

SOURCES OF VARIANCE BETWEEN PARENTS' AND PROFESSIONALS' ESTIMATES OF INDEPENDENCE SKILLS OF ESN(S) CHILDREN (1)

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INTRODUCTION

In 1978 a survey was carried out in the Greater Manchester Area to assess the independence level of ESN(S) school leavers. Ten education authorities provided the names and addresses of 245 school leavers and the parents or guardians were contacted and in all 214 families were visited (an 87% positive response rate).

The survey formed an integral part of the PATH project on Mentally Handicapped adolescents and their parents, supported by the D.H.S.S. (Cheseldine and Jeffree, 1981).

A specially devised checklist of self-help activities, 'Pathways to Independence', (Jeffree and Cheseldine, 1981) was used as an assessment tool. The checklist was divided into ten main sections:—

Eating and Drinking	Use of Information
Domestic Tasks	Time
Cleanliness and Health	Money
Clothing	Freedom of Movement
Giving Information	Use of Amenities

These were subdivided into more specific skills giving a total of 34 sub-sections.

In reporting the findings of any such empirical investigation attention must be drawn to the extent to which error may have been introduced by any of the given procedures. Hyman (1955) has outlined the main sources of error in the conduct of surveys and suggested ways in which these may be minimised.

1. Interview error

Survey findings are dependent upon the quality of the interviewing and no subsequent manipulation can remedy errors in collection of the original data (Hyman op. cit.). Not only is selection of interviewers according to their past experience and group membership characteristics relevant but also the way in which they are trained.

In the PATH survey experienced interviewers were selected (all psychologists and social workers with previous experience in mental handicap) and were given a consistent training procedure. A model interview, pre-recorded on video tape, was shown and this was followed by a detailed discussion of procedures.

2. Response error

Response error may occur for the following reasons:—

- (a) The questions may be too difficult to understand.
- (b) The questions may be misinterpreted.
- (c) The respondents may have difficulty in recall.
- (d) There may be a response bias.

In this case two pilot versions of the checklist were tried out and amended to minimise errors arising from (a) and (b).

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3. Internal and external checks of response errors.

Internal checks may be used to minimise these errors, e.g. factual questions asked in two different ways, elaboration of yes/no replies by means of a probe, repeat of questionnaire after several months interval.

In the PATH surveys only one of these internal checks was felt to be relevant, e.g. elaboration of yes/no replies. Open ended questions were asked to supplement the yes/no replies. In this case a second administration of the questionnaire after several months would not only have been financially impossible, it would not have been valid as *change* was to be expected over time and some of this change might be a direct result of the 'initial' interview, e.g. parents teaching their sons/daughters new skills.

External checks

- (a) Field workers make behavioural observations on the respondents' attitudes.
- (b) Data collected from a second respondent under comparable conditions.
- (c) Use made of criterion data against which the survey data can be compared.
- (d) Comparison made with population records.

In the initial survey, points (a) and (d) were taken into consideration (Cheseldine and Jeffree, op cit), however a further study including points (b) and (c) provided additional checks.

Information from Parents and professionals

The degree of credibility to be accorded to the PATH survey on the level of independence of ESN(S) school leavers in the Greater Manchester Area hinges on two things: (1) the reliability and validity of the instrument itself (Pathways to Independence Checklist) and (2) the reliability of parents/professionals as sources of information.

While data have been collected relevant to both these questions, only one will be reported in the present account, i.e. the reliability of parents and/or teachers and psychologists as informants.

A two-way flow of information from home to school is one facet of increased parent involvement. A structured checklist such as Pathways may well form the nucleus for such home/school collaboration.

In this case it is vital that information stemming from parents should not be lightly dismissed and any lingering doubts on its reliability should be squarely faced. This means that the causes of variance between parents'/professionals' reports need to be disentangled rather than ascribed to parental/professional bias. This is essential as parents are our *only* source of information in some instances, e.g. daily sleeping and eating habits.

EMPIRICAL STUDY

This empirical study was designed to collect data on the Pathways to Independence Checklists from two independent respondents. The children were rated independently by their parents and their class teacher. Criterion data were also collected by direct observation by an independent observer wherever possible.

The sample consisted of twelve children, eight boys and four girls, all attending the first class of an ESN(S) senior school in the Greater Manchester area. The age range of the children was between 12 and 14 years.

METHOD

Each child was rated independently by the parents and by their teacher (Miss F). Consistency in the interpretation of the checklists was heightened by the fact that the parents and teacher were instructed in their use by the same experimenter.

Of the twelve families, eleven parents responded to the request to be interviewed in their own homes in order to complete the checklist, only one child's family not responding. Direct observations were carried out by (C) within the school setting. Table 1 provides a summary of the family members interviewed.

RESULTS

Comparisons between Miss F and parent ratings were made. In addition, comparisons between direct observation ratings and those obtained from both the teacher and parent were also made. However, these ratings are frequently less inferential since direct observations were in many instances incomplete.

The extent of agreement between the paired ratings has been calculated. Each child was rated independently by their parents and Miss F and of the total number of items rated by each rater within each section, the number of items rated the same has been calculated as a percentage.

SOURCES OF VARIANCE

Where applicable in discussion the major sources of the obtained variance have been accounted for as derived from discussion with parents, Miss F and the researcher. These have been isolated in the following categories:—

Type A Variance: (resulting from the teachers' and the observers' ignorance of the children's personal history). Where a section represents a developmental sequence of skill attainment, then components of the chain will have been learnt prior to Miss F's or the observer's involvement with the children. Many items within these scales have not been exhibited by the children in Miss F's experience although they may have been exhibited within their parents' experience.

In this case, two contributions to the observed variance may have occurred:

- (i) Where Miss F did not credit a child with an early item because she had not observed it and the parents did.
- (ii) Where Miss F did credit a child with an early item in spite of not having observed it, assuming that a child having passed a higher item would have passed through prior developmental stages represented by lower items in the scales. Similarly, the direct observations were also based on this assumption. However, this assumption was not always correct as parents frequently reported "jumps" in the scales.

Type B Variance: (lack of opportunity to perform particular items). This refers to inconsistencies in the ratings which result directly from the lack of opportunity to perform a particular item in one, but not another, environment. Many parents reported that their child had not passed an item because they had never been expected or asked to attempt it at home, although, at school it was expected of them and scheduled in the curriculum. In some instances the converse was true.

Type C Variance: (poor item specification). Type C variance refers to inconsistencies in the ratings which result directly from the particular item in question not having been defined rigidly enough or being ambiguous in some way or requiring a statement as to what criteria are to be adopted.

Type D Variance: (real difference in the ratings). Type D Variance refers to rating discrepancies between rater pairs attributable to real differences in the perceived attainments of the children.

Type E Variance: (limited or incomplete direct observations). Type E variance refers to error which arose from the short period over which direct observation of the children was possible. Limited or incomplete ratings contributed to observer-rating pairing disagreements.

In addition the extent of agreement on the child's level of attainment has been calculated for each rating pair and recorded as a percentage, i.e. the number of times the child has been rated more or less able by the first rater of each pair and the times they are in agreement (see Figure 1).

Figure 1: The number of occurrences and direction of rater variance in completing the checklist.

RATER PAIR	MORE ABLE		LESS ABLE		SAME		TOTAL	
	Raw Score	Per Cent	Raw Score	Per Cent	Raw Score	Per Cent	Raw Score	
Parent/Teacher	121	(36.4%)	107	(32.3%)	104	(31.3%)	332	NS
Parent/Observer	66	(38%)	49	(29%)	56	(33%)	171	NS
Teacher/Observer	63	(35%)	50	(28%)	68	(37%)	181	NS

In no instance is there a significant bias in either direction using a X^2 formula. However Figure 1 only records the number and the direction of rater variance. Figure 2 records the extent of rater variance (in points on the checklist) in both directions.

Figure 2: The extent and direction of rater variance in checklist points.

RATER PAIR	MORE ABLE		LESS ABLE		
	RS	%	RS	%	
Parent/Teacher	267	54	229	46	NS
Parent/Observer	112	59	86	41	NS*
Teacher/Observer	108	55	89	45	NS

In no instance is there a significant bias in either direction though the parent/observer starred pair is nearing significance.

$$X^2 = 3.41 \text{ cv. at } 5\% = 3.84$$

DISCUSSION

The overall percentage agreement between rater pairs on the items of the checklist was high (see Table 2). The independent observer was only able to check sixteen items on the checklist and of these comprehensive information was only available for ten starred items. The percentage agreement between rater pairs in each section will now be discussed. The agreement between rater pairs in *Eating and Drinking* was high (see Table 3) and the discrepancies between parent/teacher and parent/observer ratings were largely due to Type B variance, e.g. lack of opportunity at home to use a cup and saucer, to help oneself to vegetables and gravy or to dine out: these items being part of the school programme. Some Type C variance was also noted and in the Eating section Type E variance.

The section on *Domestic Tasks* encompasses eight sub-sections and percentage agreement between parent and teacher ranged from 48% to 70%. Most of the differences between parents and teacher were ascribed to Type B variance, e.g. lack of home opportunities though some may have been Type D variance. The discrepancies between parent/observer and teacher/observer ratings were largely accredited to Type E variance.

The section on *Cleanliness and Health* will be considered together with *Clothing* (11 subsections). The discrepancies between parents and teachers were largely Type B variance though in some instances these may have constituted real differences between the raters' assessment (Type D variance).

The sections on *Giving Information* and *Use of Information* showed a high level of agreement between all the raters though the subsection on written instructions and signs was lower than the rest. Type B variance accounted for some of the discrepancies.

In the sections on *Time* and *Money* concepts, 29-31, the parents were inclined to rate their children higher than the teacher (Type D variance). The last two sections were largely concerned with items applicable to older children and few items were credited.

In the sections on *Freedom of Movement* and *Use of Amenities*, 32-34, (the section on Use of Amenities) it was felt that most of the discrepancies arose from the fact that the teacher was in a better position to rate this section than the parent, e.g. on school outings the children encounter escalators, turnstiles, lifts and vending machines and go to libraries whilst this was frequently not the case at home. Type C variance occurred in Section 32 and also Type D variance but it was not possible to judge to what extent Type B, as the teacher was unable to check the home-based items.

THE COMPLETE CHECKLIST

All the raters agreed that the checklist was useful and informative as an assessment tool as well as a guide to the selection of goals to encourage development. The parent-teacher ratings are the most informative and do show up the real differences between parent and teacher perception of the children's attainments as well as expectations for the children. However, several sources of variance have been proffered as confounding the true variance attributable to real differences in their ratings.

Reliability data from direct observations was often incomplete and limited as some of the sections did not lend themselves to observation and it was often only possible to rate the children on one occasion.

Where observation was completed comprehensively (Sections 1, 2, 3, 13, 15, 18, 19, 22, 24 and 26) the reliability of all the ratings was high (on average 78% Parent/Observer agreement and 86% Teacher/Observer agreement). (See Table 2).

CONCLUSION

The period of school leaving is a critical time for the mentally handicapped adolescent and for his family. The family form the only stable link between school and adult life, yet the parents at this time are increasingly conscious of approaching old age and in the words of one parent (Fairbrother 1981), "... what was going to happen to our mentally handicapped child when we were dead was the greatest worry of all parents." The answer to this question may depend, to a large extent, on the young person's abilities in independent living. Yet, the same parents who worry about the future may also be afraid to encourage independence skills in their own son/daughter. Stansfield (1973) reported in one study that 40 per cent of mentally handicapped adolescents who had left school never went unescorted beyond the front gate.

There is a growing awareness of the need for parents and professionals to work together in the education and training of handicapped pupils. The Warnock Report (1978) suggests the ideal relationship between them as follows: "We see the relationship as a dialogue between parents and helpers working in partnership."

Workshops for parents of adolescents before they leave school can lead to joint programmes in independence skills carried out by parents and professionals. Checklists such as Pathways to Independence form a useful basis for such programmes. However, the parents' and teachers' rating of independence skills is likely to differ. This could be a source of friction unless the sources of variance are squarely faced and jointly discussed. This discussion will often lead to increased understanding between parents and professionals.

SUMMARY

The main sources of error in the conduct of surveys are discussed. An empirical study comparing parents', teachers' and psychologists' independent assessment of twelve ESN(S) children on a checklist of self-help skills is described and the sources and direction of error discussed. Some of the implications for collaboration between parents and professionals are considered.

References

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SOURCES OF VARIANCE

Table 1: Parent Raters

CHILD	RATED BY
Katrina	Mother alone
Elaine	Mother alone (single parent)
Susan	Mother alone
Julie	Father alone (single parent)
David (s)	Mother and brother (16 years old)
Steven	Both parents
John	Not interviewed
Darryl	Mother alone (single parent)
Alan	Mother and sister (15 years old)
Nigel	Mother and grandmother
Paul	Mother and sister (approx 20 years old)
David (W)	Mother alone

SOURCES OF VARIANCE

Table 2: Percentage agreement of rater pairs on complete checklist

Section	No.	Parent/ Teacher %	Parent/ Observer %	Teacher/ Observer %
Eating & Drinking	1	78	74	86*
	2	91	90	98*
	3	85	88	95*
	4	62	—	—
Domestic Tasks	5	64	63	72
	6	63	63	62
	7	70	81	75
	8	54	—	—
	9	59	61	77
	10	66	—	—
	11	56	—	—
	12	48	—	—
Cleanliness/Health and Clothing	13	60	55	82*
	14	85	—	—
	15	70	62	78*
	16	59	—	—
	17	40	—	—
	18	66	79	66*
	19	88	90	95*
	20	91	—	—
	21	27	—	—
	22	78	70	91*
Information	23	51	—	—
	24	81	87	82*
	25	78	68	67
	26	80	82	85*
	27	51	66	52
Time and Money	28	59	—	—
	29	59	—	—
	30	49	—	—
	31	76	—	—
Movement	32	40	—	—
	33	55	—	—
	34	60	—	—

*Comprehensive observation accomplished

SOURCES OF VARIANCE

Table 3: Percentage agreement of rater pairs for sections of the checklist.

Overall Agreement	
P/T	65%
P/O	74%
T/O	79%

Eating and Drinking (1-4)	Information (24-27)
P/T 79%	P/T 73%
P/O 84%	P/O 76%
T/O 93%	T/O 72%

Domestic Tasks (5-12)	Time and Money (28-31)
P/T 60%	P/T 61%
P/O 67%	P/O —
T/O 72%	T/O —

Cleanliness/Health & Clothing (13-23)	Movement (32-34)
P/T 65%	P/T 52%
P/O 71%	P/O —
T/O 82%	T/O —