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著者	ONIZAWA TADASHI, SEKI YORIKO
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RECALL OF EIDETIC CHILDREN

By

TADASHI ONIZAWA (鬼沢 貞)

(*Department of Psychology, Iwate University, Morioka*)

and

YORIKO SEKI (関 順子)

(*Student Health Service Center, Iwate University, Morioka*)

Employing the Habers' method and the method of Furst *et al.*, recall accuracy was compared among four groups of subjects classified according to the accuracy and richness of details of eidetic images. It was found for both methods that recall scores increased by degrees from non-eidetic to those who are highly eidetic. Recall scores of eidetic subjects in different age groups were also investigated and it was revealed that the scores decreased as the age advanced when the method of Furst *et al.* was used.

PROBLEM

Eidetic images and afterimages, particularly positive afterimages, are certainly similar in that both of them are seen after the stimulus is removed. But if we consider the aspect that eidetic images reappear even days or weeks later, as the phenomenon of reminiscences, they can also be said to be phenomena closely related to memory. Because of the unusual nature of the eidetic image which apparently combines incompatible characteristics of the afterimage and the memory image, it has been discussed for a long time whether eidetic images belong to memory images or they are a kind of afterimages, and yet it remains unsettled. Even today, there are two opposing viewpoints, that is, the one to view eidetic images as highly vivid memory images, and the other to consider such images as perceptual-like phenomena because they allow unusually vivid detailed and accurate appearance. In either case, however, it is an undeniable fact that eidetic images share the functional and causal mechanisms of memory, and therefore, we will throw light on these aspects. In this study, we attempt to make it clear if eidetic images allow accurate recall, that is, whether eidetic subjects are more accurate and detailed in recall than non-eidetic subjects. Recently, several investigators have dealt with this problem. Haber and Haber (1964) compared recall items for the stimulus after eidetic images had faded out in eidetic subjects with those after the stimulus had been removed in non-eidetic subjects. Furst *et al.* (1974) made no distinction between items reported from an eidetic image and those reported from subsequent memory after the eidetic image had faded out, and included eidetic images in recall. We feel that this difference in the measures used to measure recall

accuracy is dependent upon the views to regard eidetic images either as a form of memory images or as belonging to perception. The first study of the Habers' (1964) revealed a slight superiority in recall for their eidetikers, but their second study (1969) failed to confirm this finding. Furst *et al.* found that the eidetikers were clearly superior to non-eidetikers in recall and that items correctly recalled among eidetikers were about one and a half times more than those among non-eidetikers. Accordingly our initial questions are (1) if different results are brought about by the methodological difference in the scoring system used to measure recall accuracy, and (2) whether or not eidetikers are superior in recall to non-eidetikers, regardless of the methodological difference in the scoring system used. We attempt to make a comparison between the results obtained by following the Habers' method and those obtained by following the method of Furst *et al.*

With respect to the classification of subjects on imagery, Furst *et al.* classified subjects into two groups of eidetikers and non-eidetikers based on Habers' criteria, and found a demonstrable difference in recall between these two groups. Haber and Haber compared the eidetic subjects with other two groups, that is, non-eidetic-image subjects who produced some other kind of images to the pictures, and no-image subjects who never reported an image of any of the pictures. As Jaensch (1930) has noted earlier and Onizawa & Seki (1972) also have found recently, there are some degrees of eidetic imagery ranging from weak to extremely clear and detailed imagery, and there are several degrees of subjects ranging from those who are non-eidetic to those who are highly eidetic. Therefore, we classify subjects into four groups, as shown in Table 1, and compare the recall accuracy of these four groups, to make it clearer how the ability to see nonexistent pictures in front of the eyes facilitates the accuracy of immediate recall after perception. Moreover, we examine our data for different age groups in order to make it clear if the age of the subjects has anything to do with the recall accuracy.

Table 1. Classification of subjects on imagery.

Group I.	Non-eidetikers, who never reported any image.
Group II.	Subjects who produced some indistinct visual images to the picture, as merely colored planes or geometrical patterns.
Group III.	Those who described only a few parts of the picture, that is, the weaker degree of eidetic imagery.
Group IV.	Those who reported almost all details of the picture, that is, the stronger degree of eidetic imagery.

METHOD

Subjects: A total of 334 children, comprising the fourth (N=130), fifth (N=104) and sixth grades (N=100) of primary schools were tested for eidetic imagery.

Procedure: The basic procedure to identify eidetic ability was that designed by Haber and Haber. The pictures were two silhouettes and two colored pictures which were detailed illustrations from child's storybooks. These pictures were exposed one at a time for a period of 30 seconds after the subject had been instructed to gaze naturally at the picture and to allow his eyes to look over it. When the 30 seconds exposure was completed, each picture was removed and the subject was told to continue looking at the neutral grey easel and to describe anything that he now saw there. If he could see any images, the subject was then asked to report when the image had faded out. When it had disappeared, the subject was asked to recall everything he could remember about the picture. If he could see nothing, he was asked to describe the picture from memory in as much detail as possible.

Scoring: The scoring method was similar to that of Furst *et al.* One point was given for each correctly reported object in the picture and one point for each attribute of an object. Attributes included such things as color, articles of apparel, or activity.

RESULTS and DISCUSSION

The first problem of this study was whether or not the difference in the method of measuring recall accuracy would bring about different results. In order to answer this problem, recall score obtained by the Habers' method was compared with that obtained by the method of Furst *et al.* Table 2 shows the mean number of items correctly reported from memory for the stimulus after the images had faded out, that is, the results obtained by following the Habers' method. Table 3 indicates the mean number of items correctly reported from eidetic images as well as from a subsequent memory after the eidetic images had faded away, that is, the results obtained by following the method of Furst *et al.* For the four groups classified according to accuracy and richness of the details of images, recall score is 5.58 for Group I, 6.65 for

Table 2. Mean recall scores after the images had faded out, following the Habers' method.

	<i>N of Ss</i>	<i>M</i>	<i>SD</i>
Group I	213	5.58	2.48
Group II	20	6.65	3.25
Group III	75	7.09	2.74
Group IV	26	8.26	3.59

Table 3. Mean recall scores including eidetic images and memory, following the method of Furst *et al.*

	<i>N. of Ss</i>	<i>M</i>	<i>SD</i>
Group I	213	5.58	2.48
Group II	20	6.65	3.25
Group III	75	7.09	2.74
Group IV	26	10.53	4.75

Group II, 7.09 for Group III, 8.26 for Group IV when the method of Haber and Haber was adopted, and 10.53 for Group IV when the method of Furst *et al.* was used. It is shown for recall score to increase by degrees from Group I to Group IV and this increase tendency is significant ($p < 0.01$, by the Jonckheere's test). Haber and Haber reported that the eidetic subjects were significantly superior to both of the other two groups (non-eidetic-image subjects and no-image subjects) but the actual recall score of intermediate groups was not given. On these intermediate groups, as our results reveal, it can be said that the ability to see nonexistent pictures in front of the eyes correspondingly serves to recall the detail from the original picture. Group IV in this study corresponds to the pure eidetikers when defined by the Habers' strict criteria. From the significant difference between Group I and Group IV ($p < 0.005$, $\chi^2 = 10.36$), it follows that eidetikers have a greater recall of visual scenes than non-eidetikers. According to the method of Furst *et al.*, that is, when no distinction is made between items supplied from eidetic images and those recalled through ordinary visual memories, recall score of Group IV is 10.53. The eidetikers show a stronger superiority in visual recall. There is a significant difference in recall score of Group IV between the Habers' method and that of Furst *et al.* ($p < 0.001$, $\chi^2 = 19.15$). The recall score obtained by the method of Furst *et al.* is greater than that obtained by the Haber's method. This is because the method of Furst *et al.* includes eidetic images in recall. Consequently, whichever method of measuring recall may be adopted, the Habers' method or the method of Furst *et al.* it is found that the eidetikers are clearly superior in visual recall, and that there is a tendency for the recall score to increase gradually from Group I to Group IV.

As for the recall score in the eidetikers of different ages, when the method of Furst *et al.* is used, a tendency to decrease by age is shown, as in Table 5, but in the Habers' method this trend is not seen, as in Table 4. We must explain why these two methods have led to inconsistent results. Now it may be useful to see the accuracy of details

Table 4. Mean recall scores of those who are highly eidetic in different age groups, following the Habers' method.

Grade	Fourth	Fifth	Sixth
N. of Ss	10	9	7
<i>M</i>	8.80	7.84	8.00
<i>SD</i>	3.97	4.48	0.97

Table 5. Mean recall scores of those who are highly eidetic in different age groups, following the method of Furst *et al.*

Grade	Fourth	Fifth	Sixth
N. of Ss	10	9	7
<i>M</i>	12.20	10.22	8.57
<i>SD</i>	6.03	4.13	1.40

Table 6. Accuracy of eidetic images of those who are highly eidetic in different age groups.

Grade	Fourth	Fifth	Sixth
N. of Ss	10	9	7
<i>M</i>	11.1	8.11	6.57
<i>SD</i>	6.20	3.05	1.41

of the eidetic images of the different age groups, because, as stated above, in the method of Furst *et al.* eidetic images are included in recall score, but in the Habers' method eidetic images are not included. From Table 6, the decrease tendency of the details of eidetic images as the increase of the age is seen. It may be for this reason that the recall scores obtained by the method of Furst *et al.* show a decrease tendency by age but those obtained by the Habers' method do not this trend.

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