V. CONTINGENT IMITATION AS AN ON-WARD BEHAVIOUR MODIFICATION TECHNIQUE

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Contingent imitation and self-modelling are two of the recent developments in the concept of imitation. Both concepts derive from Bandura's (1969, 1971, 1977) social learning theory, and are being increasingly investigated as behaviour modification techniques. Contingent imitation (or being imitated) has been employed to alter the behaviours of mentally sub-normal individuals. For instance, Kauffman *et al.* (1975, 1976, 1977, 1978) have reported the successful use of this procedure in the modification of such undesirable behaviours as tongue protrusion, spelling errors, and sloppy eating in mentally retarded children. Similarly, Wheman (1976) has employed this technique as a self-help skills training programme with mentally retarded adults.

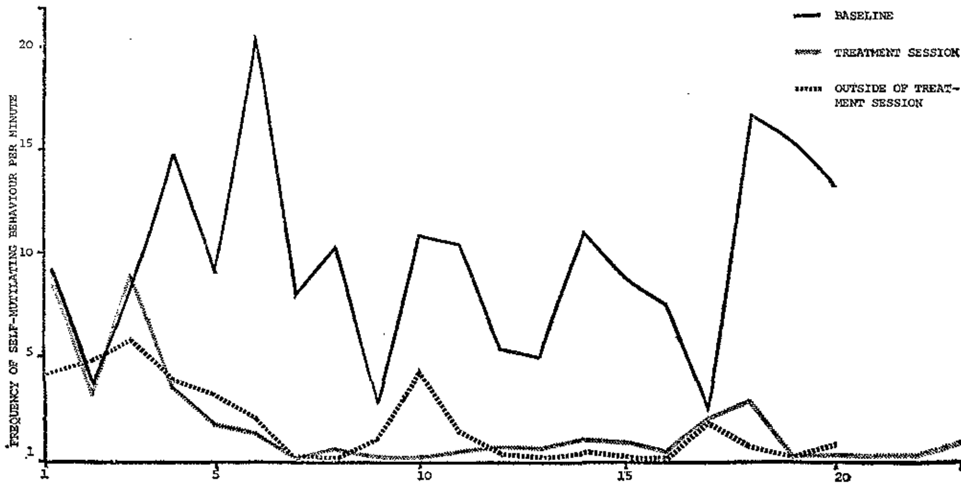
The present report describes briefly an investigation into the use of contingent imitation in the modification of self-mutilating behaviour. This type of behaviour is fairly common amongst mentally sub-normal individuals (especially children). The difficulties posed by this kind of behaviour problem for the people involved in the care, training and treatment of such individuals cannot be overestimated.

This pilot study involved a nine-year-old institutionalised severely mentally sub-normal girl (Marie). Marie's self-mutilating behaviour consisted of banging her head as hard as possible on the floor, against the wall or any available hard object such as furniture; and hitting her face or stomach with her fists. Baseline observations revealed that on the whole Marie spent about 75-80% of her waking time in self-mutilating behaviour. The behaviour was so severe that she had to wear protective clothes even in bed. Without these protective measures, she could open large areas of her face and bruise her already hardened kneckles. When the study began Marie had been in the institution for about 2½ years. During this period, all attempts to control her self-mutilating behaviour including drugs and various behaviour modification procedures had apparently failed to alter her behaviour in any significant manner. In spite of all the protective measures taken, Marie's face was badly disfigured (scarred) and her knuckles hardened as a consequence of her severe self-mutilating behaviour.

The study was carried out by a male nurse (the author) on the ward where Marie was a resident. It involved the nurse imitating Marie's self-mutilating behaviour as closely as possible (i.e. hitting his face with his fists, banging his head on the floor, etc.) but without actually hurting himself. During a treatment session, the imitator maintained as much eye-contact as possible with Marie (even while imitating her), but avoided any form of tactile contact with her. Marie's self-mutilating behaviour during treatment sessions was recorded. Treatment consisted of twenty 30-minute sessions spread over a period of 27 days. A record of Marie's self-mutilating behaviour outside of sessions (i.e. at other periods of the day) was also kept over a period of 22 days. These observations, made by the imitator and independent observers (inter-observer reliability = 85%), were carried out in the same manner as baseline observations (i.e. 15-minute random observations). Twenty such observations were made daily.

Graph 1 represents Marie's self-mutilating behaviour per minute observed during baseline period, treatment sessions and outside of treatment sessions. As indicated by the graph, not only was Marie's self-mutilating behaviour excessively high in frequency during the baseline period, but it also fluctuated a great deal, ranging between 2.20 and 20.60 self-mutilating

Graph 1



incidents per minute. However, the incidents began to decline steadily from the fourth session of treatment onwards. During sessions 7-16 inclusive, virtually no self-mutilating behaviour occurred. However, during sessions 17 and 18 the mean frequency of self-mutilating behaviour per minute was 2.06 and 2.80 respectively; but this dropped to zero during the last three treatment sessions. The decline in Marie's self-mutilating behaviour during treatment sessions was apparent in other situations during the same period as indicated by the graph.

By the end of the study all the wounds and scars on Marie's face had almost disappeared completely; and temperamentally she was more cheerful and friendly towards the imitator and other staff on the ward than she was during the baseline period.

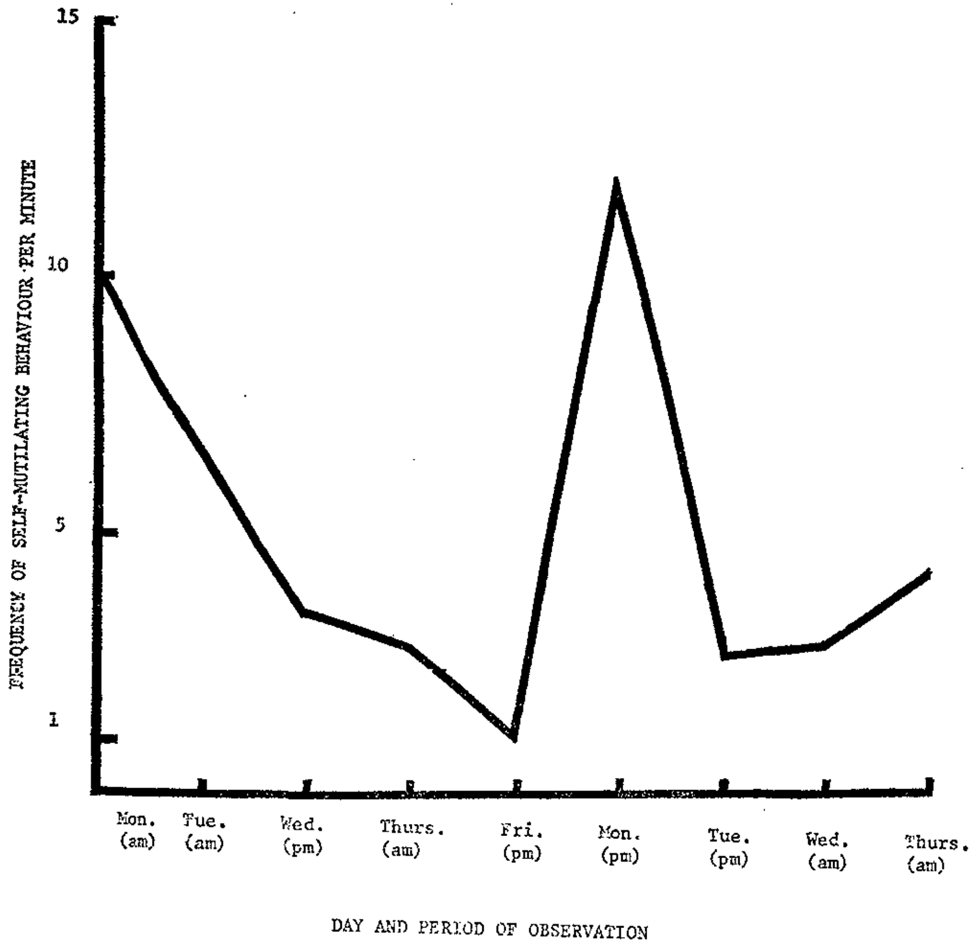
FOLLOW-UP

Follow-up observations of Marie's self-mutilating behaviour were carried out by an independent observer eight weeks after treatment. Nine 15-minute observations were made over a period of eleven days. These observations were carried out at different periods of the day (as shown in Graph 2) and across situations.

Graph 2 indicates that during this period, the frequency of Marie's self-mutilating behaviour had increased (and fluctuated) considerably relative to the treatment period. Nonetheless, it was still lower during this period, even though treatment had discontinued. A comparison between Graph 1 and Graph 2 indicates the mean frequency of Marie's self-mutilating behaviour during the following periods: (a) baseline period; (b) treatment period; and (c) follow-up period to be 9.6; 1.7; and 5 respectively. This means that at follow-up (i.e. eight weeks after treatment) the frequency of Marie's self-mutilating behaviour was still significantly (about 50%) lower than during the baseline period.

In order to determine the relative long-term effect of contingent imitation on Marie's behaviour, longitudinal follow-up observations of her self-mutilating behaviour were carried out. In all 24 15-minute observations, spread over a period of four months, were made by independent observers; and as in Graph 2, these observations were made at different periods of the day. However, because of the extreme fluctuations in Marie's self-mutilating behaviour (as indicated by baseline data) and also because these fluctuations seemed to be unrelated

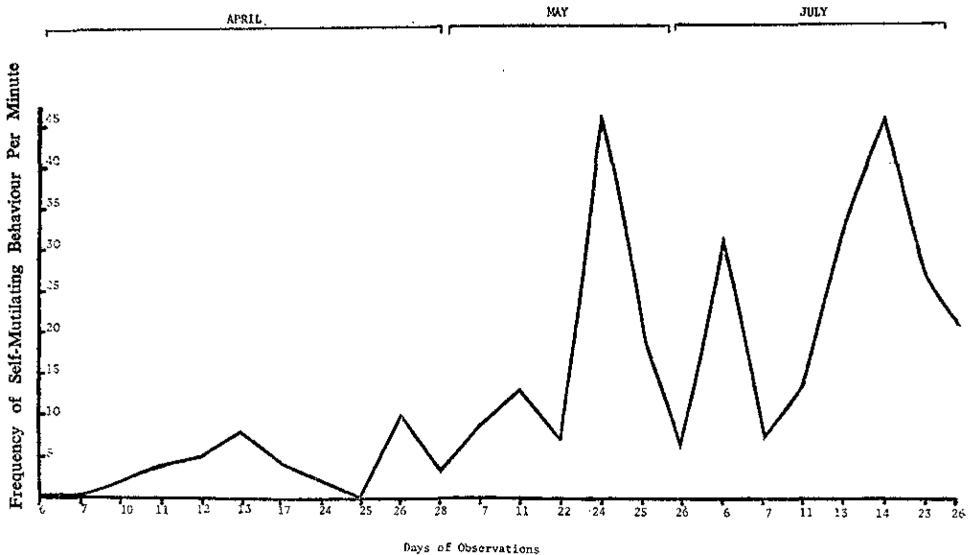
Graph 2



to any clear external contingencies, these observations, unlike the eight-week follow-up observations (Graph 2), were confined to a relatively controlled situation. That is, Marie was observed only when she was in her Group-Room with other children and staff in her Group (The Bambis). The rationale for this was relative ease and reliability of the observations, because it eliminated the problems of following Marie around the ward in order to observe her behaviour. The results of these observations are shown in Graph 3.

Graph 3 indicates that the effect of the treatment was clearly apparent throughout the month following treatment. However, after the initial low levels of self-mutilating behaviour during this period, the rate of Marie's self-mutilation began to rise and fluctuate sharply. It can be seen that the mean frequency of her self-mutilating behaviour rose from zero to 47 *per minute* during the four-month period. The mean frequency of self-mutilation was 3.5, 15.3 and 26 per minute for April, May and July respectively. Thus, during this period (April-July), Marie's mean frequency of self-mutilating behaviour in the group situation rose from 3.5 to 26 per minute. This is far above the baseline level of 9.6 per minute and represents an increase of over 100%.

Graph 3



DISCUSSION

As mentioned previously, Marie's self-mutilating behaviour had proved resistant to all the behavioural procedures (and drugs) which had been used in attempts to control it. However, contingent imitation appeared to have been relatively effective in reducing that behaviour. Comparisons between Graphs 1, 2 and 3 reveal that Marie's behaviour improved significantly during the treatment period. This change in her behaviour was still apparent during the first month after treatment. Similarly, data from the eight-week follow-up observations in different situations (Graph 2) indicate that, overall, the level of Marie's self-mutilation was significantly lower during that period than during the baseline period. Thus, in the circumstances of this study, contingent imitation appeared to have been a useful treatment technique at least in the short term. Perhaps if the treatment had been carried out for a longer period of time its long term efficacy might have been realised.

The findings of this preliminary investigation indicate that contingent imitation (or being imitated) can be used as a technique for the treatment of self-mutilating behaviour (as well as other maladaptive behaviours) in mentally sub-normal individuals where traditional treatment procedures are undesirable (e.g. aversive procedures) or have failed or have achieved only a limited success (e.g. operant techniques).

This procedure would seem to warrant further systematic investigations considering its benefits both in terms of economy and ease of application. In other words, the technique is simple and can easily be acquired and applied by parents, nurses, teachers and anyone involved in the training and care of mentally sub-normal individuals without the involvement of expensive paramedical personnel or apparatus. As such it may have a place in behaviour modification alongside self-modelling which is also a continuously modelled individual centred modelling approach as exemplified, for example, by Owusu-Bempah and Howitt (1983).

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PROJECT EARN (Employment And Rehabilitation=Normalization): A COMPETITIVE EMPLOYMENT TRAINING PROGRAM FOR SEVERELY DISABLED YOUTH IN THE PUBLIC SCHOOLS[1]

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According to the Education for All Handicapped Children Act (PL 94-142), the Educational Amendments of 1976 (PL 94-482), and Section 504 of the Rehabilitation Act (PL 93-112), vocational training programs must be developed for all handicapped persons. The emphasis of this recent legislation has been toward the initiation of vocational programs for the severely disabled (e.g., moderately retarded, severely retarded, profoundly retarded, autistic, etc.). In complying fully with these mandates, one of the more difficult problems facing special educators, vocational educators, and rehabilitation personnel is the development and delivery of vocational programs for moderately and severely handicapped students.

Traditionally, the severely disabled have been denied vocational services due to a perceived lack of potential. However, the results of recent research (e.g., Bates, *et al.*, 1980; Bellamy, *et al.*, 1977; Rusch & Mithaug, 1980; Wehman & Hill, 1979, 1980) have indicated that severely disabled persons are capable of acquiring a variety of complex vocational competencies in sheltered and competitive employment situations. Although these results have been encouraging, little of this research has been conducted with school-aged populations enrolled in secondary public school classrooms. If the vocational potential of severely disabled individuals is to be maximized, vocational education efforts must be initiated at the secondary level to facilitate transition into the adult work world (Rezeghi & Davis, 1979).

Public school programs for severely disabled youth have not been very successful in ensuring employment for their graduates. Inspection of secondary classrooms frequently result in the following observations: (a) most students are involved in an academic curriculum, (b) school-based vocational training does not usually begin until students are over 16 years of age, and (c) very few severely disabled adolescents receive on-the-job training and supervision in non-sheltered competitive employment. Following graduation most severely disabled persons are unemployed, and for those that are working, the largest percentage are employed in sheltered workshop settings.

Since the rationale for PL 94-142 was based on the need to prepare all school-aged persons for a maximum degree of self sufficiency, the above observations are particularly disturbing. However, the premise of this paper is that these observations reflect inadequacies in the vocational training programs of many publicschools, rather than inherent limitations of severely disabled students.

In the context of inadequate public school training programs and consistent with federal and state priorities to expand vocational training for severely disabled persons, Project EARN (Employment and Rehabilitation=Normalization) was developed. Project EARN is a job development, training, and placement program geared primarily toward maximizing the vocational prospects of students enrolled in secondary classrooms for moderately and severely retarded individuals. In this article, a description of Project EARN will be provided, results of the project will be discussed, and suggestions for replication efforts will be offered.

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