

I—A DEVELOPMENTAL ASSESSMENT APPROACH TO SOCIAL COMPETENCE IN PROFOUNDLY HANDICAPPED ADULTS—A PILOT STUDY

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INTRODUCTION

A large proportion of the patients currently in the care of Mental Handicap Hospitals in this country are deemed to be severely and profoundly handicapped. In 1972, the D.H.S.S. published a census of the mentally handicapped in hospitals in England and Wales which indicated that 74% of patients of all ages were considered to have I.Q.'s of less than 50. In accordance with the classification laid down by the American Association on Mental Deficiency (Heber, 1959) this percentage figure can be taken to include cases of moderate, severe and profound retardation. (The term "profoundly handicapped" as used in this text will follow the A.A.M.D. guidelines.) In the time which has elapsed since the publication of that census, progress in the field of mental handicap has been characterised by the success of rehabilitation programmes with the mildly and moderately handicapped along with the application of a growing philosophy of community care for these less severely disabled patients. Although figures are not available, it is a reasonable supposition that these trends will have significantly increased the representation of cases of severe and profound handicap in Mental Subnormality hospitals since 1970.

Increasingly, therefore, the limited resources of hospitals will be, and are being claimed by the profoundly handicapped, though it is yet to be proved how effectively these resources can be deployed with respect to this population. Certainly, recent literature on the effectiveness of social training with the profoundly handicapped permits more optimism than had previously been considered justified (Minge and Bell, 1967; McDonald *et al.*, 1976, 1977). Nevertheless, the feasibility of protracted ward-based programmes for the profoundly handicapped in the present economic climate is not yet clearly established. The concern of this paper is therefore with the increasing need for comprehensive, detailed assessment of the profoundly handicapped individual's social competence profile, allowing elucidation of strengths and weaknesses and the planning of realistic training objectives. This would seem to constitute a necessary step in directing available resources to areas where optimal benefit can be derived for patient and care staff alike.

It is a cause of some concern amongst field-workers involved in assessment that many, if not all of the standard tests of Performance and Verbal abilities currently available are inadequate in describing the profoundly handicapped adult. There is, of course, a vast literature concerning the controversial concept of the intelligence quotient and its applicability as a descriptive and prescriptive tool in the field of mental handicap. Many overviews of this problematic area are available (Douglass Savage, 1970; Clark, 1974; Warren, 1977; Haywood, 1977). However, so far as the profoundly handicapped adult is concerned, many of the theoretical issues related to I.Q. testing cease to have any meaning because he is typically found to be unsuited to formal test situations.

Usually, assessment of these cases has relied solely upon examination of attainment in social skills, and scales based upon normal infant development have commonly been employed. Gunzburg's P= \bar{P} -A-C (1973) is a well known example of this type of scale. The P-A-C method has proved extremely valuable to workers in the field since it first appeared (Gunzburg, 1963) for at least two reasons. Firstly, it

provides a clear indication of the subject's level of attainment to date, and secondly, it suggests the sequence of training objectives which should be followed in further programmes. Whilst following the established P-A-C format, the Primary Progress Assessment Chart for the Severely Mentally Handicapped (Gunzburg, 1977) represents an effort to improve the P=P-A-C with respect to the assessment of the profoundly handicapped.

The Special Primary Progress Assessment Chart, S/P=P-A-C

The team responsible for developing the S/P=P-A-C recognised the need for a scale which would describe the profoundly handicapped individual more adequately than had hitherto been possible with the P=P-A-C, the latter providing a checklist for the first stages of normal social development to approximately three years. In adapting the original for use with the severe and profoundly handicapped, the following modifications have been made:—

- (1) **A greater total number of item skills:** 181 in the S/P=P-A-C as opposed to 130 in the P=P-A-C.
- (2) **More detail in the lower scale items and further division of the scale at the lower end:**

e.g., GROSS MOTOR CONTROL.

	S/P=P-A-C		P=P-A-C
a	129. Can move head when lying on back. 130. Balances head. 131. Can keep head upright when lying on stomach.	}	16. Tries to reach objects with hand but overshoots. 17. Manipulates objects 35. Reaches for objects by leaning forward.

- (3) **The use of developmental ages (in months)**

Each level of the S/P=P-A-C has been assigned a developmental age range as follows:—

Level a	=	0	—	3 months.
„ b	=	3	—	6 months.
„ c	=	6	—	9 months.
„ d	=	9	—	12 months.
„ e	=	12	—	18 months.
„ f	=	18	—	24 months.
„ g	=	24	—	36 months plus.

Perhaps the most significant contribution which the S/P=P-A-C makes toward an improved assessment procedure for the profoundly handicapped is the provision of developmental age ranges. These make possible certain statistical manipulations of the assessment data which before had not been possible. Balthazar emphasised the need for assessments based on a range of scores (multi-variate analysis) of the individual's "adaptive behaviour" (Balthazar, 1973) and has applied this principle with his Scales of Adaptive Behaviour (Balthazar, 1972, 1973). The same principle is applied in the S/P=P-A-C method. Briefly, it is now possible to obtain a developmental age for the subject's attainment in Eating, another for his attainment in Dressing, another for Socialisation, etc., etc. By considering all ages thus obtained for a single subject, it is possible to construct a Developmental Profile which serves to indicate areas of relative strength and weakness according to a fixed dimension of normal development.

The first aim of the study presented here was to identify the significant features of the developmental profile obtained for a sample of fifty profoundly handicapped

hospital residents. It is hoped that such a profile can be employed as a reference basis for further individual S/P=P-A-C assessments. The second aim of the study was to throw some light on a frequently noted feature of the P-A-C assessments of the profoundly handicapped, namely the inconsistent patterns of achievement found within subject records. For example, the fact that a subject is credited, say, for holding a spoon in one area of the assessment (Eating) is not always a guarantee that he will be credited, say, with holding a toy block in another area (Fine Motor Control) even though these items would seem to be functionally associated. The S/P=P-A-C scale items were examined for possible functional associations of this type and the resulting patterns of inter-item consistency amongst the various S/P=P-A-C sectors were noted. By comparing the records for the sample of fifty subjects against these identified patterns it was possible to indicate those instances in which subject records are, as a rule, internally consistent, i.e., where a credit for an item in one area is usually reflected in a credit for a functionally associated item in another area, e.g., "Observes activities or adults" (Socialisation) and "Follows moving object with his eyes" (Perception and Response). These consistency patterns which were found to hold true for the sample are presented in tabulated form and are offered as a simple check of consistency for further assessments employing the S/P=P-A-C method.

In many instances the sample records failed to agree with the predicted patterns. These findings are used as a basis to form conclusions about the assessment method itself and the variable demands it makes upon the subject's capacity to co-operate during assessment.

METHOD

Subjects

Twenty-five male and twenty-five female residents between the ages of sixteen years and fifty years were selected at random from the population of five "high dependency" wards at Chelmsley Hospital. Equivalent numbers of both sexes were employed in order to minimise gross sex-linked effects. All subjects were ascertained to be Profoundly Handicapped, prior to S/P=P-A-C assessment according to the following criteria:—

- (1) Indications of a level of functioning within the profound range of retardation (I.Q.=<20; A.A.M.D., 1973) or, of a total lack of creditable responses, in standard evaluation with formal intelligence scales.

and

- (2) A Social Age Equivalent (S.A.) of three years or less, achieved on the Vineland Social Maturity Scale (Doll, 1953).

The mean chronological age was twenty-four years five months (S.D.: 7.0) and the mean age on admission for long-term care was eight years and two months (S.D.: 5.2).

PROCEDURE

Individual assessments were conducted with all subjects in their normal ward environment. Two sessions of observation of the subject were conducted at an interval of approximately one week. During these sessions, scale items necessitating direct examination of the subject, e.g., "Reacts to slight noises" (Perception and Response) were evaluated. Most of the information required in the areas of Communication and Motor Control and a proportion of that in Self-Help and Socialisation was obtained in this way. A third session was devoted to an interview with a

member of the qualified nursing staff who had not less than six months direct experience of nursing the patient. During interviews, information already gathered in the observation sessions was reviewed and outstanding items, particularly in Self-Help and Socialisation areas were assessed. In line with good P-A-C assessment practice, a list of detailed scoring criteria was employed at all times.

Scoring

As previously stated, each level of the S/P=P-A-C represents a particular stage in the developmental sequence and has been assigned an age range in months. It should be noted, however, that the range varies from level to level so that, for example, level "a" covers three months, whereas level "g" covers a full twelve months. In addition, the number of item skills in any one level varies considerably between levels and between sectors. In computing a developmental age to represent a subject's attainment it was therefore considered necessary to adopt the following system.

Each item in the scale was assigned a numerical value derived from a consideration of the level at which it appeared and the number of items contained in that level. So, for example, in "Eating," where two items appear at level (a) and the range for level (a) is known to be 0—3 months, each item was assigned a value of 1.5 months. In any one sector, therefore, a developmental age can be obtained by summing the values of all items credited.* It was also found to be convenient to employ a basal and a ceiling in the scoring, though the decision to use these devices is admittedly an arbitrary one. Briefly, the Basal is the point below which all items are scored as credited, and the most reliable Basal was found to be the two highest complete levels credited. So, for example, if levels (c) and (d) were completely credited, then levels (a) and (b) would also receive full credit regardless of omissions. The Ceiling is the point above which no age scores are given, and the most reliable Ceiling was found to be two consecutive levels without credits. For example, if no credits were received on levels (c) and (d) but one item were credited on level (e), the item at (e) would not be scored.

Results

PART 1

A set of nine developmental ages were obtained for each subject, corresponding to the nine sectors of the S/P=P-A-C. Results for the sample gave mean developmental ages and standard deviations (Table 1) which are represented graphically in Figure 1.

PART 2

Sample scores for Self-Help and Socialisation sectors were compared with those for Communication and Motor Control sectors (Pearson's Product-Moment Correlation). Correlation coefficients and significant levels obtained are shown in Table 2. Significantly correlated sectors (Table 3) were analysed in more detail as follows.

Scale items within the ranges shown in Figure 1 from each of the correlated sectors were examined for possible relationships between sectors. Consistencies were noted which reflected a communality in scoring criteria, e.g., item 5 in "Eating,"

*It is not yet claimed that the developmental ages obtained by this method will be particularly meaningful outside the context of the S/P=P-A-C, though the method itself has been employed successfully in the scoring of other developmental scales, of which one of the best known examples is Cattell's Infant Intelligence Scale (Cattell, 1940, 1960). (For an elaboration of this point see discussion.)

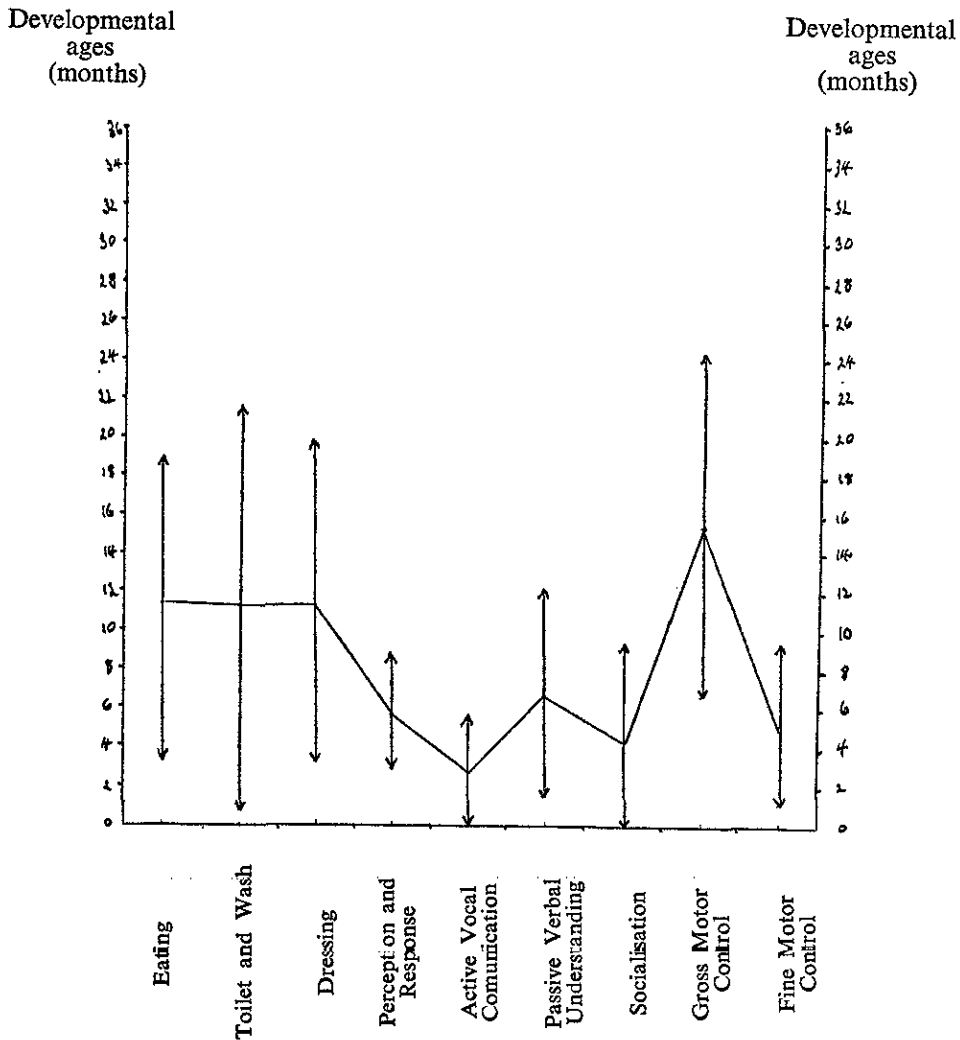


Figure 1

Diagram showing Developmental Age Ranges within 1.s.d of the mean for a sample of profoundly handicapped adults (N=50).

which reads, "Pushes spoon into mouth by himself," could be expected to relate to item 158 in "Fine Motor Control": "Hands are able to hold objects."

Not all comparisons proved to be as straightforward as this, though the principle of a functional communality was employed in all cases. It is emphasised that an assumption of functional **dependence** is not warranted by the correlational statistics used up to this point.

Postulated consistencies were then checked against the sample scores by employing a frequency count of the number of cases confirming and disconfirming. Frequency figures obtained were tested for significance using the 50% Probability

Test. (Statistical working is shown in Tables 4—6.) Finally, the predicted consistencies which were found to hold true for the sample (significant at the 1% and .2% level) were translated into the original scale items (Tables 7—9).

Discussion

The figures recorded in Table 1 represent the Social Competence Profile of the sample. Some of the statistical features are significant. Firstly, the large standard deviations obtained for many of the sectors point to a fair "scatter" of the scores amongst the sample of fifty subjects. Secondly, in some instances, i.e., Socialisation and Active Vocal Communication, standard deviations extend below zero, indicating an asymmetrical distribution of the scores in these cases. For these reasons, it was considered to be more accurate to represent "average attainment" as the range of scores falling within one standard deviation of the mean (Fig. 1).

An examination of Table 1 also reveals considerable differences between some sector scores, e.g., between Self-Help and Communication sectors. These differences, although fairly typical of P-A-C results, are significant enough to warrant some explanation. Assuming the reliability of the data, and that the various sectors of the S/P=P-A-C do not measure completely unrelated areas of development, the following account may go some way toward explaining the variability in the scores.

It is not unlikely that various areas of social functioning receive varying degrees of attention in the average ward environment. In fact, a greater premium may be put on the development of, say, Self-Help skills than on the development of Communication skills even in the absence of formal Self-Help training programmes. There is, of course, considerable justification for such a difference in emphasis both in terms of practical economics and in terms of efficient ward management. The effects of such a bias on the S/P=P-A-C assessment would inevitably be to improve the chances of eliciting a subject's response in one area, e.g., "Eating" over another, e.g., "Perception and Response." Given that such differences in emphasis may exist, it is also possible that the variability of the sample scores between sectors could be an artifact of the assessment method employed. In order to clarify this point, it is first necessary to consider the results obtained in the second part of the study.

It will have been noted that comparisons have been made between, on the one hand the areas of Self-Help and Socialisation and on the other, the areas of Communication and Motor Control. Although this was the comparison most suited to a study of item consistency, in theory comparisons could have been planned between any of the S/P=P-A-C sectors.

Tables 4—6 show the numbers of subjects confirming and disconfirming the predicted patterns of item consistency between various sectors. In those instances where the predicted pattern was significantly confirmed by the sample, the original scale items and item numbers for each of the related sectors are shown in Tables 7—9. These may prove useful to the examiner wishing to use the S/P=P-A-C to assess cases of Profound Handicap. If individual case records are found to deviate from these consistency patterns, two questions should be asked. Firstly, "Does this indicate an irregularity in the assessment procedure?" and secondly, "Does this indicate some aspect of the subject's performance which is clinically significant?"

In many instances, observed frequencies failed to confirm the predicted patterns (Tables 4—6). Indeed, in some instances (Table 5, items 111, 112), the frequencies significantly contradicted the pattern of consistency. The following is offered as an explanation of these results.

It seems that information required in the S/P=P-A-C is of two quite distinct types. Firstly, there is information about the subject's performance in familiar, every-

day situations. That is, his competence in Eating, Toileting and Dressing, his ability to socialise with staff and peers and his degree of Gross Motor Control. In these areas of functioning the subject will likely have acquired a "set" to respond to people and circumstances in a particular way even though the level of his response may be grossly inadequate. Secondly, there is information of a more "academic" nature about the subject's performance in relatively formal assessment situations, that is, in Communication and Fine Motor Control. (Even though the assessment situation may be made as stimulating and "informal" as possible.) Now it is self-evident that unless the subject is receiving a programme of similar stimulation at regular intervals, the second type of assessment is going to be a fairly untypical experience for him. Furthermore, it is suggested that for reasons already indicated, stimulation of this nature is not a regular feature in the daily lives of many profoundly handicapped hospital residents. It is therefore quite likely that this population will not have acquired a "set" to respond under assessment conditions of the second type. In other words, not only may they find it difficult to select the correct responses, they may also find it difficult to respond at all in these situations. Another common way of describing this phenomenon is to refer to "poor motivation" on the part of the subject or to the classic "No opportunity" in the assessment data. To recap, it has been argued that inconsistencies in subject records and the variability in age scores found in the Social Competence Profile may indicate different degrees of response "set" in the various areas of social functioning measured by the S/P=P-A-C. That is, that the availability of a subject's response in one sector of the S/P=P-A-C is no guarantee that a similar response will be available in another sector.

It may be argued that this explanation, although appearing to have some merit, has very little impact for the subject who is receiving a comprehensive programme of social rehabilitation. Although this may be true, it is emphasised that the explanation has most relevance in cases where a differential emphasis is put on different areas of social functioning, and furthermore it is suggested that for the majority of profoundly handicapped cases in hospital care, such a difference in emphasis does apply. If the explanation offered here can be shown to be valid, then the knowledge that differential response "sets" are influencing the subject's performance in assessment will be particularly useful in planning training programmes. For example, if a programme were considered for training skills listed under "Fine Motor Control," it would be advantageous to know if the subject's baseline data was consistent with data obtained from other areas of social functioning, say, "Eating." If not, then the trainer could aim initially to match the subject's performance in "Fine Motor Control" with the capacity indicated by his attainment in "Eating."

It is envisaged that a further study will be devoted to examining this proposal and evaluating its importance in planning training programmes.

Finally, two points with respect to the Social Competence Profile. Firstly, the fact that inconsistencies have been noted in the subject data and that these have been the main point of discussion does not invalidate the Social Competence Profile obtained for the sample. This stands as an accurate representation of the way subjects respond under the varying assessment conditions required by the SP/=P-A-C. It is hoped that the examiner wishing to use the S/P=P-A-C to assess his own cases of Profound Handicap will find this to be a useful reference for his own data.

Secondly, it has already been mentioned that the developmental ages obtained from the S/P=P-A-C, as yet, may not be particularly meaningful outside the context of the SP/=P-A-C. This is because there is no information yet available to show to what extent these are compatible with ages obtained from other developmental scales such as the Vineland.

Summary

Fifty profoundly handicapped patients at Chelmsley Hospital, Birmingham,

were assessed using the Special Primary Progress Assessment Chart (S/P=P-A-C). The S/P=P-A-C is the latest addition to the range of P-A-C's currently used for assessment of social competence in the Mentally Handicapped and is designed to extend the facility of the P-A-C format to the Profoundly Handicapped.

Two lines of investigation were opened. The first concerned the use of developmental ages obtained from the various sectors of the S/P=P-A-C to construct a Social Competence Profile for the sample. It is suggested that the Social Competence Profile presented will provide a reference point for the examiner who wishes to assess his own cases of Profound Handicap using the same method. The second concerned the identification of patterns of inter-item consistency amongst the S/P=P-A-C sectors. The sample records were compared with the predicted patterns to identify items which, as a rule, "go together" in the case of a profoundly handicapped individual. Predicted consistencies which were found to hold true for the sample have been tabulated to provide a check of subject "performance-consistency" in future assessments.

In many instances the sample records failed to agree with the predicted consistency patterns. An explanation for these findings is offered which, if validated in further study, may prove to be of considerable aid in setting training objectives for the profoundly handicapped hospital resident.

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Scoring Criteria

A list of the scoring criteria used in this study may be obtained from the author at: Psychology Department, Chelmsley Hospital, Marston Green, Birmingham.

References

- Balthazar, E. E. (1972). *The Balthazar Scales of Adaptive Behaviour*. Section I: "The Scales of Functional Independence." Palo Alto, California: Consulting Psychologists Press Inc.
- Balthazar, E. E. (1973). *The Balthazar Scales of Adaptive Behaviour*. Section II: "The Scales of Social Adaptation." Palo Alto, California: Consulting Psychologists Press Inc.
- Balthazar, E. E. (1975). *Developmental Disabilities and their Relationships to General Development*. Central Wisconsin Colony and Training School Research Department. Volume 12. Monograph Supplement No. 1.
- Cattell, P. (1940). *The Infant Intelligence Scale*. The Psychological Corporation, New York.
- Cattell, P. (1960). *The Measurement of Intelligence of Infants and Young Children*. The Psychological Corporation, New York.
- Clark, D. F. (1974). "Psychological Assessment in Mental Subnormality." In *Mental Deficiency. The Changing Outlook*. 3rd Edition. Ed. A. M. Clarke and A. D. B. Clarke. Methuen & Co.
- Department of Health and Social Security (1972). *Census of Mentally Handicapped Hospital Patients*. Statistical and Research Report Series No. 3. London: H.M.S.O.
- Doll, A. E. (1953). *The Measurement of Social Competence*. Washington D.C.: Educational Test Bureau.
- Douglas Savage, R. (1970). "Intellectual Assessment." In *The Psychological Assessment of Mental and Physical Handicaps*. Ed. P. Mittler. Tavistock Publications.
- Gunzburg, H. C. (1963). "Progress Assessment Chart." London: NSMHC.
- Gunzburg, H. C. (1973). "The Primary Progress Assessment Chart of Social Development." London: NSMHC.
- Gunzburg, H. C. (1977). "Progress Assessment Chart of Social and Personal Development." *Manual* (5th Edition). SEFA (Publications) Ltd.

- Gunzburg, H. C., Seibert, R., Koch-Holstein, M., Metzger, E., Schorsch, S., Warnecke, R. L. and Schaer, G. (1977). "Primäre Pädagogische Analyse und Curriculum der Sozialentwicklung"—Form S/P=P-A-C. SEFA (Publications) Ltd.
- Haywood, H. C. (1977). "Alternatives to Normative Assessment." In *Research to Practice in Mental Retardation*, Vol. I., Ed. P. Mittler. I.A.S.S.M.D.
- Heber, R. (1959). A Manual on Terminology and Classification in Mental Retardation. *American Journal of Mental Deficiency, Monograph, Supplement 64*.
- McDonald, G., McCabe, P. and Mackle, B. (1976). "Self-Help Skills in the Profoundly Subnormal." *British Journal of Mental Subnormality*, Vol. XXII, No. 43, 105-111.
- McDonald, G., McCabe, P. and Mackle, B. (1977). "Mealtime Behaviour in the Profoundly Subnormal." *British Journal of Mental Subnormality*, Vol. XXIII, No. 44, 29-35.
- Minge, F. M. and Ball, S. T. (1967). "Teaching of Self-Help Skills to Profoundly Retarded Patients." *American Journal of Mental Deficiency*, 71, 864-868.
- Warren, S. A. (1977). "Using Tests to Assess Intellectual Functioning." In *Research to Practice in Mental Retardation*, Vol. II. Ed. P. Mittler. I.A.S.S.M.D.
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The S/P-P-A-C form which was used in this research is at present available only in German. An English translation can be obtained from the author who would appreciate the co-operation of colleagues in the expansion of his research.

APPENDIX

USING THE TABLES

Having completed an S/P=P-A-C assessment on a profoundly handicapped subject, the assessor may wish to adopt the following method in order to gain a measure of the subject's performance consistency.

Referring to Tables 7—9 it will be noted that in each table the item skills from a particular sector have been listed. These are respectively, Eating skills, Socialisation skills, Toileting and Washing skills. In order to check for example, that the subject's attainments in Eating are consistent with his attainments in Communication and Motor Control it will first be necessary to identify which of the listed items the subject has been credited with in Table 7. For each item credited, refer across the row and note the item numbers which appear in each of the columns. Translate these item numbers into the original scale items by referring to Table 10.

If subject performance is consistent then a credit received for an Eating skill, say, item 9 should be matched with credits for each of the items listed in the corresponding row i.e. items 40, 41, 46 (Perception and Response), items 129 to 135 (Gross Motor Control) and items 157 to 162 (Fine Motor Control). Where this is found to hold true for the subject, tick these corresponding items in Table 7. If subject performance is inconsistent in some respect, an Eating skill credited, say item 9, will not be matched with credits for each of the items listed in the corresponding row. That is, for example, items 46 and 135 may not have received credits. In this case place a cross against the corresponding items in Table 7.

The same method is applied to all listed items in Tables 7—9. Where the subject record is found to be inconsistent by this method, a couple of checks should be made. Firstly to establish that there are no errors in the assessment procedure and secondly to identify the subject characteristics which could explain inconsistent performance. The latter have already received some discussion in this paper, though there is clearly a need for further application of the S/P=P-A-C method in order to clarify the extent to which subject characteristics interact with this assessment procedure.

TABLE 1

MEAN ATTAINMENT LEVELS AND STANDARD DEVIATIONS (IN MONTHS)

N = 50; Mean CA 24y 5m (S.D. 7ys)

		MEAN	STANDARD DEVIATION
SELF-HELP	Eating	11.35	7.62
	Toileting and Washing	11.06	10.29
	Dressing	11.34	8:15
COMUNICATION	Perception and Response	5.70	2:77
	Active Vocal Communication	2.61	3.78
	Passive Verbal Understanding	6.71	5.26
SOCIALISATION		4.35	4.67
MOTOR CONTROL	Gross Motor Control	15.84	8.68
	Fine Motor Control	5.28	4.05

TABLE 2

**COMPARISON BETWEEN SECTORS
PRODUCT—MOMENT CORRELATION COEFFICIENTS AND
SIGNIFICANCE LEVELS (N.=50)**

	P+R	Significance level	A.V.C.	Significance level	P.V.U.	Significance level	G.M.C.	Significance level	F.M.C.	Significance level
Eating	0.5	.2%	0.19	*	0.60	.2%	0.73	.2%	0.49	.2%
Toileting and Washing	0.43	.1%	0.26	10%	0.52	.2%	0.43	1%	0.49	.2%
Dressing	0.26	5%	0.31	5%	0.15	*	0.29	5%	0.25	10%
Socialisation	0.36	5%	0.19	*	0.72	.2%	0.4	1%	0.28	5%

* Less than 10%

TABLE 3

HIGH SIGNIFICANCE CORRELATIONS IN RANK ORDER

(a) At the .2% level of confidence

- (i) Eating **and** Gross Motor Control
- (ii) Socialisation **and** Passive Verbal Understanding
- (iii) Eating **and** Passive Verbal Understanding
- (iv) Toileting and Washing **and** Passive Verbal Understanding
- (v) Eating **and** Perception and Response
- (vi) Eating **and** Fine Motor Control
- (vii) Toileting and Washing **and** Fine Motor Control

(b) At the 1% level of confidence

- (i) Toileting and Washing **and** Perception and Response
- (ii) Toileting and Washing **and** Gross Motor Control
- (iii) Socialisation **and** Gross Motor Control

TABLE 4

EATING (Significance levels obtained using the 50% Probability Test).

Item No.	PERCEPTION AND RESPONSE (P+R)		Significance level	PASSIVE VERBAL UNDERSTANDING (P.V.U.)		Significance level	GROSS MOTOR CONTROL (G.M.C.)		Significance level	FINE MOTOR CONTROL (F.M.C.)		Significance level
	Cases confirming (F+ve)	Cases disconfirming (F--ve)		(F+ve)	(F--ve)		(F+ve)	(F--ve)		(F+ve)	(F--ve)	
1	—	—		—	—		—	—		—	—	
2	—	—		—	—		—	—		—	—	
3	—	—		—	—		—	—		—	—	
4	—	—		—	—		47	2	.2%	—	—	
5	—	—		—	—		47	2	.2%	—	—	
6	—	—		—	—		23	1	.2%	19	5	1%
7	—	—		—	—		23	0	.2%	19	4	1%
8	—	—		—	—		23	0	.2%	—	—	
9	18	0	.2%	—	—		24	1	.2%	—	—	
10	20	5	1%	—	—		18	0	.2%	12	6	*
11	—	—		—	—		24	1	.2%	13	12	*
12	18	2	.2%	—	—		20	0	.2%	—	—	
13	16	1	.2%	—	—		20	0	.2%	8	12	*
14	13	0	.2%	—	—		18	0	.2%	10	8	*
							13	0	.2%	9	4	*

* Less than the 10% significance level.

TABLE 5

SOCIALISATION (Significance levels obtained using the 50% Probability Test).

Item No.	P.V.U.			G.M.C.		
	Cases confirming (F+ve)	Cases disconfirming (F--ve)	Significance level	F+ve	F--ve	Significance level
105	—	—		—	—	
106	—	—		29	0	.2%
107	—	—		19	0	.2%
108	12	6	*	17	1	.2%
109	11	9	*	20	0	.2%
110	0	2	*	2	0	*
111	1	10	5%	9	2	10%
112	1	14	.2%	13	2	1%

* Less than 10% significance level.

TABLE 6

TOILETING AND WASHING (Significance levels obtained using the 50% Probability Test).

Item No.	P+R			P.V.U.			G.M.C.			F.M.C.		
	Cases confirming (F+ve)	Cases disconfirming (F-ve)	Significance level	F+ve	F-ve	Significance level	F+ve	F-ve	Significance level	F+ve	F-ve	Significance level
22	—	—		—	—		29	0	.2%	—	—	
23	27	1	.2%	—	—		28	0	.2%	—	—	
24	23	1	.2%	—	—		24	0	.2%	—	—	
25	20	5	1%	19	6	5%	24	1	.2%	19	6	5%
26	9	1	10%	7	3	*	10	0	1%	5	5	*
27	6	2	*	6	2	*	8	0	1%	7	1	*
28	1	4	*	3	1	*	2	2	*	1	3	*

* Less than the 10% significance level

TABLE 7

SIGNIFICANT OBSERVATIONS FROM TABLE 4 TRANSLATED
INTO ORIGINAL SCALE ITEMS

Item No.		EATING			
		Perception and Response (Item numbers)	Passive Verbal Understanding (Item numbers)	Gross Motor Control (Item numbers)	Fine Motor Control (Item numbers)
3	Takes semi-solids from spoon	—	—	129 130	—
4	Swallows semi-fluid food	—	—	129 130	—
5	Pushes spoon into mouth (hand is guided)	—	—	129 - 134	157 - 162
6	Accedes to having arm guided and holds spoon firmly	—	—	129 - 134	157 - 162
7	Chews biscuits, rusks	—	—	129 - 134	—
8	Bites off (banana, biscuits, etc.)	—	—	129 - 134	—
9	Guides full spoon to his mouth himself	40 41 46	—	129 - 135	157 - 162
10	Drinks from cup with assistance	40 41 46	—	129 - 135	157 - 162
11	Chews without difficulty all types of food	—	—	129 - 135	—
12	Reaches for bits of food and puts into mouth	40 41 46 47	—	129 - 137	157 - 162
13	Fills spoon by himself and guides to mouth	40 41 46 47	—	129 - 135	157 - 162
14	Drinks from cup unaided without spilling and holds it	40 41 46 47	—	129 - 135	157 - 162

TABLE 8

SIGNIFICANT OBSERVATIONS FROM TABLE 5 TRANSLATED INTO ORIGINAL SCALE ITEMS

SOCIALISATION

Item No.		Gross Motor Control (Item No.)
106	Reacts to talk	129
107	Responds to facial expression (e.g. returns smile)	129
108	Discriminates between severe and caressing inflexion	129
109	Shows happy excitement if one plays with him	129—135
112	Observes activities of adults	129—136

TABLE 9

SIGNIFICANT OBSERVATIONS FROM TABLE 6 TRANSLATED INTO ORIGINAL SCALE ITEMS

TOILETING AND WASHING

Item No.		Perception and Response (Item Nos.)	Gross Motor Control (Item Nos.)
22	Remains seated on pot/toilet	—	129—135
23	Uses pot (toilet chair) when placed on it	40 and/or 42	129—135
24	Bowel movement generally regular	40 or 42	129—135
25	Has established some regularity during daytime	40 42 45 47	129—137
26	Bladder control during day	40 42 45 47	129—137
27	Toilet trained during day	40 42 45 47	129—137

TABLE 10

Gross Motor Control

- 129 Can move his head when lying on back (a)
- 130 Balances his head (a)
- 131 Can keep his head upright when lying on stomach (a)
- 132 Lifts head when pulled from lying on back (b)
- 133 Supports himself on extended arms when lying on stomach (b)
- 134 Turns over from stomach position to lying on back position (b)
- 135 Sits with slight support (c)
- 136 Pulls himself up to sit (c)
- 137 Sits with fairly straight back and without support for short period (c)
- 138 Gets about by creeping, crawling or shuffling (d)
- 139 Pulls himself upright to stand (d)
- 140 Stands when holding on (d)
- 141 Can walk when assisted (d)

Communication

Perception and Response

- 40 Reacts to extreme light stimuli (a)
- 41 Follows moving objects with eyes (a)
- 42 Reacts to extreme noises (a)
- 43 Reacts to slight noises, e.g. rattle (a)
- 44 Differentiates tastes (b)
- 45 Turns head to sound (b)
- 46 Looks at object in his hand (b)
- 47 Looks around him (b)

Fine Motor Control

- 157 Closes hand with slight pressure on palm (a)
- 158 Hands are able to hold objects (a)
- 159 Touches objects encountered (b)
- 160 Moves objects put into his hand (b)
- 161 Touches objects seen (b)
- 162 Hands are able to grasp objects when offered (b)