

# THE EFFECTS OF A SELF-HELP TRAINING PROGRAMME UPON SOCIAL COPING BEHAVIOURS

ELLEN M. NAOR and EARL E. BALTHAZAR

Central Wisconsin Colony and Training School, Madison, Wisconsin, U.S.A.

In the course of observing and treating severely and profoundly mentally retarded individuals, the speculation has arisen that improvement in areas of functional independence may have measurable effects on other behaviour patterns (Balthazar, English and Nelson, 1970; Edwards and Lilly, 1966; Martin, McDonald and Omichinski, 1971; Naor and Balthazar, 1973a). Little substantive investigation of this subject is available in the current literature. An opportunity to investigate this suggestion, as regards the socially adaptive behaviours, has arisen in connection with a project designed to develop the self-help skills of severely and profoundly mentally retarded institutionalized individuals.

The subjects included in this project had heretofore experienced little if any programmed or systematic stimulation and many indicated some degree of emotional and behavioural disturbance. Social or emotional deprivation in the more severely retarded is known to inhibit learning, and to be accompanied by withdrawal and stereotyped behaviours (Balthazar, 1966; Kaufman and Levitt, 1965). Since stimulus deprivation may be a factor, it is likely that increased interpersonal contact and possibly some supplementary activities provided by a programme for developing functional independence would result in the increased frequency of social behaviours (Balthazar, English and Sindberg, 1971).

The project which provided the data to be described here had two primary aims: (a) to improve self-help skills through individualized care plans for each resident, and (b) to introduce more diversified supplementary activities into the routine living environment (Nelson and Boyd, 1969). Considerable social stimulation of the subjects was inherent in the training programme itself, which involved the teaching of eating and dressing skills utilizing a very high staff-to-patient ratio.

The training programme in functional independence was developed and evaluated using the **Balthazar Scales of Adaptive Behaviour, Section I (BSAB-I): The Scales of Functional Independence** (Balthazar, 1972). The BSAB-I is comprised of separate scales measuring eating-drinking, dressing-undressing, and toileting behaviours. The subscale items in the scales were derived from and are administered by means of direct observation. Changes in self-help skills and the kinds of decision-making involved in this programme are described elsewhere (Balthazar, 1970, 1971; Naor and Balthazar, 1973a).

In measuring the effects of the training programme on the subjects an earlier version of the **Balthazar Scales of Adaptive Behaviour, Section II (BSAB-II): The Scales of Social Adaptation** (Balthazar, 1973) was also used. Like the BSAB-I, the BSAB-II and its earlier version were products of direct observation and measure certain social coping behaviours. These scales were designed and standardized for ambulant severely and profoundly mentally retarded individuals. They can be used for population as well as for programme studies.

The specific aim of the present study was to determine the extent to which specific social behaviours, as objectively measured by these standardized scales, would be affected by the supplementary activities and external stimulation provided in conjunction with the general training programme in self-help skills.

**Method:** The study from which these data were taken was conducted during the years 1967-70 at a public institution for the mentally retarded in the middle western United States.<sup>1</sup> The first two years constituted the pilot phase of the project, investigated earlier by Balthazar, English and Nelson (1970) and Naor and Balthazar (1973b). The overall project included 119 institutionalized individuals aged 6 to 50 years. They occupied four wards based on considerations of sex, age, type of training needed, etc. About half of the residents had been included in the earlier pilot phase. Only the 43 male subjects were considered in this ancillary investigation of social behaviours. They constituted a more homogeneous group than did the females in terms of age, baseline profiles, participation in the pilot phase of the project, and daily training programmes. The boys lived in two wards, C and D. The age distribution of the residents of each ward are given in Table 1; all were 21 years of age or under.

**TABLE 1**  
**Male Study Subjects by Age**

Age (Years)	Ward	
	C	D
Total	30	13
≤10	6	7
11-15	19	6
16-20	4	—
21+	1 <sup>a</sup>	—
Median Age	13.4	10.5

<sup>a</sup> Age 21

All of the boys in Ward C were self-feeders; most were toilet regulated and all but two, completely ambulatory. Many of the boys in Ward D, on the other hand, had no skills in one or more self-care areas, especially toileting; three of the 13 were not ambulatory. In both wards programme emphasis was on self-help skill training and polishing, with some emphasis upon socialization activities. Specialists in recreation and occupational therapy, for example, provided direction and guidance to the project staff concerning activity programmes which could be conducted on the wards, such as simple rhythm activities games, etc. These activities were programmed as frequently as staff coverage permitted. New activities were introduced periodically, with the help of the specialists. In general, then, the basic programme was one of generalized external stimulation, with emphasis upon the teaching of self-help skills and with some emphasis upon programmed social activities. Although the staff were not trained in the techniques of operant conditioning, effort was made to provide very general positive systematic social reinforcements in terms of verbal approval, conversation, affectionate stroking and patting, and in some cases material rewards.

As mentioned above, the social coping behaviours of the subjects were measured using an early version of the BSAB-II which are comprised of the nineteen scales listed in Table 2.<sup>2</sup>

<sup>1</sup>This project was supported by Hospital Improvement Grant, 1 R20 MRO 2111-1 from the U.S. Department of Health, Education and Welfare, Public Health Service.

<sup>2</sup>The data were recast into the format of the BSAB-II prior to analysis.

**TABLE 2**

**Scales of the BSABa—II**

---

**Unadaptive Self-Directed Behaviours**

Scale 1: Failure to Respond

Scale 2: Stereotypy (Stereopathy), Posturing, Including Objects

Scale 3: Non-Directed, Repetitious Verbalization; Smiling Laughing Behaviours

Scale 4: <sup>a</sup>Inappropriate Self-Directed Behaviour

Scale 5: <sup>a</sup>Disorderly, Non-Social Behaviours

**Unadaptive Interpersonal Behaviours**

Scale 6: Inappropriate Contact with Others

Scale 7: Aggression, Withdrawal

**Adaptive Self-Directed Behaviours**

Scale 8: <sup>a</sup>Generalized, Exploratory, Recreational Activity

**Adaptive Interpersonal Behaviours**

Scale 9: Non-Communicative Social Behaviours

Scale 10: Social Vocalization and Gestures

Scale 11: Appropriate Response to Negative Peer Contact

**Verbal Communication**

Scale 12: Non-functional, Repetitious or Inarticulate Verbalization

Scale 13: Verbalization

**Play Activities**

Scale 14: Object Relations (Inappropriate, Appropriate)

Scale 15: Playful Contact

Scale 16: Play Activities

**Response to Instructions**

Scale 17: *Response to Instructions*

Scale 18: Response to Firmly Given Instructions

Scale 19: Co-operative Contact

**Checklist**

Personal Care (Assisted or Unassisted) and Other Behaviours

---

<sup>a</sup>The earlier version of the BSAB-II used in the study reported here did not include Scales 4, 5 and 8.

Note—These scales are copyrighted by Consulting Psychologists Press, Palo Alto, California, 1973.

Each scale consists of a number of subscale items designed to provide measures of specific and discrete social behaviours through direct observation of the subjects on the ward. In the data reported here, twelve ten-minute observation sessions were used. Scores were cumulated over all sessions. Rating consisted of simply counting the number of times each specific subscale item occurs during the observation session. The reliabilities of both the BSAB-II and its earlier versions are good (Balthazar, 1973). A description of the early version of the BSAB-II is found in the publications on the studies leading to the development of the BSAB-II (Balthazar and English, 1969a, 1969b, 1969c).

Following the systematic approach outlined by Balthazar (1971), baseline scores on each scale were recorded on each subject before the training programme was initiated. Retest observations were obtained when the programme was terminated a year later, in order to provide an objective measure of behaviour changes. Information was also obtained on medications which were administered to the subjects. In particular, the intake of anti-convulsants, sedatives, tranquilizers, and drugs such as phenobarbital, luminal, valium and benadryl was noted. Approximately 70% of the subjects received one or more such medications at the time of the baseline observations.

**Results:** The median baseline and retest profile scores on the social coping behaviours for each ward are given in Table 3. Baseline-retest changes were significant<sup>3</sup> ( $\alpha=.05$ ) for most social behaviours, as indicated. Scales on which six or fewer subjects scored on either baseline or retest observations were not included.<sup>4</sup>

Stereotypy decreased significantly on both wards, though there was an increase in the frequency of non-directed verbalization (verbal stereotypy). Aggressive-withdrawal responses increased significantly in frequency on both wards, as did "failures to respond." There were significant increases, on both wards, in adaptive interpersonal non-communicative and communicative behaviours, playful contact, and response to instructions. There was a significant reduction in inappropriate object-related activities on Ward C. This behaviour increased in frequency on Ward D, however, though the difference was not statistically significant ( $\alpha=.05$ ).

**Discussion:** The probability of correctly assessing the effects of a programme is increased when these effects can be demonstrated with different but similar groups of subjects (Balthazar, 1971). The basic comparability of Wards C and D is thus an important factor in the accurate evaluation of the degree to which the training and activity programme influenced the socially adaptive behaviours of the subjects.

Wards C and D each included some participants from the earlier pilot study, and the areas of individual programme emphasis were generally similar on both wards, even though the wards differed in the level of self-help skills. The baseline profiles for social coping behaviours did not differ significantly ( $\alpha=.05$ ) among the subjects of the two wards. The difference in median age was about three years. When the younger subjects on Ward C, i.e., those of median age or younger, were

---

<sup>3</sup>Non-parametric techniques are the most appropriate for these data, since the assumptions required for the use of parametric tests, especially those of normality and continuity, are unrealistic here. Also, non-parametric tests are especially useful for small samples. The Wilcoxon one-sample, signed-ranks test was used in general. For scales yielding large proportions of zero or tied scores, the Klotz variant of this test was employed (Klotz, J., personal communication, 1972).

<sup>4</sup>Six or fewer subjects scored on either baseline or retest observations on "Inappropriate contact with others," "Non-functional, inarticulate verbalization," "Verbalization," "Play activities" and "Co-operative contact."

**TABLE 3**  
**Median Baseline and Retest Scores**

BSAB-II Scale	Ward C			Ward D		
	Baseline	Retest	p	Baseline	Retest	p
<b>Unadaptive Self-Directed Behaviours</b>						
Failure to Respond	0-35 0.3	0-19 3.4	<.001	0-7 0.3	0-12 2.0	<.01
Stereotypy	34-120 103.5	10-142 82.0	<.005	78-120 107.0	2-98 82.0	<.005
Non-Directed Verbalization	0-25 0.3	0-29 2.7	.04	0-4 0.3	0-16 1.7	.02
<b>Unadaptive Interpersonal Behaviours</b>						
Aggression, Withdrawal	0-8 0.2	0-64 3.5	<.001	0-3 0.2	0-10 3.4	.004
<b>Adaptive Interpersonal Behaviours</b>						
Non-Communicative Social Behaviours	0-61 1.2	0-48 14.6	<.05	0-17 0.3	0-24 12.5	<.003
Social Vocalization and Gestures	0-19 0.2	0-38 0.8	<.001	0-0 0	0-17 2.4	<.006
Appropriate Response to Negative Peer Contact	0-7 0.2	0-6 0.3	n.s.	0-0 0	0-4 0.3	n.s.

TABLE 3 (continued)

Median Baseline and Retest Scores

BSAB-II Scale	Ward C		Ward D		p
	Baseline	Retest	Baseline	Retest	
<b>Play Activities</b>	Range	0-73	0-45	0-46	n.s.
	Median	16.0	14.0	8.0	
Appropriate Use of Objects	Range	0-33	0-21	0-59	n.s.
	Median	0.4	0.4	0.5	
Playful Contact	Range	0-10	0-20	0-20	.02
	Median	0.2	0.7	2.4	
<b>Response to Instructions</b>	Range	0-11	0-19	0-6	.002
	Median	0.3	0.4	1.2	
No Response to Instructions	Range	0-1	0-4	0-1	n.s.
	Median	0.4	0.3	0.3	
Response to Firm Instructions	Range	0-5	0-6	0-6	n.s.
	Median	0.4	1.0	1.1	

compared with those on Ward D, agreement in baseline profiles and in baseline-retest changes was less close than when the whole of Ward C was considered. One may surmise that the mental ages of the subjects of Ward C were in fact comparable to the mental ages of the younger residents of Ward D. Unfortunately, however, no reliable information on mental age is available for these subjects. The replicability of the effects of the overall training programme, i.e., the demonstration of similar behaviour changes in each of these two generally comparable groups, increases the likelihood that the pattern found is indeed representative.

On both Wards C and D, there was an increase in the frequencies of almost all behaviours at the time of the retest. This is felt to reflect the effects of the increased interpersonal contact accompanying the training programme in functional independence and the supplementary activity programme. Kaufman and Levitt (1965) have shown that physical stereotypy is more frequent at those times of the day when there is little interpersonal contact between subjects and staff members. The present results substantiate this finding.

Increases in such undesirable behaviours as aggressive-withdrawal responses and failures to respond were expected, on the basis of similar findings by Balthazar, English and Sindberg (1971). The frequency with which these scales are scored is dependent upon how often the subject is approached. The training programme specifically emphasized increased interaction between staff and residents, and it is therefore likely that interpersonal contacts increased at a greater rate than did responsiveness in the subjects.

The structure of the overall project did not provide for a control group during the period when external stimulation and supplementary activity programmes were implemented. Therefore, there is no **direct** means to distinguish any effect of time alone from the effects of the programmes; i.e., to determine the extent to which time or maturation was a factor in changing behaviours. Data is available, however, on a small control group which was included in the pilot phase of this project. This group consisted of seven male subjects who were rated with the early version of the BSAB-II (Naor and Balthazar, 1973b). Retest scores were obtained after a period of six months. In general, baseline-retest changes were insignificant. The similar control groups of female subjects showed substantially no baseline-retest changes. Most of these control subjects were later included in the external stimulation and supplementary activity programmes.

Information on the effects of *elapsing time alone*, on social behaviours, is available from a previous study which utilized the earlier version of the BSAB-II (Balthazar, English and Sindberg, 1971; Balthazar, Naor and Sindberg, 1973). The study included fifteen control subjects of both sexes; all were twelve years of age or under. Retest evaluations were carried out at three and six months after the initial evaluation. When the data were recast into the format of the BSAB-II, there were, in general, no significant differences between the evaluations.

These studies indicate that in the absence of treatment programmes, changes in the social coping behaviours of severely and profoundly mentally retarded individuals over several months are negligible. It thus seems reasonable to attribute the marked behavioural changes demonstrated in Wards C and D to the effects of the training and stimulus programme under consideration.

The effects of medications were obscure. Wards C and D were not comparable with respect to medications administered at the time of the initial evaluations. However, this difference is considered to be irrelevant here since the baseline behaviour profiles were similar. That is, our interest lies in measuring the effects of this programme in changing behaviour patterns, regardless of how the behaviour patterns originated.

During the duration of the programme there were some changes in medications, involving thirteen of the subjects on Ward C and six on Ward D. An attempt was made to determine if the behaviour changes noted between the baseline and retest observations could be attributed to these changes in medication. Those subjects for whom there had been no changes in medication during the programme were analyzed separately. It was noted that the results did not differ substantially from the original analysis of the overall group.

In summary, then, the findings of this study indicated that general external stimulation and a supplementary activity programme, in conjunction with individualized programmes for improvement of self-help skills, did affect the social behaviours of boys 21 years of age and under. It is likely, in the authors' opinion, that the lack of social responses in these subjects is due not only to the effects of mental retardation alone but to lack of training and social deprivation as well. Thus, as expected, increasing stimulation and thereby increasing the opportunities to respond produced significant increases in some unadaptive behaviours as well as beneficial increases in the frequency of adaptive interpersonal and communicative behaviours. In fact, almost all behaviours measured, with the exception of stereotypy, increased in frequency. It is questionable, however, whether these behaviour changes will persist over time in the absence of continued programming. It is clear that further study regarding the general effects of external stimulation and training programs on the social behaviours of the severely and profoundly mentally retarded is indicated. Such studies should at the present time precede investigations of the efficacy of programmes which are designed to improve specific coping behaviours of individuals in this population.

#### References

- Balthazar, E. E. (1966). Treatment needs based upon differential diagnosis. *Mental Retardation*, 4 (5), 16-19.
- Balthazar, E. E. (1970). Scalar techniques for classifying adaptive behaviours in severely and profoundly mentally retarded groups. *Tijdschrift Voor Zwakzinnigheid en Zwakzinnigenzorg* (Oisterwijk, Holland), Jaargang No. 3, 137-163.
- Balthazar, E. E. (1971). The assessment of adaptive behaviour. In D. A. Primrose (Ed.), *Proceedings of the Second Congress of the International Association for the Scientific Study of Mental Deficiency*. Warsaw: Polish Medical Publishers (Swets & Zeitlinger N.V., The Netherlands, Distributors). Pp. 566-570.
- Balthazar, E. E. (1972). *The Balthazar scales of adaptive behaviour. Section I: The scales of functional independence (BSAB-I)*. Palo Alto, California: Consulting Psychologists Press.
- Balthazar, E. E. (1973). *The Balthazar scales of adaptive behaviour. Section II: The scales of social adaptation (BSAB-II)*. Palo Alto, California: Consulting Psychologists Press.
- Balthazar, E. E. and English, G. E. (1969a). *A system for classifying the social behaviours of the severely retarded*. Madison: Central Wisconsin Colony and Training School Research Findings. (Monogr. Suppl. 4.)
- Balthazar, E. E. and English, G. E. (1969b). A factorial study of unstructured ward behaviours. *American Journal of Mental Deficiency*, 74 (3), 353-360.
- Balthazar, E. E. and English, G. E. (1969c). A system for the social classification of the more severely mentally retarded. *American Journal of Mental Deficiency*, 74 (3), 361-368.
- Balthazar, E. E., English, G. E. and Nelson, A. C. (1970). *Behavioural changes in eating skills in severely and profoundly mentally retarded groups*. Madison: Central Wisconsin Colony and Training School Research Findings. (Monogr. Suppl. 7.)
- Balthazar, E. E., English, G. E. and Sindberg, R. M. (1971). Behaviour changes in mentally retarded children following the initiation of an experimental nursing programme. *Nursing Research*, 20 (1), 69-74.
- Balthazar, E. E., Naor, E. M. and Sindberg, R. M. (1973). *The absence of intervention training programmes: Effects upon the severely and profoundly retarded. Part I*. Madison: Central Wisconsin Colony and Training School. (Monogr. Suppl. No. 1, Vol. 10).
- Edwards, M. and Lilly, R. T. (1966). Operant conditioning: An application to behavioural problems in groups. *Mental Retardation*, 4, 18-20.

- Kaufman, M. E. and Levitt, H. (1965). A study of three stereotyped behaviours in institutionalized mental defectives. *American Journal of Mental Deficiency*, 69, 467-473.
- Martin, G. L., McDonald, S. and Omichinski, M. (1971). An operant analysis of response interactions during meals with severely retarded girls. *American Journal of Mental Deficiency*, 76 (1), 68-75.
- Naor, E. M. and Balthazar, E. E. (1973a). The programme planning paradigm: Application to the area of functional independence. *Mental Retardation*, 11 (1), 22-26.
- Naor, E. M. and Balthazar, E. E. (1973b). *The absence of intervention training programmes: Effects upon institutionalized retardates. Part II*. Madison: Central Wisconsin Colony and Training School, Research Department. (Monogr. Suppl. No. 2, Vol. 10).
- Nelson, A. C. and Boyd, J. D. (1969). *Annual report 1968-1969: Hospital Improvement Grant, 1 R20 MRO 2111-1*. Chippewa Falls: Northern Wisconsin Colony and Training School.
- Nelson, A. C., Boyd, J. D. and Werner, L. W. (1970). *Final project report: Hospital Improvement Grant, 1 R20 MRO 2111-1*. Chippewa Falls: Northern Wisconsin Colony and Training School.
- Siegel, S. (1956). *Non-parametric statistics for the behavioural sciences*. New York: McGraw-Hill.

---

Requests for reprints should be forwarded to Dr. Earl E. Balthazar, Research Department, Central Wisconsin Colony and Training School, 317 Knutson Drive, Madison, Wisconsin, 53704, U.S.A.

---