Pre-Post-Then Evaluation of a Behavioral Modeling Approach to Supervisory Skills Training

Kenneth M. Nowack

Introduction

Demonstrating valid behavior change in employees involved in supervisory and management training programs has been extremely challenging. The difficulty of replicating training procedures and the problem of determining the reliability of evaluation techniques have been but two limitations of demonstrating the effectiveness of professional development programs (Metzoff, 1981; Howard, 1980). Evaluation of training programs utilizing replicable methodology and valid evaluation procedures is necessary in organizations where accountability and cost-effectiveness of human resource programs are in question.

This study evaluated the effectiveness of a replicable training procedure based on behavior modeling and using the "pre-post-then" evaluation technique (Howard, 1982). It is hoped that attention to such training methodology and evaluation efforts will result in demonstration of bottom-line skill acquisition and transfer of supervisory and management training efforts.

Evaluation of training procedures is enhanced when replicable techniques are utilized. The effectiveness of behavioral modeling in supervisory and management training has been adequately described and researched (Byham, Adams, & Kiggons, 1978; Latham & Saari, 1979; Bandura, 1976; Perry & Furukawa, 1980; Cormier, 1979). This particular approach allows for systematic application of observable and job-relevant skills, behavioral rehearsal, coaching, and feedback, and the transfer of the newly learned classroom skills back into the work environment. This approach appears to consistently demonstrate its effectiveness in the behavioral development and change of its program participants.

Recently, research suggests that self-report evaluation procedures not only may be more efficient than behavioral outcome measures of supervisory training, but that they can even be more accurate if a "pre-post-then" approach is used (Howard & Daily, 1979). This particular evaluation model controls for the error of the "response shift bias" which is inherent in typical pre-post evaluative designs. Pre-post designs assume that trainees have the same frame of reference when they evaluate their skills, knowledge, and abilities before and after training. However, it is unlikely that, once training is over, individuals would tend to rate themselves before they came into the session using the same standards that they used in "pre-tests." This change in frame of reference is what is known as the "response shift bias." Because of this bias, most pre-post evaluation designs are unable to effectively assess changes that have occurred as a result of the training experience. The inclusion of a "then" measure retrospectively (i.e., a post-training measure which asks the trainee to retrospectively re-rate their skills, knowledge, and attitudes prior to the beginning of training) eliminates this "response shift bias" and reflects the same frame of reference that the trainee employs at post-testing. The result is a more valid evaluation design that allows for a more accurate demonstration of program effectiveness.

The present evaluation study was designed to assess self-reported changes in familiarity, confidence and ability in four specific behavioral skills as part of a sixteen-hour supervisory training program. The content of these four skills included: 1) utilizing a systematic procedure for correcting undesirable employee behavior; 2) utilizing systematic paraphrasing and reflecting listening

responses; 3) utilizing a systematic procedure for reinforcing desired employee behavior; and 4) utilizing a systematic procedure for giving employees constructive feedback and criticism.

It was hypothesized that the replicable behavioral skills training procedure based on behavioral modeling would result in significant changes in self-reported familiarity, confidence and ability in the four skill areas. Significant changes in the "pre-then" scores might indicate that the trainees significantly increased their understanding of the principles and concepts underlying the skills taught in the training session. The "then-post" change scores would be evaluative data for determining the effectiveness of the replicable training procedure on skill development. It was expected that the modeling approach used in this study would result in significant "then-post" outcomes for all four skill areas.

Methods
Participants

Forty-eight participants were involved in the supervisory skill training classes at the UCLA Hospital & Clinics. These participants were recruited from the annual university employee training bulletin. These individuals, for the most part, represented first-line supervisors from diverse units of the hospital. Most of the employees were female and were college-educated. All participation was voluntary and done on company time.

Procedures

The 48 participants were part of four individual classes offered at different times during the 1984-85 year. Thus, no randomized selection of participants was possible. Additionally, due to the procedure for class sign-ups, no waiting-list control groups were available. To counter these threats to validity, a quasi-experimental separate-sample design was used to analyze the data.

Participants in each class met for four sessions which ran for four hours over a two week timespan. The four sessions were scheduled on alternate days to maximize on-the-job transfer of the newly learned skills prior to the beginning of a subsequent training session. Each of the four sessions utilized a behavioral skills approach based on modeling techniques. For each of the four skills, the same replicable training procedure was utilized. This procedure was conceptualized into five distinct steps and facilitated by the same trainer for each of the class sessions. These steps were as follows:

1. The specific systematic steps involved in application of the supervisory skill being taught were reviewed. A rationale and overview of these steps were given verbally, followed by a short discussion of the perceived difficulties with the technique being taught. Participants were able to review these steps at any time, as the steps were included as part of their training manual (Nowack, 1982).
2. For each specific supervisory skill being learned, two coping models of how to use the technique were presented to the participants. The benefits of both coping and multiple models have been adequately demonstrated (Bandura, 1976; Meichenbaum, 1971). The first coping model was presented by the training facilitator, and the second by a confident volunteer from among the participants.
3. Each participant was instructed to practice and rehearse the technique being taught in both structured and unstructured exercises with a partner. Individual coaching and feedback were given to each participant by the training facilitator. Role-play and simulation exercises were used in this step to facilitate the replicable training procedure.
4. Each participant was encouraged to complete a self-contract to facilitate transferability of the practiced classroom skill into their relevant job environments. The use of such rehearsal techniques and self-contracts as a means of facilitating skill transfer has been previously demonstrated (McFall & Twentyman, 1973; Vance, 1976).
5. Critique of the participant's self-contract and follow-up on the success or failure of implementing the newly learned skill were provided. Copies of the replicable supervisory skills, behavioral self-contracts, and pre-post-then measures are available from the author.

Measures

Pre and post evaluations assessed the extent to which participants reported their familiarity, confidence and ability to utilize the systematic steps practiced as part of the supervisory skills training. Ratings were done on a 1 to 10 scale where 1 = poor and 10 = excellent. The post-evaluative "then" assessment asked participants to rate themselves on the same criteria prior to beginning the training sessions.

The behavioral self-contracts encouraged program participants to choose job-related situations to practice newly learned skills, so that success would be maximized. As well as asking participants to specify the time, place, employee and expected reaction using the new technique, a self-critique was also built into the contract. This critique allowed participants to rate how well they did on the practiced skill (poor to excellent) as well as assessing via a checklist how well they followed the systematic steps taught. Compliance with the self-contracts was one-hundred percent for those attending all four sessions.

Design and Analyses

Due to the methodological limitations placed on this study, a quasi-experimental, separate-sample design was utilized to analyze the data. This design helps control for the threats to validity that non-randomized selection and lack of a control group present. In this design, subsequent demonstrations of significant post-training outcomes across the four separate classes demonstrate a treatment effect.

Three individual analyses were conducted:
1. Pre-test scores were compared across all four classes to assess the contribution of individual differences to training outcomes.
2. Then-post change scores were analyzed for the pooled sample of the 48 participants.
3. Then-post and pre-then change scores were analyzed for each of the four class sessions. The t-test for dependent samples was used to examine all pre-post-then data.

Results
Pre-Pre Change Scores

To compare individual differences across the four classes, pre-test scores were compared for each skill taught. T-tests were performed to compare pre-test differences. No significant differences were found among any of the test scores for each of the supervisory skills taught (p < .05). This suggests that individual differences played little or no role in the training outcomes observed.

Pre-Post Change Scores Across Classes

To determine effectiveness of training using the separate-sample design, the post-training scores of one class must be compared to the pre-test scores of the subsequent class. Analyses of these change scores for the four classes indicated that the pre-test scores were consistently and significantly lower than the post-test scores for each of the supervisory skills taught (p < .05). This result of the separate-sample design suggests that the training accounted for the self-reported improvement in knowledge and application of the behavioral skills practiced. Once the effectiveness of the training procedure was demonstrated using the separate-sample design, pre-then-post scores were compared on the pooled data from all four classes (n = 48).

Pooled Data Analyses

Mean differences for the "then-post scores" are summarized in Table 1. Separate scores are listed for familiarity, ability and confidence measures for each supervisory skill. Dependent t-scores for these results suggest that participants reported significantly greater familiarity, ability in using, and confidence in applying the supervisory skills taught in the training sessions. Participants did not report that they were more able to fully utilize the active listening and feedback skills (p's > .05), although they did report being more familiar with these skills and more confident about trying them in the workplace.

Discussion

Supervisors from the UCLA Hospital & Clinics participated in sixteen hours of supervisory skills training aimed at improving their familiarity, confidence in applying, and ability to use four systematic skills. Dependent t-test results using the pre-post-then evaluative technique indicated that supervisors were significantly more knowledgeable and confident in utilizing the techniques taught.

Two non-significant results were observed with the active listening and feedback skills. Participants did not report that they were able to use the techniques significantly better than when they began the training session. One explanation is that improvement did occur (as evidenced by the increase in change scores on the post-then scores) but was not great enough to be detected as a statistically significant result. Alternatively, these skills may be more complex than the others taught and may require more than four hours of practice before participants are fully able to improve their present skill level.

This evaluation study suggests the viability of replicable training methods and illustrates the effectiveness of the behavioral skills techniques utilized. The "pre-post-then" evaluation technique appears to be a valuable method of program evaluation, unlike the traditional pre-post model. This type of evaluation methodology should replace other methods since it helps demonstrate the effectiveness of training outcomes and the behavioral change of employees in organizations.

Future evaluation designs should attempt to utilize experimental control groups and random assignment to training classes whenever possible. In cases such as this study, alternate evaluation designs can be incorporated to minimize threats to internal and external validity. Simple pre-post measures should not be considered a viable evaluation design worthy of analysis. More rigorous and

carefully designed methods are required to adequately determine the cost-effectiveness and impact of behavioral skills training in organizations.

The successful outcomes of this study are most likely attributable to: 1) use of replicable technology to teach behavioral skills; 2) use of modeling, in-class practice, coaching, and feedback; and 3) use of individual behavioral self-contracts to facilitate transfer of newly learned skills to the work environment. Such replicable training methods would appear to be useful in future training designs.

References

Bandura, A. (1976). Effecting change through participative modeling. In J. D. Krumboltz & C. E. Thoresen (Eds.), Counseling methods. New York: Holt, Rinehart, & Winston.

Byham, W. C., Adams, D., & Kiggons, A. (1976). Transfer of modeling training to the job. Personnel Psychology, 29, 345-349.

Cormier, W. H. (1979). Interviewing strategies for helpers. Belmont, CA: Wadsworth.

Howard, G. S. (1980). A new look at the criterion problem from the perspective of Gelso's bubble hypothesis. The Counseling Psychologist, 8, 63-68.

Howard, G. S. (1982). Improving methodology via research on research methods. Journal of Counseling Psychology, 29, 318-326.

Howard, G. S., & Daily, P. R. (1979). Response shift bias: A source of contamination of self-report measures. Journal of Applied Psychology, 64, 141-150.

Latham, G. P., & Saari, L. M. (1979). Application of social learning theory to training supervisors through behavioral modeling. Journal of Applied Psychology, 64, 239-246.

McFall, R., & Twentyman, C. (1973). Four experiments on the relative contributions of rehearsal, modeling, and coaching to assertion training. Journal of Abnormal Psychology, 81, 199-218.

Meichenbaum, D. (1971). Examination of modeling characteristics in avoidance behavior. Journal of Personality and Social Psychology, 17, 298-307.

Metzoff, B. (1981). How to get accurate self-reports of training outcomes. Training & Development Journal, 35, 56-61.

Nowack, K. M. (1982). Interpersonal effectiveness for supervisors. Los Angeles: UCLA Hospital & Clinics, Department of Human Resources.

Perry, M. A., & Furukawa, J. (1980). Modeling methods. In F. Kanfer & A. Goldstein (Eds.), Helping people. New York: Pergamon.

Vance, B. (1976). Using contracts to control weight and improve cardiovascular fitness. In J. Krumboltz & C. Thoresen (Eds.), Counseling methods. New York: Holt, Rinehart, & Winston.

Kenneth M. Nowack, Ph.D., is director of Organizational Performance Dimensions, a management development and evaluation consulting company specializing in selection and assessment, career development, health management, and management training. His current research and evaluation projects include validation of health risk assessment and career interests tests. **Address:** *Organizational Performance Dimensions, 20950-38 Oxnard Street, Woodland Hills, CA 91367.*

Table 1.   Then-Post Difference Scores for the Behavioral Skill Areas (n=48)

Evaluative Measures	Behavioral Skill Areas			
	1	2	3	4
Familiarity	2.71*	1.82*	3.80*	8.90*
Ability	1.58	1.30	4.84*	6.71*
Confidence	3.43*	4.04*	5.78*	6.36*

Behavioral skill areas: 1 = active listening
2 = constructive feedback
3 = correcting undesirable behavior
4 = reinforcing desirable behavior

*p < .05