk with you for a moment. When I replaced a bulb in room ___, I noticed that your work was not as good as when you were working with (co-worker). You need to:

1. Check your dusting and vacuuming so you don't leave any dirt or crumbs. If the vacuum does not pick up the crumbs, you need to pick them up by hand.
2. Check the mirrors for streaks.
3. Make sure there is no stickiness, powder, dirt, or hair on the sink or on the counter. Pay special attention to the corners of the counter and around the faucets on the sink.
4. Make sure the spread is even on all sides, that there are no wrinkles, and that it does not touch the floor.

It's important that each part of the job is done right. If the job is not done well, customers will complain. If that happens, someone else will get paid to do your job.

Appendix F

Co-worker Reprimand Used in the Hotel Bathroom

Co-worker Reprimand for Poor-quality

Cleaning in the Hotel Bathroom

Subject:

I moved a crib into room 516 yesterday and noticed that the bedroom looked real good. Keep checking your work, it looks good. However, I noticed several errors in the bathroom:

1. There was hair and powder in the sink.
2. The counter was a little sticky.
3. There was powder in the shower and
4. There was toothpaste on the bathroom floor.

You need to check the bathrooms better. You know if the works not done right, someone else might get paid to do it.

Appendix G

Co-worker Reprimand Used in the Nursing Home Bedroom

Co-worker Reprimand for Poor-quality Mopping

Subject:

I need to talk with you for a moment. I needed to move some furniture for a resident in room ___. I noticed that the floor was sticky under the bed, the chair, and the dresser. You need to be sure to:

1. Move all the furniture.
2. Mop in a figure 8.
3. Overlap your mop strokes and wring out the mop after each section of the room.

It's important that you do these rooms right. If the rooms are left sticky or dirty, residents might complain. If there are a lot of complaints, you might find someone else getting paid to do your job.

Read the work assignment slip and let the subject get to work.

Appendix H

Co-worker Reprimand Used in the Nursing Home Public Restroom

Co-worker Reprimand for Poor-quality

Work in the Public Restroom

I filled the soap dispenser in the handicapped bathroom yesteday and I noticed a few things you need to check better.

1. Make sure the railings aren't sticky on the ends or along the rail.
2. Make sure you check the chrome for streaks and stickiness; especially the pipe under the sink and the chrome on the trash can and
3. Make sure the chrome edge is clean and there is no paper left on the floor.

You're doing a good job in the bedrooms. Keep it up. You need to do a good job on the bathrooms also or (supervisor) might pay someone else to do your bathroom job. Do you have any questions?

Appendix I

Task Lists with Prescribed Errors Used During Work Observation in the Hotel and Nursing Home

Hotel Bedroom Work Observation

General Tactics:

1. Prior to each task, assess whether the subject is watching. As necessary, say "_____, watch me, I'm going to do the _____ now."

2. a) Check each task;
   b) Identify the prescribed error;
   c) Say, "Good thing I checked"; and
   d) Make the correction.

Task List	Prescribed Errors
1. Bed	
A. Blanket	--
B. Pillows	--
C. Spread	Leave a wrinkle and a corner touching the floor.
2. Closet Hangers	--
3. Dust	--
A. Top of closet B. Mirrors C. Dresser D. T.V. E. Table F. Couch G. Light Board H. Rail I. Nightstand	Find a small crumb in 2 areas.
4. Mirrors	Find a streak on one mirror along the bottom edge.
5. Sink	Find powder around the faucets.
6. Counter	Find a sticky corner.
7. Lights	--
8. Nightstand set-up	--
9. Window Blinds	--
10. Vacuum	Find crumbs in two places.

11. Garbage	--
12. Final Check	Brief walk-through; Do you have any questions. -- I'm going back to my work. You can do the bathroom in this room.

Hotel Bathroom Work Observation

1. Prior to each task assess whether the subject is watching. As necesary say, "_____, watch me. I'm going to do the _____ now."

2. a) Check each task;
   b) Identify the prescribed error;
   c) Say "Good thing I checked"; and
   d) Make the correction.

Task List	Prescribed Errors
A. Mirror	Streak along bottom edge.
B. Sink	Powder on back of faucet.
C. Counter	Sticky along back edge.
D. Towel rack	--
E. Toilet	Leave one side wet; don't fold toilet paper.
F. Shower	Powder in corner.
G. Garbage	--
H. Remove old stock	--
I. Restock	--
J. Floor	Leave a piece of paper and a toothpaste spot.

Nursing Home Bedroom Work Observation

General Tactics:

1. Prior to moving furniture, mopping a section, or spot checking assess whether the client is watching.

   a. As necessary say: "_____, watch me. I'm going to do the _____ now."

   b. While mopping each section say, "Watch how I mop in a figure 8. I take extra care to overlap my strokes, and mop all the way to the walls.

2. a) Check each section;
   b) Identify the prescribed error;
   c) Say, "Good thing I checked"; and
   d) Make the correction.

Bedroom Mopping Sequence	Prescribed Errors
1. Move furniture right side	
2. Dust mop	
3. Wet mop	Leave one spot under chair, walker, or light position.
4. Return furniture	
5. Repeat 1-4 for left side	
6. Check right side	Use general tactics described above to correct.
7. Check left side	
8. Repeat 1-4 for center of room	Leave one spot; back check center after next room.

Nursing Home Public Restroom Work Observation

General Tactics:

1. Prior to each task assess whether the subject is watching. As necessary say, "_____ watch me. I'm going to do the _____ now."

2. a) Check each task;
   b) Identify the prescribed error;
   c) Say, "Good thing I checked"; and
   d) Make the corrections.

Task List	Prescribed Errors
1. Toilet	--
2. Sink	--
3. Mirror and tray	Streak on chrome tray
4. Pipe under sink	Streak on pipe
5. Railings	Sticky on end of rail 4
6. Toilet paper holder	Streak in toilet paper holder
7. Chrome on trash	--
8. Wall	--
9. Replace paper	--
10. Chrome edge	--
11. Sweep and mop	--

Appendix J

Social Validation Measures

Hotel Bedroom Validation

Supervisor: _____ Trainee: _____

Date: _____

For each category mark a (+) in the box if the cleaning is adequate for a housekeeping employee. Mark a (-) if cleaning is not adequate.

1. Spread	
2. Bed	
3. Pillows	
4. Couch	
5. Dusting	
6. Vacuum	
7. Nightstand	
8. Lights above nightstand	
9. Mirrors	
10. Sink	
11. Counter	
12. Furniture arrangement of the room	
13. Window blinds	
14. Closet	

Rate the quality of this individual's work relative to that of the other employees you supervise.

Below Average Worker		Average Worker		Equal to Best Worker		Better than Best Worker
1	2	3	4	5	6	7

Hotel Bathroom Validation

Supervisor: _____ Trainee: _____

Date: _____

For each category mark a (+) in the box if the cleaning is adequate for a housekeeping employee. Mark a (-) if cleaning is not adequate.

1. Toilet	
2. Sink	
3. Counter	
4. Mirror	
5. Shower	
6. Towel holder	
7. Restocking	
8. Garbage	
9. Floor area	

Rate the quality of this individual's work relative to that of the other employees you supervise.

Below Average Worker		Average Worker		Equal to Best Worker		Better than Best Worker
1	2	3	4	5	6	7

Bedroom Mopping Validation

Supervisor: _____ Trainee: _____

Date: _____

For each category mark a (+) in the box if the cleaning is adequate for a housekeeping employee. Mark a (-) if cleaning is not adequate.

1. Around and under chairs	
2. Around and under dressers	
3. Around and under beds	
4. Around and under tables T.V. stands, wastebaskets	
5. Base of lights	
6. General condition of the floor	

Rate the quality of this individual's work relative to that of the other employees you supervise.

Below Average Worker		Average Worker		Equal to Best Worker		Better than Best Worker
1	2	3	4	5	6	7

Public Restroom Validation

Supervisor: _____ Trainee: _____

Date: _____

For each category mark a (+) in the box if the cleaning is adequate for a housekeeping employee. Mark a (-) if cleaning is not adequate.

1. Toilet	
2. Sink	
3. Chrome pipe under sink	
4. Mirror	
5. Tray under mirror	
6. Towel holder	
7. Toilet paper holder	
8. Chrome railings	
9. Floor area	
10. Paper replaced	
11. Chrome on trash	

Rate the quality of this individual's work relative to that of the other employees you supervise.

Below Average Worker		Average Worker		Equal to Best Worker		Better than Best Worker
1	2	3	4	5	6	7

VITA

Benjamin Lignugaris/Kraft

Date of Birth: December 31, 1949

Address: Department of Special Education
Utah State University
UMC 65
Logan, Utah 84322

351 East 100 North
Providence, Utah
84332

Telephone: (801) 750-2382

(801) 753-3017

Family Status: Married, one child
Spouse: Janet Lignugaris/Kraft, M.Ed. Profession: Teacher-Special Education

Education:

B.A.	1972	History Elementary Education	University of Vermont
	1973	Elementary Education	Vermont Community College
M.Ed.	1981	Special Education	University of Oregon
Ph.D.	1987	Special Education	Utah State University

Employment History:

1986-present Research Coordinator, Development of Representation with Mentally Retarded Persons, Utah State University. Current research addreses the status of picture representation skills among mentally retarded persons and the development of training procedures to enhance the development of those skills.

1985-1986 Research Assistant, Utah State University. Conducted research on using co-workers as advocates and work trainers in competitive employment. Responsibilities included the design and implementation of a participant observation system to identify the task and social requisites in several entry-level jobs and the design and implementation of intervention research to investigate the maintenance of high-quality work by mentally retarded individuals.

1982-1985 Research Assistant, Utah State University. Research focused on identifying social skills to increase the employability of handicapped individuals. Activities included implementing observational research

methodologies, the development of observation systems, and training and on-site supervision of observers. Designed and programmed data analyses for observation and survey research.
Supervisor - Charles L. Salzberg, Ph.D.

1981-1982 Research Assistant, George Peabody College for Teachers of Vanderbilt University - Experimental Analysis of Behavior Laboratory. Charles L. Salzberg, Lab Chief. Research focused on receptive language acquisition and observational learning. Studies in receptive language acquisition examined the effects of exposure to words, receptive discrimination training and prolonged discrimination training on language acquisition. In observational learning the effect of receptive and expressive modeling experiences on language acquisition of mentally retarded children were examined.
Supervisor: Howard Goldstein, Ph.D.

1981-1982 Field-Based Supervisor, George Peabody College for Teachers of Vanderbilt University. Supervised graduate students in non-categorical, field-based practica. Responsibities included on-site observation, demonstrating targeted teaching competencies and assisting in the design of instructional programs.

1980-1981 Research Assistant, University of Oregon - Rehabilitation Research Training Center on Mental Retardation. Major contributor in curriculum project developing independent living and social skill programs for moderately and mildly handicapped adolescents and adults.
Supervisor: Daniel Close, Ph.D.

1980 Teaching Assistant, University of Oregon. Assisted teaching Master's-level course in psychology of the exceptional individual. Supervisor: Daniel Close, Ph.D.

1979-1980 Vocational Training Assistant, North Eugene High School, Eugene, Oregon. Designed and implemented a community-based career education program for mildly handicapped special needs students. Supervisor: Ferne Kellow, M.S.

1976-1979 Teacher - Cognitive Skills, Pine Ridge School, Williston, Vermont. Developed programs to teach problem solving skills to learning disabled adolescents.
Supervisor: Charles Templin.

Publications

Journal Publications:

Lignugaris/Kraft, B., & Rousseau, M. K. (1982). Instructional pacing: Definition and research needs. Journal of Special Education Technology, 5 (3), 5-11.

Lignugaris/Kraft, B., Rule, S., Salzberg, C. L., & Stowitschek, J. J. (1986). Social interpersonal skills of handicapped and nonhandicapped adults at work. Journal of Employment Counseling, 23, 20-31.

Salzberg, C. L., Agran, M., & Lignugaris/Kraft, B. (in press). Behaviors that contributed to entry-level employment: A profile of five jobs. Applied Research in Mental Retardation, 7, 299-315.

Lignugaris/Kraft, B., Salzberg, C. L., Stowitschek, J. J., & McConaughy, E. K. (in press). A descriptive analysis of social interaction patterns among employees in sheltered and non-profit business settings. The Career Guidance Quarterly.

Book Chapters:

Salzberg, C. L., & Lignugaris/Kraft, B. (1985). A curriculum-based approach to decision making and data collection for community-based programs. In P. Gunter & M. Brady (Eds.), Research to practice: Making integrated, community-based programs work for moderately and severely handicapped persons. New York: Charles Thomas.

Salzberg, C. L., Likins, M., McConaughy, E. K., & Lignugaris/Kraft, B. (1986). Social competence and employment of retarded persons. In N. R. Ellis & N. W. Bray (Eds.), International review of research in mental retardation. NY: Academic Press.

Curriculum Materials:

Carlson, C., Taylor, V., Lignugaris/Kraft, B., Close, D., & Larrabee, D. (1981). Budgeting and bill paying. Eugene, OR: Rehabilitation Research and Training Center on Mental Retardation.

Lignugaris/Kraft, B., & Close, D. (1981). The use of habilitative/adaptive aids with moderately/mildly handicapped adults. In J. Steiner, D. Close, & B. Lignugaris/Kraft, Technical assistance package: Teacher's manual. Eugene, OR: Rehabilitation Research and Training Center on Mental Retardation.

Lignugaris/Kraft, B., & Close, D. (1981). Technical assistance package: Social skills. Eugene, OR: Rehabilitation Research and Training Center on Mental Retardation.

Lignugaris/Kraft, B., Salzberg, C. L., & Stowitschek, J. J. (1983). Instructions at Work. Logan, UT: Outreach and Development, Developmental Center for Handicapped Persons.

McConaughy, E. K., Salzberg, C. L., Lignugaris/Kraft, B., & Stowitschek, J. J. (1983). Criticism at Work. Logan, UT: Outreach and Development, Developmental Center for Handicapped Persons.

Salzberg, C. L., Stowitschek, J. J., & Lignugaris/Kraft, B. (1983). Assistance at Work. Logan, UT: Outreach and Development, Developmental Center for Handicapped Persons.

Reports:

Stowitschek, J. J., Salzberg, C. L., McConaughy, E. K., & Lignugaris/Kraft, B. (1983). Final report: Empirical identification of social protocols relating to the employability of handicapped youth. U. S. Office of Special Education and Rehabilitation Services, Grant No. G008101488.

Professional Review:

Guest Reviewer - Journal of Special Education Technology
Education and Training of Children

Professional Presentations:

Lignugaris/Kraft, B. (1983, February). A preliminary analysis of social interaction patterns among handicapped and nonhandicapped workers. Paper presented at the Utah State University Behaviorists Conference, Logan, UT.

Salzberg, C. L., Likins, M. & Lignugaris/Kraft, B. (1984, April). Teaching employment-related social skills to developmentally delayed people. Workshop presented at the annual convention of the Council for Exceptional Children, Washington, D.C.

Salzberg, C. L., Stowitschek, J. J., McConaughy, K., Lignugaris/Kraft, B., Likins, M., & Agran. M. (1984, May). Work supervisor verification of social situations related to job acquisition and retention. Paper presented at the annual conference of the Association for Behavior Analysis, Nashville, TN.

Lignugaris/Kraft, B., Salzberg, C., Stowitschek, J., Likins, M., McConaughy, K., & Agran, M. (1984, May). Social development in work training settings. Paper presented at the annual conference of the Association for Behavior Analysis, Nashville, TN.

Likins, M., Stowitschek, J. J., Salzberg, C. C., McConaughy, K., Agran, M., & Lignugaris/Kraft, B. (1984, May). Using social rating and ranking procedures to identify trainees and training targets. Paper presented at the annual conference of the Association for Behavior Analysis, Nashville, TN.

Lignugaris/Kraft, B. (1984, October). Effects of supervision on teaching practices and student achievement. Presented at the AAMD Region IV Conference, Salt Lake City, UT.

Lignugaris/Kraft, B. (1985, March). Selected research on identifying and on training social behaviors important for employment. Paper presented at the RSA-RRC Regional Transition Conference, Denver, CO.

Salzberg, C. L., Lignugaris/Kraft, B., Likins, M., & Curl, R. M. (1985, May). Learning a new job: Empirically observing the task and job acclimation process. Poster presented at the Annual Conference of the Association for Behavior Analysis, Columbus, OH.

Salzberg, C. L., & Lignugaris/Kraft, B. (1985, June). Job acclimation. Presented at the Utah State University Conference on Facilitating Transition from School to Work, Logan, UT.

Lignugaris/Kraft, B., & Likins, M. (1986, February). Social-vocational skills important for transition from school to work. Workshop presented at the annual convention of the North Dakota Council for Exceptional Children, Bismarck, N.D.

Likins, M., & Lignugaris/Kraft, B. (1986, February). Teaching employment related social skills to severely and multiply handicapped youth. Workshop presented at the annual convention of the North Dakota Council for Exceptional Children, Bismarck, N.D.

Lignugaris/Kraft, B., & Salzberg, C. L. (1986, May). Keeping a Job: Teaching workers to be responsive to common supervisory practices. Poster presented at the Annual Conference of the Association for Behavior Analysis, Milwaukee, WI.

Salzberg, C. L., Lignugaris/Kraft, B., Curl, R. M., & Stowitschek, J. J. (1986, May). From entry level worker to valued employee: An evaluation of the transition process. Poster presented at the Annual Conference of the Association for Behavior Analysis, Milwaukee, WI.

Funded Grants

Research on co-worker based training and advocacy to ensure job retention of handicapped youth and adults (contributor with Salzberg, C. L., Stowitschek, J. J., Agran, M., McConaughy, K., & Likins, M.).

U.S. Department of Education, Special Education and Rehabilitation Programs. $135,427.

Development of representation with mentally retarded persons (contributor with Salzberg, C. L.). National Institute on Child Health and Human Development. $90,000 per year for three years; 1986-1989.

Consultation and Community Service:

1980 Consultant to the Special Education Department, North Eugene High School, Eugene, Oregon. Development of inservice workshops for teachers serving special needs students. Emphasis on handicapping conditions and instructional technology.

1981 Consultant to TIP Grant: Woodshop Curriculum for Severely Retarded Adolescents. Lane County ESD, Eugene, Oregon. Principal Investigator: John McDonnell. Retained as a consultant in the instructional design and development of a woodworking curriculum for severely handicapped adolescents.

1984 Workshop Presenter: Social Skills Training for Employment. Participated in the development and presentation of a series of social-vocational skill training workshops for rehabilitation professionals in Utah and Idaho.

University Service and Professional Organizations:

Faculty Search Committee. Department of Special Education, George Peabody College for Teachers of Vanderbilt University.

Doctoral Program Review Committee. Department of Special Education, Utah State University.

1982-present Member of Council for Exceptional Children

1982-present Member of the Association for Behavior Analysis

1984-present Member of the National and Utah Associations for Vocational Education