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ABSTRACT

Twenty children (10 from a Day Care Center and 10 from a Head Start Center) were administered a 28-item, parallel form language comprehension task. The method utilized concrete materials (i.e., puppets and other familiar objects, spoon, flower, ball) which subjects manipulated when presented with sentences of 7 different grammatical constructions. There were 2 main effects, that of sentence type (active versus passive voice) and that of different preschool groups (Head Start Center versus Day Care Center), with no significant interaction. The reliability coefficient of Form A versus Form B was significant at the .001 level. (Author)

A Validation of a Method of Assessing Young Children's Language Competence

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Abstract

Twenty children (10 from a Day Care Center and 10 from a Headstart Center) were administered a 28-item, parallel form language comprehension task. The method utilized concrete materials (i.e., puppets and other familiar objects, spoon, flower, ball) which Ss manipulated when presented with sentences of 7 different grammatical constructions. There were 2 main effects, + % of sentence type (active versus passive voice) and that of different preschool groups (Headstart Center versus Day Care Center), with no significant interaction. The reliability coefficient of Form A versus Form B was significant at the .001 level.

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[2] Thanks are extended to Joan Bean for her invaluable assistance.

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The theory of transformational grammar suggests that human languages have a two-level design, the deep structure and the surface structure of the language. Noam Chomsky (1967) hypothesizes that the deep structure or linguistic competence is the internalized system of rules that determines the semantic content of a sentence. The surface structure or observed use of language is the actual performance in a language. Performance provides data for the study of linguistic competence. The question that arises for developmental psycholinguists is how to best assess the young child's linguistic competence.

Fraser, Bellugi, and Brown (1963) devised the ICP Test to assess 3-year-old children's imitation, comprehension, and production. Ten different grammatical constructs, such as, singular versus plural, direct-object versus indirect-object, were developed. In the imitation task, the child modeled performances of E's utterances. In the comprehension situation, S was to point to the appropriate picture of two shown him after hearing E's utterances, while the production task required S to produce the appropriate sentence when E pointed to each of two pictures. They hypothesized that particular utterances are ordinarily understood before the same utterances are produced. They concluded that children perform better on an

imitation task than on a comprehension task, and better on the comprehension task than on a performance task, when the difficulty level of all tasks were held constant. From this finding, Fraser et al concluded that "it would seem that increasing the number of psychological operation to be performed in near simultanity increases the difficulty of the task."

In 1969, Osser, Wang, and Zaid used the ICP Test. They disagreed with the original authors' interpretation of the imitation task, concluding that it is not effective in evaluating linguistic competence. When Black American Ss were tested, too many extraneous variables, of necessity, are introduced. Children who speak a non-Standard English dialect do not imitate mechanically, but make errors common to their dialect. Dialect variation were taken into consideration, but the possibility of unidentified dialect deviations is always open. They altered various tasks and concluded that the difficulty of a structure is dependent upon the task used to evaluate it. The difficulty of the task may, then, be a function of the particular assessment method used. If the method involves a high degree of perception, attention, and memory, it may not only be assessing linguistic competence.

The purpose of this study was to use Bean's (1970) less abstract puppet method to assess preschoolers' linguistic competence. This method incorporated concrete materials, i.e., puppets. When S was presented with an utterance, he manipulated familiar objects using the two puppets as actors. The study was also designed to assess: (1) active-passive sentence

comprehension; (2) performance of Headstart children versus Day Care Center children of the same age.

Method

Subjects. Samples of 10 Ss each were taken from a Headstart Center and a lower-middle class Preschool Day Care Center. The Day Care sample was primarily monolingual English speakers; the Headstart sample included bilingual speakers. The age range of Ss was from 4 years 4 months to 5 years 6 months.

Materials. The materials and utterances used were those developed by Bean. The sentences were constructed to conform to 7 different grammatical structures: (1) direct object sentences in the active voice; (2) direct object sentences in the passive voice; (3) indirect object sentences in the active voice in which the indirect object is marked by "to"; (4) indirect object sentences in the active voice in which the indirect object is not marked by "to"; (5) indirect object sentences in the passive voice in which the indirect object is marked by "to"; (6) indirect object sentences in the passive voice in which the indirect object is not marked by "to" and is the second noun phrase in the sentence; (7) indirect object sentences in the passive voice in which the indirect object is not marked by "to" and is the first noun phrase in the sentence. Examples of these seven different sentence types are presented in Table 1.

Insert Table 1 about here

Four sentences of each type comprised the test. Two parallel forms of the test sentences were used. The "actors" were two puppets, a lion and a dog. The objects manipulated by the puppets were common to children.

Procedure. The "game" was explained to each S individually by a female Caucasian E. Each S was then asked to name all of the referent objects. After placing the two puppets on S's hands, four trial sentences were given before E began scoring. Each sentence was repeated twice and S had 45 sec. to respond before the next sentence was presented. In half the sentences the dog was the actor; in the other half, the lion.

Results

The dependent variable was the number of correct responses of S. Table 2 shows a comparison of the number of correct responses of the Headstart sample and the Preschool Day Care sample.

Insert Table 2 about here

Individual performances for each S across all sentences presented are shown in Appendix A. The data was subjected to an analysis of variance with the probability of a Type 1 error set at .05. These results are summarized in Table 3.

Insert Table 3 about here

There were two main effects, that of sentence type, $F(1) = 8.15$, (active versus passive voice) and that of different preschool groups, $F(1) = 41.14$, (Headstart versus Day Care Center), with no significant interaction.

Multiple t-ratios were then performed for dependent data with the alpha level set at .01. As Table 4 indicates, significant differences were found for three comparisons: (1) active versus passive responses within the Day Care sample; (2) active versus passive responses within the Headstart sample; (3) Day Care Center sample versus Headstart sample responses to direct object sentences.

Insert Table 4 about here

The reliability coefficient of Form A compared with Form B was significant at the .001 level, as indicated in Table 5.

Insert Table 5 about here

Discussion

The active-passive sentence type differences for the two groups are consistent with those found by Bean and other psycholinguists. The results indicate that for both preschool sample, a passive sentence, whether it contains a direct object or an indirect object, or is marked by "to" or is not, is more difficult than an active sentence construction. The data also indicate that there were significant differences in the responses of the two groups. The Day Care children performed

better in both the active and passive situations than did the Headstart groups. There was also a significant difference in the responses of the two groups to direct object sentences of either active or passive voice. This suggests that at this age, the young child is mastering sentences containing direct objects, yet still having much difficulty with indirect object sentences. Thus, direct object sentences are more discriminating for this age groups, while sentences containing indirect objects are much too difficult. The total difference between the Day Care Center sample and the Headstart sample on all types of sentence structures was expected and is consistent with past studies dealing with the performance of children from low socio-economic status backgrounds.

The extremely high reliability coefficient comparing Form A with Form B indicates that this method of assessing children's language competence in a concrete "acting out" situation is reliable and stable. If the child has internalized the rule for one type of grammatical construction, he is then able to demonstrate his linguistic comprehension by correctly manipulating the puppets. In contrast to the picture methods of linguistic comprehension in previous studies, a concrete situation screens out uncontrolled variables, (e.g., two-dimensional perception, and the ability to decode a picture).

Of the 21 Ss tested only one refused to respond; the other 20 Ss were quite willing to continue until the "game" was completed. This is encouraging to developmental psychologists who can expect only a very short attention span from a pre-

school child.

As Bean concluded, and as the validation study supports, the puppet method of assessing young childrens' language competence is a valuable and a viable one to psycholinguists. A direct comparison of the puppet method with the picture method of assessment is now needed, to indicate whether difference in performance are attributable to the underlying difficulty of the particular task or are a function of the method of assessment used.

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Table 1

Examples of the Seven Different Sentence Types

1. The lion kisses the dog.
2. The dog is kissed by the lion.
3. The lion gives the flower to the dog.
4. The lion gives the dog the flower.
5. The flower is given to the dog by the lion.
6. The flower is given the dog by the lion.
7. The dog is given the flower by the lion.

Table 2

Number of Sentences Responded to Correctly by Sentence Type and Different Preschool Groups

	Direct Object		Indirect Object with "to"		Indirect Object without "to"		
	a	p	a	p	a	p	p
Preschool Day Care	39	30	35	26	31	25	16
M	3.9	3.0	3.5	2.6	3.1	2.5	1.6
SD	.32	1.15	.85	.97	.99	.97	1.35
Head-start	34	20	28	23	30	18	9
M	3.4	2.0	2.8	2.3	3.0	1.8	.9
SD	.70	.93	.91	1.94	1.14	.80	.81

Note -- a = active sentence construction
p = passive sentence construction

Table 3

Analysis of Variance: Preschool and Sentence Type

Source	SS	d/f	MS	F	p
Total	190.65	39			
Between Ss	60.78	19			
School	18.91	1	18.91	8.15	<.025
$Error_b$	41.87	18	2.32		
Within Ss	129.87	20	6.49		
Sentence Type	89.70	1	89.70	41.14	<.001
School x Sentence Type	.86	1	.86	.39	N.S.
$Error_w$	39.31	18	2.18		

Table 4

Multiple T-Ratios

Passive Sentence Type		
Day Care vs. Headstart	t = 2.41 (18)	N.S.
Active Sentence Type		
Day Care vs. Headstart	t = 1.72 (18)	N.S.
Day Care Center Children		
Active vs. Passive	t = 4.43 (9)	*
Headstart Children		
Active vs. Passive	t = 4.92 (9)	*
Direct Object Structure Type		
Day Care vs . Headstart	t = 2.78 (18)	*
Indirect Object Structure Type		
Day Care vs. Headstart	t = .59 (18)	N.S.

* Significant at the .01 level

Table 5

Reliability Coefficients

Form A versus Form B

Samples	r
Headstart	.96
Preschool Day Care	.65
Combined Headstart and Day Care	.92

Appendix A

Number of Sentences Responded to Correctly by Sentence Type and Age of S

Sentence Type

Age of Ss		Direct Object		Indirect Object					
				+to		-to			
yr.	mos.	a	p	a	p	a	p	p	T
4	4	4	4	4	1	3	2	2	20
4	7	4	1	2	3	1	2	0	13
4	8	3	3	3	3	4	3	1	20
4	9	4	3	4	2	3	3	0	19
4	9	4	4	4	4	4	4	4	28
4	10	4	4	2	2	4	1	3	20
5	0	4	3	4	2	2	2	2	19
5	0	4	4	4	4	3	2	2	20
5	0	4	3	4	2	3	2	0	18
5	2	4	1	4	3	4	4	2	22
(Day Care)		39	30	35	26	>1	25	16	

Appendix A

Number of Sentences Reponded to Correctly by

Sentence Type and Age of S

Sentence Type

		Direct Object		Indirect Object					
				+to		-to			
Age of Ss yr.	mos.	a	p	a	p	a	p	p	T
4	4	2	2	2	2	2	2	1	13
4	6	4	4	3	3	4	2	1	21
4	7	4	2	1	2	2	2	3	16
4	9	4	1	3	2	3	2	1	16
4	9	3	1	3	2	4	1	0	14
4	10	4	2	4	2	4	2	0	18
5	2	3	2	1	3	4	3	0	16
5	3	3	1	3	3	1	2	1	14
5	6	4	4	3	3	4	2	1	21
5	6	3	1	4	1	3	0	1	13
(Headstart)		34	20	28	23	30	18	9	