DOCUMENT RESUME

ED 087 544 PS 007 026

AUTHOR Turnure, James E.; Thurlow, Martha L.
TITLE Relational and Structural Components in Verbal Elaboration with Young Children.
INSTITUTION Minnesota Univ., Minneapolis. Research, Development, and Demonstration Center in Education of Handicapped Children.
SPONS AGENCY Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.
PUB DATE 73
GRANT OEG-0-9-332189-4533-032
NOTE 9p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Child Language; *Language Development; *Paired Associate Learning; *Preschool Children; Psycholinguistics; *Semantics; *Surface Structure
IDENTIFIERS *Verbal Elaboration

ABSTRACT

Language development in preschool children was studied using pairs of pictures with three types of verbal elaboration formed for each pair. After a training trial thirty children listened to one of three types of elaboration (simple sentence, compound or complex sentence, and paragraph). They were asked to name the corresponding response item. Results indicated that the number of relations within an elaboration is more important than its structure in facilitating the performance of young children. Results are discussed in terms of semantic relations. (DP)

Relational and Structural Components in Verbal Elaboration with Young Children[1]

James E. Turnure and Martha L. Thurlow

University of Minnesota

In the last decade, it has been repeatedly demonstrated that embedding noun pairs within verbal elaborations (e.g., sentences) produces impressive facilitation in the paired associate learning of young children. Initial attempts to identify the locus or explain the basis of the observed facilitation focused on grammatical relations and surface structure factors. Although some research demonstrated differential effects from intra-sentential manipulations (e.g., verb connectives form better elaborations than prepositions, which in turn form better ones than conjunctions), recent research indicates that the formation of semantic relations in an elaboration is of primary importance in determining its effectiveness (Ehri & Richardson, 1972; Ehri & Rohwer, 1969). In fact, Rohwer (1973) has recently defined "elaboration" in relational terms: "At a minimum, an [elaborative] event is conceived to consist of two objects (or, more abstractly, topics) and some episode, process, or relation involving both of them, either explicitly or by implication or by entailment [p. 5]."

Turnure and Walsh (1971) recently investigated the boundary conditions for paired-associate enhancement under elaborative contexts. Previous to this, elaborational research had been limited to single sentence elaborations. Turnure and Walsh demonstrated that extended

syntactical elaborations in the form of two-sentence paragraphs produced significantly greater facilitation than did the single sentences (see also Turnure, 1971). While there appeared to be no ready explanation of why paragraph elaborations should be superior to sentences (exposure time was controlled; surface structure interpretations did not seem amenable to extensions beyond sentence boundaries; no increments in "meaningfulness" were ascertainable), subsequent consideration suggested the possibility that a greater number of explicit or implicit "relations" had been inadvertently included in the paragraphs. In the present study, an original design was employed to explore the effect of increasing the number of relations in a given elaboration, and at the same time to separate this effect from the facilitation previously attributed to the paragraph structure (Turnure, 1971).

Method

Subjects. Thirty 4 to 5 year old Caucasian children, attending an upper middle class urban nursery school were assigned to three conditions. There were 5 males and 5 females in each condition.

Materials. Twenty pairs of colored pictures with no obvious or common relations of sound or meaning were employed. Three types of elaborations were formed for each pair. Two of the types were sentences: Sentence-1 elaborations contained one "relation" between the stimulus and response; Sentence-3 elaborations contained three such relations. The third type of elaboration was a two-sentence

paragraph (Paragraph-3) made up from the same three relations used to construct the Sentence-3 elaborations. The mean numbers of words in the Sentence-1, Sentence-3, and Paragraph-3 conditions were 6.4, 15.6, and 15.2, respectively.

A "relation" was defined generally in terms of a separate link, connection, or association between the stimulus and response items. In other words, the number of relations within a given elaboration corresponded to the number of "events" (Rohwer, 1973) that served as common referents for the stimulus and response terms. In the Sentence-1 condition, one event connected the stimulus and response, and this event was expressed in a simple declarative sentence (e.g., The turtle crawled into the basket). In the Sentence-3 and Paragraph-3 conditions, three events connected the stimulus and response terms, although each term occurred only once in an elaboration. In the Sentence-3 condition, the events were expressed in the form of a compound or complex declarative sentence (e.g., The turtle crawled into the basket so he could sleep there, but then he couldn't get out). In the Paragraph-3 condition, the same three events were couched in a paragraph structure (e.g., The turtle crawled into the basket. He slept there and then he couldn't get out).

Procedure. Experimental procedures were the same for the three conditions, except for the type of elaboration presented. All subjects were given one training trial during which the experimenter simultaneously presented the stimulus and response pictures and uttered the sentence or paragraph relating them, allowing 10 seconds

for each pair. The subject was not allowed to verbalize the elaboration, but was instructed to listen carefully and then to repeat only the names of the pictures he was shown. These procedures were employed to make the task more difficult (Taylor, Josberger & Whitely, 1973) and to avoid the ceiling effects so often evident in elaboration studies (cf., Thurlow & Turnure, 1972). A single acquisition trial followed training. During this trial, each stimulus picture was shown to the subject and he was asked to respond with the name of the corresponding response item. If an incorrect response was given or no response was made within 20 seconds, an error was scored. The number of errors made on this trial was taken as the measure of acquisition.

Results

The mean numbers of errors made on the 20 pairs in the three groups were: Sentence-1, 12.4 (SD=3.4); Sentence-3, 8.1 (SD = 2.7); Paragraph-3 8.1 (SD = 2.6). A planned comparison test of the number of errors made in the one-relation condition (Sentence-1) with the mean number in the three-relation conditions (Sentence-3 and Paragraph-3) revealed a significant difference [$F(1,27) = 14.33$, $p < .001$]. The comparison of the numbers of errors made by the Sentence-3 and Paragraph-3 groups was not significant ($F < 1$).

Correlational analyses were performed on the proportion of subjects making errors on each of the 20 pairs for: (a) the two groups receiving elaborations with a common physical structure (Sentence-1 and Sentence-3) and (b) the two groups receiving elaborations with a common

number of relations (Sentence-3 and Paragraph-3). These analyses were undertaken on the assumption that the correlation between the number of subjects erring on each pair would be highest for elaboration conditions in which the same factor was affecting performance. Although both correlations were significant, the correlation was much higher between groups receiving the same number of relations [$r(18) = .74$, $p < .001$] than between groups receiving the same structure [$r(18) = .53$, $p < .02$]. These results provided further support for the notion that common relational characteristics were more important in producing comparable facilitation of paired-associate learning than were common physical structures.

Discussion

The results of the present study suggest that the number of relations within an elaboration is more important than its structure in facilitating the performance of young children. It is possible that demonstrations of the superiority of certain structures (i.e., paragraphs; Turnure, 1971; Turnure & Walsh, 1971; see also Thurlow & Turnure, 1972) have inadventantly been due to the establishment of more relations between pairs within such structures.

There still appears to be no ready explanation as to how an increase in the number of relations between items produces enhanced paired-associate acquisition. Response latency data have shown no differences between the recall of singly and multiply related items (Thurlow & Turnure, 1972), thus weakening successive retrieval or multiple scan interpretations. Given that experimenter-imposed relations must be

comprehended by the child to be effective, increasing the number of relations should increase the probability that at least one will be comprehended; a testable hypothesis.

In any case, the significant difference between the Sentence-1 and Sentence-3 groups possibly should not be interpreted as simply meaning that the number of relations determines elaborational efficiency. This cautionary note follows from the observation that performances in Sentence-3 and Paragraph-3 conditions were not superior to those in the Sentence-1 conditions for all pairs; for three pairs, the one-relation elaborations were more effective than the three-relation elaborations. In these cases, the "quality" of the one relation may have been superior, and additional relations may have only served to interfere with those already established by the subject.

Recent differences of opinion pertaining to the relation of semantics to syntactics (see Fillenbaum, 1971; McCawley, 1968) have indicated that a good deal of valuable information may be generated by investigating semantic relationships which are only "intuitively" formulated (see Bever, 1970; Martin and Olson, 1971; Paivio, 1970), rather than being "derived" from linguistic theory. Quite recently, psychologists of a cognitive persuasion have begun to systematize characteristics of semantic relations as regards meaning, reference, and interpretation (Olson, 1970; Perfetti, 1972; see also Carroll and Freedle, 1972). Such analyses should generate agreeble differences regarding the quality or potency of various semantic relations; these could then be readily manipulated in a design such as that applied in the present study.

References

Bever, T. G. The cognitive basis for linguistic structures. In J. R. Hayes (Ed.), Cognition and the development of language. New York: Wiley, 1970.

Carroll, J. B., & Freedle, R. D. (Eds.). Language comprehension and the acquisition of knowledge. Washington, D. C.: V. H. Winston & Sons, 1972.

Ehri, L. C., & Richardson, D. Antonym adjective contexts and the facilitation of noun-pair learning in children. Journal of Verbal Learning and Verbal Behavior, 1972, 11, 387-397.

Ehri, L. C., & Rohwer, W. D., Jr. Verb facilitation of paired-associate learning as a function of syntactic and semantic relations. Journal of Verbal Learning and Verbal Behavior, 1969, 8, 773-781.

Fillenbaum, S. Psycholinguistics. In P. H. Mussen & M. R. Rosenweig (Eds.), Annual review of psychology. Vol. 22. Palo Alto, Calif.: Annual Reviews Inc., 1971.

Martin, C., & Olson, D. Variety of exemplars versus linguistic contexts in concept attainment in young children. Developmental Psychology, 1971, 5, 13-17.

McCawley, J. D. The role of semantics in grammar. In E. Bach. & R. T. Harms (Eds), Universals in linguistic theory. New York: Holt, Rinehart & Winston, 1968

Olson, D. R. Language and thought: Aspects of a cognitive theory of semantics. Psychological Review, 1970, 77, 257-273.

Paivio, A. Imagery and language. Research Bulletin No. 167, Psychology Department, University of Western Ontario, London Canada, 1970.

Perfetti, C. A. Psychosemantics: Some cognitive aspects of structural meaning. Psychological Bulletin, 1972, 78, 241-259.

Rohwer, W. D., Jr. Elaboration and learning in childhood and adolescence. In H. W. Reese (Ed), Advances in child development and behavior. New York: Academic Press, 1973, in press.

Taylor, A. M., Josberger, M., & Whitely, S. W. Elaboration instruction and verbalization as factors facilitating retarded children's recall. Journal of Educational Psychology, 1973, 64, 341-346.

Thurlow, M. L., & Turnure, J. E. Elaboration structure and list length effects on verbal elaboration phenomena. Journal of Experimental Child Psychology, 1972, 14, 184-195.

Turnure, J. E. Types of verbal elaboration in the paired-associate performance of educable mentally retarded children. American Journal of Mental Deficiency, 1971, 76, 306-312.

Turnure, J. E., & Walsh, M. K. Extended verbal mediation in the learning and reversal of paired-associates by EMR children. American Journal of Mental Deficiency, 1971, 76, 60-76.

Footnote

[1]This study was supported in part by a grant to the Research, Development and Demonstration Center in Education of Handicapped Children, Department of Special Education, University of Minnesota. The Center is funded by a grant (OEG-0-9-332189-4533-032) from the Bureau of Education of the Handicapped, U.S. Office of Education.