

SOCIAL COMPETENCE OF AUSTRALIAN (HUNTER VALLEY) DOWN'S SYNDROME CHILDREN USING THE M/P-A-C 1

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INTRODUCTION

The Hunter Valley Region in the State of New South Wales is a unique geographic region. It contains rural farming areas and coal mining and steel making industrial towns. The valley is on the coastline. The sea, inland lakes and three large rivers afford much opportunity for watersports.

The Hunter Valley Region is also semi-autonomous with respect to several regional functions. It forms its own Health Commission Region within which is the Mental Retardation Team (M.R.T) which is responsible for advising and assisting parents with mentally handicapped children. The M.R.T. maintains comprehensive records of all the mentally handicapped persons in the region. The children in this study (n=50) were all the Down's children in the Hunter Valley region living at home, and between the ages of 6-15.6. They were identified from M.R.T. records.

INSTRUMENT

The Progress Assessment Chart of the Social Development of Children with Down's Syndrome (M/P-A-C 1) was used. It is a variant of the Progress Assessment Chart I (P-A-C 1) (Gunzburg 1963). The P-A-C 1 is an inventory of skills in the areas of Self Help, Communication, Socialisation and Occupation.

Skills in the P-A-C 1 were selected from well known social development assessment devices (Terman and Merrill 1960, Doll 1953) as well as researchers assumptions as to what social competencies children do possess at different ages. The P-A-C 1 is the primary base of the M/P-A-C 1. In the P-A-C 1 researchers ordered the skills in developmental levels according to age. In the ordering and ranking of skills, researchers were in some conflict (Gunzburg 1973) yet through research and conciliation a graduation of skills that reflect maturing social competency was determined.

The M/P-A-C 1 contains the same skills as the P-A-C 1 but with minor differences in sequence of development. The latter changes are the result of research conducted by Janice Sinson (1976) with 200 Down's children living at home in the north England city of Leeds and in the surrounding regions. Sinson found that Down's children had greater difficulty learning certain skills than non Down's mentally handicapped and non mentally handicapped. Using the same 120 items of the P-A-C 1 Gunzburg and Sinson have made minor changes in developmental order in the subsections Language, Mobility and Agility. Still most skill sequences follow the developmental sequence as ordered in the P-A-C 1.

The two authors further developed the Progress Evaluation Index for Children with Down's Syndrome (M/P-E-I 1) based on the "average" achievement levels of the 200 Down's children used in the research to develop the M/P-A-C 1. In its development they found that differences existed in the achievement levels of Down's boys and Down's girls and separate M/P-E-I 1 male and M/P-E-I 1 female forms were therefore developed.

PROCEDURE

The investigators in this study visited the schools and the homes of Down's children in the Hunter Valley Region interviewing both the parent, the child and the teacher. The M/P-A-C 1 was administered in strict accordance with the PAC Manual (Gunzburg 1976) and the results recorded and subsequently collated according to age and sex. For each age and sex group the results were averaged and the mean result was termed the "norm" for that age and sex group. There were 29 groups. No Down's children were found for 11 of the 40 age/sex groupings established by the M/P-E-I 1.

These results were then compared with the respective results established recorded in the M/P-E-I 1.

RESULTS

According to Gunzburg (1973b) comparison of groups using "normed" scores of the Progress Evaluation Index and the "normed" scores of groups "justify the use of descriptive labels" such as "average", "superior", or "backwards" (p.215). Further "superior" is an achievement that exceeds the average rating by two or more skills. Equally "backward" is an achievement that is two or more skills below average.

Table 1 shows the Australian "normed" scores rated as superior and not superior (average and backward) for the 29 age and sex groupings assessed. The ratings reflect the Hunter Valley scores when compared with the "normed" scores of the M/P-E-I 1.

ANALYSIS OF RESULTS

To determine if the results have statistical significance the test of the normal approximation to the binomial test described by Runyon and Haber (1967) was applied. This test assumes that a number of behaviours can be categorised into sets of behaviours (e.g. superior and not superior) and that there is some probability the behaviours will be observed in either category. In the analysis of the results, the hypothetical probability value was set at 0.5 which is deemed to be conservative and which assumes that no influence is operating on the behaviours studied. Should a significant number of behaviours be observed in one of the two categories, indicated by a Z score equal to or above the 1.65 level, then these behaviours are deemed to be related to influences other than chance.

A purview of the twelve skills sub-section behaviours in the M/P-A-C 1 show that the number of "superior" results achieved by the Australian group - when compared with the number of "not superior" results is higher in 11 of the 12 skill sub-section behaviours.

Of all the M/P-A-C 1 skill sub-section behaviours demonstrated by the Australian group, 205 were rated as superior when compared with the English group. This figure is statistically significant.

When each skill sub-section behaviour across age and sex of the Australian group is compared with the English group, in terms of these behaviours being "superior", the analysis shows statistical significance in the areas of Toilet and Washing, Language, Number Work, Play Activities and Dexterity, i.e. the Australian scores are superior to the English scores in five of the twelve skill sub-section behaviours and these differences are not due to chance

DISCUSSION

In comparing the English and Australian results, it needs be noted that the data collection with the English group was conducted by one person, Janet Sinson. Strict and consistent standards of evaluation are expected in such circumstances. The Australian group was

assessed by five field workers working in close co-operation. Strict procedures in evaluation were adhered to according to the PAC Manual (Gunzburg 1976), and it is believed that an accurate and consistent recording of subject abilities was made by them.

The statistical treatment of the results obtained show significant differences in the set of scores for five of the twelve skill sub-sections. These results are deemed to be due to factor(s) other than chance.

An analysis of the results of each of the 12 skill sub-section behaviours found the Australian group scores were significantly different than the English scores - and that the Australian scores were higher in the behaviours of toilet and washing, language, number work, play activities and dexterity.

The Australian scores were higher than the English scores, but not significantly so in the following areas of behaviour - mobility, dressing, differences, paper and pencil work, home activities, and agility.

Only in the area of table habits were the scores between the two groups similar.

In trying to understand the factors that account for the differences the investigators are hesitant to conclude that one group is superior to the other. There is a difference in sample size. The English sample, with exactly 20 children in each age group, is four times larger than the Australian group. The Australian group of 50 is unrepresentative on various age levels having as few as two children in some age groups.

The investigators were made very much aware of the geographical, social, cultural and political difference between and communities of the children studied. These influences seemed to pervasive in affecting many of the behaviours of the children assessed. An example is the fact that the English children live in the north of England primarily in industrial cities and towns. The Australian children live in the Hunter Valley - a mix of small industrial towns and rural farms. Another factor is that of climate - the mild warm climate of Australia compared with the mild cold weather of the U.K. A factor consideration is the nature of schooling. Sinson (1976) conducted her research in Special Schools ENS(S). The majority of the Australian children assessed attended non government, parent controlled, volunteer schools, (Due to government failure to establish schools for severely and profoundly retarded children.) Such schools require high parent involvement and have non certified teachers, much rote learning/ training and social and physical education.

With respect to the areas of toilet and washing the researchers believe that the Australian group scores reflect the geo-cultural differences between the two populations. Because of the climate - Australian children bathe daily and in summer - swim frequently. This is further reinforced in schools where it is not unusual for children to shower after P.E. activities. Bathing is a major emphasis in the programme of schools for handicapped. In the hot classroom, an unbathed child is a great discomfort to the others in the room.

With respect to the language, the fact that the Hunter Valley children live in town and rural areas, with greater mobility in rustic settings, coastline and towns suggest to the researchers greater experiential activity with subsequent increased language activity.

The skills in the area of number on the M/P-A-C 1 can reflect among other things language experience and direct instruction. The researchers feel that the rote learning emphasis coupled with increased environmental experience could account for the superior score. It is doubted that the Australian group had greater conceptual knowledge of number and number properties.

The Play Activities on the M/P-A-C 1 are those that can be easily achieved by children living in inner city areas as well as by children living in rural areas. It is thought that the relatively rustic, rugged activity of children living in the Hunter Valley, coupled with the emphasis on sport in schools for the handicapped afford greater opportunity for play activity. It is noted that with the older children, the superior ratings level off.

The researchers feel that the significant difference in the area of Dexterity is consistent with that in number work and language. The skills in this area on the M/P-A-C 1 are those that could be attained through practice and continuous drill activity.

SUMMARY

The social competence of Down's children living at home in the Hunter Valley region of the State of New South Wales Australia was investigated using the M/P-A-C 1. The results were compared with the M/P-E-I 1 and found to be significantly higher in skill sub-section behaviours of toilet and washing, language, number work, play activities and dexterity.

The higher scores achieved by the Down's children in the Hunter Valley suggested that factors are operating which favour development of the child leading to higher levels of achievement on M/P-A-C 1 skills.

In accounting for the higher scores, the researchers feel that the factors operating include: 1. The nature of schooling - voluntary parent controlled; 2. Instruction - direct instruction, rote learning; 3. Space environments - rural, coastal, township - with greater mobility by the population across these environments; 4. Climate - mild warm.

The academic success and greater social skill acquisition of the children assessed by the investigators suggest that the M/P-E-I 1 norms can be utilised in a curriculum as indicators of achievement though it can be expected that higher and better performances can be achieved where more favourable conditions exist.

It is felt that further comparative studies in these areas would add to knowledge on the behavioural functions of Down's children and lead heuristically to suggestions for creating developmental programmes in varying environments.

References

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TABLE 1
SUPERIOR AND NOT SUPERIOR SCORES OF AUSTRALIAN GROUP
ALL AGES AND SEXES BY SKILL SUBSECTION

	S.	N.S.	Total of age and sex groups assessed.	Z. Score 1.
Self-Help				
Table Manners:	12	17	29	- .929
Mobility:	16	13	29	+ .557
Toilet & Washing:	24	5	29	+ 3.53
Dressing:	16	13	29	+ .557
Communications				
Language:	20	9	29	+ 2.043
Differences:	16	13	29	+ .557
Number Work:	19	10	29	+ 1.69
Paper & Pencil Work:	16	13	29	+ .557
Socialisation				
Play Activities:	19	10	29	+ 1.69
Home Activities:	15	14	29	+ .185
Occupation				
Dexterity:	20	9	29	+ 2.043
Agility:	14	15	29	- .185
Total	205	143	348	+ 3.32

1. The Z score was achieved using the "normal approximation to the binomial test".

i.e. $z = x - \frac{N}{2}$ where x is the superior rating, and N is the total.

_____ the value of P and Q was given at $\frac{1}{2}$

$$\sqrt{\frac{NPQ}{N}}$$

2. A statistically significant z score above 1.65.