International Electronic Journal of Elementary Education, December 2016, 9(2), 373-384.

Effects of Theory Training, Hands-on Supervision and a Self-instructional Treatment Manual on Staff Competency

Linda Teikari HATLENES [a] Svein EIKESETH [a*]

[a] *Oslo and Akershus University College of Applied Sciences, Norway*

Received: September, 2016 / Revised: September, 2016 / Accepted: November, 2016

Abstract

Employing a randomized control group design, this study compared the efficacy of staff training using theory training, hands-on supervision and a self-instructional teaching manual. Participants were 12 undergraduate, health or social-work students. Initially, participants were given a three-hour lecture, and as a result, staff-participants increased their use of correct teaching procedures, but not to mastery. Participants in both groups continued to increase their teaching skills after intervention with either hands-on training or the self-instructional manual, though best effect was achieved with hands-on supervision. This effect was maintained at a two-month follow-up. At the end of the experiment, participants in the treatment manual group received hands-on supervision. As a result, their performances increased to the same levels as the participants in the hands-on supervision group. Hence, hands-on supervision was superior in increasing teaching performances. Participants receiving hands-on supervision reported that they were comfortable receiving this type of supervision, that the hands-on supervision was the best way to learn correct teaching procedures and that they would prefer hands-on supervision in a future job situation. Also, independent assessors rated hands-on supervision as the most suitable intervention.

Keywords: Staff training, Supervision, Treatment manual, Hands-on supervision

Introduction

Developing effective staff training procedures to establish strong clinical skills in staff working with individuals with developmental disorders is important, since the clients' progress and well-being depends largely on the quality of the interventions they receive. Over the past four decades or so, a number of staff training procedures have been developed, including lecturing, treatment manuals, role-play, hands-on supervision, and computer simulation training (Arco, 2008; Downs & Downs, 2012; Eldevik, Ondire, Hughes, Grindle, Randell & Remington, 2013; Jahr, 1998; Thomson, Martin, Arnal, Fazzio & Yu, 2009; Thomson, Martin, Fazzio, Salem, Young, & Yu, 2012). Several studies have examined effects of lecturing and role play on staff competency. In an early study, Gardner (1972) used a randomized control group design to assess staffs' clinical and theoretical

[*] Corresponding author: Svein Eikeseth, Oslo and Akershus University College, P.O. Box 4, St.Olavs plass, N-0130 Oslo, Norway. Telephone: +47 922 10988. E-mail: svein.eikeseth@hioa.no

ISSN:1307-9298

www.iejee.com

skills in working with individuals with intellectual disabilities. Results showed that theory training increased theoretical competency, but not clinical skills. Role play, in contrast, was effective in increasing clinical skills, but not theoretical skills. Similar results were obtained by Mörch and Eikeseth (1992), who found that improved theoretical skills did not improve clinical skills, nor did it affect how the clients performed specific tasks under the supervision of the staff.

Hands-on supervision (also described as on-the job training and direct feedback) is another procedure used to establish clinical skills, and has been demonstrated effective in several studies (Christian & Hannah, 1983; Fleming & Sulzer-Azaroff, 1989; Ivancic, Reid, Iwata, Faw, & Page, 1981; Iwata et al., 2000). Hands-on supervision involves direct feedback on teaching performances, and is similar to role playing with the exception that in hands-on supervision the staff is working directly with clients.

Smith, Parker, Taubman, and Lovaas (1992) combined all three elements as they over the course of a one-week workshop provided staff working with individuals with intellectual disabilities theory training, role play, and hands-on supervision. By the end of the workshop, the staff participants showed improved theoretical and clinical skills, but when the participants subsequently were assessed on the same measures at their work place, skills acquired and demonstrated during the workshop did not generalize.

Arco and du Toit (2006) examined effects of conventional group workshops and hands-on supervision in four staff participants working in a nursing home with a resident with problem behaviors. Results showed that after workshop, staff performance improved, but only one staff participant demonstrated competency. After hands-on training, all staff participants achieved and maintained competency.

The use of treatment manuals is another way to improve staff competence. Arnal, Fazzio, Martin, Yu, Keilback, and Starke (2007) examined whether a self-instructional treatment manual detailing basic principles of applied behavior analysis and how to perform correct discrete trial teaching of specific targets, improved teaching competence. Results showed that all four participants' discrete-trial-teaching improved as a result of the treatment manual, but only one of the participants achieved mastery of correct teaching skills, and for this participant, mastery was achieved for only one of three target behaviors. Using the same treatment manual, Fazzio, Martin, Arnal, and Yu (2009) added hands-on supervision in an attempt to further improve staff performances. Participants were five undergraduate psychology students. During baseline, participants were given 10 minutes to read a one-page program description of how to teach picture identification to a person acting in the role of an individual with autism. Next, participants studied the treatment manual, and after they could answer questions correctly probing the content of the treatment manual, their discrete-trial-teaching-skills were reassessed. In the final phase of the study, hands-on supervision was provided to all participants. Results showed that correct discrete-trial-teaching-skills increased for all participants over the course of the study, but to achieve mastery of correct discrete-trial-teaching, all participants required some degree of hands-on supervision. For four of the participants, only one session of hands-on supervision was required. The other participant required three sessions of hands-on supervision to achieve mastery. Subsequent tests assessing generalization of skills to new programs and to training of children with autism showed an increase in correct discrete trial teaching.

The present study was designed to compare the efficacy of hands-on supervision to the efficacy of using a self-instructional treatment manual to increase staff competency. Initially, all participants were given three hours of lecture covering basic principles of applied behavior analysis and key elements of the training procedure. The lecture was

given at the start of the intervention because it is common in clinical practice to either provide theoretical training in some form or make sure that the staff possess sufficient theoretical competency before they start clinical work. At the end of the experiment, the group who received the least effective intervention was trained with the intervention demonstrated to produce the greatest effect. Two areas of performance were measured: (a) theoretical skills and (b) clinical skills. Staff competencies were assessed pre intervention, after theory training, after either hands-on supervision (Group 1) or self-instructional manual training (Group 2), and finally, after the group who received the least effective intervention was trained with the most effective intervention.

Method

Participants and Client

Participants were 12 health or social-work bachelor's students (10 women and 2 men) between 21 and 35 years. They had no prior training in behavior analysis and discrete trial teaching. Participants were labeled 'staff participants', to avoid confusing the participants with the client.

The client was a 22 year old male with autism, intellectual disability and cerebral palsy. He used an activity schedule to perform simple tasks. He could read a number of two-to-three-word sentences, and answer simple questions. He followed simple instructions and performed various independent living tasks with varying degrees of staff assistance.

Setting, Materials and Target Behaviors

The client participated in a respite program for individuals with intellectual disabilities, and the study was carried out in that unit. A Panasonic 3CCD digital video camera was used to record all sessions.

Over course of the experiment, the client performed 12 target behaviors, one for each of the 12 staff participants. The target behaviors were as follows; sorting towels, starting a laundry machine, starting a dryer, making instant hot chocolate, heating porridge, making instant soup, making a toast, emptying a trashcan, sorting trash for recycling, heating pizza, boiling eggs, and shredding paper and refilling paper in a Xerox machine. These 12 target behaviors consisted of 10 responses each, and except for two target behaviors (sorting towels and sorting trash for recycling), an activity schedule was used to establish the target behaviors. The activity schedule consisted of an A5 binder with photos (4 x 5 cm with neutral background) of each of the 10 responses to be performed.

Each staff participant was randomly assigned 1 of the12 target behaviors. The target behaviors were selected because they were judged to be of similar degree of difficulties for the staff participants to teach and for the client to perform. The client had no previous experience with any of the target behaviors.

Dependent Variables

Dependent variables were (a) theoretical competence in behavior analysis, and (b) correct teaching skills. Video recordings of teaching sessions were scored by the first author and a confederate after the sessions. The multiple-choice test was scored by the first author.

Theoretical Competency in Applied Behavior Analysis. All staff participants were tested for theoretical competence in behavior analysis, using a 21-item multiple choice test. The test assessed basic principles of behavior analysis, specifically focusing on reinforcement, stimulus control and prompt and prompt fading.

Teaching Skills. Correct teaching skills were operationally defined as follows: (1) The staff participant let the client choose a putative reinforcer prior to starting the task, and

delivered the reinforcer to the client within three seconds of completing the task. (2) After the client had chosen a reinforcer, the staff participant presented a clear and concise verbal instruction to initiate the task. (3) The staff participant praised each correct response using language and intonation that varied across responses. (4) Whenever the client performed an incorrect response, or stopped responding for five seconds, the staff participant prompted the correct response; whenever the client stopped responding for five seconds, the staff participant prompted the next response in the chain. A correct prompt was defined as using manual guidance to initiate the correct response while gradually removing the prompt once the client started responding. Whenever prompt was used, reconstruction and positive practice was used until the client performed that specific response correctly without prompt.

A total of 12 points could be obtained. One point was given if the staff participant let the client choose a putative reinforcer and delivered it within three seconds of completing the task. Another point was given if the staff participant presented a clear and concise verbal instruction to initiate the task. One point was given for each of the 10 responses defining the target behavior if praise was given upon a correct response, or if prompt, reconstruction and positive practice was performed correctly for incorrect responses or after 5 second of no responses.

Independent Variables

Theory training (lecture). The theory training supervision lasted for three hours, covering basic principles of behavior analysis, specifically focusing on reinforcement, discriminative stimuli and prompt and prompt fading. The lecture covered all topics assessed in the multiple-choice-test, and it described, in detail, the procedures for teaching the particular target behavior each participant was to teach the client. Specifically, this included how to use the activity schedule, the correct use of reinforcement, correct presentation of SDs, procedures for prompt and prompt fading, and how to use reconstruction and positive practice after incorrect responses. Participants could take notes and ask questions during the lecture, but they were no handouts or videos. The class was given by the first author individually to each of the staff participant.

Self-instructional manual

The self-instructional manual consisted of four pages detailing (1) behavioral objective and justification for choice of the target behavior, (2) training materials, (3) the particular verbal instruction to start the training session, (4) description of each of the target behaviors, (5) procedure for prompting, reconstruction and positive practice in case of incorrect and no-responses, and (6) a procedure for addressing aggressive or self-injurious behavior, to be implemented if needed during the training session. The training session lasted for a maximum of 2 hours.

Hands-on supervision

During hands-on supervision, direct feedback on participants' teaching behaviors was provided by the supervisor. Behavior specific praise was given to the staff participant when he/she performed a correct teaching behavior. When the staff therapist performed incorrectly, he/she received immediate feedback, including a detailed description of the correct teaching of that behavior. If the participant performed incorrectly on the same behavior for a second time, the experimenter modeled the correct teaching behavior, and modeling was used until the participant performed the teaching behavior correctly. Hands-on supervision for all staff participants was provided by the first author. Participants received no written instructions. The training session lasted for a maximum of 2 hours.

Experimental Design

A randomized group design was used to compare the effects of the self-instructional manual and the hands-on supervision. Participants were randomly assigned to either (a) the self-instructional manual group or (b) to the hands-on supervision group. After training (with hands-on supervision or the self-instructional manual), the group who received the least effective intervention was subsequently trained with the most effective intervention. All participants in both groups were given the theory course before receiving hands-on supervision or the self-instructional manual. This was done to assess the extent to which theory training alone would affect staff performances.

Procedure

Phase 1. Pretest. Prior to training, all participants in both groups were assessed on theoretical competence (i.e., the multiple choice test) and correct teaching skills (with the client present).

Phase 2. Theory training and retest. After the pretest, all participants in both groups were given the theory training. Because all staff participants were assigned a different target behavior to teach, the theory training was provided individually to each staff participant. Immediately thereafter, theoretical competence and teaching skills were reassessed.

Phase 3. *The self-instructional manual and hands-on training.* Participants in both groups received four training sessions. At the end of each training session, participants in both groups were assessed on teaching skills.

Self-instructional manual. Participants in this group were provided with treatment manuals for the following programs; sorting towels (Participant 1), starting a dryer (Participant 2), making instant hot chocolate (Participant 3), heating porridge (Participant 4), making instant soup (Participant 5), and making a toast (Participant 6). The participants studied the manual for 90 minutes and answered a seven-item multiple-choice-test about its contents. A 100 % correct score was required for the session to end. Participants then conducted four consecutive training sessions. Between each training session, participants had a 10-minute break during which they could re-examine the self-instructional manual.

Hands-on supervision. Participants in this group received hands-on supervision while they were conducting the four training sessions. The target behaviors were as follows; starting laundry machine (Participant 7), emptying trashcans (Participant 8), sorting trash for recycling (Participant 9), heating a pizza (Participant 10), boiling eggs (Participant 11), and shredding paper and refilling a Xerox machine (Participant 12).

Phase 4. Follow-up. Participants were retested on teaching skills one and two months after completion of the four training sessions.

Phase 5. *Training with the Most Effective Intervention.* After follow up, the treatment manual group received hands-on supervision, as this turned out to be the more effective intervention. Hands-on supervision was identical to the one given to the hands-on group, except that the first author or her confederate acted in the role of the client. Then, the participants conducted four training sessions with the actual client.

Control for effect of repeated measures on test of theoretical competence

The effects of repeated measures on theoretical competence was examined by having 10 second-year students from a bachelors program in social work take the same multiple-choice test on consecutive days with no prior instructions.

Reliability

Inter observer reliability data were collected for all participants across all test and training sessions of this study. The observers were the first author and a colleague from the university. Reliability data were scored from video recordings. Reliability was calculated using point-by point agreement, with total number of recordings with agreement divided by total number of recordings times 100. The mean inter observer reliability for the teaching skills 98.7 (range 90 to 100 %).

Treatment Integrity

Treatment integrity data was collected on all participants, assessing the extent to which the theory course, the hands-on supervision and treatment manual condition was carried out correctly according to the treatment protocol. Treatment integrity was scored from video recordings by the first author and a colleague. Results showed that the theory course was conducted 100 % correctly according to the protocol. In the manual group, 100 % of the participants used the assigned time to study their manuals before and between the training sessions, and 100 % of the participants obtained a perfect score on the multiple-choice test. For the hands-on supervision group, the mean correct hands-on supervision during the four training sessions was 95% (range 93% - 97%).

Social validity

To obtain an independent evaluation of social validity, six health bachelors level student who were not informed about the purpose of the study and who had no prior knowledge of behavior analysis were shown video clips from the training. The video clips showed 30 minutes of the training from session four of Phase 3. Each 30 minute clip consisted of 3, 5-minute segments showing 3 randomly selected participants in the manual group, and 3 randomly selected participants in the hands-on training group. Immediately after viewing the video, they were asked to rate which participants appeared more comfortable during the training sessions, which type of training seemed more suitable, and finally, which type of training they would prefer to receive themselves.

Social validity was also evaluated by assessing the participants' satisfaction with the training. At the end of the training, participants completed a questionnaire containing 10 statements concerning the aims of the study, the training procedure used, and the results that were achieved (see Table 2). Statements were scored on a five-point Likert scale going from "Strongly Disagree" (1 point) to "Strongly Agree" (5 points).

Results

Figure 1 and Table 1 show mean correct teaching skills for the staff participants in both groups. As can be seen, the mean correct teaching skills during the pretest for participants in both groups was three percentage. After theory training, participants in both groups improved their teaching skills significantly ($t(5) = 2.696$, $p = .043$; $t(5) = 3.381$, $p = .020$, respectively for the teaching manual group and the hands-on group). Mean correct teaching performance was 25 % for the self-instructional manual group and 56 % for the hands-on group, a nonsignificant between-group difference. After training with hands-on supervision or the self-instructional teaching manual, mean teaching skills for the hands-on group was 81 % correct, and the mean teaching skills for the self-instructional manual group was 50 % correct, a statistically significant group difference. At the two-month follow-up, mean correct teaching skills for the hands-on group was 87 %, and the mean correct teaching skills for the self-instructional manual group was 50 %, also a statistically significant group difference. When the participants in the training manual group received hands-on supervision, mean correct teaching skills reached 90 %.

Table 1. *Mean percentage correct teaching skills, standard deviation, t-score and significance level for hands-on group and training manual-group.*

Variable	Self-instructional Manual		Hands-on supervision		t-test
	Mean	SD	Mean	SD	*t*(10)
Pretest	3	4.3	3	4.3	0.00
Post theory class	25	22.9	56	33.6	2.77
Post Training	50	25.2	81	15.5	6.38*
Follow up	50	25.0	87	9.5	9.38*

* $p < .05$.

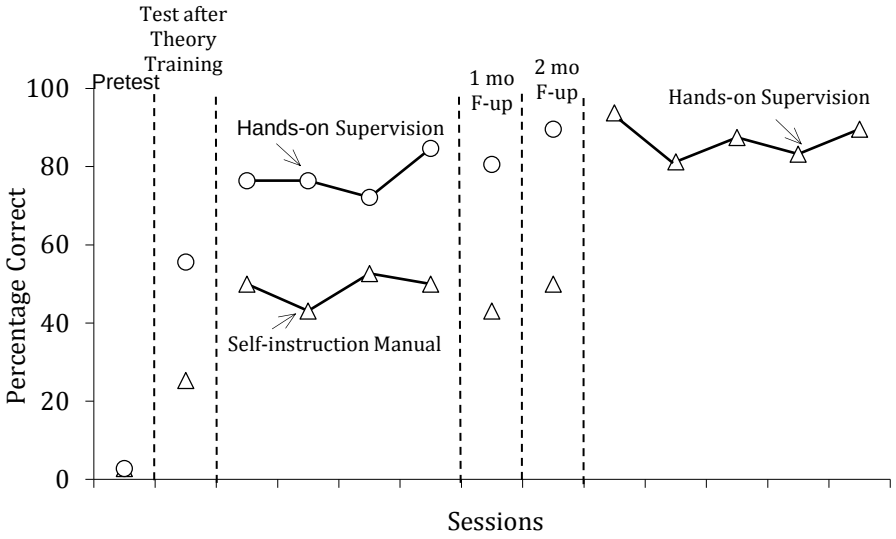

Figure 1. *Percentage correct teaching performances for the hands-on supervision group and the self-instructional teaching manual group across the different study phases*

The mean correct pretest score on the multiple-choice test of theoretical competence was 51 % for the manual group and 52 % for the hands-on group. After completing the theory training, the mean correct score was 74 % for both groups. After intervention with hands-on supervision or the self-instructional manual, mean correct answer was 79 % for the training manual group and 83% for the hands-on group. None of the above group differences were statistically significant.

To assess the possibility of test re-test reactivity, 10 participants (undergraduate health and social care students) were given the multiple-choice test on three consecutive occasions without receiving any training. Results showed that mean correct score was 38 % on the first test; 39% on the second, and 40 % on the third test.

The social validity questions answered by the participants and the mean results are shown in Table 2. Eleven out of 12 participants completed the form. As can be seen, participants receiving hands-on supervision reported that they were comfortable receiving hands-on supervision (mean score of 4.8 out of 5). The treatment manual group, who received both interventions, stated that the hands-on supervision was the best way to learn correct

teaching (mean = 4.9). All participants stated that they would prefer hands-on supervision in a future job situation (mean = 4.6).

Table 2. *The Social Validity Questions and the Mean Score for Each Question (a score of 1 represents "Strongly Disagree" and a score of 5 represents "Strongly Agree")*

Social Validity Questions	Score
1. Was the information regarding the study presented in a satisfactorily way?	4.2
2. Was the theory training sufficient to prepare for the subsequent training?	3.7
3. Was the program manual easy to follow? (Scored by the training manual group only)	4.0
4. Were you comfortable while receiving hands-on supervision? (Scored by the hands-on supervision group only)	4.8
5. Was the hands-on supervision the best way to learn correct training? (Scored by the training manual group who subsequently received hands-on training)	4.9
6. Were you satisfied with your own results?	4.1
7. Would you prefer written feedback on your teaching performances?	2.1
8. Would you prefer hands-on supervision in a future job situation?	4.6

Four out of six independent panel members stated that the staff participants receiving hands-on supervision appeared more comfortable in the teaching situation. Two stated that the self-instructional manual staff participants seemed more comfortable. Three members stated that the client seemed more comfortable during the hands-on supervised training whereas two preferred the self-instructional manual sessions while one was neutral. Four panel member judged hands-on supervision as the most suitable condition (two were neutral), and five out of six stated that they themselves would prefer to receive hands-on supervision rather than the training manual.

Discussion

Employing a randomized control group design, this study compared the efficacy of staff training using theory training, hands-on supervision and a self-instructional teaching manual. Participants were 12 undergraduate, health or social-work students who had no prior knowledge of behavior analysis. Before training with either hands-on supervision or the self-instructional teaching manual, participants in both groups were given a three-hour lecture (i.e., theory training), covering key principles of behavior analysis and the key elements of the teaching procedure used for the particular client. As a result, staff-participants increased their use of correct teaching procedures, but not to mastery levels. After intervention with either hands-on training or the self-instructional manual, staff participants in both groups increased their teaching skills above the level they had reached after the theory training. However, the hands-on supervision group showed better teaching skills as compared to the participants who had received the self-instructional treatment manual. This effect was maintained at follow-up, conducted two months after completion of the training.

At the end of the experiment, participants in the treatment manual group received hands-on supervision. As a result, their performances increased to the same levels as the participants in the hands-on supervision group. Hence, hands-on supervision was superior in increasing teaching performances.

Participants receiving hands-on supervision reported that they were comfortable receiving hands-on supervision, that the hands-on supervision was the best way to learn correct teaching procedures and that they would prefer hands-on supervision in a future job situation. Also, independent assessors who were not informed about the purpose of the study and with no knowledge of behavior analysis rated hands-on supervision as the most suitable intervention. Hence, the social validity of the hands-on supervision appears high, and the participants appeared satisfied and comfortable with the hands-on supervision they received.

Results from the present study show, in contrast to previous studies (Gardner, 1972; Mörch & Eikeseth, 1992), that the theory training may produce statistically significant improvements in the use of correct teaching procedures. This may be related to the fact that the theory training explained how to specifically teach the target behaviors involved. However, mastery criterion on clinical skills was reached only when theory training was followed by hands-on supervision.

Though previous research suggest the theory training is not sufficient to establish competent staff skills (Gardner, 1972; Mörch & Eikeseth, 1992), it cannot be determined empirically from the present study what effects, if any, repeated sessions of theory training would have had on staff performances, and this is a shortcoming of the present study. One way of examining this would be to include a third group that was given the initial theory training, but instead of receiving hands-on supervision or the treatment manual, were given additional theory training for the same length of time as the other groups received their intervention.

Interestingly, theoretical competences improved slightly during the training with the self-instructional treatment manual and the hands-on training. This improvement could be attributed to test re-test reactivity, that is, that participants improved their test scores as a result of repeated testing. However, test-retest reactivity was assessed for a group of 12 participants who only repeated the test (without receiving theory training or hands-on supervision or the treatment manual) and no significant improvements in scores was observed for this group. Hence, both hands-on supervision and the treatment manual seem to have improved the staff participants' theoretical competency.

In the present study, all participants in both groups worked with the same client. This was done to make the teaching conditions across participants as similar as possible, avoiding the possible confound that some clients could be more difficult to teach than others. However, if all participants would teach the same skill to the same client, practice and/or ceiling effects could have confounded the results. To avoid this, each participant taught the client a specific target skill. Each target skill was judged to be of similar difficulty for the participant to teach and for the client to perform, and each participant was randomly assigned one of the target skills. Also, the client had no previous experience with any of the target skills. For 10 out of 12 target skills, a pictorial activity schedule was used to occasion each response of the target skill. For two of the programs (sorting towels and sorting trash for recycling), a pictorial activity schedule was not used because the client was unable to perform all responses of the target behaviors using picture prompts. One of these targets belonged in the hands-on supervision group and the other in the treatment manual group. Also, there were no significant between-group differences at the pretest

and after the theory course. This suggests that the target programs were of similar difficulties.

The present study did not assess generalization across clients and target skills, and this is a limitation of the study. Another limitation of the study is the low number of participants. Nevertheless, the present study replicates and extends findings obtained by previous investigators. Findings indicate that theoretical training resulted in an increased use of correct teaching procedures, but not to mastery levels. Adding on hands-on training or the use of a self-instructional teaching manual resulted in a further increase in teaching skills, though hands-on supervision was more effective that the self-instructional teaching manual. Participants receiving hands-on supervision reported that they were comfortable receiving hands-on supervision and that they would prefer hands-on supervision in a future job situation. Also, independent assessors rated hands-on supervision as the most suitable intervention.

• • •

Author Note

We thank Lars Klintwall for help with the statistical analysis and Gunnar Ree for helpful contributions to an earlier version of this manuscript.

This study is based on a thesis submitted by the first author to the Faculty of Behavioral Science, Oslo and Akershus University College, in partial fulfillment of the requirements for the degree of Master of Science.

References

Arco, L. (2008). Feedback for improving staff training and performance in behavioral treatment programs*. Behavioral Interventions, 23,* 39-64.

Arco, L., & du Toit, E. (2006). Effects of adding on-the-job feedback to conventional analog staff training in a nursing home. *Behavior Modification, 30,* 713-735.

Arnal, L., Fazzio, D., Martin, G. L., Yu, C. T., Keilback, L., & Starke, M. (2007). Instructing university clients to conduct discrete-trials training with confederates simulating children with autism. *Developmental Disabilities Bulletin, 35, 131-147.*

Christian, W. P., & Hannah, G. T. (1983). *Effective management in human services*. Englewood Cliffs, New Jersey: Prentice- Hall, Inc.

Downs, A. & Downs, R. C. (2012). Training new instructors to implement discrete trial teaching strategies with children with autism in a community-based intervention program. *Focus on Autism and Other Developmental Disabilities 28,* 212–221. doi: 10.1177/1088357612465120

Eldevik, S,. Ondire, I., Hughes, C. J., Grindle, C, Randell, T., & Remington, B. (2013). Effects of computer simulation training on In vivo discrete trial teaching. *Journal of Autism and Developmental Disorders, 43,* 569-578. doi: 10.1007/s10803-012-1593-x

Fazzio, D., Martin, G. L., Arnal, L., & Yu, D. C. T. (2009). Instructing university clients to conduct discrete-trials training with children with autism. *Research in Autism Spectrum Disorders, 3,* 57-66.

Fleming, R. K., & Sulzer-Azaroff, B. (1989). Enhancing quality of training by direct care staff through performance feedback on the job. *Behavioral Interventions, 4,* 377-395.

Gardner, J. M. (1972). Training behavior modification to nonprofessionals. *Journal of Applied Behavior Analysis, 5,* 517-521.

Ivancic, M. T., Reid, D. H., Iwata, B. A., Faw, G. D., & Page, T. J. (1981). Evaluating a supervision program for developing and maintaining therapeutic staff-resident interactions during institutional care routines. *Journal of Applied Behavior Analysis, 14,* 95-107.

Iwata, B. A., Wallace, M. D., Kahng, S. W., Lindberg, J. S., Roscoe, E. M., Conners, J., et al. (2000). Skill acquisition in the implementation of functional analysis methodology. *Journal of Applied Behavior Analysis, 33,* 181-194.

Jahr, E. (1998). Current issues in staff training. *Research in Developmental Disabilities, 19,* 73-87.

Mörch, W.-T., & Eikeseth, S. (1992). Some issues in staff training and improvement. *Research in Developmental Disabilities, 13,* 43-55.

Smith, T., Parker, T., Taubman, M., & Lovaas, O. I. (1992). Transfer of staff training from workshops to group homes: A failure to generalize across settings. *Research in Developmental Disabilities, 13,* 57-71.

Thomson, K., Martin, G. L., Arnal, L., Fazzio, D., & Yu, C. T. (2009). Instructing individuals to deliver discrete-trials training to children with autism spectrum disorders: A review. *Research in Autism Spectrum Disorders, 3,* 590-606.

Thomson, K.M., Martin, G.L., Fazzio, D., Salem, S., Young, K., & Yu, C.T. (2012). Evaluation of a self-instructional package for teaching tutors to conduct discrete-trials teaching with children with autism. *Research in Autism Spectrum Disorders, 6,* 1073-1082. doi:10.1016/j.rasd.2012.02.005.

This page is intentionally left blank