Effects of Overlearning and Incentive on the Acquisition and Transfer of Interpersonal Skills with Institutionalized Elderly

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Structured Learning Therapy, a skill training program consisting of modeling, role playing, social reinforcement, and transfer of training was used to teach 56 elderly inpatients (mean age = 65.74) the interpersonal skill of "Starting a Conversation." The effects of three levels of overlearning and the addition of concrete (monetary) reinforcement on skill acquisition and transfer were also assessed. All patients acquired the target skill, and there was some evidence of transfer of skill training. Individuals not receiving concrete reinforcement during training showed greater skill transfer compared to those individuals receiving additional incentive. A transfer-enhancing effect of overlearning was found on the Structured Post-test, but no effect was obtained for the other post-test transfer measures.

Because of their effectiveness, behavioral techniques have been used increasingly more often with elderly persons in a wide variety of mental health settings (Baltes & Barton, 1977; Hoyer, 1973; Hoyer et al., 1975; Rebok & Hoyer, 1977). In contrast to other therapy models, intervention from a behavioral perspective is focused on the learned basis of the disorder. One type of behavioral intervention which has received relatively little attention as it applies to elderly patients is interpersonal skill training (Berger & Rose, 1977). The general purpose of the present investigation was to examine the effectiveness of a skill training procedure termed Structured Learning Therapy with elderly individuals (Goldstein, 1973; Goldstein et al., 1976). The specific emphasis of the study was to examine the possible performance-enhancing effects of incentive and overlearning on skill acquisition and transfer.

Structured Learning Therapy (SLT) is a psychoeducational, skill training procedure whose operational components are modeling, role playing, performance feedback and transfer training. In its implementation, small groups of trainees, all of whom are deficient in the particular skill being taught, (1) observe a modeling display of an individual expertly performing the skill behaviors being taught (i.e., modeling); (2) are given considerable opportunity and encouragement to rehearse or practice the behaviors which have been modeled (i.e., role playing); (3) are provided with praise, approval or reward as their role playing behavior becomes more and more like the behavior of the model (i.e., performance feedback); (4) are exposed to these processes in such a manner that there is enhanced likelihood that skills acquired in the training setting will be maintained and will generalize to other, real-life contexts (i.e., transfer of training).

Earlier studies examining the usefulness of SLT have demonstrated its skill acquisition effectiveness with adult chronic mental hospital patients (Gutride et al., 1973; 1974),

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1The authors gratefully acknowledge John Leite, who assisted in conducting the study, Elizabeth Lander, Deborah Sturm, and David Bleecker, who assisted with tape-rating, and Dana J. Plude, who assisted with data analysis. We are grateful to Frank E. Grant, PhD, the staff, and the residents of Catawba Hospital, Catawba, VA for their kind cooperation. Requests for reprints should be addressed to the senior author.

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adult psychiatric outpatients (Goldstein et al., 1973), and other types of trainees (e.g., Goldstein et al., 1976). In these investigations, successful skill acquisition has been a consistent finding, and skill maintenance as well as transfer have been frequently obtained. Research on characteristics of learning demonstrated to foster acquisition in the elderly has revealed a number of facilitative factors which also are characteristic of SLT. These include concreteness (Botwinick, 1978), a supportive atmosphere (Bellucci & Hoyer, 1975), high degrees of structure and predictability (Schultz, 1976); and multi-channel (auditory, visual) presentation of materials (Arenberg & Robertson-Tchabo, 1977).

To acquire new skill behaviors, however, is often not equivalent to being able to perform them where and when it matters, in patients' real-life environments. Individuals often learn new behaviors in therapy, training and similar contexts, but fail to perform them at home, in the community, and in other post-training settings. This frequent failure of transfer especially with the elderly remains a major and as yet largely unresolved dilemma in the broad domain of psychotherapeutic and psychoeducational interventions (Labouvie-Vief et al., 1974). The challenge implicit in this failure has been responded to by efforts to develop and examine the real-world effectiveness of what has been termed “transfer-enhancers” (Goldstein & Kanfer, 1979). It has been demonstrated in laboratory contexts that these procedures function as effective means for augmenting the levels of post-acquisition skill maintenance and generalization. Included among these successful transfer-enhancers are (1) the provision of general principles, (2) identical elements, (3) over-learning or maximization of response availability, (4) stimulus variability, and (5) performance feedback.

The present investigation has among its primary goals the examination of the transfer-enhancing effectiveness of overlearning procedures. Overlearning is a procedure in which training is extended over more trials than are necessary to produce initial changes in the trainee’s behavior. When the trainee performs correctly for the first time on the criterion task, he or she is not asked to move on to the next task or level. Instead, the trainee is required to repeat the initial successful behavior a specified number of times. It has been demonstrated that positive transfer increases with increasing practice, or overlearning, on the original task (e.g., Underwood, 1951).

The effects of monetary incentive on interpersonal skill acquisition and transfer were also examined in this study. It can be argued that the skill deficits of elderly reflect performance deficiencies more so than the “competence” of the older person. Often the older individual may have the requisite competencies and simply not perform these skills because of nonoptimal environmental factors (Labouvie-Vief et al., 1974). In this study one-half the patients were given monetary incentive for performing the target skill during training and one-half were not; all participants were post-tested with and without monetary reward on the transfer measures. It was expected that those who received monetary reward would exhibit greater skill acquisition and transfer compared to those who were not given such additional incentive.

**METHOD**

**Subjects.** — Fifty-six elderly residents of a state psychiatric institution in rural Virginia served as subjects. Initially, staff psychologists selected 80 residents whom the psychologists thought would be able to benefit from the program based on their lack of severe organic or psychiatric impairment. The Mini-Mental State (Folstein et al., 1975) was administered to these 80 residents to assess mental status and those 60 who scored highest were chosen as subjects for the study. The mean score on this measure for participants in the study was 23.93 (SD = 3.29), indicating a moderate level of confusion. Health status was assessed using the cardiovascular scale of the Cornell Medical Index (Brodman et al., 1949); the mean number of self-reported complaints was 3.02 (SD = 2.62). Participation in the study was voluntary, although encouraged by staff as part of the ongoing activities program. Four subjects were lost due to illness or choosing not to continue. Mean age of the 31 females and 25 males completing the study was 65.74 years (SD = 5.17). Mean length of institutionalization was approximately 20 years, and mean years of education was 9.29 (SD = 4.17).
TRAINING INTERPERSONAL SKILLS

Trainers. — Trainers for the study were a doctoral student in clinical psychology and eight hospital staff including two masters-level psychologists, two registered nurses, one licensed practical nurse, and three psychiatric aides. Trainers attended a 10-hour course conducted by the first author designed to teach skills needed to lead SLT groups. All trainers were “blind” as to the hypotheses of the study. One group of trainers administered pretests and different trainers administered the posttest measures.

Design and procedure. — Ten subjects were randomly assigned to each of the six cells of a three (High, Medium or Low Overlearning) by two (SLT, SLT plus incentive) experimental design. Originally there were two training groups for each cell with each group composed of five patients (or trainees) and two trainers. Two patients dropped from one of the Medium Overlearning SLT groups, one dropped from a Low Overlearning SLT group, and one was lost from a Low Overlearning SLT plus incentive group. All participants were pre- and post-tested individually. Pre-testing consisted of six audiotaped vignettes to which the subject responded verbally. Since the skill to be taught was “Starting a Conversation,” each vignette concerned a situation in which one person had something to say to another person. The component behavioral steps constituting the focal skill which were modeled during training and used for evaluation purposes were as follows: (1) greet the person, (2) make small talk, (3) decide if the person wants to talk to you, and (4) begin the topic. Both elderly men’s and women’s voices were used on all tapes. The skill of “Starting a Conversation” was selected for its concreteness and simplicity, and its relevance for this conversational-skill deficient population. The situations depicted were designed especially for their applicability to institutionalized elderly persons. Training groups differed from each other only in the amount of overlearning incorporated within training and whether or not trainees were given a combination of concrete and social reinforcement (standard SLT).

During the first session of skill training, participants were given a brief introduction to the purposes and procedures of skill training, and cards were distributed on which were written the four behavioral steps which comprised the skill, “Starting a Conversation.” The trainers then led a discussion of the importance of each step to the successful enactment of starting a conversation. Finally, the first modeling audiotape was played, and the trainers focused group attention and discussion on each step and on the outcome of the vignette. The second training session began with a brief recapitulation of what had happened during the first session, and then another audiotaped modeling vignette was played. In addition to focusing discussion on the skill steps and positive outcome, the trainers now emphasized the usefulness of the skill on and off the ward and the appropriateness of the skill to different situations. Role playing was also introduced during the second session. In all groups, each trainee correctly enacted the target skill at least once. Trainers either helped role players devise their own situations to present or provided examples when necessary. Trainees were given help by the trainers and by the other trainees in following the skill steps as closely as possible. Social reinforcement, positive feedback, and prompting were used liberally to guide or shape correct performance. In addition, trainees in the SLT plus concrete reinforcement condition were given a nickel (five cents) for each correctly performed behavioral step or a quarter (twenty five cents) if he or she correctly performed all four learning points.

The high overlearning trainees met for a total of eight training sessions while the medium and low overlearning groups met for six or four sessions, respectively. For the groups receiving high overlearning, training ended when all subjects had correctly role-played the skill three times. In the medium overlearning condition, each trainee correctly role played twice, and in the low overlearning condition only one correct role-play was required. Four additional modeling vignettes were interspersed among the role-play rehearsals. It is important to note that overlearning included not only direct role playing but also modeling of the role playing of other trainees. Thus while high overlearning trainees role played the skill only two times more than their low overlearning counterparts, they viewed and were required to give feedback for a great many more (NX3 correct live modeling displays of the skill by fellow group members. Sessions
were approximately 40 min in length, were completed during a three week period for all trainees, and were held in a small, comfortable activity room with a blackboard. Trainees and trainers sat on chairs in a circle.

During the week following training, all subjects were given (1) a Direct Test consisting of the same six vignettes presented during pretesting, (2) a Minimal Transfer Test consisting of six vignettes similar to those of the Direct Test, but never heard before by the trainee, (3) a Structured Post-test in which an actor interacted with the trainee to assess his or her conversational expertise, and (4) an Observational Post-test, in which the trainee was unobtrusively observed during an unstructured group session and beginning conversational skills were assessed. All trainees were post-tested twice on the Direct Test and the Minimal Transfer Test, once with concrete and social reinforcement and once with social reinforcement only.

RESULTS

Scores on the Pre-test were subjected to a two (Incentive) by three (Overlearning) analysis of variance. No statistically significant main effects or interactions were obtained, indicating that the treatment groups were not different prior to training. Correlated $t$-tests were then used to assess overall pre-post gains as a function of training. Significant differences were obtained between the Pre-test and the Direct Test without concrete reinforcement, $t(55) = -4.49, p < .01$, and between the Pre-test and the Direct Test with concrete reinforcement, $t(55) = -3.45, p < .01$. All subjects acquired the skill, "Starting a Conversation."

A three (Overlearning) by two (Incentive) multivariate analysis of variance using the SAS-GLM program (Barr et al., 1976) was computed for the six dependent measures. The Wilks’ lambda criterion was met such that exact $F$s were calculated for the effects of Overlearning ($\Delta = .756$), Incentive ($\Delta = .804$), and the Overlearning by Incentive interaction ($\Delta = .777$). The overall multivariate effect of Incentive, $F(6,49) = 2.10, p < .07$, approached but did not attain statistical significance. Similarly, the overall multivariate effects of Overlearning and of the Overlearning by Incentive interaction failed to reach the .05 significance level. Separate three (Overlearning) by two (Incentive) univariate analyses of variance were performed on each of the dependent measures even though the multivariate effects were not significant since weak relationships between acquisition and transfer measures have been found in previous skill training studies (e.g., Berger & Rose, 1977). Several reliable univariate effects were obtained. First, a significant main effect of Incentive was found on the Minimal Transfer Test when it was given with concrete reinforcement, $F(1,50) = 5.58, p < .05$. Approximately 9.9% of the variance was accounted for by this effect (corrected $R^2$ value). Unexpectedly, trainees who received SLT without concrete reinforcement performed better on this Minimal Transfer Test than those who received SLT training with monetary incentive. The mean scores for these groups were 6.52 and 4.61, respectively.

The second significant finding concerns the effects of Overlearning on the Structured Post-test. On the Structured Post-test, recall that an actor interacted with the trainee in order to assess his or her conversational skills. A main effect of Overlearning, $F(2,55) = 5.09, p < .01$, and an Overlearning by Incentive interaction, $F(2,55) = 3.78, p < .03$, were found. These effects accounted for 23% and 17% of the variance, respectively (corrected $R^2$ values). A high level of Overlearning produced better performance on the Structured Post-test, especially for those trainees who were given SLT alone. Tests of simple effects at each Overlearning level showed SLT without monetary incentive to be superior to SLT with incentive at the High Overlearning level only, $t(10) = 2.65, p < .05$. General linear model regression analyses with and without age and/or Pre-test scores as covariates produced basically the same pattern of results (cf. Cohen & Cohen, 1975).

DISCUSSION

The general purpose of this study was to assess the effectiveness of Structured Learning Therapy skill training with elderly inpatients. Specifically, the effects of overlearning and monetary incentive on the level of skill acquisition were investigated. Although clinical interventions based on behavioral techniques have become increasingly more popular in recent years (e.g., Hoyer et al., 1975), the present study is one of the first to examine the
effects of interpersonal skill training with the elderly. Consistent with a previous study of this type (Berger & Rose, 1977), a skill training approach was found to be at least partially effective with institutionalized elderly patients. Berger and Rose (1977) employed an interpersonal skill training program consisting of vignettes, prompts (or coaching), discussion, rehearsal, and feedback with nursing home residents (mean age 77.0 years, range 46 to 97 years). Compared to discussion control and assessment-only control groups, Berger and Rose (1977) found that subjects receiving interpersonal skill training were superior at post-test but not at the two month follow-up. Further, the patients receiving skill training were superior only in those situations for which they had received training and not in the untrained situations. The high degree of skill training obtained in the present study may be attributable to the transfer enhancing components (i.e., overlearning, identical elements, and stimulus variability) which are built into SLT. Subject sampling as well as other factors (e.g., skill selection, the use of group training, more sessions, role playing and peer modeling) may also be responsible for the greater degree of skill training found in the present investigation.

Surprisingly, the addition of concrete reinforcement to SLT did not enhance skill acquisition and transfer. In fact, subjects receiving standard SLT performed at a higher skill level on the Minimal Transfer Test and on the Structured Post-test compared to those who received SLT plus concrete reinforcement. While it was expected that additional reward would improve the efficacy of SLT, it is possible that patients who had not received reward during the SLT sessions were relatively more motivated during rewarded post-testing than were the patients who were trained with monetary reward.

It was also somewhat surprising that the positive effects of overlearning which were found on the Structured Post-test were not also demonstrated on the other post-test measures. Perhaps a more robust overlearning effect would have been obtained if training had been distributed over more time or if skill performance had been role-played on the ward as well as in the training groups.

SUMMARY

The general purpose of this investigation was to assess the efficacy of Structured Learning Therapy with elderly inpatients. Structured Learning Therapy is a skill training program consisting of modeling, role playing, social reinforcement, and transfer of training, and it has been used to teach interpersonal, cognitive and affective skills to adult psychiatric patients. Fifty-six elderly adults (mean age = 65.74, SD = 5.17), all identified as having interpersonal skill deficits, were successfully taught the skill of ‘Starting a Conversation.’ Some of the trainees were given standard Structured Learning Therapy training while others were given additional concrete (monetary) reinforcement during training. Patients receiving standard training showed greater skill acquisition and transfer than those who received additional incentive. The effects of low, medium and high levels of overlearning on skill acquisition and transfer were also investigated, and a transfer enhancing effect for overlearning was found on only one of the six post-test measures.

REFERENCES


