

CHAPTER IV

INTERPRETATION AND DISCUSSION

Interpretation and discussion of the results of this study were as follow :

Central Memory Performance

In studying central and incidental memory, it was hypothesized that the central memory (short-term memory) scores would increase with age. The results of testing 5 groups of subjects from ages 4 to 21 supported the hypothesis. That is, the central memory increased with age. The proportion of correct responses on central memory increased with age from 4 to 21 years old, and the highest performance was at 20 - 21 age group. The central memory performance of subjects of age 20 - 21 was significantly different from that of subjects in other age groups, and the performance of the 14 - 15 age group was also significantly different from that of 4 - 5 age group. Thus, it could be concluded that the central memory performance increased with chronological age. These findings are similar to the findings of American researchs by Maccoby and Hagen¹, Hagen², and

¹ Maccoby, and Hagen, loc. cit.

² Hagen, loc. cit.

Druker and Hagen.³ However, it should be noted that the subjects used by Maccoby and Hagen were from 6 to 13 years old. Hagen's subjects were from 7 to 13 years old, and Druker and Hagen's subjects were from 9 to 14 years old, while the subjects in this study were from 4 to 21 years old .

The increase of central memory in older subjects might be based on their higher level of education. Since the older subjects had studied much more than the younger subjects, they may have learned some strategies for remembering what they learned. It might also be because the older subjects could focus their attention on task-relevant cues more easily, but the younger ones could not focus their attention. Thus, the older subjects did learn what they were asked to learn better than the younger. Druker and Hagen have given a similar explanation that " the older children are better able to employ an encoding strategy that permits them to focus more exclusively on the relevant stimuli when instructed to learn ."⁴ Hagen has explained that " with increasing age, the ability to focus attention on task-relevant cues increased . Older children could more quickly separate out relevant from irrelevant information,"⁵

³ Druker , and Hagen, loc. cit.

⁴ Ibid., p.381

⁵ Hagen , op. cit., p. 649

while the younger children were handicapped in focusing their attention selectively because of their inexperience in separating task-relevant and task-irrelevant aspects of a situation.⁶ The effect of education on central memory was cited by Wagner.⁷ He found that "the subjects who attended school for more years had higher central memory scores than unschooled subjects"⁷

Comparison between sexes on central memory scores revealed that there were no differences between the performance of males and females at any age level. Thus, it could be concluded that both males and females in every age level had the same ability on central memory performance .

The hypothesis that primacy, recency, and middle positions scores will vary with age was supported. The results showed that of the three serial positions : primacy, middle, and recency, generally primacy increased with age more than recency or middle positions, and the highest performance of central memory was on recency as measured by proportion of correct responses for all age groups. There were significant differences among the five age groups on primacy recall and middle positions recall, but there were no significant differences among the five age groups on

⁶ Stevenson, op. cit., p. 208

⁷ Wagner, op. cit., p. 11

recency recall. The increase in primacy with age for the five age groups was similar to the findings by Wagner.⁸

The highest performance on recency position could be explained by theory of interference⁹ that there was no interference on recency position, for it was the last stimuli presented to all the subjects. Thus, the subjects in every age groups could recall recency position. However, the middle position memory increased with age, though the performance on these positions was not so high as that on primacy and recency. Similar results were obtained by Wagner¹⁰ that "the middle positions measure indicated a small increase with age in the urban groups, which is consisted with the notion of increasing capacity for information processing with age."

Incidental Memory

The hypothesis that incidental memory would vary with age was supported. The finding of this present study revealed that incidental scores generally increased with age in the younger age

⁸ Ibid., p.14

⁹ Klausmeier and Ripple, op.cit., p. 588

¹⁰ Wagner, loc.cit.

groups from 4 to 11 years old and then declined in the older age groups from 11 to 21 years old. The increase with age in the performance of younger age groups and the decline in the performance at the older age groups in incidental task might be because older children learn to pay attention to only relevant stimuli that they are told to remember. They do not pay attention to other things which are unnecessary to remember, but younger children pay their attention indiscriminately to both relevant and irrelevant aspects. Consequently, the younger children on the average recalled in incidental stimuli better than the older subjects. This result was consistent with previous reports that "there was a decrease in amount of incidental learning with increasing age."¹¹ "When children became older, they became increasingly capable of not responding to incidental stimuli and showed a decline in amount of incidental learning"¹² and "generally the younger children remembered the central-incidental stimulus pairing better than the older."¹³ The increase with age in incidental memory from age 4 to 11 was consistent with the results obtained by Siegel and Stevenson.¹⁴ They suggested "the increase in amount of incidental learning found between ages 7 and 12 may be attributable either to an increasing ability to learn and retain or

¹¹ Maccoby and Hagen, loc.cit.

¹² Siegel and Stevenson op.cit., p. 812

¹³ Druker and Hagen op.cit., p. 372

¹⁴ Siegel and Stevenson op.cit., p. 816

to an increasing tendency to attend to the incidental stimuli." The decline in amount of incidental learning between age 12 and 21 was also found by Siegel and Stevenson.¹⁵ In their research they explained that the decline may be "due to the tendency of the older children to disregard the irrelevant stimuli." Other researchers have also reported "an increase in incidental learning until around the age of 11 or 12 and then a decline."¹⁶

A comparison of age groups for incidental learning scores showed that the performance at age 20-21 was significantly lower than that at age 7-8, and age 10-11. Similar results from urban subjects from at least three cultural groups: Thai, American and Mexican suggest that the development of memory in urban subject follow similar trends for all cultures and that the urban background might have a stronger influence than the cultural differences on the development of memory.

Comparisons between sex on incidental task scores show that there were no statistically significant differences between the performance of males and females at any age level. That is both male and female performed similarly on incidental memory.

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Siegel and Stevenson op.cit., p. 816-817

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Stevenson, op.cit., p. 212

The correlation performed on central and incidental scores showed no significant relationship between the development of these two types of memory.

This study began with the idea of investigating the development of central and incidental memory in urban Thais. The results revealed that children in different age level performed differently both on central and incidental memory. The central memory increased with age, may be with educational level, from age 4 to 21. The incidental memory increased with age from ages 4 through 11 and then declined. It could be concluded that the older children realized the advantage of attending exclusively to taskrelevant stimulus, so they could better focus their attention on relevant task and ignore irrelevant task than the younger children. That was, the older children attended more selectively than younger children. The improvement in performance with age in central memory might be attributed to increased use of encoding strategies and verbal rehearsal at older age groups, or to higher level of education.

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