CLASSIFICATION SKILLS IN NEW GUINEA CHILDREN

Mary C. Nixon
Monash University, Australia

Summary

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The study was undertaken to discover whether material developed to evaluate classification skills in Australian children could be successfully used with indigenous children in Papua - New Guinea, and to examine some general expectations about the comparative performance of the children.

The performance of groups of 5 years old, 7 years old and 9 years old children of state schools in Melbourne was compared with the performance of their counterparts in Papua - New Guinea, and the performance of New Guinea urban groups was compared with their counterparts in rural schools.

The result showed that the material used (i.e. wooden rods different in colour, height and diameter to be arranged in various ways) was suitable for use with the group of New Guinea children, but, because of variety of languages and tribal groups in the territory, it might not necessarily be suitable for other groups. The result did not support the view that urban New Guinea children performed better than rural children in the same culture.

The study is an example of the kind of investigation of specific abilities which might be undertaken by those interested in cross-cultural comparison.

Report

From an examination of the work of Inhelder and Piaget (1964) and Bruner et at. (1966) the present writer concluded that there was a need for a short unambiguous test of classification skills suitable for young children, which could be administered in a standardised fashion and scored objectively. The test which resulted uses a set of twenty wooden rods, varying in colour, height, and diameter. In each of the six items, two mutually exclusive groups of rods, differing from each other on a single attribute, are placed in front of the S, and he is told to make two different groups. The E defines the two required classes by placing as clues two rods which differ on a single, different, attribute. When the S completes his grouping, he is asked to state in what way one group of rods differs from the other. Two scores can be obtained for each S: R Only, the number of items on which the S correctly grouped the rods, and R+E, the number of items on which he combined a correct grouping of the rods with an adequate explanation of his grouping.

The test was administered, as one of a battery of five, to 180 Ss randomly chosen from pupils attending a large state primary school in Melbourne: sixty 5 year olds, sixty 7 year year olds, and sixty 9 year olds; half of each age group were boys, and half were girls. Detailed results are reported elsewhere (Nixon, 1971 a,b).

In Summary, (i) For R Only, the 7 year olds performed significantly better than the 5 year olds;

the 9 year old girls performed significantly better than the 9 year old boys;

(ii) For R + E, the 7 year olds performed significantly better than the 5 year olds;

the 9 year olds performed significantly better than the 7year olds;

again, the 9 year old girls performed significantly better than the 9 year old boys.

(See Table 2)

A fair number of 5 year olds who produced correct groupings were unable to provide adequate verbal explanations (discrepancies of 14.44% for boys and 9.45% for girls, over all responses). By contrast, on only one item did a 9 year old fail to give an adequate explanation for a correct grouping. The difference in discrepancies from 5 to 9 years indicates that skill in verbal explanation improves more rapidly over these ages than do the skills required to produce a correct grouping of objects.

A number of studies of classification skills (Bruner et al. 1966) suggest that differences may occur as a function of place of residence, urban children being superior to rural children. Theoretically this has considerable plausibility. If human beings increase their ability to deal with their surroundings by linking themselves to external implementation systems (tools, recording and communication devices, language, theory, and myth), as Bruner argues, then dwellers in urban surroundings might be expected to have greater opportunities to establish such links than those who dwell in less differentiated, rural, communities. Related evidence (e.g. Bruner et al. 1966; Price-Williams, 1962; Vernon, 1969) also indicates that children in more highly 'developed', that is, industrialised, cultures perform better on classification tasks than children in relatively under-developed areas.

From a consideration of this evidence, the following expectations arose concerning the performance of Papua-New Guinea children on the classification test:-

(i) that Papua-New Guinea children would perform less well than Melbourne state school pupils;

(ii) that urban Papua-New Guinea children would perform better than rural Papua-New Guinea children.

Since a sex difference had appeared in the Melbourne results, it was considered necessary to examine this aspect of the Papua-New Guinea children's performance also.

Hundreds of different languages are spoken in Papua-New Guinea. However,

since all teaching in Territory schools is in English, it was decided that all testing would be undertaken in English. Since little is known about how the many different indigenous languages differentially influence the learning of English, a group with a common mother tongue was sought from which subjects could be selected. The group chosen was the Tolai people, living in Northern New Britain around Rabaul, whose mother tongue is Kuanua. Few Tolais live right in the town of Rabaul, so a Territory Primary school close to the urban area, and one remote from the town (about fifteen miles away) were selected from which subjects could be chosen. The urban contact school had an enrolment of 460 pupils, the rural school had 422. Both schools had Australian headmasters and predominantly indigenous staffs.

The study was carried out in February, which is the begining of the school year. Subjects, all in Standard 3, were selected from the pupils who had performed best in the final school tests at the end of the previous year. Numbers and ages are shown in Table 1

Table 1 Subjects

	Urban		Rural	
	M	F	M	F
N:	10	10	10	10
Age range in years:	7-12	8-11	9-12	9-14
Mean age:	9.35		10.8	

No great confidence should be placed in the ages given; it appeared that the headmaster at the rural school had compiled his records from missions and all other available sources with great care, and they were probably more accurate than those from the urban school, where a good number of school records had recently been destroyed.

Only one slight modification in testing procedure was needed. In the Melbourne work, after S had grouped the rods, E asked, "How are these rods different from those?" New Guinea Ss answered this by saying , 'Yes,' so another question, 'What are these?' (repeated for each group of rods) was substituted. Ss gave single word answers much more often than phrases or sentences. The items were administered in random order, preceded by the introductory session and practice item used with Melbourne children.

Both schools reported that fewer girls than boys were sent to school, education being considered by parents to be less necessary for girls than for boys. The rural school reported that the boys in Standard 2 in the previous year had performed much better than the girls in school work.

Results

Table 2 Mean Scores from New Guinea and Melbourne Studies

		R Only	R + E	N
Urban New Guinea				
	Mean	4.80	4.20	
Male	SD	0.98	1.17	10
	Mean	5.10	4.20	
Female	SD	0.70	1.33	10
	Mean	4.95	4.20	
Total	SD	0.87	1.25	20
Rural New Guinea	Mean	5.50	4.50	
Male	SD	0.81	1.30	10
	Mean	5.30	4.10	
Female	SD	0.64	1.58	10
	Mean	5.40	4.30	
Total	SD	0.73	1.45	20
Melbourne				
5 year olds				
	Mean	4.40	3.68	60
	SD	1.14	1.51	
7 year olds				
	Mean	5.28	5.10	60
	SD	0.98	0.72	
9 year olds				
Male	Mean	5.27	5.27	30
	SD	0.79	0.79	
	Mean	5.83	5.80	30
Female				
	SD	0.55	0.54	
	Mean	5.55	5.53	60
Total				
	SD	0.72	0.76	

Because of the wide range of ages in the New Guinea group, and their probable inaccuracy, direct comparison with the Melbourne results was not undertaken. However, the New Guinea means fall around those of the Melbourne 7 years olds for R Only, and for R + E between the 5 and 7 year old Melbourne means. As Table 3 shows, all the distributions are nagatively skewed; the test was rather too easy.

Table 3 Distributions of Scores

	R Only				R + E			
	New Guinea	Melbourne			New Guinea	Melbourne		
x	f	f5	f7	f9	f	f5	f7	f9
6	17	10	31	40	9	5	31	40
5	14	23	19	14	9	18	15	13
4	8	11	7	5	11	10	7	6
3	1	13	1	1	6	14	3	1
2		3	2		4	7	4	
1					1	5		
0								
N	40	60	60	60	40	60	60	60

Distributions of scores for male and female New Guinea Ss were dichotomised and compared by means of x^2. The differnces are not significant, and Table 4 shows how similar the distributions are.

Table 4 Comparison of Male and Female Scores (New Guinea)

	R Only		R + E	
Scores	M	F	M	F
4-6	19	20	14	15
0-3	1	0	6	5

Distributions of scores, dishotomised, for rural and urban New Guinea Ss, are shown in Tables 5. The differences are very slight, and x^2 values are not significant.

Table 5. Comparison of Urban and Rural Scores (New Guinea)

Scores	R Only		R + E	
Scores	M	F	M	F
4-6	19	20	14	15
0-3	1	0	6	5

Discussion

Like the Melbourne children, the New Guinea Ss, grasped the requirements of the test quickly and appeared to enjoy it. Results show that it was suitable for use with this group of New Guinea Ss, but because of the Territory, any conclusion about its use with other groups would necessarily be tentative. In the form used in this work, the test was rather too easy to explore the limits of the groups or to show differences between the groups. Work in progress is aimed to extend the scoring system to overcome this. The tester quickly became aware that qualitatively the New Guinea Ss differed from the Melbourne Ss; The New Guinea Ss were more different and less exuberant, and much less ready to discuss the task. These differences probably reflect the difficulties of doing an unfamiliar task in a language other than the mother tongue.

On their face value, the results do not support Bruner's (Bruner et al. 1966) finding that urban children perform better than rural children in the same culture. However, if the New Guinea ages are accepted as approximately correct, it appears that the Melbourne 9 year olds performed at a somewhat higher level than the New Guinea Ss, which would be compatible with the hypothesis at least. At the same time, the rural New Guinea children gave the impression of being more competent, spontaneous and outgoing, and less self-conscious, than their urban fellows. Table 1 is a reminder that the rural Ss were apparently older than the urban Ss, and this alone may account for the absence of a difference in performance. Another possibility exists, however; since the urban people are in close contact with the complex European culture of the town, it is possible that the children were reluctant or unable to use the traditional tribal modes of responding to new demands, and that consequently they were less competent in dealing with a new situation. The rural children, being more remote from a new and more complex culture, may have been less affected by it and still able to respond adequately to the challenge of a new task. It should be remembered, however, that differences in performance were not marked, and were mainly qualitative. Speculations concerning their origin need to be tested empirically.

Generalisations should not be made from such a small sample of data. However, this study is perhaps an example of the kind of investigation of specific abilities which Vernon (1969) suggests might be the proper concern of those who are interested in cross-cultural comparisons.

References

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