The Australian Journal of
INDIGENOUS EDUCATION

RESEARCH REPORT

CLASSIFICATION STRATEGIES AMONG CAPE YORK SCHOOLCHILDREN

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It is a widely-held view that the thought processes of "non-industrial" peoples are radically different from those of Western educated man. Major differences are purported to lie in the capacity for abstract thought and logical analysis, and in the separation of cognition from affect, or "reason" from emotion.

There are obvious differences in cognitive contents across cultures. Different values and beliefs are held by different peoples. And there are obvious differences in cognitive styles. One of the best examples I know was presented by Michael Cole and his associates, working among unschooled African tribesmen. The researchers were investigating methods of classification, and had asked the men to group together similar items from a miscellaneous collection of objects. The tendency among "European"-educated adolescents and adults is to form superordinate groups - for example, groups of weapons or of fruits might be made. The Africans tended to group things on a functional basis, for example, a knife and orange might be placed together because you use the knife to cut the orange. The researchers found, however, that such concrete reasons for the groupings were rarely given. When asked why they had made certain selections, the men usually answered : "Because a wise man would do it so." Becoming a little impatient with this reply, one of the researchers asked how a fool would do it - and was quickly answered with groups of weapons, of fruits and so on!

One anthropologist who opposes the view of differences in cognitive structures between cultures is Levi Strauss. He holds that there is no difference in the way the mind works from culture to culture - there are simply differences in the *strategies* by which man makes nature accessible. Both traditional and scientific thought systems seek to order or systematise information. The difference is in the attributes used in imposing order - in forming general classes out of various objects and experiences encountered.

Several studies (for example Bruner et al., 1967) have pointed out the pervasive influence of the Western school in determining such attributes. It has been pointed out that schools, as distinct from other learning situations, require the learning of tasks and vocabularies in contexts divorced or abstracted from the motivations and relevancies present in other forms of learning. Under such circumstances, classifications are likely to be more arbitrary and less concrete than those made in ordinary experience.

A study was recently carried out among schoolchildren on Aboriginal communities in Cape York to determine whether there were any differences in strategies of categorisation used by these children, or whether the influence of the "European" school was just as pervasive there as anywhere else.

Tasks were similar to those used in an intensive cross-cultural study of classification which involved African, Mexican, Eskimo and suburban middle-class children from the U.S.A. (Boston), (see Bruner et al., 1967). Boston schoolchildren start first-grade of primary school the year after Queensland schoolchildren, so grades 2 and 7 in Queensland are comparable to grades 1 and 6 in Boston, in terms of the chronological age of the children attending. In the more remote Aboriginal settlements the 7th graders tested were, on the whole, older than the Boston 6th graders, even though only the younger 7th graders participated in the test.

Task 1 consisted of an array of 40 cards, each showing a coloured drawing of familiar objects such as a house, rowboat, plane (with Bush Pilots markings), boomerang, 20 cent piece, lizard, various birds, animals, foods, etc. Children were asked to pick out and group together pictures that were alike or "went together" in some way. Before choosing, the child was asked to identify each picture, and told what it was if he or she failed to name it. There were differences between 2nd graders and 7th graders in the prevailing strategies adopted, but the pattern was very similar to that demonstrated by their Boston counterparts in the U.S.A.

A point of interest was whether the children were forming legitimate classes, in which every member shared a common attribute (for example, "all animals" or "all red"), or whether they were forming complexes - groups in which there were associative links between some items and others between other items, but no common link between all items. An example is this group from a Boston child: "You build a house with the hammer and the nails, and you eat apples and pie in the house, and you have a clock, bird and faucet in the house."

A 2nd grader from Edward River produced a similar complex made up of house, shoes, shirt, scissors, clock, flowerpots and tap.

A surprisingly low proportion of complexes were formed by Aboriginal children. In Boston, complexive groupings formed 38% of all 1st grade classifications, but had declined to 12 % of 6th grade classifications. In Cape York the percentage was only 17% in 2nd grade and dropped to 8% in 7th grade. Aboriginal children tended to select smaller groups, however. Previous research has demonstrated that young children tend to select pairs, while older children make groups of three or more. About 61% of all groups made by Boston 1st graders, and 67% of groups made by Cape York 2nd graders consisted of pairs. More of the Cape York 7th grade youngsters tended to retain pair groupings however. Forty per cent of their groups consisted of pairs, while the percentage among Boston 6th graders dropped to 25%. Thus, while the Aboriginal children are tending to form smaller groupings, the pictures they select tend to form legitimate classes with each member sharing a common attribute.

As noted earlier, it has often been claimed that one of the differences between traditional and scientific thought systems is the difficulty traditional peoples have in separating reason from emotion. Irrational affective relations are purported to be more often used as conceptual links between things by such peoples. In their comparison of classification systems of traditional African and Eskimo children with those of suburban Massachusetts children, Greenfield et al (in Bruner et al., 1967) found no evidence to support such a theory. Traditional peoples did not group things together because "they are pretty", or because they liked them, any more frequently than did the Boston children. In the Cape York study, only one instance of such affective grouping occurred. One child selected pictures of a clock, a shirt, pot plants, scissors, pie, and balloons with the observation "somebody might steal some of them."

Previous studies of categorising behaviour suggest that young children classify by easily perceptible characteristics rather than on the basis of functional attributes of objects. That is, they are more likely to group things that are of the same colour or shape, rather than grouping on a *usage* basis (in terms of what items can do, or what can be done to them) or on a *nominal* basis (giving a name ready-made in the language, for example, "animals" or "min"). Greenfield and others have shown that city school children show developmental trends in the direction of more functional and nominal concepts as they progress through primary school. Unschooled bush children show practically no development of functional groupings, while their nominal groupings are virtually non-existent. Among Boston children

the use of perceptible criteria for classification in the picture task declined from 47% in grade 1 to 20% in grade 6. Groupings based on perceptible attributes were substantially lower in Cape York: only 37% in grade 2 and 11% in grade 7, the remaining groupings being made on functional and nominal bases, with the exception of the complexive groupings discussed previously (and note that these last were also lower than those recorded for Boston children). It may be noted here that the Aboriginal languages of the Cape York region have relatively few colour names compared with English, and that there are no equivalents for the words "colour" and "shape". Whatever the reason, the Aboriginal schoolchildren in the present study made more functional and nominal groupings than did their American counterparts.

It was interesting to observe that in the English-language context of the study only one child used an Aboriginal noun-classifier to label a grouping. An Edward River 2nd grader grouped together pictures of an emu, a kookaburra and a seagull as "min". Younger children frequently used Aboriginal words to identify pictures such as the fishing-spear, boomerang etcetera., but this was the only example of an Aboriginal word being used to describe a class. It was noted that in bilingual Edward River and Aurukun, some 2nd graders were already grouping together, under an appropriate English-language title, items that would have gone into two separate Aboriginal noun-classifier groupings. Three children made groups containing fish, animals and birds under an acceptable hierarchical English label "animals". Fish and reptiles have a separate classifier from birds and animals in the languages of the region. Thus, the English language and the school are already affecting the way classifications are made by the second year of school.

Overall, the study suggests that the categorising strategies used in the present task by the schoolchildren in remote areas of Cape York are similar to those used by schoolchildren elsewhere in the world, and that the same developmental shift in type of preferred strategy occurs as children progress from the early to the later grades of the primary school. That is, there is a shift from initial reliance on perceptible, "surface" properties of things, to functional or "use" properties and finally to nominal or linguistic properties. There is even some suggestion, from the percentage of complexive, functional and nominal groupings, that the Aboriginal children performed the task in a more adult way, in terms of cognitive strategy, though not in respect of the size of the groups formed. With regard to the language used to explain the thought processes, however, many of the 7th graders, particularly in the bilingual communities, still tended to use a labelling mode of description - for example, selecting

groups of pictures with comments such as "to eat", or "all tools" - rather than giving the full sentential description (for example, "they are all tools") which is more common among city children of this age. Moreover, more second grade Cape York children made their selections with no verbalisation, or with the comment "same" when asked for a reason. This is not surprising considering that the task was performed in the children's second (or third) language, and in the case of the Edward River children particularly, a relatively infrequently-used language at that.

Since school learning occurs outside the context in which it will be used, it may facilitate the use of language as a means of describing the content of experience and action in a way that is more factual than that involved in storytelling or myth. Bruner concludes that what occurs in a highly evoloved technological society is not better perception, or better learned habit patterns, or even better talking or thinking in language. Rather it is an insistence on direct translatability between what is seen and done and what is said. He says, -

> "We tend to reject those acts that do not lend themselves to a linguistic rendering or accountability, and perhaps to rule out of imagery those features of experience that have no enactive counterpart, or words or sentences that render them communicable."
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> (Bruner et al., 1967, p.325)

He points to the dangers of insisting "that our acts and images should conform to the austere hierarchies of lexicon and grammar", and concludes :

> "In so far as man's powers are expressed and amplified through the instruments of culture, the limits to which he can attain excellence of intellect must surely be as wide as are the culture's combined capabilities. (p. 326).

It is to be hoped that the Aboriginal child at school, as indeed all our children, will be encouraged to expand potential capabilities through the utilisation of the combined wisdoms of all the subcultures which make up an Australian environment.

References

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