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TRANSFER OF HOUSEHOLD MANAGEMENT SKILLS FROM
A BOARD AND CARE HOME TO AN EXPERIMENTAL
APARTMENT VIA PROGRAMMING COMMON STIMULI

A Thesis

Presented to
the Graduate Faculty of the
University of the Pacific

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by
Richard W. Couch

May, 1980

This thesis, written and submitted by

Richard W. Couch

is approved for recommendation to the Committee
on Graduate Studies, University of the Pacific.

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Martha J. Jasso

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Martha J. Jasso Chairman

Floyd O'Brien

Mr. Paul

Dated April 25, 1980

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Abstract

A random multielement design was used in two replications to assess the effectiveness of programming common stimuli to enhance the transfer of household management skills from a group home for mentally disabled adults to an experimental apartment. Salient stimulus items were taken from the subjects' group homes (training site) and placed in an experimental apartment (testing site) as the participants were advancing through a program to teach them independent living skills. The results suggest that the transfer of household management skills was enhanced by programming in stimuli from the training site.

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The current emphasis on the advancement of mentally and developmentally disabled individuals to less restrictive levels of care underscores the need to study variables which both produce behavior change and provide for the transfer of behavior change to new settings. The need for generality of behavior change has long been discussed (e.g. Baer, Wolf & Risley, 1968; Stokes & Baer, 1977). One approach to programming generalization is "Generalization via programming common stimuli" (Stokes & Baer, 1977). This approach involves equating the stimulus conditions between training and testing settings.

A few studies have used this method to achieve generalization. Lietzke (Note 1) taught ten developmentally disabled children simple imitative tasks under specific stimulus conditions. The children were then assessed in a novel setting for transfer of training in the presence of stimuli which had been frequently and infrequently attended to during training. When subjects were assessed in the presence of frequently looked at stimuli they performed a greater number of the trained tasks than they did when they were assessed in the presence of infrequently looked at stimuli. Similarly,

Rincover and Koegel (1975) assessed transfer of treatment with four autistic children who failed to generalize across settings. Stimuli from the treatment environment were introduced to the novel setting one at a time. All four children selectively responded to an incidental stimulus from the training environment. In a related study, Koegel and Rincover (1974) taught autistic children basic classroom behaviors in a one-on-one setting. The children evidenced transfer of training to novel classroom environments after the classroom stimulus situations were faded in.

Walker and Buckley (1972) compared conditions between experimental and regular classrooms with peer programming and teacher training. They found peer programming and equating stimulus conditions significantly more effective than both teacher training and a control group. Peers were also used successfully as common stimuli by Stokes and Baer (1976) and Johnston and Johnston (1972). Both of these studies utilized preschool peer tutors as discriminative stimuli for their classmates language training. These peer tutors then served as discriminative stimuli which could be moved from the training site to the target site. Each study found little if any generalization to novel settings when a peer tutor was not present. In the presence of a peer tutor, however, high levels of responding were maintained.

The use of a single discriminative stimulus (S^D) in the form of a visual signalling apparatus was used by Rabin-Bickelman and Marholin II (1978) to transfer the training

gains of a retarded male to a novel setting. The signalling apparatus served as an effective S^D in trainer absent and novel setting trials. Taylor and Rickard (1974) used a manual signal - raising the right hand - to decrease the noise level of large groups in a summer camp for behaviorally disturbed children. The S^D was extremely effective in regular mealtime settings when administered by the camp leader as well as in novel situations with novel trainers. Nay and Legum (1976) examined the effectiveness of a red cardboard ball placed in a classroom on the out-of-seat and inappropriate verbal behavior as a token economy was faded out. The investigators differentially reinforced in seat and appropriate verbal behavior in S^D and extinction conditions and then faded out the token economy. The "red ball" maintained stimulus control after the token economy had been faded out.

Programming a common stimulus has also been suggested as a behavior reduction procedure (Murry, 1977). In what he calls the "black book technique" Murry suggests a book used to record inappropriate behavior will become a conditioned punishing stimulus when followed by a behavior reduction procedure. This book may then be taken to new environments or used by different adults to suppress a child's inappropriate behavior.

Redd (1976) utilized reinforcement schedules as discriminative stimuli programmed into a novel setting with novel trainers. The study showed contingent tasks were performed more frequently than extinction tasks, exemplifying how tasks

can acquire discriminative properties via their reinforcement schedules. The tasks that receive reinforcement can later be transferred to novel settings or performed in the presence of unfamiliar trainers and still maintain their frequency of use as a function of their schedules of reinforcement.

These studies demonstrate that equating stimulus conditions between training and target settings can prove very effective in achieving a transfer of training. Therefore, it would seem plausible that specific tasks performed in a community based small group home would more easily transfer to target settings in the natural environment if salient stimuli from the group home were programmed into the target site. This paper presents two replications of an evaluation of the transfer of household management skills from a group home for mentally disabled adults to an experimental apartment as a function of the presence of common stimuli.

Method

Participants and Setting

The participants were a 21 year-old male and a 30 year-old female, referred from a community-based small group home as part of an ongoing program to advance mentally disabled outpatients to less restrictive levels of care. Both participants had a history of hospitalizations. Upon admittance into an independent living component of their treatment the participants were asked to serve in the study. They were told that the study was designed to assess the effectiveness of previous training done in the care home and would involve

daily inspection of an apartment in which they would be living in but they, personally, would not be observed. An informed consent form stating this in writing was presented to the participants and their signatures were obtained (see Appendix A).

Training Site

The small group home is a community-based, licensed facility for mentally disabled persons. Approximately six residents live in a home at any one time. A household management system based on the model developed by Kunz, Sato, Boggs, Nitta, and Gipson (Note 2) is operated by the residents in the home.

In this model, household management skills such as dusting, vacuuming, and washing dishes are assigned point values according to their perceived level of difficulty and time involved in completing them. The residents select tasks during weekly meetings in which a resident manager is appointed as a function of who has completed the highest percentage of chores in the preceding week. This resident manager position involves the monitoring of tasks completed as well as awarding points to the other residents completing chores. Successful completion each week of the resident manager's job results in a payment of \$5.00 from the operator.

Generalization Site

An experimental apartment used to assess the skills taught in the small group home served as the testing site for transfer of the household management skills. This is a one

bedroom apartment, with a kitchen, livingroom, and bathroom. It is furnished with a couch, two chairs, two lamps, a kitchen dinette set, two beds, two nightstands, and a refrigerator and stove.

Stimulus Items

In each replication the package of discriminative stimuli consisted of specific salient items from the subjects' group home, each item pertaining to a particular room. For replication I they were (a) for the living room, a green diamond shaped ceramic ashtray with grooves to hold cigarettes and a round, white, plastic garbage pail about 35cm. (14 inches) tall, (b) for the kitchen, a blue diamond shaped ceramic ashtray with grooves to hold cigarettes and Dove brand dishsoap in the 1064.6 ml. (36 oz.) size, and (c) for the bedroom, a round, brown, garbage pail about 45cm. (18 inches) tall.

In replication II the package of discriminative stimuli were (a) for the bedroom, bathroom, and living room, white plastic garbage pail liners placed in each garbage pail, (b) for the living room, a small round pewter ashtray and a small square gold colored glass ashtray, (c) for the kitchen and dining room, Crystal brand dishsoap in the 10.64 cl. (36 oz.) size, a green dishtowel, and a salt shaker, and (d) for the bathroom, "409" brand cleanser and blue floral toilet paper.

These items were selected as a function of their use in the small group homes (training site). Use was assessed by daily measurements taken in the subjects' group home just prior to their admittance into the experimental apartment.

The use or non-use of the specific items was recorded and those items receiving daily use were selected for the stimulus package. Measurements were made by recording the number of cigarette butts in ashtrays, the diameter of toilet tissue rolls, whether the garbage pail was emptied, weight of cleanser, quantity of liquid in the dishsoap container, whether the bed was made, if the dishes were dried, and if the salt shaker was placed on the dinner table.

Interobserver agreement was computed by having a person working in each small group home independently inspect the stimulus items which were being observed. This person would record whether the item had been used since the preceding day. Interobserver agreement was assessed on the fourth day of the week long observation period for replication I, and on the second day for replication II. A phi coefficient (Hartmann, 1977) was computed to determine the agreement level for each replication, and it was 1.0 in both cases.

Procedure

At the start of each independent variable condition the stimulus items were placed throughout the apartment approximately where they were located in the group home, e.g. ashtrays on tabletops, garbage pails in corners of rooms, detergents in cabinets, and the bedspread on the bed. For each item placed in the apartment an equivalent item was removed, e.g. the ashtrays in the apartment were replaced by an equal number of ashtrays from the stimulus package. The items removed from the apartment were stored in the experimenter's

office while the stimulus package items were in the apartment.

Inspection of the chores was made after the subjects left for work each day. Two observers, the experimenter and a second observer blind to the experimental procedure (placing stimulus items in the apartment) and conditions, inspected the items on the data sheet (see Appendix B) as they toured the experimental apartment. The observations would begin by having one observer inspect the kitchen while the other observer waited in the livingroom. As the first observer left the kitchen to inspect the livingroom the second observer began inspecting the kitchen. The first observer would then inspect the bedroom and bathroom with the second observer following. The observations lasted between 45 and 90 seconds each day.

Design

A random multielement design (Krotochwill, 1978) was used in both replications to assess the effects of independent and no-independent variable conditions. The conditions were assigned randomly to three-day blocks in the sequence 1211222-11122 (where 1 = a three day block of the no-independent variable condition and 2 = a three day block of the independent variable condition) according to a stimulus sequence chosen at random from Fellows (1976).

Observer Training and Interobserver Agreement

The observers were instructed on the use of the data sheet and practiced using it until interobserver agreement scores exceeded .85. The definitions used in the data sheet to specify the criteria for a chore to be scored as clean or

not were the same criteria established in the small group homes where the participants were trained in the household management system.

Interobserver agreement scores were computed by a phi coefficient (Hartmann, 1977) for each phase of both replications and ranged from .90 to 1.0 with a mean of .99 in replication I and .95 to 1.0 with a mean of .98 in replication II.

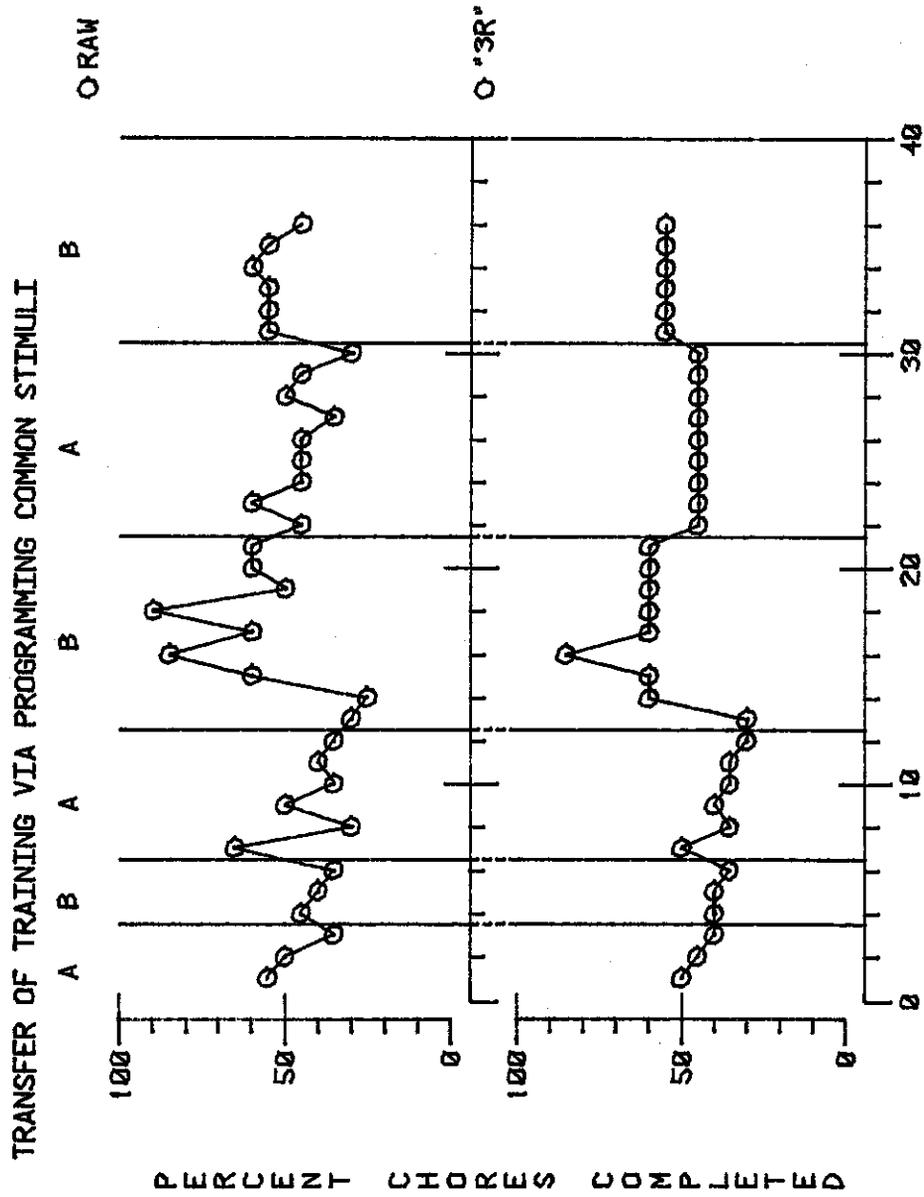
Results

Figure 1 shows the effect of placing common stimuli in the apartment on the percentage of chores completed by subject 1. During the three day baseline phase the percentage of chores completed decreased from 55% to 35%. During phase B, when the common stimuli were placed in the apartment, the percentage of chores completed increased to 45%, and then resumed a decreasing trend to 35%. The withdrawal of the stimuli in the second A phase resulted in a continuation of the descending trend after an initial increase of cleaning on the first day of the phase. The second B phase indicates increased cleaning by the participant with the highest percentage of chores completed throughout the study occurring in this condition, ranging from 25% to 90% of the chores completed. The following A phase displays a continuation of the descending trend observed in the prior A phase, ranging from 60% to 30%. The final B phase resulted in a slightly higher percentage of chores being completed than the preceding A phase, ranging from 45% to 60% of the chores being

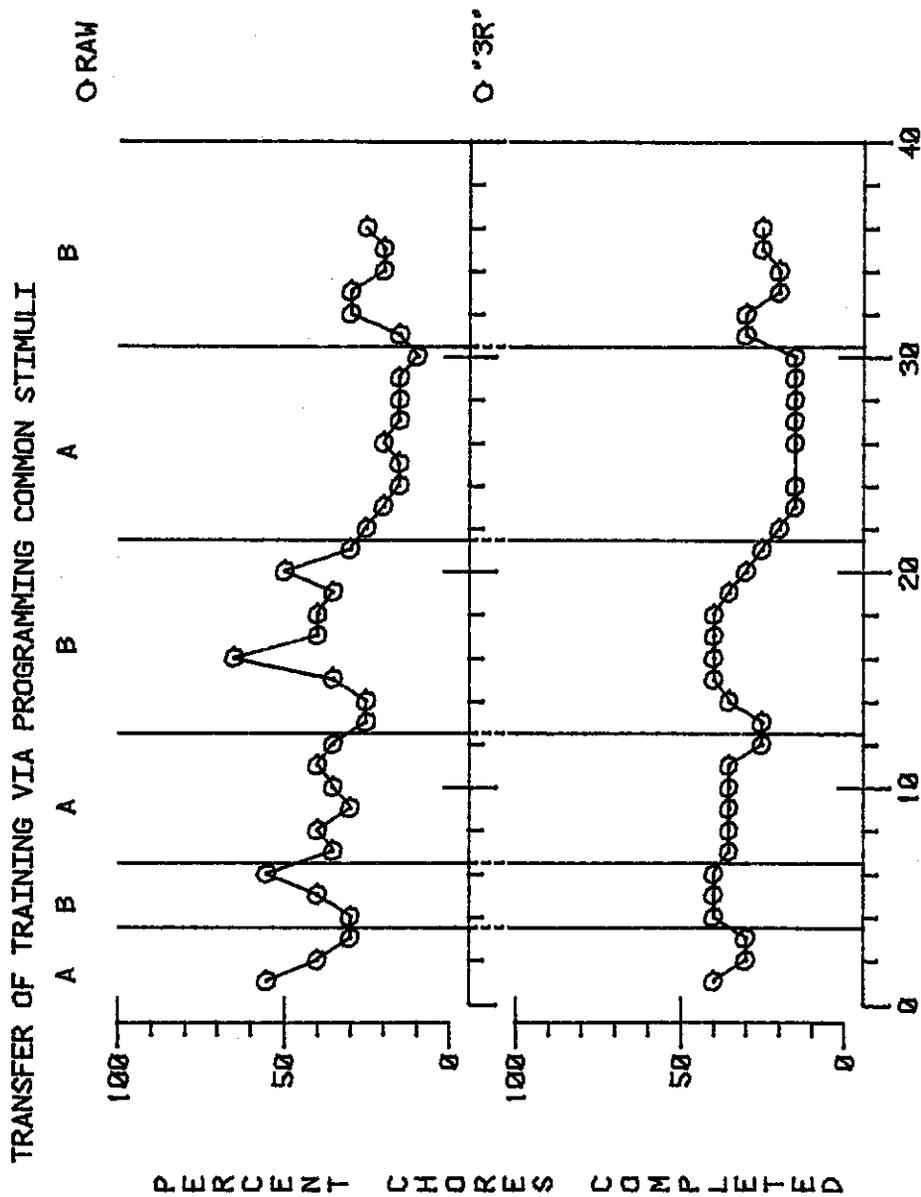
completed.

Figure 2 illustrates the data in Figure 1 after it has been smoothed by repeated medians of three ("3R" Smooth, Tukey, 1977). This procedure enables the reader to more readily discern the overall trends within phases and throughout the entire study. Smoothing by repeated medians of three involves grouping the raw data into successive collections of three and selecting the median raw data point for the smoothed data point. If the first three data points were 55%, 50%, and 45% the first smoothed data point would be 50%. Then the second, third, and fourth raw data points are grouped and the median of these three is taken as the second smoothed data point. This procedure continues until the last raw data point is used at which time a procedure called "copying on" (Tukey, 1977) is used to compute the final smoothed data point.

Figure 3 displays the percentage of chores completed for participant 2. It can be seen that the initial A phase shows a marked decrease in the amount of chores completed, ranging from 55% to 35% in the three day phase. The following B phase is a virtual reversal of the previous A phase, with the amount of chores completed increasing from 35% to 55%. The second A phase resulted in an immediate drop in the percentage of chores completed to 35% and ranging between 30% and 40% for the duration of the six day phase, finally ending at 35%. The following B phase started with two days of even fewer chores completed, 25%. The next two days



Figures 1 and 2. Percent chores completed for participant 1, raw and smoothed data.



Figures 3 and 4. Percent chores completed for participant 2, raw and smoothed data.

however, show a dramatic increase, to the highest percentage of chores completed throughout this replication, 65%. The rest of the phase shows a return to the gradual descending trend with the exception of another peak of 50% on the second to last day of the phase. The final B phase indicates an overall increase of about 10% of the chores being completed. The overall trends are best illustrated in Figure 4, the "3R" smooth of the data in Figure 3. The smooth highlights the trend in each B phase and displays an overall descending trend across all conditions.

Discussion

Figure 1 displays a large increase in the number of chores completed in the second B phase. The two highest data points for this replication are in this phase. The final B phase contains the second highest percentage of chores completed. Similar effects are seen in Figure 3 where each B phase has a higher percentage of chores completed as compared to the A phase it follows.

These findings suggest that the transfer of household management skills was enhanced by programming in stimuli from the training site to the testing site. While the data are inconsistent (the second B phase in replication I showed no improvement) the marked increase in the amount of chores completed in the second B phase of each replication suggests that the intervention had an effect. The final B phases of each replication also lend support to this conclusion by

showing an increase in chores completed as compared to the A phases they follow. Also, the first B phase in replication II supports this conclusion as it represents a complete reversal of the trend in the A phase it follows.

In replication II there appears to be an overall descending trend that is not evidenced in replication I. This might be a function of the S^D package undergoing an extinction process in replication II that did not occur in replication I, but which might have occurred if the study had been extended. Anecdotal data from prior work with this population suggests that the amount of chores completed by the resident of the experimental apartment decreases throughout their stay in the apartment. At the end of their stay the apartment usually has to be professionally cleaned. Programming in common stimuli may delay or in some cases prevent this trend.

In replication I no discernable trend was evidenced. As was suggested earlier an overall descending trend might have taken place had the study been extended. Another hypothesis could be that the pairing of the neutral stimuli in the apartment with the stimulus package resulted in the previously neutral apartment stimuli establishing stimulus control over the cleaning behavior of the subject. If this were the case the differences in cleaning between treatment and no-treatment phases should diminish over time.

Further research should investigate the utility of more salient stimuli such as furniture, appliances, or even the

color of the interior of the testing site. Another possibility might be to program into the testing site the very items the subject would be using to perform the cleaning behaviors, i.e., a vacuum, dustcloth, sponge, etc..

In conclusion, it would appear that programming common stimuli enhances the transfer of skills from a training site to a testing site. However, more research needs to be undertaken to assess how many, what type of, and for what duration, stimuli would be needed to achieve the maximum gain from this method of programming for generalization.

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Appendix A
Informed consent form

THE COMMUNITY RE-ENTRY PROJECT: DEPARTMENT OF PSYCHOLOGY,
UNIVERSITY OF THE PACIFIC, STOCKTON, CALIFORNIA, 95211
CONTACT PERSON: RALPH NITTA, PROJECT DIRECTOR. PH# 946-2133

I _____ agree to participate in the C.R.P.
study described below.

In an effort to assess the effectiveness of training programs implemented in the board and care home, I the undersigned will allow C.R.P. staff members to observe the model apartment on a daily basis for the duration of this study. I realize this involves no more than regular model apartment procedures and it will cost me nothing. I further understand that I personally will not be observed and my performance in this study will not threaten my chances for moving into a housing authority apartment.

I also understand that if I have any questions I should feel free to contact a C.R.P. staff member (Richard Couch, Bill Passavant, or Ralph Nitta) at 946-2133.

Lastly, I understand that I may drop out of this study if I express my desire to do so, two days in a row.

(Signature)

Date

C.R.P. staff

Appendix B
Data sheet.

GENERALIZATION CLUB

DATA SHEET

Kitchen

_____ Top of stove cleaned: no more dirt than can cover a quarter. No unnecessary objects.

_____ Refrigerator: no dirt, grease or food spots.

_____ Counter tops cleaned: no more dirt than can cover a quarter. No unnecessary objects.

_____ Floors swept: no more dirt than can cover the area of a quarter.

Bedroom

_____ Beds made: daily with blankets neatly on bed. No wrinkles more than six inches.

_____ Pillow cases: on.

_____ Bed spreads: properly tucked.

_____ Closet: clothes hung, shoes not piled but neatly placed.

_____ Dresser: objects neatly arranged.

_____ Floor: no excess objects.

_____ Waste basket: not to be more than half full.

Bathroom

_____ Sink: free of unnecessary objects, clean (no hair smudges or dirt).

_____ Mirror: clean, no streaks or smudges, water spots, etc..

_____ Waste basket: not over two thirds full.

_____ Toilet: free of stains, rings, hair, dirt, etc..

_____ Bathtub: no smudges, spots on chrome or water marks.

Livingroom

_____ Things put away: unnecessary objects put away.

_____ Papers etc.: arranged neatly.

_____ Furniture dusted: no dust, smudges removed.

_____ Carpets: no more dirt than can cover a quarter.