

Editorial Notes

The Editor regrets that the Spring, 1977 issue which should have been Vol. 5, No. 1, was mistakenly numbered Vol. 4, No. 3. Since this cannot now be renumbered, and to maintain continuity of page numbering, the present issue is numbered Vol. 5, No. 1, and the February, 1978 issue will be Vol. 6, No. 1.

The Editor apologises for omitting the name of Anne Stephens from the list of authors of the article 'A Further View of Assessment'. (Vol. 4, No. 3, Spring 1977, pp. 126-137).

It has been decided by the editorial board that, as from 1978, we shall produce Winter and Summer issues rather than Spring and Autumn. In 1978 publication dates should be in February and August.

In the next issue (Feb. 1978) we hope to include articles by Mrs. Mary Evans and Dr. Mary Wilson, (Schools Council Project. Education of Disturbed Children) on the work of units for disturbed children, attached to ordinary schools; by Mr. and Mrs. Rudel (Principals of Peredur Home School) on the Steiner alternative in special education; and the text of the David Wills Lecture 'Residential Treatment - a total therapy' by Melvyn Rose (Director of Peper Harow).

Behaviour Modification in Educational Settings: A Guide for Teachers

A. Macmillan and I. Kolvin

Teachers have used praise, stars, concrete rewards and withdrawal of approval as methods of incentive and discipline for many years but it is only in the last decade or so with the growth of behaviour modification that these methods have been supplied with a systematic framework. Behaviour modification has provided a set of rational and empirically-based procedures which not only give the teacher a critical role in the treatment of problem children, but also have clear preventive implications for disturbed behaviour in the classroom. In contrast to earlier models which saw disturbed behaviour as the function of intrapsychic mediating processes, such as unconscious conflicts and defences, and made treatment the exclusive province of a (medical) specialist, behaviour modification places disturbed behaviour explicitly in an environmental

context and emphasises the therapeutic potential of natural caretakers in the child's everyday life. There are now numerous examples of the effectiveness of teachers' applications of behavioural techniques (1, 2). The range of application is wide: diverse problems have been tackled in regular classrooms, special classes, clinics and residential settings, with a variety of populations – emotionally disturbed, remedial, mentally retarded, autistic, brain-damaged and delinquent children and adolescents. While most of the school-based work has been undertaken in the U.S.A., behavioural techniques are being increasingly explored in Britain (3, 4, 5, 6) and we have recently conducted a large-scale study of behaviour modification in secondary school settings in the north-east of England (7, 8).

The purpose of this paper is to describe some of the fundamental characteristics of a behavioural approach to classroom management, to outline its underlying principles, provide some guidelines for implementation, and give some illustrations of our own approach. More detailed practical guidelines are available elsewhere (9, 10, 11).

Characteristics of behaviour modification

(a) *Defining the problem behaviour.* The most fundamental characteristic is the emphasis on dealing with behaviour in treatment, and overt and observable behaviour where possible. A clear and precise definition of the problem is very important. For example, 'troublemaking behaviour' in a child is too vague a specification, and a more appropriate one might be 'getting out of seat' or 'shouting out during lessons'. The more clearly defined the problems the less room there is for confusion and misinterpretation amongst those responsible for management.

It is equally important to be specific about the goals for treatment and the intermediate steps which have to be passed through. A kind of task analysis is required, with the goal behaviour being broken down into its component parts, which can be approached systematically in successive steps.

The emphasis on overt behaviour clearly differentiates this approach from psychodynamic or 'depth' therapy which seeks to root out the underlying intrapsychic causes for maladaptive behaviour. Proponents of this method of intervention have viewed behaviour modification as a superficial form of treatment which can only lead to 'symptom substitution' – the replacement of one symptom which has been treated with another one because the 'real' underlying conflict has not been resolved. Negative side effects infrequently occur, however (12), and when they do, it is more pertinent to regard them as substituted behaviours elicited by environmental influences rather than as products of underlying unconscious determinants.

In a sense, as Bandura (13) points out, both behavioural and psychodynamic approaches tackle 'underlying causes' but differ in what they regard these 'causes' to be. The former favours antecedent or consequent environmental influences while the latter considers underlying predispositions or personality structure.

(b) *Functional analysis.* Having defined the problem, an attempt is made to provide an environmental perspective, to explore possible influences in the child's current environment. The first component of this 'functional analysis' is a description of the settings or conditions associated with the behaviour. Does it occur at certain times, or in relation to certain people? Secondly, when it does occur, what are the consequences. Is there a pay-off for the child when he behaves in a certain way?

While behaviour modifiers regard environmental contingencies (the relationship between a piece of behaviour and environmental influences) as crucial to the understanding of the learning and maintenance of deviant behaviour, they do not disregard biological conditions which might limit a child's potential for change (14). The amount of learning, for example, that a subnormal child is able to achieve may be relatively limited, but well-designed training programmes can nevertheless produce significant results.

(c) *Intervention in real-life settings.* The emphasis on the role of environmental factors clearly implies that behaviour is continually open to influence in many different situations. Accordingly, the most efficient therapeutic efforts are ones that pervade the child's life and are not confined, for example, to weekly half-hour sessions in a psychologist's or psychiatrist's office. It is therefore not surprising that current work in behaviour modification stresses the key role in intervention of teachers, since they have a considerable amount of contact with children and much opportunity for modifying their behaviour. Most importantly, this approach ensures that 'treatment' takes place in the setting in which the problem behaviour occurs, and where the variables that are presumed to be significant in its maintenance can be directly manipulated.

(d) *Emphasis on measurement and evaluation.* Measurement is a sine qua non of behaviour modification. Before beginning treatment, an attempt is made to establish the initial baseline frequency or intensity of the behaviour under scrutiny. This is usually done by methods of direct observation, such as *time sampling*, where the presence or absence of a number of predetermined behaviours within short uniform time intervals is recorded, or by *event sampling*, which constitutes a frequency count of particular events as they occur. This latter method is perhaps the one most easily handled by the teacher who cannot devote part of his

time exclusively to the task of observation. In certain situations, children can be encouraged to observe and record their own behaviour (15).

Recording is continued throughout the treatment, giving evidence of progress and of the effectiveness of the procedures being applied. This constant feedback enables changes to be made in intervention strategies should the need arise and ensures that treatment methods are flexibly geared to the requirements of particular children. Behavioural data (e.g. number of aggressive responses, number of times shouted out) can be expressed in the form of a graph and favourable changes over time can be a very rewarding type of feedback for both teacher and child.

This approach to assessment is clearly different from psychometric methods which rely on measures such as paper and pencil tests, and seek to establish basic personality traits which are presumed to determine behaviour in a variety of different situations. However, the lack of consistency in behaviour in different situations (16) suggests that behaviour is more a function of specific situational stimuli than of stable internal predispositions, and that assessment methods, if they are to produce information that has clear implications for intervention, should focus upon observation and measurement of the stimuli in the child's environment.

Evaluation requires more than systematic and continued measurement: it requires methods which establish that observed changes in behaviour are a function of the contingencies imposed, rather than a product of chance or other extraneous variables. The most frequently employed method is the reversal design, in which the baseline phase is followed by successive phases of application, withdrawal and reinstatement of reinforcement. If the reinforcement element is crucial, then its presence or absence should have demonstrable effects on behaviour. An excellent discussion of reversal designs and other methods of evaluation is provided by Gelfand & Hartmann (11).

Principles of behaviour modification

The techniques of behaviour modification stem from three basic learning principles. Firstly, learning can be said to occur by operant conditioning – the focus here is on behaviour which the child emits voluntarily and for which particular consequences occur, e.g. throwing a tantrum which gains an adult's attention. Secondly, learning may occur by classical conditioning. Certain stimuli elicit involuntary responses from a child and by a process of association, other stimuli may come to elicit a similar response. Harsh corporal punishment, for example, may elicit anxiety, and anxiety may subsequently become the child's response to the teacher who administers punishment, the subject he teaches, or even the school itself. Thirdly, much learning in childhood occurs

by observation and imitation of the behaviour of peers and adults. (This process is often referred to as learning by modelling or observational learning.)

The type of learning we are most concerned with here is operant learning, although it is evident that most learning situations will contain elements of more than one type.

Methods of strengthening behaviour

We will deal in this section with a number of ways of strengthening desirable behaviour, or increasing its frequency, and indicate the critical features of each method which make for optimum results.

(a) *Positive reinforcement.* If a child's behaviour is followed by some consequence which increases the frequency of that behaviour then the process is one of positive reinforcement. For example, if comments of approval for sustained concentration are found to increase the amount of time that a child devotes to his task, then these comments are functioning as positive reinforcers.

A wide variety of positive reinforcers have been employed in the classroom. They can be considered in four groups: first, basic rewards such as food and drink (17); second, social reinforcement, comprising attention, approval, praise, etc. (18); third, points or token rewards, which are accumulated over time and exchanged for a variety of 'back-up' rewards, which may be items of food, sweets, small toys, comics, etc. (19); and, fourth, the reward may comprise access to a desired activity, such as drawing, painting or reading a favourite magazine (20).

Children vary considerably in what they find rewarding, so the choice of reinforcer should be guided by one's observations and knowledge of individual children, or their own suggestions. In addition, the responsiveness of a child to a particular reinforcer may wear off over time, so in order to avoid satiation one must be prepared to vary the reinforcers available.

There are several critical factors that must guide the application of reinforcement. If a child is able to perform the desired response, he should be reinforced on its first and every subsequent appearance until it has assumed appropriate strength. While this intensity of reinforcement may be difficult to achieve in a large classroom, the importance of heavy reinforcement while initially developing a piece of behaviour should be borne in mind. Once the response is established, however, it is maintained more efficiently by intermitten reinforcement. For example, instead of reinforcing *every* response, one would reinforce every third, fifth or seventh response, but not in a manner which the child can predict.

If the child is not able to perform the desired behaviour, the

terminal behaviour must be broken down into its component parts which can be successively reinforced in a *shaping* process. Initially, one can reinforce crude first approximations of the desired response, withdrawing reinforcement for responses which are not compatible with the desired end goal. The criterion for reinforcement is gradually and progressively shifted in the direction of the goal behaviour. Repeated failure at any one step may suggest that the criterion for reinforcement is too demanding and that further steps may require to be built in.

The *timing* of reinforcement is also critical in the development of a response. Minimal delay should be the target, since the longer the time that elapses between the occurrence of the response and the delivery of reinforcement, the greater is the likelihood that inappropriate intervening responses may be inadvertently reinforced. The teacher who walks about the classroom making comments of approval when she can 'catch the child being good' (21) is providing much more effective reinforcement than the one who waits until the end of the lesson to give feedback.

With the use of token reinforcement procedures, it is essential that tokens are administered *in addition to*, and not instead of, social reinforcement procedures. While the attractive rewards mediated by the token systems may exert much influence on behaviour, it must be remembered that they are to be phased out eventually: the responsiveness they encourage in a child must eventually be elicited by more natural and less artificial reinforcers. Praise and approval should therefore always accompany the delivery of tokens.

The 'token' itself can be a tangible object like a plastic disc or a coloured stamp, a mark that is entered on a record sheet, or a point that is earned. Its value must be understood by the child. With retarded children, for example, it may be necessary to repeatedly exchange the token for a reinforcer like sweets to establish its reward value. With such children, tangible tokens which they can see and regain in their possession may be the most useful. In the school setting, giving out tokens should divert as little attention as possible from academic matters. Where theft is a possibility, tokens should be identifiable as the property of a particular child – being of a certain colour, for example, or bearing a particular number.

The exchange rules in a token system are very important, especially the economic relationship between the amount of tokens a child may earn and the cost of the reinforcers for which he can exchange them. If, for example, a child can earn only ten tokens at most per day and the cheapest item he can purchase costs 150 tokens, it is doubtful that the system will operate successfully. Conversely if he can earn 150 tokens in a day but can buy a wide range of reinforcers for only ten, such a system will be

equally unsuccessful. A balance must be maintained between 'earning power' and cost of reinforcers so that access to reinforcers is readily available, but appropriately contingent upon desired behaviour. The exchange rules are usually structured so that children gain a back-up reward very early in the programme, thus beginning with a positive interaction with the system.

(b) *Negative reinforcement*. Where stimuli which are contingently *removed* following a response are found to result in increased frequency of that response, the process is one of negative reinforcement. The stimuli in question are usually aversive and one will tend to respond in a manner which affords escape from, or avoidance of them. Where a child sits down and starts working quickly to end continual nagging by a teacher, his behaviour is being negatively reinforced. Negative reinforcement serves to *strengthen* behaviour and should not be confused with *punishment* (see below), which refers to stimuli which *weaken* behaviour and are presented after a particular act. However, it shares with punishment the characteristic of being an aversive form of control and, as we will see later, such methods may have undesirable side effects which limit their applicability.

(c) *Contingency contracting*. This is a special form of reinforcement, whereby a child is allowed access to rewarding events or activities once he has performed the desired response. This arrangement may be formalised in a 'contract' in the form 'When you do A, then consequence B will follow'. It has its basis in the Premack principle (22) which states that for any pair of responses, the more probable one will reinforce the less probable one. This implies that more attractive activities can function as reinforcers for less attractive activities. So if a child dislikes arithmetic, for example, he might be rewarded for time spent on this with access to a more preferred activity such as drawing, or reading a favourite magazine.

In formulating a contract, a number of important points should be noted: (1) the contract should be clearly stated, so that the child understands what he has to do, and what the outcome will be for specific behaviour (2) the contract should be stated positively: 'When you complete half an hour of arithmetic you can spend ten minutes drawing' rather than in the negative manner: 'If you don't work for half an hour on arithmetic, you won't be allowed to draw' (3) excessive time in the rewarding activities should not be allowed (4) when the desired behaviour is reliably established, increase the time spent on the required task, while decreasing the time devoted to reinforcing activities.

(d) *Modelling*. While learning by observation or imitation occurs

as a natural process in a child's development, situations can readily be created in classroom and other school settings so that modelling is facilitated and encouraged. At the simplest level, the use of specific comments of praise addressed to one child who presents appropriate behaviour, creates a 'model' which other children can imitate.

Several factors may influence the degree of imitation that occurs. First, certain *characteristics of the model* are important and need to be considered when the choice of model is being made. Models who have prestige, power and competence in the eyes of the observer, especially ones of the same sex, are more likely to be imitated. If the differences in competence between model and observer are *too* great, the observer may fail to attend appropriately, feeling that he is quite unable to match the model's performance. Models who gradually improve their performance, or who verbalize their own initial uncertainties and anxieties may be more appropriate. Second, *presentation of the model* requires careful consideration. It is helpful to maximize the observer's attention to and retention of the model's behaviour. The observer may be primed to attend and given the opportunity to practice the response after the model's performance. Third, *incentives to perform the modelled behaviour* should be provided. Reinforcement to the *model* provides motivation for imitation by the observer and reinforcement to the *observer* for his performance of the modelled behaviour may help to maintain his response. Finally, *characteristics of the observer* may influence the amount of imitation. The observing child may be more likely to imitate if he has a past history of being reinforced for imitating others, if he shows low self-esteem and if he is dependent (13).

Methods of weakening behaviour

The methods to be discussed here are ones found useful in the elimination or reduction of undesirable behaviour.

(a) *Extinction*. Since behaviour may be maintained by various forms of reinforcement, it follows that one way of weakening it is to withdraw reinforcement. If tantrums, for example, have repeatedly elicited attention from a child's parents, attempting to ignore them completely might help to eliminate such behaviour. Similarly, minor forms of disruptive behaviour in class are best ignored.

A common occurrence, however, is that extinction procedures produce a temporary increase in the undesirable behaviour. Persistence in withholding reinforcement is usually successful in reversing this trend, but not surprisingly, teachers are frequently so discouraged before this point is reached that they simply give up. Escalation of disruptive behaviour is not something that teach-

ers can easily tolerate so the use of extinction procedures in isolation is less preferable than a twin-pronged approach. This takes the form of positively reinforcing desired behaviours, while ignoring, or withdrawing reinforcement from, the inappropriate behaviours. This combined 'praise and ignore' approach is given added strength when the reinforced behaviour is incompatible with the appropriate behaviour. Reinforcing on-task work behaviour when one is trying to eliminate day-dreaming would be an example of this – the two cannot occur together.

(b) *Punishment*. The definition of punishment in behaviour modification refers to a process in which a piece of behaviour is decreased in frequency by a consequence which follows it. Everyday conceptions of 'punishment' have the connotation of highly aversive or painful methods, but the definition of this process and others given earlier are not derived a priori in terms of subjective impressions, but in terms of their observed effects. Theoretically, indeed, a stimulus event can function as a positive reinforcer or as a punisher according to the particular circumstances. Praise may motivate and reward one child but antagonise another; food is rewarding for a child when he is hungry but not after he has finished a four-course meal. So the same consequence can have positive or negative properties under different conditions.

Punishment can take several forms, and can refer to the presentation of an aversive stimulus (reprimands, disapproval, criticism) or to the removal of a positive reinforcer when the subject performs the inappropriate response (time-out from reinforcement, response cost, fines). It is clear that teachers make extensive use of reprimands and disapproval in their interactions with pupils: Madsen et al (23) reported data showing that 77% of teacher-pupil interactions were negative. While disapproval may have its place, it may often have effects opposite to the ones intended. Madsen, Becker et al (24) found that 'sit down' reprimands actually increased the frequency of out-of-seat behaviour and, with a relatively well-behaved group of children, Thomas, Becker and Armstrong (25) demonstrated that an increase in disapproval rate produced an *increase* in disruptive behaviour. Soft reprimands, however, may be more effective in reducing disruptive behaviour than are loud reprimands which place the miscreant in the lime-light and produce the very effect he desires (26). As with extinction procedures, reprimands and disapproval should be employed in conjunction with positive reinforcement of desired behaviour. The question of balance between positive and negative procedures is an important one, and Madsen et al (23) suggest a 4:1 positive-negative ratio as the optimum.

'Time-out from reinforcement' is often confused with isolation or exclusion from the classroom. While it may involve aspects of

these measures, its essential features are removal of the child from a situation in which reinforcement is presumed to be operating (e.g. peer reinforcement of disruptive behaviour), and isolating him from all reinforcement for a specific time. The child is taken to a time-out room or area as soon as he misbehaves. He is told that his behaviour is inappropriate and that he will remain in 'time-out' for a short time until he regains control. This time is usually short, about ten minutes or so. When the child has regained control he can return and resume his previous activities. The whole process is handled in a calm, unemotional, matter of fact manner. The time-out room or area must be neutral and devoid of reinforcing stimuli. The corridor, secretary's or the head teacher's office are not suitable because of the opportunity of reinforcement, and if the child actually desires removal from the classroom, the procedure is obviously unsuitable. Time-out has been employed in special rather than regular settings, and in view of the potential difficulties, such as unavailability of a time-out room or difficulty in removing a resistant child or adolescent from the classroom, it is a method that should be employed very discriminately and only after other methods have been tried.

The withdrawal of reinforcing stimuli and events upon the performance of an undesirable behaviour is referred to as '*response cost*'. It is similar to a 'fine', since some privilege, opportunity or desired effect is removed following undesirable behaviour. In token programmes, tokens or points may be deducted: it is important here to avoid a situation where the fines can outweigh the credits. Should this occur, control will be quickly lost. As with all punishment procedures, the importance of combining these methods with positive reinforcement of appropriate behaviour cannot be over-emphasised.

Some problems in the application of behaviour modification procedures in the classroom

(a) *Difficulties in the use of social reinforcement.* As we have emphasised repeatedly in this paper, the management method that appears to us to be the most appropriate for teachers to employ is one which favours positive reinforcement at the expense of negative or aversive methods. These latter methods may produce side effects which outweigh their temporary positive outcomes, especially where such techniques are used in isolation, without accompanying use of positive procedures. Aversive management may create worry and anxiety and may teach children to avoid or escape from persons associated with it, as well as providing an undesirable model for the child's own behaviour in relation to others.

However, the use of consistent and contingent praise and approval is not itself without difficulties. Some people find the

use of social reinforcement does not come easily to them, and this may be true of their everyday social interactions as well as of child management situations. Whether it is part of one's natural style or not, it is important that praise and approval do not come across to children as forced and strained. The effort and discipline required in ensuring that social reinforcement is systematic, varied and meaningful should not be minimized.

Apart from difficulties in the delivery of social reinforcement, some teachers may also regard its systematic use as appropriate only for young children, and fear that older pupils might regard it as a sign of weakness or a relaxation of discipline.

(b) *Individual programmes within the classroom.* Some teachers also consider the restriction of reinforcement techniques to one or two problem children in a class unfair to the others, or likely to create jealousy and rivalry. There is no reason why approval and praise cannot be extended to the entire group or, if restricted to a few individuals, be administered unobtrusively. On the other hand, where concrete rewards are employed, the danger of counter-productive jealousies is much more real. In situations where concrete or activity rewards are necessary, there are a number of ways of trying to avoid those problems. If the concrete rewards are not too costly (e.g. sweets) they can be made available to the entire group when the criterion for appropriate behaviour is met. This criterion may refer to the behaviour of the group as a whole or to that of one or two individuals within it. The latter approach has been found useful in situations where one or two children play the role of class 'clown' and are heavily reinforced by their peers: this method creates group pressure towards more desirable behaviour on their part, so that the direction of peer reinforcement is altered. Since group contingencies employing concrete rewards may well prove too expensive to run, use can be made of special events and activities which are valued by the group but which are frequently made available to them in a non-contingent fashion, i.e. they have access to them regardless of the classroom behaviour they have exhibited. Examples of these would be: field trips and outings, films, watching TV, listening to the radio. Rewards such as these are readily available in most schools but they are rarely applied as contingent reinforcers.

As an alternative to group programmes, concrete rewards may be administered on an individual basis, within the context of a private contract between teacher and child. An example of this is given below.

(c) *Problems of generalization.* A problem frequently voiced by teachers is that of ensuring maintenance of behaviour change when the procedures are withdrawn. Research shows that unless

some provision is made for generalising the effects of a management programme, persistence of the modified behaviour cannot be ensured. In addition, change found in one setting or in one classroom with one teacher employing systematic reinforcement, will not necessarily be transferred to other settings where reinforcement procedures are not employed. So behaviour change may be limited to the time and setting(s) in which reinforcement is in operation. Although the notion that children can be successfully 'innoculated' against further behaviour problems by a programme of reinforcement or by any other procedures is one that needs to be dispelled, there is clearly a need to take steps to increase the impact of behavioural intervention and assist the generalisation of treatment effects. Firstly, it is important to involve as many teachers as possible in a programme, to reduce inconsistency in management techniques. Where children can easily discriminate between reinforcement and non-reinforcement settings, behaviour change will not readily transfer from the one to the other. Secondly, rewards, of whatever nature, should be phased out gradually rather than abruptly. If concrete rewards are employed, their delivery should always be paired with social reinforcement. Thirdly, since the absence of generalisation may suggest the need for reinforcement of one form or another in the non-treatment environment, and since it is difficult to programme the environment indefinitely in this way, there is a need to provide children with the means of self-control and self-reinforcement. A beginning would be teaching them to monitor and evaluate their own behaviour, and to assume the responsibility for applying reinforcement (27). The promise of this approach is that, if children can be taught self-control procedures, they will effectively be able to carry their own method of management with them into situations where external reinforcement is either absent or distant in time. Last, the involvement of parents, where possible, offers a valuable source of continuity.

These are some of the problems which the implementation of behaviour modification procedures in schools frequently entails. We have discussed these and other issues in more detail elsewhere (28).

Case studies

The following two case studies show quite different approaches to essentially similar problem behaviours. The first illustrates the application of social reinforcement techniques, and the second the use of a behavioural contract drawn up between child, teacher and programme supervisor.

Case 1. Billy was 11½ years old in a class of 29; his teacher, Miss K., had six years' teaching experience and taught Billy's class English and History for eight 45-minute periods each week.

Miss K. described Billy as taking on the role of class clown, continually seeking the attention of his classmates by shouting out and by being generally disruptive. His concentration was 'atrocious' and constant prodding and encouragement were required to maintain his attention. It was apparent also from the observational data and the observer's comments that he was given very little attention for his appropriate behaviour, receiving attention almost exclusively for instances of undesirable behaviour. The problems were defined as: shouting out; talking to neighbours during lessons; poking and shoving classmates; inadequate attention to assigned tasks. Goals were accordingly set as follows: (1) Decrease in frequency all instances of behaviours classed as 'disruptive' – shouting, talking, shoving, etc. (No definitive criterion as to acceptable levels of these behaviours can be specified, as this varies with the levels of tolerance of particular teachers, and must ultimately be a subjective judgement.) (2) Increase in amount of time spent on assigned tasks.

Time sampling of behaviour by an independent observer revealed that, in the baseline phase, Billy engaged in task-relevant behaviour about 63% of the time. It was possible to observe Billy in only one lesson per week with Miss K.: choice of lesson was done randomly. Each percentage reported here (see graph 1) represents at least 15 minutes of observation time.

Methods. 1. It was suggested to the teacher that much of Billy's behaviour was attention-seeking, and that misbehaviour was his way of coercing the attention of others. Accordingly the need to shift teacher-attention away from undesirable behaviour towards more appropriate behaviour was discussed – the 'catch the child being good' idea. This would let Billy see that appropriate behaviour could have a worthwhile pay-off too. From the teacher's comments, Billy's enjoyment of individual attention from her indicated that contingent attention could be an effective reinforcer. Disapproval was to be used sparingly and only when misbehaviour could no longer be tolerated: this was to be strong disapproval, not nagging, and was to be delivered in the form of a private rather than a public comment.

2. To lessen his need for persistent encouragement to make him work, it was suggested that he should be given attention and approval *during* spells of working. Prodding him on only when he stopped could actually be increasing the number of times he stopped.

3. Another problem was presented by the attention of other children to his misbehaviour. While a scheme of group rewards contingent upon Billy's behaviour may have been an appropriate method to try here, we postponed this in order to see if the avoidance of loud reprimands would prove effective.

Results. The teacher had some difficulties initially in modifying her own behaviour in relation to Billy and redistributing her attention. Gradually as she was able to lessen her response to inappropriate behaviour and increase the use of positive attention, Billy's behaviour began to improve. After six weeks she described him as 'very rarely attention-seeking in a disruptive way now – he's seeking attention through his good behaviour and marks'. This change was reflected in the graph. (Fig. 1).

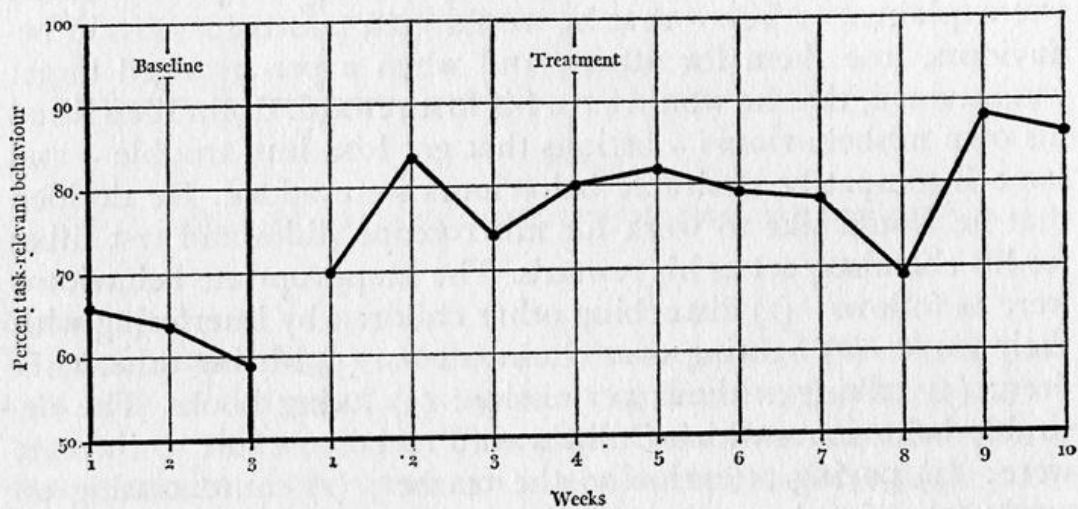


Figure 1 Effects of social reinforcement on task-relevant behaviour (Case 1).

In the eighth week Billy's behaviour and work standards deteriorated. His teacher suggested that this may have been due to her own habituation to the situation so that she was giving less praise. It was also possible that the effect of praise was waning and peer attention for misbehaviour was becoming more influential. However, a further spell of contingent approval was attempted, and it was suggested to the teacher that she make her comments as specific as possible, referring to the fact that Billy was being quiet, working well, etc. This seemed to be successful. At the end of the programme, the teacher remarked that he was being quite responsive and that she found 'plenty of opportunity to praise throughout the lesson'. Again, this change was reflected in observational data, task-relevant behaviour levelling out at above 80%.

Case 2. Colin was a 12-year old in a class of 30, described by his science teacher, Miss W., who saw him for one 80-minute session weekly, as 'completely confused, disorganised – everything seems to happen to him'. In addition to this absentmindedness, he could be quite disruptive in class, disturbing others and, at times, fighting.

Efforts by the teacher to employ contingent approval and ignoring were ineffective – he seemed to be ‘embarrassed by praise’. We therefore decided to supplement this approach with more powerful rewards in the form of a contract arrangement. Colin was seen individually by one of us (A.M.) and the implications of his behaviour for his own learning and the functioning of the class were considered. Colin volunteered that he had no idea at times why he did certain things. It was suggested to him that a scheme could be devised to help him sort this out and help him to plan his own behaviour better. The principle underlying the contract was explained to him – that he would gain points for certain behaviours, lose them for others, and when a pre-arranged target was attained, that he would earn his first reward. Colin then listed his own misbehaviours – actions that got him into trouble – and some incompatible desirable behaviours were added. He decided that he would like to work for microscope slides and test tubes for his chemistry set as his rewards. The inappropriate behaviours were as follows: (1) disturbing other children by interfering with their work; (2) fighting over chairs/stools; (3) hitting other children; (4) talking without permission; (5) losing books. The desirable behaviours which Colin was to make an effort to increase were: (1) paying attention to the teacher; (2) concentrating on work; (3) doing homework. Colin was given a card with this list printed on it, along with the following rules for the contract. For each lesson with Miss W., he would begin with 10 points. Each time he was reprimanded for one of the inappropriate behaviours he would lose one point. Adequate desirable behaviour could gain him 4 points for each one listed. So his possible total for one lesson was 22 points. His first target was set at 30 points. He would be told by Miss W. at the end of each lesson how many points he had earned, she would also let me know, and I would make the reward available to him if the target had been achieved. Points in excess of the criterion would be carried over towards the next one. His first reward was to be two microscope slides and subsequent ones alternated between slides and test tubes. The graph (Fig. 2) indicates the effect of the programme on his task attention. His points tally in successive lessons was as follows: 18, 19, 18, 19, 20, 14, 17, 22, 20, 21. The number of points required for a reward was increased each time – this had the effect in practice of making rewards more distant in time, and was a step towards phasing them out.

Colin’s behaviour improved markedly in this programme; unfortunately, the end of the school session prevented an evaluation of how well this change could have been maintained once rewards were withdrawn. It is at least encouraging that his level of appropriate behaviour was well maintained when the rewards were made relatively more and more remote.

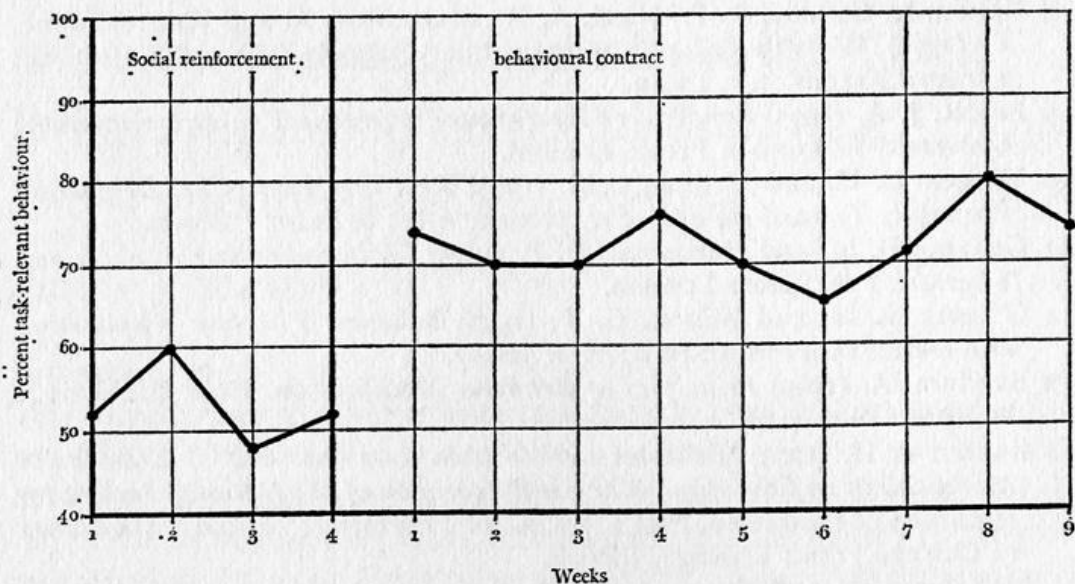


Figure 2 Effects of behavioural contract on task-relevant behaviour (Case 2)

Summary

Behaviour modification techniques have come to play an important role in classroom management, and are being increasingly applied in this country. This paper gives an account of the characteristics of the approach, describes some of the more commonly employed procedures, and examines some of the problems that may be encountered in practice. Two case studies are presented which illustrate some of the author's work in secondary schools.

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