

# Memory and Meaning in Two Cultures

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KAGAN, JEROME; KLEIN, ROBERT E.; HAITH, MARSHALL M.; and MORRISON, FREDERICK J. *Memory and Meaning in Two Cultures*. CHILD DEVELOPMENT, 1973, 44, 221-223. Urban-dwelling American and isolated village-dwelling Guatemalan children inspected 60 pictures from American magazines. Recognition memory was assessed at 0-, 24-, or 48-hour delay. Although the performance of American 5- and 8-year-olds was superior to the Guatemalans, the 11-year-olds in both cultures performed at an equally high level. Neither delay nor picture familiarity affected Guatemalans' memory.

Shepard's (1967) demonstration that adults are able to remember whether they have seen any one of 600 different pictures strongly suggests that verbal mediators were not involved in the cognitive representations that permitted that remarkable performance. Although recall of verbal material by adults far exceeds the recall capacity of children (Neimark, Slotnick, & Ulrich 1971), it is possible that age differences in recognition memory for visual events are less dramatic. This report summarizes two experiments which indicate that a child's capacity to remember visual events approaches that of adults and that the representational structures that mediate recognition are not dependent on the ability to apply appropriate verbal labels.

In the first study, each of 54 American, middle-class children living in the Boston area (18 each at 5, 8, and 11 years of age) examined serially, under self-pacing, 60 pictures of common objects and people taken from contemporary American magazines. All the stimuli, which were pasted on white 5 × 8-inch cards, were familiar to the children. The subjects were randomly assigned to one of three delay groups and told that their memory for the 60 pictures would be tested either immediately following inspection (zero delay), the next day (24-hour delay), or 2 days later (48-hour delay). The

test of recognition memory involved showing each child 60 pairs of pictures, one member of which he inspected earlier; the second was new. The child had to state which one of the pictures he had seen earlier.

A second study, with the same procedures and design but a slightly different set of American magazine pictures, was implemented with a group of 180 Spanish-speaking children (5, 8, and 11 years old) living in extremely isolated, subsistence farming villages in eastern Guatemala. All subjects were tested by trained native examiners. These stimuli were necessarily much less familiar to the Guatemalan children, and about one-fourth of the pictures were completely unfamiliar (e.g., a toaster, telescope, golf clubs). Informants assigned each of the 60 pictures to one of three categories—familiar, moderately familiar, and totally unfamiliar. The validity of these assignments is affirmed by the fact that when the children were asked to name the pictures after the recognition test was completed less than 10% of the 17 pictures classified as unfamiliar by the informants elicited any label whatsoever, while 75% of the 29 pictures classified as familiar were correctly named.

Table 1 shows the average percentage of pairs correctly recognized for the three delay and three age groups in each of the two cul-

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TABLE 1

MEAN PERCENTAGE OF CORRECT RESPONSES

DELAY (HOURS)	AMERICAN CHILDREN (AGES)			INDIAN CHILDREN (AGES)		
	5	8	11	5	8	11
0 .....	92.8	96.7	98.3	58.4	74.6	85.2
24 .....	86.7	95.6	96.7	55.8	71.0	87.0
48 .....	87.5	90.3	93.9	61.4	75.8	86.2

tures. There was improved performance with age in both cultures,  $F(2,45) = 7.6$ ,  $p < .01$ , for Americans;  $F(2,171) = 56.2$ ,  $p < .001$  for the Guatemalans. Delay had a slight effect on the American children,  $F(2,45) = 3.9$ ,  $p < .05$  but no effect on the Guatemalans,  $F(2,171) < 1.0$ . However, there was a major cultural difference in the performance of the younger children. The American 5- and 8-year-olds performed at 90% accuracy, while the Guatemalan children performed at only 58% and 74% accuracy, respectively. By contrast, the 11-year-old Indian children performed close to the level of the American 11-year-olds, and there was no significant difference between the oldest children in the two groups. The age by culture interaction was significant,  $F(2,216) = 7.8$ ,  $p < .001$ .

There are several possible interpretations of the markedly poorer performance of the Guatemalan 5- and 8-year-olds, compared with the Americans. It is possible that some of the younger Guatemalan children did not completely understand the requirement of the task and did not activate appropriate strategies of picture scanning or silent rehearsal during the presentation of the pictures. It is also possible that some children were unable to maintain the proper response set during the test phase and pointed to the new rather than to the old picture. The validity of these two suggestions is affirmed by recent observations made by the senior author on a similar population who were administered a similar task. Many of the children 5 through 8 years of age seemed frightened or confused during the inspection phase and did not show any systematic scanning of the pictures, as if they did not know what to do in order to solve the problem. Moreover, their answers to the initial 10-12 pairs were correct, and then they began to point, systematically, to the novel picture, as if they had forgotten the initial instruction and believed they were to point to the picture "they had not

seen." Hence it is possible that some of the younger children attained poor scores because of a special problem-solving deficit rather than an inherently poor memory. This suggestion is supported by the nonnormal distribution of scores for the 5- and 8-year-olds. Sixty-five percent of the 5-year-olds and 30% of the 8-year-olds performed at chance, whereas not one of the American children and only 8% of the Guatemalan 11-year-olds performed at such a low level. Moreover, the 8-year-old Guatemalans displayed a bimodal distribution of scores. Under 0- and 24-hour delay, 30% performed at chance, 53% performed at an accuracy greater than 80% correct, and only 17% of the group at an intermediate level (61%-79% accuracy).

The suggestion that familiarity was of minimal consequence for all age groups is affirmed by the most provocative finding of this study—namely, the independence of picture familiarity and correct recognition for all ages and the high level of recognition of the unfamiliar pictures by the Guatemalan 11-year-olds (see table 2). Familiarity and, by inference, ease of labeling had only a minimal and nonsignificant effect on recognition accuracy, suggesting that, for these pictures, and certainly for the unfamiliar pictures, abstract nonlinguistic representations were mediating correct performance.

These data imply that both verbal mediation and meaningfulness, which often do facilitate recognition, are not always necessary for the recognition of past experience.

This finding is in accord with research by Ellis and Muller (1964) and Haith (1971), suggesting that the availability of an appropriate verbal label does not always enhance recognition memory of simple geometric forms. The similarity in performance for the 11-year-olds from remarkably different cultural settings, together with the reasonable assumption that

TABLE 2

PROPORTION OF EACH GROUP OF PICTURES CORRECTLY RECOGNIZED BY INDIAN CHILDREN (DELAY GROUPS POOLED)

FAMILIARITY OF PICTURE	AGE		
	5	8	11
Unfamiliar .....	53.0	66.8	82.5
Moderately familiar .....	56.9	73.4	86.3
Familiar .....	61.8	76.6	87.9

recognition memory is a basic human process, tempts one to affirm Boas's (1911) suggestion of over a half-century ago that "the functions of the human mind are common to the whole of humanity."

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