DOCUMENT RESUME

ED 073 201   UD 013 260

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TITLE   Subject-Generated Strings, and Noun-Pair Learning:
                Population Comparisons.
PUB DATE   [72]
NOTE   24p.

EDRS PRICE   MF-$0.65 HC-$3.29
DESCRIPTORS   Association (Psychological); Associative Learning;
                Caucasian Students; Cognitive Development; Cognitive
                Processes; *Context Clues; *Elementary School
                Students; Negro Students; *Paired Associate Learning;
                *Racial Differences; Recall (Psychological); Social
                Differences; *Socioeconomic Status; Verbal Learning;
                Verbal Stimuli

ABSTRACT
                The facilitation observed when paired-associates (PA)
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The principal objective of the current research was to examine the
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linguistic components of strings provided and generated by children
from low-status-black and high-status-white groups. In addition, it
was an attempt to bring sociolinguistic research closer to children's
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SUBJECT-GENERATED STRINGS AND

NOUN-PAIR LEARNING:

POPULATION COMPARISONS

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Subject-generated strings and

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ABSTRACT

Children from low-status-black and high-status-white populations learn noun-pairs more efficiently when nouns were embedded in subject generated and experimenter-provided verbal contexts than in a no-context control. The effects of linguistic strings on noun-pair learning was examined by varying the population source (i.e. low or high status) of the strings. Two hundred sixteen 6th graders, 108 low-status-black and 108 high-status-white Ss were aurally presented 36 pairs of concrete nouns. Linguistic strings generated in a free condition by low-status children facilitate recall for Ss like them, whereas high-status children's performance was facilitated by strings generated within both populations. A multiple regression analysis was carried out to assess the relationship between linguistic characteristics of the strings and noun-pair recall.

SUBJECT-GENERATED STRINGS AND NOUN-PAIR LEARNING:

POPULATION COMPARISONS[1]

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The facilitation observed when paired-associatcs (PA) are presented or gen-
erated in a meaningful string is a phenomenon that is well-documented and raises
a number of developmental issues (Rohwer, 1972). That is, the effect varies with
learner characteristics (i.e. age, ethnic group, social status), origin of the
mnemonic string (i.e. experimenter-provided, subject-generated), task characteris-
tics (i.e. visual-verbal) and syntax (i.e. pairs linked with a verb, preposition
conjunction).

Age and status variables have been manipulated in a number of studies (Fuld
1970; Guy, 1971; Rohwer and Bean, 1972; Rohwer, Lynch, Levin and Suzuki, 1968;
Semler and Iscoe, 1963). The generalizations emerging from this research are:
1) Children's ability to learn PA's increase as a function of age. 2) Provided
and generated sentential links are facilitating relative to no links. 3) A
developmental interaction occurs during adolescence such that minimal links are
as facilitating as maximal links. 4) Population comparisons reveal near equivalent
performance for low-status-black and high-status-white Ss in pictorial stimulus
presentations with differences favoring high-status-white children emerging in
the aural mode only. The performance of children in an auditory PA task is of
major interest here.

The principal objective of the current research was to examine the relation-
ship between performance on an auditory PA task and the linguistic components of
strings provided and generated by children from low-status-black and high-status-
white groups. In addition it was an attempt to bring sociolinguistic research
closer to children's learning.

Developmental questions have been investigated by presenting PA's in pictorial form to high-status-white Ss from kindergarten to twelfth grade with instructions to listen to the label or generate a sentence (Jensen and Rohwer, 1965). Sentence links were superior to the listen condition in grades 2, 4 and 6, but declined markedly in grades 8, 10 and 12. That is, performance for adolescents was equivalent in both conditions.

At the far end of the developmental range, college age adults perform much like high-status-white children. That is, there are no differences between the listen or "empty control" condition relative to a sentence generate or provide condition (Bower, 1970). Older children and adults appear to be spontaneously engaging in linking PA's. A control condition that effectively prevents adult Ss from constructing PA links is rehearsal (i.e. S is instructed to repeat the pairs in rate fashion).

However, there is a discrepancy regarding the generate versus provide condition. With adults, there is a mean difference between generate and provide, favoring the self-generated sentence. Findings with children indicate no difference between these conditions. (Bean and Rohwer, 1971) Various explanations have been offered for the adult-generate superiority. The most compelling explanation is a parsimonious one, such that engaging adult Ss in constructing a link enhances their comprehension, versus reading or listening withless comprehension (Bobrow and Bower, 1969). One strategy for illuminating the generate versus provide differences is to present a continuum of provided and generated sentence links for children. For example, an E would request that a child generate "anything" verbal he felt would aid in remembering the pairs (i.e. free generate) and/or one child's generated string would be provided to another like him in age and social status. In summary, the proposal is to present an array of linguistic constructions to children.

Verbal contexts generated by Ss may vary on at least three levels--semantic, syntactic and phonetic. One could assert that linguistic constructions generated

by children from different age and social status groups may differ on one or all

of these levels. That is, at a semantic level, words may differ in meaning from

group to group, and at a syntactic level, rules of sentence formation may differ

such that strings generated by one group may be more or less comprehensible than

those produced by another (Baratz, 1969).

The interesting question for children's PA learning is the source of the

interaction between learner characteristics and type of link. One might argue

that strings originating from high-status-white children would be less facilitat-

ing for low-status-black children and vice versa.

Sociolinguistic investigations of linguistic production and comprehension are

few in number (Baratz, 1969; Cherry-Peisach, 1965; Osser, Wang and Zaid, 1969;

Weener, 1969). Cherry-Peisach set out to evaluate the extent to which information

is successfully communicated from teachers to pupils of various social background

and the degree of effective communication among children from different social

backgrounds. The child's comprehension was measured by his ability to replace a

deleted word. The major finding of relevance to this study is that low-status-

black children performed as well as middle-status-white children in replacing words

deleted from passages which were obtained from low-status-black sources, but earned

lower scores when the passages were obtained from middle-status-white speakers. The

results indicate less comprehension for black children in this modified cloze task.

Utilizing a different task, (i.e. second and fourth degree approximation to

English word order) Weener (1969) found that the performance of a middle-status-

white group of children was sharply reduced by hearing a message presented by a

speaker of the low-status group. This effect of speaker differences was not signi-

ficant for the nonstandard dialect group. Low-status-black seven year-old children

were able to recall as much of the middle-status-white speakers message as of the

low-status speakers passage. One interpretation of these data is that low-status-

black Ss are regularly exposed to two dialects. These children may in fact be

bidialectal. The expected interaction between the source of a message and the

Ss dialect background did not materialize.

Baratz (1969) and Osser et al, (1969) assessed the speech imitation and

speech comprehension abilities of black and white children. The Baratz results

with third and fifth graders indicate that black children are not bidialectal

on a sentence imitation task. Black children performed significantly better than

white Ss on nonstandard dialect stimulus sentences. However, the converse was

true for the standard sentences. Osser et al report white middle-status children's

linguistic comprehension and production was superior to that of the low-status-

black children even when differences in dialect and Standard English were taken

into consideration. Thus, the question of bidialectalism remains an open question

with linguistic performance varying as a function of the task and age of the child.

With regard to mode of PA presentation, pictorial materials facilitate

learning for young children from a variety of ethinic-social status groups (Kee and

Rohwer, 1972; Rohwer, Ammon, Suzuki and Levin, 1971). The pattern of facilitation

holds up across high-status-white, low-status-black, Mexican-American and Chinese-

American samples of first, second and third grade children. When PA's are presented

auditorily, there are no status differences for young children (Rohwer and Bean,

1972). The visual-auditory difference occurs during adolescence (i.e. 6th to 11th

graders).

In tracing down the parameters of the syntactic facilitation effect, Rohwer

(1966) found the ease of learning nouns embedded in meaningful, grammatical word

strings is a function of the form class connective linking Noun 1 (N_1) and Noun 2

(N_2). That is, performance improves when the nouns embedded in strings are linked

by a verb rather than a preposition, and by a preposition rather than a conjunction.

Palermo (1970) suggested that PA learning for individual Ss may be a function of

a type of idiosyncratic generated linguistic string. Explanations for the form

class phenomenon have lead to investigations of sentential variables and their

effects (Suzuki and Rohwer, 1968; Ehri and Rohwer, 1969).

Rohwer and Levin (1968) manipulated two levels of semantic meaningfulness in PA strings (normal and anomalous), as well as implied verbal activity. Action verbs did not lead to higher recall scores than nonaction verbs, and meaningful strings facilitated recall relative to those that were anomalous. A further refinement of the form class effect indicates that regardless of string type (meaningful phrases or sentences) superior performance is a function of a verb link between N_1 and N_2 (Suzuki and Rowher, 1968). What are the critical aspects of verbs that provide facilitation in PA recall? Ehri and Rohwer (1969) report results suggesting the nature of the verb's semantic relation with N_1 and N_2 is crucial. Subject related verbs enhance performance more than object related verbs, and two-unit verb-preposition connectives improve PA learning relative to one-unit verbs.

Summarizing, it appears that sentences improve recall only when there are appropriate syntactic and semantic contexts. The linguistic features increasing noun-pair recall are those triggering some type of relationship between N_1 and N_2.

In these previous studies, the sentence constructions were often provided by the E. Clearly, the S is less under the control of the E when instructions to generate a sentence or "anything" verbal are administered. The risk involved is that linguistic characteristics of generated strings may vary with age and social status such that the appropriate or facilitating features of provided strings may be absent. For example, if a young S generates a string, "The COW and BALL" one would predict he would recall fewer pairs than if he generates "THE COW chases the BALL" (Suzuki and Rohwer, 1968). However, the idiosyncratic aspect of the strings may cancel this effect.

The present study aims to continue the investigation of learner characteristics by looking at 1) the effect of status group origin of linguistic strings on the PA learning of children from low-status-black and high-status-white groups.

2) The reliability of the status difference across an array of provided and
generated auditory conditions. 3) Linguistic components of strings generated by
different children.

METHOD

Design and Materials. The design included nine conditions: Listen, Rehearsal,
Standard Sentences, Free Generate, Sentence Generate, Free White, Free Black,
Sentence White, Sentence Black. These last four were the provided conditions that
were crossed. For example, a low-status-black $\underline{S}$ in the Free Black condition heard
strings generated by a peer; if in the Free White, then $\underline{S}$ heard strings generated
by a non-status peer.

Two analyses of variance were carried out. In the first, a 2 x 9 factorial,
the effects of status (low-black vs. high white) and conditions were evaluated. This
design allowed for a replication of the status difference. (Bean and Rohwer, 1971).
In addition, comparisons between the generate conditions (Free and Sentence) could
be made. The second analysis was a blocked design. The factors were: Source of
Linguistic Strings (low-black vs. high-white); Type of String (Free vs. Sentence);
Recipient of Strings (low-black vs. high-white) and the blocking variable, Sets of
Strings (48 individual sets of thirty-six strings). A precise appraisal of the effect
of population source of strings on performance would be made in this design.

A post-hoc multiple regression analysis was performed to assess the relation-
ship between the linguistic characteristics of strings constructed in the Free
and Sentence conditions and recall. An analysis of covariance was carried out on
the adjusted means of the four provided conditions, with Conditions (Free vs.
Sentence), status Recipient (low-black vs high-white) and status Origin (low-black
vs high-white) as factors. An additional analysis of variance design assessed the
frequencies of string categories nested within Conditions (Free or Sentence).

The learning materials consisted of 36 pairs of high frequency concrete
nouns drawn from a pool used frequently in previous research (Bean and Rohwer, 1971).
The experimental conditions were distinguished by variation in the type linquistic

string provided, generated and no linguistic context control. Examples of the

linguistic strings generated and provided for each of the seven string conditions

are presented in Table 1.

Insert Table 1 about here

In the Standard Sentence condition, the strings were simple active declara-

tive sentences of the form N_1-Verb-N_2 with the PA's in subject and object position.

Each S received one identical set of 36 strings.

In the generate conditions, Free and Sentence, each S from the low-status-

black and high-status-white samples was asked to either "make-up anything" verbal

that would aid memory or to "make-up a sentence." The set of strings generated by

each subject was tape-recorded, transcribed and re-recorded by a white female E.

These were the strings used in the Provided conditions (Free White, Free Black,

Sentence White, Sentence Black). Each set of 36 strings in the Free and Sentence

Generate condition could vary such that no one set would be identical. The

noun pair could appear as subject-object, as direct object - object of the pre-

position and the like.

The generate comparisons would answer the question of sentence constraint.

That is, if the S is free to generate anything verbally idiosyncratic, performance

in the Free might be superior to the Sentence condition.

The comparison of the generate and provide conditions would address the issue

of the relative facilitation of imposed vs. induced strings. Results with

college age Ss consistently support the generate superior to provide condition

(Bobrow and Bower, 1969; Duffy and Montague, 1971; Schwartz, 1971). This finding

has not been replicated with younger Ss (Bean and Rohwer, 1971; Duffy and Montague,

1971).

In the string provided conditions (i.e. Free White, Free Black, Sentence

White, Sentence Black), each S received a set of 36 constructions generated by a

$\underline{S}$ from either the low-status-black or high-status-white sample in the Free or

Sentence Generate condition. No one set of strings was identical.

Two different controls were employed, one, a Listen (i.e. $\underline{S}$ heard the pairs),

and Rehearsal,$\underline{S}$ vocalized the pairs. The Listen condition provided a performance

baseline for string comparisons and allowed for the use of unvocalized strategies.

Auditory.rehearsal of PA's interferes with adolescent and adult recall relative to

the Listen condition, but there is no difference for younger children (Rohwer and

Bean, 1972; Bower and Winzenz, 1970). The control conditions were included to

examine the Listen-Rehearsal discrepancy.

Scoring. The PA responses were scored using a strict criterion; an item was correct

only if it was the response word. The sentences were categorized on a set of

four criteria: 1) order of nouns in the string-generated N_1-N_2 or N_2-N_1: 2) re-

lationship between N_1-N_2, Subject-verb-Object, Direct Object-Object of a Pre-

position, Compound Object; 3) miscellaneous category -- strings with either N_1 or

N_2 used as a verb, phrases, conjoined strings, and the like; 4) activity-based

verbs (i.e. jump, chase, build); 5) number of different constructions. There was

a total of nine linguistic categories. Two judges categorized the strings. There

was agreement on all but twenty strings out of 1728.

Subjects. The rationale for the selection of $\underline{Ss}$ from a low-status-black school

district and a high-status-white school district was to trace down the source of

the status difference found with auditory PA's. One-hundred and eight, sixth

grade children from a school district serving low-status-black families and 108

$\underline{Ss}$ from high-status-white families were randomly assigned to one of nine conditions.

Procedure. The task was administered to each $\underline{S}$ individually by a white female

experimenter. All materials were presented aurally by means of a Wollensak T-1500

audio taperecorder. After a $\underline{S}$ was seated in the experimental room, he received

instructions appropriate for the condition to which he had been assigned. Next,

a sample of four noun pairs was presented to illustrate the instructions and the

procedure to be followed. A different random order of items was used on each of

two pairing and two test trials. A different random order of items was used on each

trial. During the first pairing trial, the onset of every pair was signaled by a

bell intended to terminate interitem activity and alert the S for the presentation

of the next pair. The experimental manipulations pertained only to the initial

pairing trial. On the remaining trial the procedure was identical across all

four conditions, the rate of presentation was 4-sec. and the bell was deleted. The

procedure followed during the test trials was the same for all conditions. The

stimulus members of the pairs were presented at a 4-sec. rate and Ss task was to

utter aloud the response member during the interitem interval.

RESULTS

The dependent variable was the number of correct responses per test trial.

A summary of means as a function of Status, Condition and Trials is presented in

Table 2.

Insert Table 2 about here

All of the contrasts relevant to the questions addressed by the study were

evaluated by means of analysis of variance in which all tests were performed with

α = .05.

Status and Conditions. The status main effect was significant, F (1,198)= 42.00.

There was an overall status difference, such that high-status-whites recalled

more noun-pairs than low-status-blacks. This result confirms the reliability of

the status contrast reported by Bean and Rohwer (1971). Of the eight a priori

contrasts two were significant. The Generate and Provide conditions combined

produced more learning than the Controls (i.e. Listen & Rehearsal). This result

supports an axiomatic finding in PA learning. The contrast between the Generate

(i.e. Free & Sentence) and Provide (Free White & Free Black & Sentence White &

Sentence Black) conditions revealed that Generate conditions produce differential

recall relative to Provide, F (1,198) = 4.96. This result is not consistent with

previous research on children's PA learning.

In tests for the interaction of Status x Condition, one contrast was significant. The provided conditions, Free Black and Sentence Black combined facilitated PA recall differentially for low-status-black and high-status-white $\underline{Ss}$ than Free White and Sentence White conditions combined, $\underline{F}$ (1,198) = 4.03. A more precise test and discussion of this interaction will be provided in the second analysis. Provided Conditions. The blocked design analysis was performed on data from the four string-provided groups across both populations to assess the status source of strings hypothesis. The results pertinent to the second set of analyses are presented in Table 3 for the two population groups as a function of String Type, Status Origin, Status Recipient, and Sets of Strings.

Insert Table 3 about here

The main effect of String Type (Free, Sentence) was not significant $\underline{F}$, (1,44) = <1.00. Conceptually, this result supports the Free Generate vs. Sentence Generate equivalence in the first analysis.

The effect of Status Origin nested within String Type was not significant, such that no differences were evident, whether the strings originated from a low-status-black $\underline{S}$ or a high-status-white $\underline{S}$ in either the Free or Sentence condition. However, the effect of Status of Recipient nested within String Type was such that high-status $\underline{Ss}$ recalled more noun-pairs in the Free Provided conditions than low-status $\underline{Ss}$, $\underline{F}$, (1,44) = 20.59. This effect was replicated in the sentence Provided conditions $\underline{F}$ (1,44) = 23.69. These results were contrary to expectations; both status groups were receiving strings generated by status peers and non-status peers.

The Status Origin x Status Recipient interaction nested within the Free Type was significant $\underline{F}$ (1,44) = 7.30. This result clarifies the Status x Condition interaction of the first analysis. Low-status-black $\underline{Ss}$ recalled more noun-pairs when the linguistic strings originated from status peers than when strings originated

from non-status peers. This lends support to the prediction that low-status-black Ss would benefit more from a peer status set of strings than from a non-peer. This finding held for the Free Provided condition only. The Sentence Type interaction was not significant.

Post hoc analyses using Dunnett's Multiple Range Test revealed that in comparisons of the Standard Sentences with the Provide conditions, two reached significance. These occurred in the low-status-black group only. The critical value is 9.97. In both the Free and Sentence conditions, strings generated by high-status-white Ss produced poorer recall relative to the Standard Sentences. This finding may be accounted for by the heterogeneity of sets of strings in contrast with the identical set presented in Standard Sentences. Among high-status-white Ss, the source of strings did not produce significant effects.

Multiple Regression Analysis. The means for the linguistic categories as a function of Status and Conditions is provided in Table 4.

Insert Table 4 about here

The multivariate analysis was executed to assess the mean difference in occurrence of categories as a function of String Type (Free, Sentence), Status Origin of String, and Status Recipient of String. Within the main effect of String Type, (F $(9,80) = 3.48$), the Status difference in the Miscellaneous category was significant, F $(1,88) = 15.87$. Low-status-black Ss produced more Free type strings in this category than high-status-white Ss.

Within the Status Origin-Free condition effect (F $(9,80) = 9.41$), categories N_1-verb-N_2, N_2-verb-N_1 and Miscellaneous were significantly different F $(1,88) = 18.33$, F $(1,88) = 7.73$, F $(1,88) = 52.10$ respectively. The high-status-white Ss produced more Noun-verb-Noun constructions than low-status-black Ss. However, low-status-black Ss produced more Miscellaneous strings than high-status-white Ss.

In the Status Origin-Sentence condition effect ($\underline{F}$ (9,80) = 3.87), the category

comparisons were identical to those above. These mean differences suggest a

pattern of constructions between Status groups, with high-status-white $\underline{S}s$ generat-

ing strings known to be facilitating in provided conditions.

An analysis of covariance was carried out on the Provide conditions; it

replicated the results of the blocked analysis. An overall multiple regression

correlation assessing the relationship between the nine linguistic categories and

performance on Trial 1 and 2 was r = .34. In summary, there was no significant

relationship between the learning score and nine predictors. Five of the nine

predictors accounted for less than 1% of the learning variance.

———DISCUSSION

The results of the present experiment indicate that low-status-black and

high-status-white sixth grade children are facilitated by linguistic string condi-

tions relative to control conditions.

The qualifications and implications of this statement relate to three concerns.

One of these focuses on the comparative effects of an array of string manipulations;

those strings generated within status groups and provided within and across status

groups. The results indicate that children from low-status-black groups are

facilitated more by strings from status peers. This finding is restricted to the

Free Type (i.e. generate anything verbal, you think will help you remember the

pairs). Such an outcome suggests that mediators generated by non-status peers are

less effective. This interaction between Status Origin and Status Recipient did

not materialize for the Sentence Type, but there is clearly a trend in mean per-

formance. An examination of the linguistic category analysis indicates that low-

status-black $\underline{S}s$ generate more unique strings than high-status white $\underline{S}s$. One could

argue that instructions to Free Generate are less constraining for one status group

than for another. If this is the case, then it is not suprising that the strings

are more heterogeneous relative to the Sentence Generate condition. The interesting

question is why this should occur in one status group only. The multiple regression

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on category analysis did not shed light on this question.

Somewhat at odds with this argument is the difference in the frequency of Noun-Verb-Noun constructions for high-status-white $\underline{S}s$. That is, more of these strings occur in the high-status group than low-status. What could be construed as the most facilitating linguistic construction (i.e. Noun-Verb-Noun) does not boost learning for low-status-blacks relative to heterogeneous strings generated by status peers. Although the method of classifying strings was global, it may be the case that for low-status $\underline{S}s$, strings generated by someone like $\underline{S}$ in age and status are more comprehensible on some unknown linguistic dimension. Socio-linguistic theory has little to contribute to this interpretation; research findings with standard and non-standard dialect are equivocal (Baratz 1969; Weener, 1969). One is led to wonder what the effects of a middle-status teacher's mediators are on low-status children in the classroom?

The second question asked by the experiment was the generate versus provide one. It seems apparent that high-status-white sixth graders perform much like college age adults (Bower, 1970). That is, actively engaging them in constructing a string provides more facilitation relative to providing them with one auditorily. This holds for the Free and Sentence conditons combined. This result is at odds with the Rohwer and Bean (1972) finding of no difference. The linguistic category analysis reveals that high-status-white $\underline{S}s$ generate twice as many Noun-verb-Noun constructions as low-status-black $\underline{S}s$. The superiority of generate relative to provide does not occur in the low-status-black group.

With regard to the issue of the developmental interaction between status characteristics and the Listen and Rehearsal conditions, the interactions are not significant. The trend in means indicates that high-status-white children are initiating a strategy on their own. It appears as though low-status-black children are not. This observed trend matches previous findings (Bean and Rohwer, 1971; Guy, 1971; Rohwer and Bean, 1972). However, the performance of these two control

groups did not differ significantly in either status group. One implication of
the finding is to teach children the adoption of a strategy approach to learning
and memory. It is clear that an adolescent training study is the next step.

Generally, these findings suggest that future investigations focus on the
effects of specific types of linguistic constructions, such that a list of modal
strings produced within status groups be provided within and between these groups.
One could trace down the source of the Status Origin x Status Recipient interaction
by presenting a mixed list of modal constructions from both status groups,
by speakers from both status groups. In addition semantic, syntactic and
phonological variables can be systematically varied in auditory PA presentation.

Although this research has uncovered one source of individual differences in
children's aural PA learning, the whole locus of children's linguistic facilitation
is open.

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Footnote

Table 1

Examples of Linguistic Strings Generated
and Provided for One Noun Pair (button-comb)

Strings Generated

Type	Black	White
Free:	The button caught hold to the comb	The button caught hold to the comb
Sentence:	I had a button in a comb	She sewed on a button as she combed her hair
		The button was on the comb

Strings Provided

Type	Black	White
Free Provide:	(Black) The button caught hold to the comb	The button caught hold to the comb
	(White) She sewed a button as she combed her hair	She sewed a button as she combed her hair
Sentence Provide:	(Black) I had a button in a comb	I had a button in a comb
	(White) The button was on the comb	The button was on the comb
Standard Sentences:	The button fell on the comb	The button fell on the comb

Table 2

Mean Number of Correct Responses as a Function of Status, Condition, and Trial

Black Ss

	L	R	SS	FG	SG	FW	F B	S W	S B
T1	6.33	4.92	14.25	13.67	12.50	8.08	12.33	9.25	12.58
T2	10.92	10.67	21.17	16.33	18.58	13.67	19.25	15.25	18.42
M	17.25	15.59	35.47	30.00	31.08	21.75	31.58	24.50	31.00

White Ss

	L	R	SS	FG	SG	F W	F B	S W	S B
T1	9.92	6.17	16.00	18.33	17.83	15.58	14.08	15.00	14.75
T2	16.50	12.08	23.25	25.92	25.67	23.58	21.92	23.75	24.00
M	26.42	18.25	39.25	44.25	43.50	39.16	36.00	38.75	38.75

L - Listen
R - Rehearsal
SS - Standard Sentence
FG - Free Generate

SG - Sentence Generate
F W - Free   White
F B - Free   Black
S W - Sentence White
S B - Sentence Black

MSE Provided Effects (44) = 69.45
MSE All Conditions   (198)= 121.74

Table 3

Analysis of Variance Table:
Sets of Sentences Blocked for Provided Conditions

Source	df	F	P
String Type	1	1.00	N.S.
Population Origin w. Type			
PO/Free	1	1.92	N.S.
PO/Sentence	1	2.70	N.S.
Population Recipient w. Type			
PR/Free	1	20.59	**
PR/Sentence	1	23.69	**
Pop. Origin X Pop. Recipient w. Type			
POxPR/Free	1	7.30	**
POxPR/Sentence	1	1.11	N.S.
Sets of Strings w. Origin x Type	44	1.04	N.S.

MSE (44) = 69.45

* $p < .05$

** $p < .01$

Table 4

Mean number of category items

as a function of Conditions, Population and Source

Category

Condition	Source	N1 vb N2	N2 vs N1	DO1-OP2	DO2-OP1	CO1-2	CO2-1	Misc.	Activity of Verb	No. of Diff. Constructions
Free	White	18.17	5.17	4.83	4.42	2.08	.92	.42	19.75	5.67
	Black	9.33	2.92	6.58	6.25	2.00	.25	8.5?	22.5?	6.25
	Mean	13.75	4.04	5.73	5.33	2.04	.58	4.50	21.17	6.06
Sentence	White	18.41	4.67	4.92	4.50	2.08	.41	1.00	21.00	5.67
	Black	10.33	3.25	8.83	7.16	2.83	2.00	1.58	26.00	6.58
	Mean	14.38	3.96	6.88	5.83	2.46	1.20	1.31	23.50	6.12