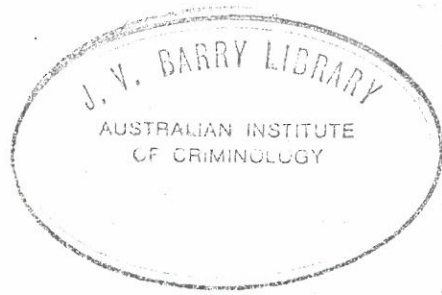


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BEHAVIOR THERAPY - NEW TACTICS FOR  
OCCUPATIONAL THERAPISTS.

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ABSTRACT.

This paper attempts to summarize some of the basic principles and tactics of behavior therapy that Occupational Therapists may find useful for application in many areas of Occupational Therapy.

It attempts to do this by describing an experimental application of the approach within a treatment unit for disturbed adolescents.

## INTRODUCTION.

The history of institutional treatment is significant for its 'fads'. Orlandy (1948) states 'one has the feeling that social science theory has moved in cycles like fads or persisted like customs for historical reasons rather than progressing in one direction because certain truths have been established by objective tests and can be built upon by the evidence of reasoning'.

As a result of such changes the role of staff including Occupational Therapists has altered drastically over the last century. One of the earliest therapeutic approaches was the punitive model, which emphasises the incarnation of evil spirits. This was followed by the moral treatment era, where compassion and understanding was seen as important for patient care. In turn this was replaced by the medical model, which strove to find neurological causes for all psychiatric and social disorders. The influence of Freud then became important and until recently the psychodynamic model was seen as the most valid cure for those suffering psychiatric or social disorders. Disturbingly, these fads did not occur as the result of experimental evidence about effectiveness, but as an outcome of the convictions of strong determined figures such as Pinel (moral treatment), Dix (medical model) and Freud.

One of the most potent new approaches is Behavior Therapy which is based on the experimental work of Pavlov and Skinner (1953) and has particular relevance for work by Occupational Therapists. This approach concentrates on the behavioral repertoire of the patient and his interaction with the environment around him rather than his internal state, as in the psychodynamic model. A person's behavioral repertoire is seen to be a result of this environmental reinforcement and punishment. One of the main advantages of this approach is its emphasis on controlled experimentation in an attempt to ensure that the objectives of therapy are reached and hence reducing fears that behavior therapy may be a 'fad'.

### Setting.

The setting for this study was Nyandi, a treatment and research unit for disturbed adolescents. All clients are wards of state and have been judged too difficult on a psychiatric or delinquency criteria to be treated in other centres of the community. The physical resources offered by Nyandi include a 20 bed maximum security and a 10 bed open cottage centre. Other girls are treated on a day patient basis or in the community. In both secure units, a modified version of Phillips, Fixsen & Wolf's (1970) token system is used. Girls earn points for a wide range of social and performance behaviors judged necessary for successful adjustment in the community. As one of the aims of the token economy is to approximate reality, the patients then spend these points on a wide range of back up reinforcers, including all personal requirements - clothing, special privileges and board.

### Basic Principles of Behavior Therapy.

There are three sub-steps in the successful application of behavior therapy techniques:

- a) selection and definition of target behavior
- b) observation and measurement of environmental factors influencing target behavior and
- c) intervention.

### Selection and Definition of Target Behavior.

Before beginning treatment, the patient, therapist and other concerned parties should make some joint decision about the goals of therapy. Such target behavior may be school attendance (Stuart, 1971), increased positive conversation (Sanson—Fisher, Seymour, Montgomery and Stokes, 1973), length of stay in psychiatric hospitals (Turner, 1971), and so on.

In the experiment to be described, compliance and social greetings were the target behaviors. The decision on target behaviors was made bearing in mind the following principles which behavior therapy argues should always be applied when selecting target behaviors:

- a) The target behavior should be expressed in behavioral terms so as to allow clear understanding by all parties about the goals. If this is not done, the resulting ambiguities may cause failure of intervention procedures.

- b) The Occupational Therapist should apply the concept of successive approximations when selecting target behavior. She should not expect the client to achieve the final objectives immediately, but instead should ask for improvement over time. Given an habitual truancy problem, in the beginning, the Occupational Therapist may ask for attendance one, then two, then three days per week, finally expecting a full week's attendance. This stepping stone tactic is employed in an effort to ensure that the client is encouraged by his ability to successfully improve.
- c) Whenever possible the targets should be expressed in positive terminology. If this is done, it may prompt the acceptable behavior and also allow a greater understanding by the client of what behavior is required.
- d) The Law of Relevance, as expressed by Allyn and Azrin (1968) should be applied. Simply stated, this law argues that one should teach only those behaviors which will continue to be reinforced after intervention. Often, activities such as basketry and art, are given to a patient who is having difficulty in coping with work in the community.
- The aim may be to provide him with success on a short term basis but it could be argued that it would be more helpful if the patient's unique problems such as punctuality and social skills, are specified and modified so as to allow him to more adequately cope with his environment on discharge. Skills such as cane work usually do not meet with the requirements of the Law of Relevance. Obviously if a behavior is not encouraged after therapy it is unlikely it will be maintained. Given this, it is questionable whether cane work justifies the expenditure of expensive and potentially therapeutic time within the treatment unit, except perhaps as a technique to occupy the patient.
- e) An extension of the Law of Relevance is to teach those behaviors which enhance the subject's opportunities to learn more. For example, attendance at work may be a primary target behavior since when this is achieved, the client will have greater opportunities for engaging in a wide range of social activities e.g. social clubs.

All these rules were applied when the target behaviors for this study were selected. Evidence indicated that none of the subjects could satisfactorily engage in acceptable social greetings or comply, yet both are skills necessary for successful adjustment in the school, employment and home situations. Further, such skills, especially compliance, clearly enhance the girl's opportunity for learning more. The definitions used in this experiment allow successive approximations and are expressed in positive terminology so as to give positive prompts and allow a clear understanding of all the target behaviors.

### Selected Target Behaviors.

#### 1. Following Instructions.

- a) Eye to eye contact. The patient should look at the person giving the command or the intended task, following the issue of instructions.
- b) Verbal compliance. The patient should clearly state that she recognised and received the instruction. e.g. 'yes, Ruth'.
- c) Actual compliance. This should be within 3 seconds. There are indications from interview data, that employers, teachers and parents get angry with a girl who does not comply by the end of this time period. The girl should also show no signs of anger or defiance.

#### 2. Social Greetings.

- a) Eye to eye contact. The girl was required to give eye to eye contact for the period of the greeting and preferably smile.
- b) The girl should also give some acceptable verbal expression such as 'hello', or 'how are you', etc.
- c) Use of correct name. Unfortunately girls have been taught to call staff members 'miss' or 'sir' in other institutions, while interview data indicates that members of the community do not generally approve of such titles. Efforts were therefore made to have the girls call the staff by their christian or surnames.

### Observation and Measurement of Environmental Effects.

One of the basic tenets of behavior therapy is the insistence that the data clearly indicates that the intervention has had the desired effect.

Clearly this is not effectively done through subjective evaluation or impressions but depends upon precise measurement techniques.

According to Skinner (1958), the basic data of behavior is the frequency or rate of behavior. To obtain proof of the effectiveness of any treatment programme or intervention, it is necessary to effectively monitor and ensure that there is an increase in positive behavior and a corresponding decrease in negative behavior. In this research, frequency of compliance and social greeting behavior was recorded by human raters. Staff were trained on the previously described criteria until they achieved 85% agreement when watching the same behavior at the same time.

To check on compliance and social greetings these staff gave the girls a number of instructions and social greetings and rated their response according to the definitions. A baseline recording was obtained with no treatment being attempted. Comparison of this non-treatment phase with the treatment phase then gives an indication of the effectiveness of attempted therapeutic procedures. If such procedures became a matter of routine within Occupational Therapy, then the non-functional, possibly harmful practices could be replaced with more effective techniques. It can be argued that such accountability appears necessary for the progress of our profession.

Besides recording frequency data, it is also necessary to observe the environment surrounding the child. For example, if the child is not complying, a frequency record of how many times this occurs is made. Then it is necessary to look for and record events which occur when the girl does not comply. For example, if the therapist rewards the inappropriate non-compliance, the frequency of such behaviors will increase. In cases like this, inappropriate behavior may actually be maintained by so-called therapeutic staff.

(Sanson-Fisher & Inch, 1974).



## Techniques for Establishing New Behaviors.

In cases where the target behavior has not been learnt by the patient, the behavior must be established. This can be done in several ways.

Prompting. There are four main forms of prompts which can be used to teach an individual to emit a new or low frequency behavior.

a) Structuring Environment. The environment can be structured to limit the choices. In this study, the therapist would give an instruction e.g. 'pick up that book'. The Therapist would then prompt the girl to follow the instructions by only putting one book on the desk, thus limiting the chances of taking the wrong book. The therapist would also make incorrect choices less visible. For example, put all other books away in cupboards, or out of sight.

b) Physical. The second form of prompt is physical, which involves the therapist physically guiding the individual. In the teaching techniques involved in this study, the therapist physically prompted the girl by holding the girl's hand and counting off the definitions on the girl's fingers as the girl repeated them. If the therapist wanted the girl to give eye to eye contact she would touch the area around the girl's eye, or physically orient the girl's head.

c) Verbal. A third form of prompting is verbal. In this study, verbal prompts were used extensively in teaching 'following instructions'. The girl was required to verbally comply and the therapist would prompt this behavior by saying 'What else would you say', or by beginning the response for the girl "Yes, Miss ..

d) Modelling. Modelling is another tactic which can be utilised to teach new behavior (Bandura, 1969). For example, another girl would greet the therapist appropriately and the staff would reinforce this girl who modelled the correct behavior. The subject, observing that the other girl was being rewarded for this behavior, might therefore, greet the therapist appropriately.

## Reinforcement System.

Having once established the target behavior by use of one or a combination of the above forms of prompting, it is now necessary to locate and decide upon the reinforcers or rewards which will be used to maintain and shape the selected behavior. The most commonly used operational definition of a reinforcer is 'that which when following an event increases the probability that the event will be repeated'. Birnbrauer, Burchard et al (1970), elaborate five procedures which can be useful in selecting, establishing and maintaining effective reinforcers for clients.

Firstly, the client can be asked what he likes or wants. To prevent the choice of reinforcers which are prohibitive for reasons of expense or ethics, a client can be asked to select reinforcers from a list of approved objects or events. Such a list is commonly referred to as a 'reinforcement menu'. (Clements & McKee, 1968).

Allyon and Azrin (1968) state another way to establish reinforcers, as the 'Probability of Behavior Rule'. The therapist can observe what the individual does, when the opportunity exists. Activities which are very frequent may then serve as reinforcers.

Reinforcement sampling as stated by Allyon and Azrin (1968), involves the subject being given the opportunity to engage in activities which the therapist believes he may enjoy.

A further method of selecting potential reinforcers, is to use objects and events which are valued positively by others.

The final method of establishing reinforcers is to use tokens or points and it is this technique which was used in the current experiment. This system relies on establishing the token as a conditioned reinforcer which can be given on a contingent basis by the therapist and then exchanged by the client for a wide range of back-up reinforcers. The effectiveness of tokens within institutions is now well proven for a wide variety of client groups.

### Application of Reinforcement.

Once effective reinforcers have been established, the following principles of administration should be adhered to if therapy is to be maintained successfully.

1. The reinforcer should follow as soon as possible after the client has exhibited the desired behavior. In this experiment, points were given out immediately the girl had given eye to eye contact etc. If this is not done, other, perhaps undesirable behaviors may be temporarily connected to the reinforcer rather than the target behavior. It is obvious that in some cases the reinforcer cannot follow quickly enough after the desired behavior. In these cases verbal mediation can be used with the Occupational Therapist connecting the reinforcer with the previously exhibited behavior via conversation.
2. In the initial stages of therapy, reinforcers should be given out on a continual and heavy basis. Once the behavior is established the reinforcers should move onto an intermittent schedule and natural reinforcers such as social praise and approval be used. Use of natural reinforcers is a critical factor in successful programmes if the target behavior is to be maintained after treatment has stopped.
3. Whenever possible, the reinforcer offered by the therapist should not be easily obtainable by the client except by completion of the desired behaviors.

All the above principles were applied in the intervention procedures used in this experiment.

### Teaching Interaction.

The training package used is based upon the work by Phillips, Fixsen and Wolf (1970) and elaborated by Sanson-Fisher and Inch (1974). They argue that a successful teaching interaction for correcting inappropriate behavior involves the following six steps:

1. Initial Praise: In this step, the therapist verbally praised the girl for success in other areas of behavior, dress, work performance etc. This allowed the therapist to establish the tone of the training session and a non-threatening, fun experience and so gain the girl's co-operation.
2. Description of Inappropriate Behavior: Here the therapist outlined to the girl the particular area of the skill needed to be trained. For example, in the skill of compliance, the girl was not giving eye to eye contact.
3. Description of Appropriate Behavior. The therapist then outlined what behavior the girl should exhibit as per the definitions in the target behavior section. For example, if verbal acknowledgement was inappropriate, the therapist gave an example of how to acknowledge appropriately.
4. Rationale for Appropriate Behavior. The reasons for training the behavior were explained to the girl. For example, if the girl used the person's correct name it might indicate respect to that person and encourage a liking feeling from them. This might have positive consequences in a work situation.
5. Practice and Feedback. In a role playing situation, the therapist and the girl then practised the required skill. Points were used as an immediate physical reinforcer, paired with praise as a natural reinforcer. The girl was given feedback as to her performance after each practice.
6. Point Consequences. The immediate reinforcement offered to the girl for performing the behavior was points. These were issued by selected staff when the girl exhibited the components of the required response. These points were connected to the various back-up reinforcers as described in the reinforcement section. These were earned in groups of a thousand for each response. The points in the training session were given on a continuous schedule by the therapist.

## EXPERIMENTAL DESIGN.

A multiple baseline design (Baer, Wolf and Risley, 1968), was used to experimentally test whether change in child behavior occurred and whether such a change occurred as a result of the therapeutic intervention. The experimental design basically consists of repeated measure, over a number of days during which period no therapeutic programmes are attempted (baseline period). To ensure that any changes that occur are the result of intervention and not time or change, at least two baselines are used (multiple baseline).

In this experiment, the two baselines were Compliance and Social Greetings.

The same therapeutic intervention package occurred across different groups of subjects at different times on the two baselines. This was to ensure that it was the intervention that caused change rather than some extraneous uncontrolled factors.

### Procedure.

Performance of the two skills was rated by human observers who made two checks on each behavior per girl each morning and afternoon. To ensure reliability of observers' judgements on a number of occasions throughout the study observers were asked to rate similar behavior. Reliability, calculated by the number of agreements over the total number of possible agreements  $\times 100$  never dropped below 80%.

Three girls were in the first group while two girls were in the second group. The data obtained from each individual girl was collapsed into the respective groups.

## RESULTS.

The results clearly show the effectiveness of the training package when combined with a points reinforcement system, as illustrated in graphs.

### Compliance.

In group 1, in baseline period, the average of correct responses was 60.2%. Following intervention with training plus points reinforcement, there was an increase to 80%. When points were removed, there was a drop to 78%. In Group 2, baseline recording indicated 55.7% compliance. Training of compliance

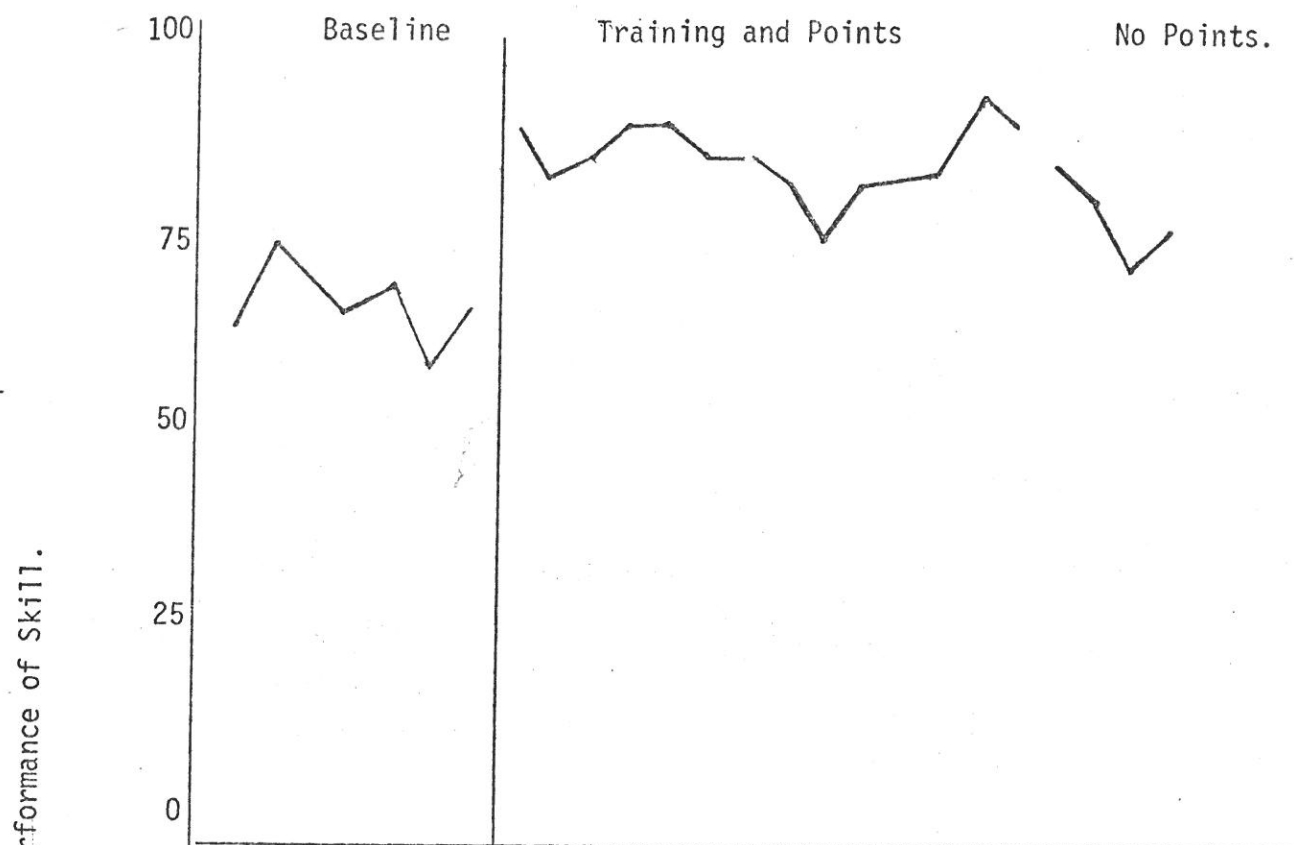
skills using teaching interactions without a points system was then instituted and brought about no significant change. However, when points were introduced, there was an increase in appropriate performance to 80.1%. Group 2 subjects were performing verbal compliance 5% of the time in baseline period, following training with points, this rose to 43%.

#### Social Greetings.

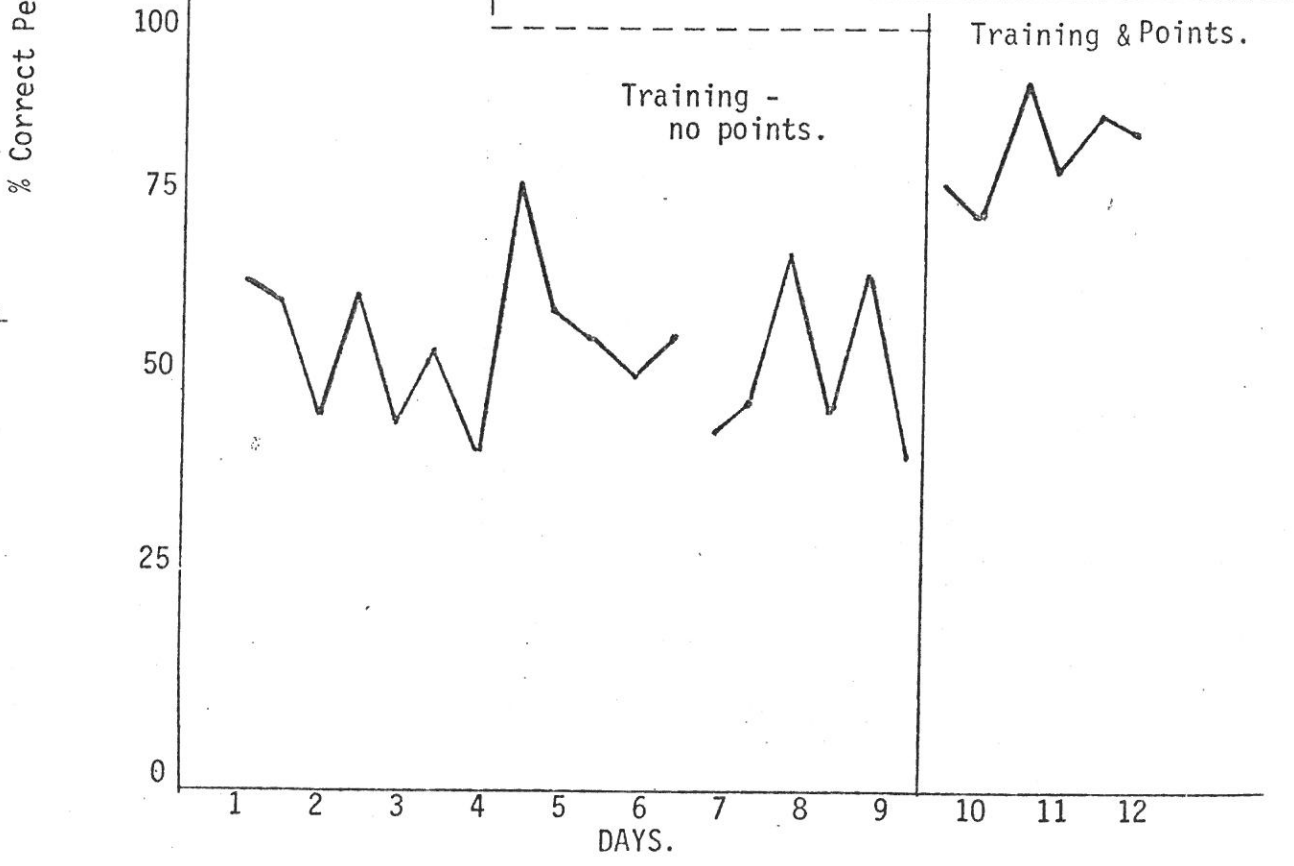
During baseline period, the subjects gave appropriate social greetings for an average of 41% for Group 1, and 58% for Group 2. Following training and points intervention, there was an increase to 70.2% correct responses for both groups.

COMPLIANCE.

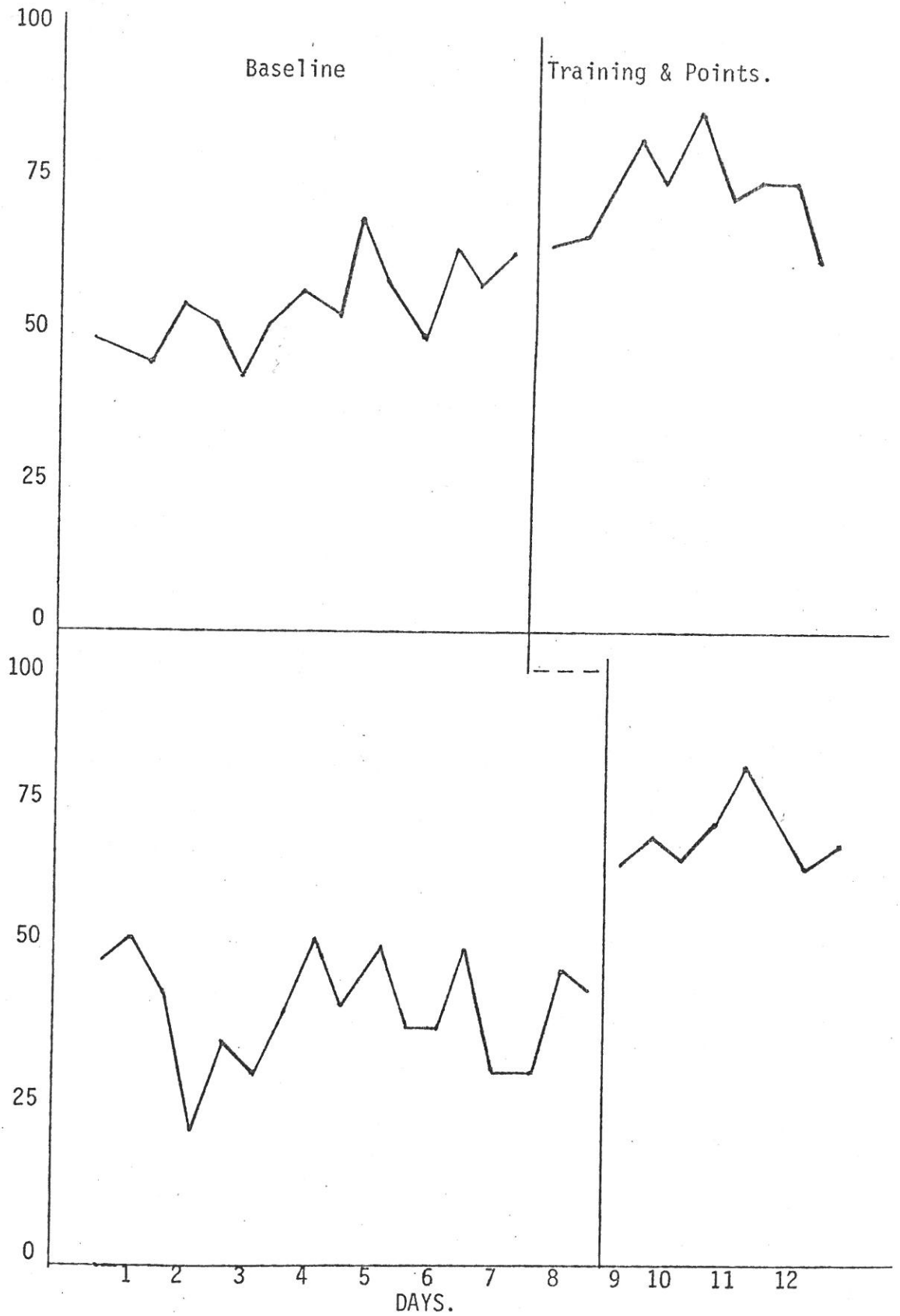
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DISCUSSION.

This study has shown that the Teaching Interaction is an effective method of teaching new social behaviors. The steps involved in a teaching interaction allow for high frequency mass practice sessions, immediate feedback and the use of visual, tactile and auditory teaching inputs.

The two target social skills chosen in this study appear relatively simple, but each skill can be broken down into at least four specific behaviors, each of which must be learned, to perform the whole skill. Therefore, the social skills are quite complex in their demands of the girl.

The skills taught by this method were maintained by a points system plus social reinforcement. In this research, a points reinforcement system was used, as social reinforcement alone is found to have little effect in changing behavior with an anti-social group. The points can be given immediately, exchanged for back-up reinforcers at a later date, and act to bridge the gap between the behavior and the reinforcement. Points are also easy to apply and the therapist can verbally issue points at a high frequency and these can be noted by the recipient.

The graph shows that when points were removed in the study the performance rate of the skill dropped. The subjects had learned the behavior but without the reinforcement of points, the behavior was not maintained. Such data indicates the necessity for the heavy use of social reinforcement wherever possible.

Some generalisation occurred in the training, resulting from common definitions appearing in both Social Greetings and Compliance. These definitions were eye to eye contact and the use of the correct name. When Compliance was taught, there was an increase in the overall performance of Social Greetings although this skill had not been taught as such. Generalisation of 'eye to eye' and 'use of name' occurred despite the fact that these behaviors were not being reinforced when exhibited in social greetings.

This research clearly indicates that behavior therapy principles and teaching interactions could be effectively used by occupational therapists.

It is suggested that Behavior Therapy techniques could also be successfully applied to the physical field of Occupational Therapy, for example, the principles could be applied in a burns unit where one of the common problems is a lack of patient motivation. In applying the B.T. techniques, the Occupational Therapist would define certain target behaviors, such as physical activities, provide precise feedback for the patient, and engage in appropriate reinforcement techniques. It might be argued by some, that Occupational Therapists currently engage in such procedures, but in the author's experience, there appears to be a credibility gap between what should be happening and what occurs.

#### SUMMARY.

In recent years, Occupational Therapy has employed many new methods of treatment, especially in the physical field. Unfortunately, there is a marked lack of empirical evidence supporting the effectiveness of such techniques.

This paper has sought to describe behavior therapy techniques which could be successfully applied in Occupational Therapy and may lead to more efficient and economical treatment tactics.

- LON, T. & N.H. AZRIN. The Token Economy. A Motivational System for Therapy & Rehabilitation. Appleton - Century - Crofts, New York, 1968.
- ER, D.M. WOLF, M.M. & RISLEY, T.R. Some current dimensions of applied behavior analysis. Journal of Applied Behavior Analysis, 1968. 1
- NBRAUER, J.J., BURCHARD & F. BURCHARD. Wanted - Behavior Analysis, in BRADFIELD, R.H. (Ed). Behavior Modification, The Human Effort, 1970.
- HLER, R.E. PATTERSON, G.R. & FURNISS, J.M. "The Reinforcement of Behavior in an Institutional Setting". Behavior Research and Therapy, 1966. 4
- CHARD, J.D. Systematic Socialisation: A programmed environment for the habitation of anti-social retardates. Psychological Record, 1967. 17
- MENTS, C.B. & J.M. MCKEE, Programmed Instruction for Institutionalised Offenders. Contingency Management & Performance Contracts, Psychological Reports, 1968.
- IN, A.E. & BOOTZIN, R.R. The Token Economy. An Evaluative Review, Journal of Applied Behavior Analysis, 1972, 5 (No.3).
- NSKY, H. Destiny in the Nursery: Child Rearing Techniques and Adult Personality - Commentary, 1948, 5, 563-569.
- LIPS E.L., FIXSEN, D.L. & WOLF, M.M. "Achievement Place: Experiments in Self-Government with pre-delinquents". Journal of Applied Behavior Analysis, 1973. In press.
- ON-FISHER, R.W., SEYMOUR, F.W. MONTGOMERY, W.A. & STOKES, T.F. "Self Recording in training delinquent girls and staff to increase appropriate conversation in a correctional institution". Unpublished Manuscript, Nyandi Treatment & Research Centre for Adolescents, Western Australia, 1973.
- NER, B.F. Science & Human Behavior. The MacMillan Company. New York, 1953.

REFERENCES.

- UART, R.B. "Behavioral Contracting Within the Families of Delinquents". Journal of Behavior Therapy and Experimental Psychiatry. 2, 1971.
- RNER, A.J. Huntsville - Madison County Mental Health Centre. Programme and Evaluations. 1971.
- HLER, R.G. Oppositional Children: A quest for parental Reinforcement Control. Journal of Applied Behavior Analysis, 1967, 2
- .KER, H.M. MATTSON, R.H. & BUCKLEY, N.K. Special Class placement as a treatment alternative for deviant behavior in children. In F.A.M. Benson (Ed). Modifying Deviant Social Behaviors in Various Classroom Settings. Eugene, Oregon: University of Oregon, 1967. No.1