ABSTRACT
                Compared was the performance of nine educable
mentally retarded (EMR) children (mean age 9 years) with the
performance of 50 normal kindergarten children on a test of visual
perception at the abstract level. The test of 17 items involved the
dimensions of size, shape, and color at four steps of skill
attainment (recognition, discrimination, recall, reconstruction).
Performance patterns of EMR Ss and normal kindergarten Ss were
similar, thought EMR Ss performed at a lower level on all tasks other
than recall and discrimination of printed words. Structured tasks
appeared to be easier for the retarded learner than nonstructured
tasks. Implications for the training of EMR children were that the
issue of concrete versus pictorial materials may be less critical
than the degree of structure inherent in the task, that the
difficulty of discrimination and reconstruction tasks is increased
when similar letters are presented together, and that the sequential
progression from recognition through reconstruction does not hold
consistently for abstract level tasks. (See 052 239 for a related
document). (DB)

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TASK SEQUENCE IN VISUAL PERCEPTION:

VALIDATION OF ABSTRACT LEVEL

By

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Abstract: A model for sequencing tasks in visual perception was developed
             at IMCSE in 1971. The concrete and representational levels
             of the model were validated previously with a sample of 50
             normal preschool children. This paper reports an attempt to
             validate the abstract level with normal kindergarten children
             and to compare their performance with that of primary EMR
             children. Suggestions for training retarded learners in
             visual perceptual skills involving symbolic contact are made.

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Task Sequence in Visual Perception: Validation of Abstract Level

A model for sequencing tasks in the area of visual perception was developed;
the structure of the model at the concrete and representational levels
was validated with a sample of 50 normal preschool children (Langstaff
and Volkmor, 1971). Support was obtained for the use of the model
in sequencing visual perception tasks.

This paper reports an attempt to validate the upper level of the model--
the Abstract or Symbolic. A test consisting of seventeen items, involving
the dimensions of size, shape, and color and the four steps in skill
attainment (recognition; discrimination; recall; reconstruction) was
constructed. Six of the items utilized concrete, manipulative letters;
six utilized single letters printed on cards, and five items involved
meaningful combinations of letters (words) in printed form.

Objectives

The first objective of the study was to determine whether tasks involving
symbolic material presented in three-dimensional, manipulative format are
easier than similar tasks presented in printed format. A second objective
was to compare the relative difficulty of the four steps in skill attainment.
Comparing the performance of normal kindergarten children with that of
primary level EMR students on the seventeen tasks was the third objective.

Subjects

The normal kindergarten sample consisted of 20 students in a regular
kindergarten class in a school district in Orange County, California.
The primary level EMR sample consisted of a class of 9 EMR children in

a neighboring school district. The EMR subjects ranged in age from 7-9 years, with the majority of the children being 9:0-9:11.

Data Analysis

For each of the samples, frequency counts were made of the number of subjects passing each of the Abstract level items. Selected items were plotted graphically as percentage scores. All items were ranked as to degree of difficulty for each sample, and the ranks were compared informally. Identical ranks were obtained for eight of the 17 items.

Results

Figure 1 shows the percentages of normal kingergarten and primary EMR subjects passing selected tasks. A reconstruction task with pictorial materials was not included in the battery of items. Figure 2 presents the percentages of subjects passing all abstract items and includes a brief description of the skills called for in each task.

insert Figure 1 about here
insert Figure 2 about here

Discussion

Figure 1 shows that the performance patterns of the normal kindergarten and primary EMR subjects on Abstract level tasks are remarkably similar. On all of the tasks except one, the retarded subjects performed at a lower level than the normals. The one exception to this finding was on a task involving recall and discrimination of a printed word--a task closely allied to reading. This result is easily explained by the fact that the retarded subjects, being chronologically older than the normals,

FIGURE 1

PERCENTAGE OF NORMAL KINDERGARTEN AND PRIMARY
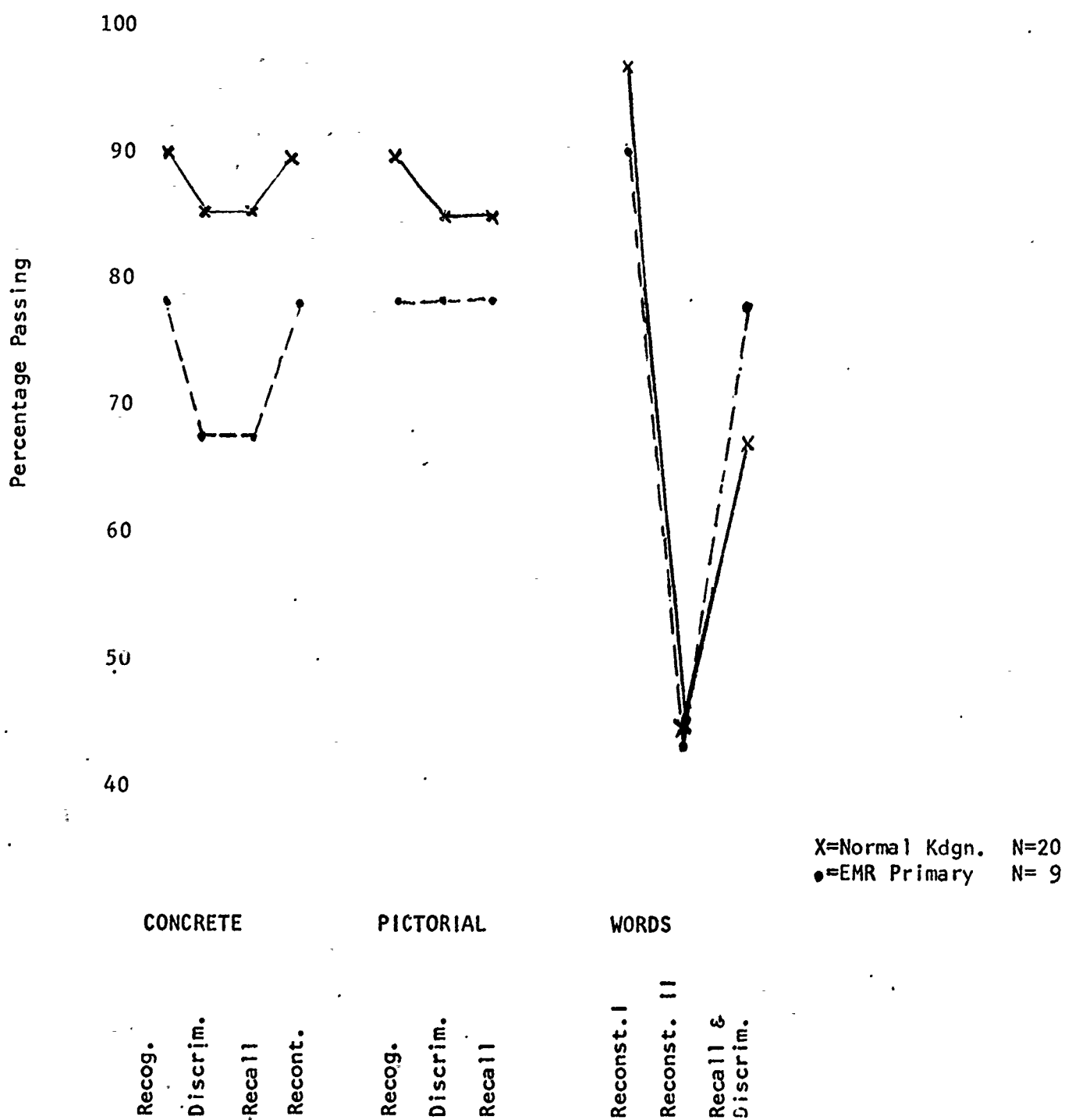
EMR SUBJECTS PASSING SELECTED ABSTRACT LEVEL ITEMS

X=Normal Kdgn.   N=20
●=EMR Primary   N= 9

CONCRETE   PICTORIAL   WORDS

Recog.
Discrim.
Recall
Recont.

Recog.
Discrim.
Recall

Reconst. I
Reconst. II
Recall &
Discrim.

FIGURE 2

PERCENTAGE OF SUBJECTS PASSING EACH ITEM

ON ABSTRACT LEVEL TEST

A. CONCRETE LETTERS	PERCENT PASSING	
	Normal (N=20)	Retarded (N=9)
1. <u>Recognition</u>-name 5 letters (A,B,C,D,E)	90	78
2. <u>Discrimination</u>-point to B,C,E when presented B,D,E,C,A	95	78
3. <u>Discrimination</u>-select all B's, A's, D's from group of 8 upper case letters, same color.	85	67
4. <u>Discrimination</u>-select all E's, N's, R's from group of 11 upper and lower case letters, various colors, size constant.	45	55
5. <u>Recall</u>-3 letters, hidden one at a time from array of 5 letters.	85	67
6. <u>Reconstruction</u>-arrange cut-up pieces to to form letters B, D, A following demon-stration.	90	78
B. PICTORIAL LETTERS		
7. <u>Recognition</u>-name 5 letters (A,B,C,D,E)	90	78
8. <u>Discrimination</u>-Same as item 2	90	89
9. <u>Discrimination</u>-Same as item 3	85	78
10. <u>Discrimination</u>-Same as item 4	50	55
11. <u>Discrimination</u>-select all M's and V's (upper and lower case) from card of assorted letters	35	55
12. <u>Recall</u>-select letter M from a group of letters, having been shown M	85	78
C. WORDS		
13. <u>Reconstruction</u>-match letters to form word "cats" printed on card.	95	89
14. <u>Reconstruction</u>-same as item 13, but with additional letters as distractors	95	78
15. <u>Reconstruction</u>-same as item 13, with word "fast"	45	45

FIGURE 2 (Cont'd)

PERCENT PASSING

	Normal (N=20)	Retarded (N=9)
16. Reconstruction-same as item 14 with word "fast"	55	45
17. Recall & Discrimination-select one word out of three printed on card which is same as a previously viewed stimulus word (following demonstration).	65	78

had experienced more years of formal teaching. The findings on the comparative performance of the normals and retardates are in the expected direction. Considering that the mean CA for the normal group was 5:10 and for the retarded group 9:0, it might have been anticipated that the retardates' level of performance throughout the test would have more closely approximated that of the normals.

The findings that the retardates performed at the same level (78% passing) on all of the pictorial tasks while the normal children found the discrimination and recall tasks to be slightly more difficult than the recognition task, may be related to the presentation format of the tasks. The concrete tasks required the subjects to attend to an unorganized array of objects (letters), whereas the pictorial tasks were presented in fixed positions in a space defined by the limits of the card on which the letters were printed. Seemingly, structured tasks are easier for the retarded learner. Finally it should be noted that the performance of the normals and retardates was most similar on tasks involving meaningful combinations of letters (words).

Inspection of Figure 2 reveals that the difficulty level of discrimination tasks, when presented via concrete or pictorial materials, is increased when less familiar alphabet letters (N, R-upper and lower case) are used, and also when the configuration of the letters is similar (M, V). Ninety-five percent of the normals and 78 percent of the retardates passed the item involving the reconstruction of the word "cats"; however only 45 percent of each group passed a similar item involving the word

"fast", due to the confusion of the letters "f" and "t".

Conclusions

The following are implications for training retarded children in visual perception skills at the Abstract level:

1. The issue of concrete vs pictorial materials may be less critical than the degree of structure inherent in the task.

2. Difficulty level of discrimination and reconstruction tasks is increased when letters which are very similar in configuration are presented at the same time.

3. Progression of step difficulty from recognition through reconstruction does not appear to hold consistently for Abstract level tasks.

References

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