

RESEARCH
DIRECTIONS OF
BLACK
PSYCHOLOGISTS

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Cultural Content of Materials and Ethnic Group Performance in Categorized Recall*

Anderson J. Franklin and Lenora Fulani

In the study of memory, free recall has become a popular measure of mnemonic ability and cognitive development (Appel et al. 1972). An attractive feature of this free recall procedure is that it allows the individual to employ his own strategy for remembering words presented randomly. If the list consists of recognizable categories or of other bases for intra-list organization, the subject is free to employ clustering as a recall strategy. Taxonomic classification into "conceptual categories" is widely considered to be both a facilitator of memory and a measure of higher-order cognitive abilities (Tulving and Donaldson 1972). A great deal of research has repeatedly demonstrated that older children recall more and show more conceptual clustering than do younger children (Cole, Frankel, and Sharp 1971; Mandler and Stephens 1967; Moely et al. 1969; Neimark, Slotnick, and Ulrich 1972; Vaughan 1968).

Studies of clustering ability have likewise shown mnemonic performance differences among various socioeconomic and ethnic groups that vary as a function of such variables as age and instructions (Glasman 1968; Jensen and Frederiksen 1973; Shultz, Charness, and Berman 1973). This paradigm is frequently used by Jensen to justify inferences about the differential amount of higher-order learning capacities in various populations. However, the assumption that a list can be categorized is predicated on the notion that the subject shares the same "conceptual categories" and same concept exemplars as those devised by the experimenter. If the subject does not share the experimenter's classification scheme, we may erroneously attribute differences in group performance on free recall tasks to process and ability when the differences in performance may be more a function of

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differences in list structure as it relates to different subjects' lexicons. In effect, groups who do not share the experimenter's (and normative group's) structure and ordering of categorizable items may be placed in the position of learning a partially categorizable or noncategorizable list. Cofer (1967) and others, including Jensen, have shown that for White populations, recall of a categorizable list is better than recall of a noncategorizable list. Mandler and Stephens (1967) and Scribner (1974) have all shown that if subjects' own categories are used for recall, and if their spontaneously generated categories differ from the accepted norm, they cluster more than we estimate them to on the basis of the norms.

The issue of assessment tasks being contingent upon an appropriate informational base or, in other words, upon the "content of experiences" possessed by a person (or group) is, in part, the argument presented by advocates of "culture-fair or culture specific" tests. An underlying assumption of this argument is that performance must be considered, and ultimately weighed, within the experiential context of the specific population of interest—that is, Black or White, male or female, middle class or lower class, urban or rural, etc. (Williams 1971; Jones 1972). Given these assumptions, performance of groups should reflect more of the norm as the content of measuring instruments approximates and begins to build from the background of the study population. The extent to which basic cognitive processes are experientially (or culturally) determined in their manifestations is a subject in need of further research. This pilot study is the first in a series of studies that will systematically examine how the materials used in experimental free recall tasks and their sociocultural etiology contribute to determining mnemonic performance of different groups. It will deliberately engineer the way materials are derived and constructed for recall tasks as part of the research objective. It is expected that this study will begin to provide information on the effect that experientially based recall materials have on performance, and, in part, clarify our explanation for group differences in mnemonic performance.

In addition, more information is needed to understand the extent to which experiential background of populations defines "conceptual categories" and what constitutes appropriate member items. With added knowledge in this area of cognition we may be better able to differentiate performance differences due to a deficiency in process and/or skill, in contrast to deficiencies in information, practice, and/or instruction in the proper learning strategy. Moreover, this becomes an important step toward discovering the impact that task content from pertinent learning environments has on the utilization of mnemonic ability. In support of our assumptions we can reasonably expect that, given word lists developed from the frame

of reference of the sample population, there will be a high incidence of categorized recall. This is perhaps due to familiarity and experiential relativity. Moreover, given the evidence that clustering ability is a skill developed with age, we can further expect that a population of adolescents should readily employ the strategy of categorization as a mnemonic device to facilitate memory.

Therefore, this study started by eliciting information on a set of categories generated by those who have been consistently shown to cluster and recall relatively poorly—lower-class Black high school dropouts. They will be compared with White middle-class parochial high school students on tasks developed from experiences of similar urban Black youth.

Method

Subjects

The subjects in the recall part of this study were thirty-four adolescents living in the New York metropolitan area and enrolled in a high school program.

Half of the subjects were Black and attended an alternative high school in Brooklyn set up in conjunction with a regular city school but designed to accommodate students who were referred because of poor school performance or unacceptable social behavior in the regular school. The income levels of the families of these students would place them in the lower and upper-lower economic levels. Although these subjects were eighteen years of age on the average and considered tenth- and eleventh-graders, the actual work assigned to them ranged over the entire normal high school curriculum. The alternative school itself is quite small, with a total population of about eighty students. Of the seventeen Black adolescents employed in the recall study, nine were female and eight were male.

The remaining half of the subjects were White and female. They attended an integrated parochial school located in Manhattan and all were in the eleventh grade. Their average age was sixteen years, the age level considered appropriate for this grade. Their school was quite large (approximately 1800 students), and the family background of the students sampled would be classified as lower middle class.

Prior to the recall study, a group of seventy-five Black adolescents living in and attending school in central Brooklyn were employed to generate recall materials. These subjects were located at regular high schools, other alternative schools, and local "neighborhood hangouts."

Materials

The purpose in developing nonstandard materials was to construct a word list which, in part, derived from the experiential background of the Black subjects. To accomplish this goal, subjects were given a list of conceptual categories that the investigator believed were a part of the common vernacular for the average urban Black adolescent in New York City. A key feature of the list was to try and tap the social domain of the adolescents by emphasizing that street-slang terms should be used where appropriate. Examples of categories surveyed are: drugs, slang or street words, soul food, types of dances, types of women, Black leaders, athletes, types of hustlers, church officials, and magazines. Respondents to the survey were asked: "Name five different things that belong in the following categories—street terms are preferred. Example: Fruit—apple, orange, peach . . ." After the instructions, each person filled out his responses on a form with the categories listed. In the selection of categories and words for the recall list, the frequency of naming a member item under a given category was first computed. The categories containing common items provided by a majority of the subjects were earmarked for inclusion in the final task materials.

In addition to the word list of Black categories, the final experimental task included words from three categories (clothing, tools, and utensils) that have been widely used on free recall experiments and derive from standardized category norms (Cole, Frankel, and Sharp 1971; Loess, Brown, and Campbell 1969; Postman and Keppel 1970; Shapiro and Palermo 1970).

The final list was composed of words from two designated content areas: "Black categories" and "Universal categories" (see Table 13.1).

The words of the basic list were arranged at random five different ways, with the sole restriction that no two items from the same category would be adjacent to each other. Each subject was presented a different ordering of the five list arrangements on his five trials.

Procedure

Each subject was told that he was participating in a study of memory, that he would be given a list of words to remember in any order he liked, and that the experimenter would go through the list a total of five times. The subject was to recall verbally what he could remember after each trial. Each list of random words was presented with an interval of approximately two seconds between each word. After the experimenter had read the complete list, the subject's responses were tape-recorded for each trial. Later each subject's performance was transcribed and coded for computer analysis.

TABLE 13.1
*Conceptual Categories and
Member Items for Word List*

Black Categories		
I Drugs	II Types of Dance	III Soul Food
smoke	bump	chicken
coke	latin	greens
ups	grind	cornbread
downs	robot	chitlins
acid	truckin'	ribs
Universal Categories		
IV Tools	V Utensils	VI Clothing
drill	spoon	shirt
axe	plate	hat
saw	cup	socks
file	glass	pants
hammer	pan	shoes

Results

The data were analyzed for the number of items recalled and the degree of categorical clustering. A *t*-test between the male and the female results within the Black student population was not significant, thus eliminating the influence of sex differences on these results.

The average number of items recalled showed a steady increase over the five trials for both Black and White students— $F(4,128) = 35.50, p < .005$ (see Figure 13.1). Overall, there was no significant difference in the amount recalled by both groups. However, there was a significant interaction between race of subject and trial in recall— $F(4,128) = 4.37, p < .005$. Figure 13.1 makes clear the nature of this interaction. In comparison with White students, Black students recalled more in later trials than in earlier trials.

Analysis for the degree of categorical clustering* using the *z*-score

* The *z*-score is based on the number of runs of similar items in the recall list. This is calculated by the formula:

$$Z = \frac{O_r - M_r}{\sqrt{V_r}}$$

where M_r is the mean number of runs, V_r is the variance, and O_r is the observed number of runs. For detailed discussion of this formula and procedure, see Frankel and Cole 1971.

measure applied by Cole, Frankel, and Sharp (1971) and Jensen and Frederiksen (1973) indicated that Black students clustered their recall more than White students did— $F(1,32) = 9.63, p < .005$. Figure 13.2 graphically presents evidence that Black students clustered on later trials two to three times as much as the White students did—a difference that is reflected in a highly significant groups-by-trials interaction— $F(4,128) = 12.43, p < .005$.

To elucidate further the utilization of categorical recall as a mnemonic device, correlations between the number correct and the amount of clustering were computed for trial V, where performance differences between groups were largest. The data show that Black students' recall was more affected by the use of categories ($r = .95, p < .01$) in comparison with White students ($r = .27, p < .10$).

These results suggest that although both Black and White students recalled approximately the same amount of words, their strategy for recalling differed. It is clearly evident that the Black students employed categorical clustering as the mnemonic technique in remembering, whereas the White students did not to any great degree. Moreover, the correlations between the number correct and the amount of clustering suggest that categories were used as a device for remembering by Black students but not by White.

To understand better the nature of the results, it was decided to look at the responses in terms of the two major conceptual categories built into the task—that is, Black and Universal. Responses for each student group on trial V were again evaluated for the number correct, the amount of clustering, and the recall-clustering correlations. But in the analysis the data are collated by category types.* When the data are broken down in this way, the findings for the number correct are consistent with the overall analysis. There is no significant difference in the amount recalled between student groups and categorical conditions.

Likewise, we find that the amount of categorical clustering is consistent with the overall result insofar as Black students are using categories for recall at least twice as much as the White students are. This is the case for both major conceptual categories established by the experimenter. *T*-tests between the mean *z*-scores for Black and White students in the Black and Universal categories are highly significant—Black categories: $t(35) = 4.75, p < .01$; Universal categories: $t(35) = 2.13, p < .05$. The correlation coefficients for each class of category give us the first clue about the

* To get a measure of clustering on individual categories, the Frankel-Cole (1971) *z*-score measure was applied in a manner analogous to the way in which this score was applied to the list as a whole. The amount of clustering contributed by a particular category was calculated by computing the *z*-score with the data coded as a binary sequence with the target category and all other categories forming the two item types. This procedure was repeated for each category on each trial. The results in Table 13.2 represent the average *z*-score for the three categories included in the "Black" and the "Universal" classes.

FIGURE 13.1
Average Number of Correct Responses per Trial

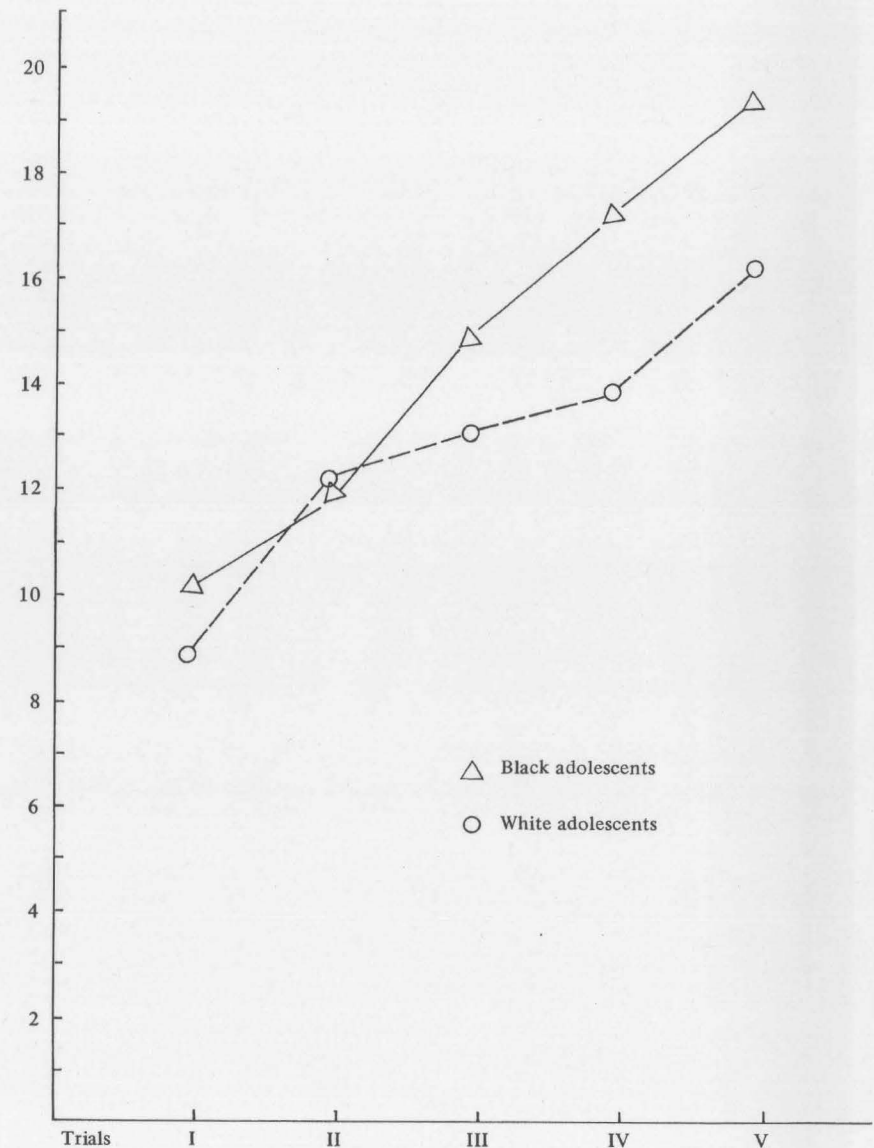
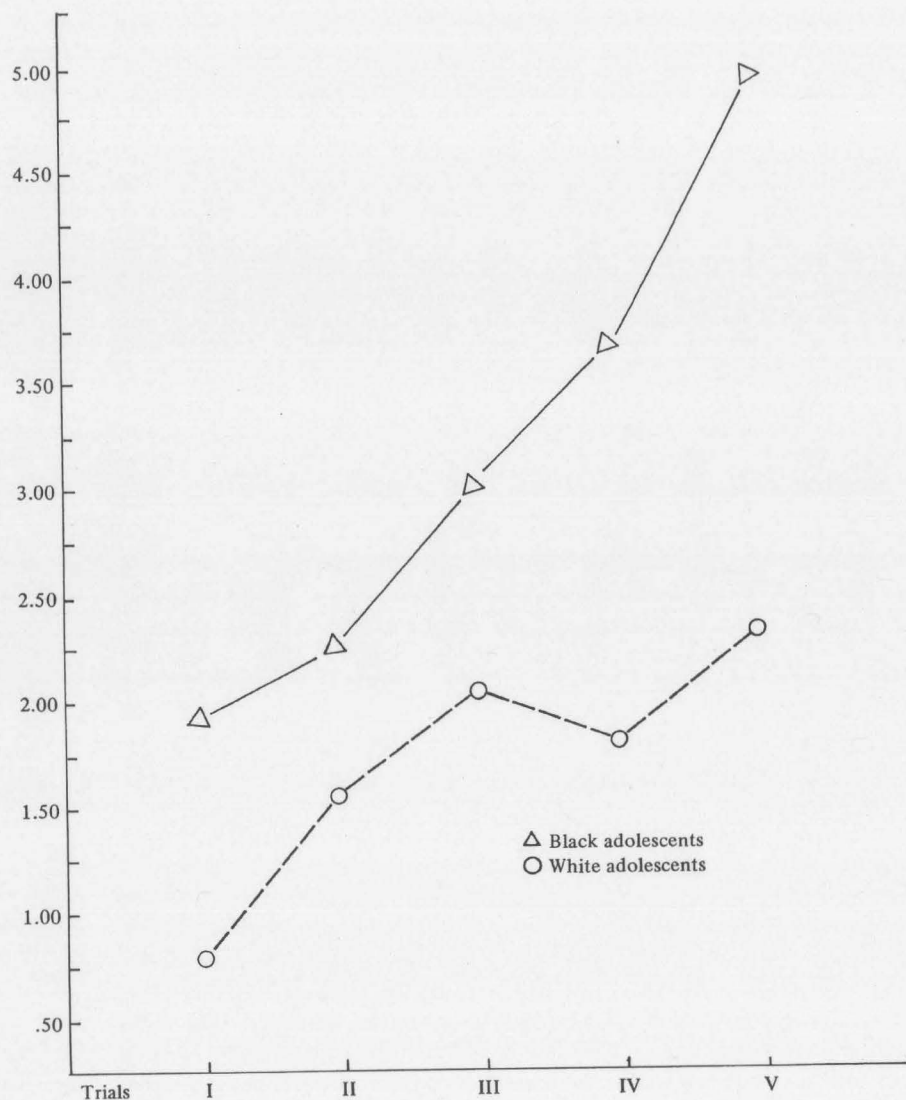


FIGURE 13.2
Average Cluster Z-Scores per Trial



Cultural Content

TABLE 13.2
Trial V: Recall, Clustering, and Recall-Clustering
Correlations by Subcategory of Items

	Black Students			White Students		
	Mean Recall	Mean Z	$r_{x,z}$	Mean Recall	Mean Z	$r_{x,z}$
Black categories	9.94	1.93	.83	8.65	0.29	.08
Universal categories	9.35	1.50	.89	7.50	0.57	.70

source of the performance deficit in the clustering of the White students. Although a relatively small amount of clustering occurred for White students in the Universal categories, there was a high relationship between clustering and the amount recalled, indicating a use of categorical recall in this instance. No correlation was evident for the Black items. It may be hypothesized that the use of category recall for the Universal items was partially interfered with because of difficulty categorizing the Black items. This interpretation is consistent with the comments by subjects during and after testing. Several White students remarked that they had "never heard of some words" and/or "could not group them like a few of the others." The seemingly miscellaneous nature of many of the Black items for the White students apparently contributed to the overall poor performance in categorized recall.

Discussion

The fact that White students did not use categorical clustering as the method for recall is somewhat inconsistent with expectations. Theory and previous research indicate that by the age of adolescence conceptual ability is more complex, formally organized, and differentiated. Adolescents manifest their cognitive development by greater utilization of categorical clustering as a facilitator of memory in contrast to young children (Cole, Frankel, and Sharp 1971; Ginsburg and Oppen 1969; Bousfield 1953). Similarly, Jensen's hypothesis of level I and level II mental ability is a distinction between rote learning and memory (level I) and abstraction and conceptual learning (level II). Level II learning is developmental and

acquired with age. Verbal recall is an index of level II processes; that is, verbal recall requires associative clustering in which the subject, in order to remember effectively, must organize the stimuli into superordinate categories. Therefore, it is reasonable to expect that since level II ability is developed in older children, adolescents should employ categorical clustering in free recall tasks. The Black students' performance supports this expectation, but the White students' does not, as they seem to have utilized a rote memorization strategy characteristic of the level I mental process. The reason for this result is difficult to determine. However, an explanation for the White students' deficient performance may rest with the way they approached those parts of the recall tasks that were deliberately derived from the experiential frame of reference of the Black students. Without considering the derivation of the materials for recall, we could interpret the performance of the White students as indicating deficient development in conceptual ability—that is, in level II processes—for their age. However, further analysis of the White student performance on the experimenter's designated categories presents additional evidence about the effect "tasks" can have on performance. Moreover, it highlights how results at face value can lead to misinterpretations of the data.

These results point to the need for further systematic study of the extent that cultural and social contexts determine human learning and development, and, moreover, suggest that greater attention must be paid to the way experiments and instruments of measurement are determined by their cultural and social contexts. The performance differences among Black and White students reveal the influence that materials play in behavioral responses. It is reasonable to assume that the categorized recall of White students was inhibited by their inability to recognize suitable categories for many of the items derived from the "Black experience." Rote memorization was obviously the technique employed by the White students to achieve the number recalled. After further analysis of the White students' performance, the hypothesis that they devised idiosyncratic categories different from the experimenter's was unsubstantiated. Using a measure of subjective organization intertrial repetitions (ITRs) refined by Pellegrino (1971), none of the White students developed a unique pattern of grouping the words into what can be construed as a "personalized classification scheme." Moreover, the seemingly nonclusterable Black items tended to depress the categorized recall of those Universal items perceived as clusterable. Consequently a list of words designated as categorizable by the experimenter became in effect to the White students a mixed list of clusterable and non-clusterable words. The resulting performance was a reduction in categorized recall.

The implications of this study are many. It first demonstrates how the

content of experimental tasks can alter the expectations of performance in a given population because of the contexts (cultural or social) from which measurement materials are derived. Additional research planned by the investigators will vary the content of materials and populations for comparative performance. Testing multiple conditions of task structure and content will determine the strength of this initial finding. Furthermore, it will lend greater credence to the thesis that the manifestation of basic abilities is intricately bound to the contexts (social or cultural) in which learning and development most often occur. Therefore, measurement instruments of higher mental processes must be sensitive to and reflective of the ecology of learning for different populations. An additional implication of this study is more a suggestion of approach in research strategy. To gain a better understanding of performance, particularly intellectual performance, it may be more advantageous to focus on the specific population and contextual characteristics that define abilities. Standard normative procedures of establishing general areas of expected competence among diverse groups reveal little about the process and subsequent outcome of learning and maturing in multifaceted social environments. It may be more appropriate for researchers to adopt a "hypothetico-inductive" procedure in the study of human cognitive development, with learning environments as the focal point. The identification of common abilities would evolve from the specification and comparison of parallel development among groups with diverse learning ecologies.

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Recall and Memory Organization from Variations in List Content: A Test of the Culture-Specific Hypothesis*

Anderson J. Franklin

Since Bousfield's (1953) study of memory in free recall, researchers in this area have sought to investigate the dimensions of memory organization. Mandler (1970) and Bower (1972) have been leading proponents in postulating an organizational theory of free recall performance. The substance of this theory has its roots in the tenets of gestalt psychology which emphasize the importance of the principles of organization or, specifically, the laws of perceptual grouping. One assumption in organizational theory is that the manner of organization imposed upon a list is contingent upon the subject's perception of the structure of the list. Moreover, it is assumed that a governing principle in this process is the degree of similarity between stored information and the impinging stimuli. Organization of verbal material therefore is, in part, a function of prior linguistic experience (Postman 1972). Within this theoretical context an assumption of this study is that the perception of the organizational structure of a word list is a product of the subject's primary social and educational experiences. Moreover, to determine organizational ability, if verbal material is employed it must closely correspond to the manner in which language was ordered and used in the sociolinguistic history of the subject population.

On the basis of these assumptions it is reasonable to expect that a word list closely derived from the socioeducational experiences of subjects will differentiate performance among distinct social groups. Recent studies on the contextual basis for learning and performance indicate that inferences about ability of different cultural groups must be tempered by consideration

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of how cultures influence the conceptual framework of its members (Cole and Bruner 1971; Cole and Scribner 1974). Such research intimates that variation of cognitive ability in different groups is, in part, a function of the cultural validity of the task and/or the degree to which it matches the previously stored information of the given population.

The purpose of this study was to determine the effect on amount recalled and on categorical clustering when the content of word lists is developed from the sociolinguistic experiences of the population. A previous study of Franklin and Fulani (1974) demonstrated that the cultural content of a free recall task can alter the expected performance for specific ethnic groups if that content is representative of their experiential domain. Contrary to the trend reported by Jensen and Frederiksen (1973) of less categorical clustering by Black children than by White children, Black subjects, when given a word list partly incorporating their "street colloquialisms," excelled over White subjects in organized recall. According to Jensen's two-level theory of ability, the advanced intellectual stage of development includes organized recall as a measure distinguishing rote learning and memory (level I) from conceptual thinking (level II) (Jensen and Frederiksen 1973). It was concluded that the cultural relevancy of the list content for the Black subjects interfered with the process of organization for the White subjects. This interference was attributed to the perceived nonclusterable nature of the words derived from the Black experiential base. As a further effort to determine the impact of varying the sociocultural source of word list content, this study was conducted with greater variation in the source from which content is derived and in its structural relationships (that is, variation in the degree of the sociocultural homogeneity of list content).

Method

Subjects

In the development of materials, 109 Black and White female students, from grades nine to twelve in an urban parochial high school, were used. For the portion of the study on free recall, individuals were randomly selected from the same classes that participated in the development of the materials. At least one month separated these two phases of the experiment. There were 80 subjects, equally divided into lower grades (ninth- and tenth-grades) and upper grades (eleventh- and twelfth-grades) by race and by one of five different word lists. The mean ages for Black and White sub-

List Content in Free Recall

jects in the lower grades were 14.8 and 14.9, respectively, and those in the upper grades, 17.0 and 16.9, respectively.

Materials

In order to establish materials close to the socioeducational experience of the population to be studied, the subject pool was surveyed for examples to be included in each category. Procedures of this first phase of the research followed a format established by previous word classification studies (Shapiro and Palermo 1970; Battig and Montague 1969; Franklin and DeJesus 1976). The various word lists were developed, in part, from the analysis of the survey. For each racial group, word categories and samples having the greatest group consensus were identified, and included in the lists. For comparative purposes, word categories used in previous free recall studies were also included. Table 14.1 shows the five lists, each containing thirty words distributed in six different categories. In the Black/Black list (BB), the first three categories had high group consensus among Black subjects, and the last three were the "Black culturally relevant" categories used in a previous study by Franklin and Fulani (1974). The White/White list (WW) was composed of six categories with comparable levels of high group consensus among White subjects. The Universal/Universal list (UU) had standard categories selected for their frequency of use in free recall studies (Cole, Frankel and Sharp 1971; Jensen and Frederiksen 1973; Mensing and Traxler 1973). In the White/Universal list (WU), categories were identical to those used in the previous study by Franklin and Fulani (1974), except that the words in the first three categories represent the group consensus of White subjects. The Black/White list (BW) represented three high consensus categories of each group, excluding those categories where an overlap of terms would exist.

Procedure

Subjects were tested individually by an experimenter. Each student was told that she was participating in a study on memory, and that she would be required to recall a list of words read aloud. A list of thirty words in random order was presented at a rate of two seconds per word. After each presentation, the subjects were asked for immediate recall. Each subject had five trials. Performance was measured by the amount recalled and the degree of clustering the words into categories. The measure of category organization of recall is from the model by Frankel and Cole (1971). At the end of the fifth trial subjects were asked to label categories they recognized within the word list. Then each subject was told the exact category labels and given a sixth trial.

TABLE 14.1
Word Lists

I Black/Black	<i>Black Athletes</i> Willis Reed Walt Frazier Earl Monroe Willie Mays W. Chamberlain	<i>Black Leaders</i> Angela Davis Jesse Jackson Malcolm X M. L. King H. R. Brown	<i>Black Musicians</i> S. Wonder James Brown Jackson 5 Marvin Gaye Temps	<i>Soul Food</i> cornbread greens chicken chitlins ribs	<i>Drugs</i> smoke coke ups downs acid	<i>Dances</i> bump grind trucken' twist robot
II White/White	<i>Athletes</i> Mark Spitz D. DeBusschere Walt Frazier Joe Namath B. J. King	<i>National Leaders</i> R. Nixon J. Kennedy G. Washington H. Kissinger A. Lincoln	<i>Musicians</i> John Denver Jim Croce Rolling Stones Elton John Beatles	<i>Food</i> steak potatoes spaghetti chicken hamburger	<i>Drugs</i> ups pot downs heroin LSD	<i>Dances</i> Irish jig lindy rock 'n' roll twist bump
III Universal/ Universal	<i>Fruit</i> apple orange plum peach pear	<i>Furniture</i> bed chair dresser lamp table	<i>Animal</i> cat dog horse birds fish	<i>Clothing</i> hat shirt pants shoes socks	<i>Utensils</i> glass cup plate spoon pan	<i>Tools</i> file drill hammer axe saw
IV White/ Universal	<i>Dances</i> Irish jig lindy rock 'n' roll twist bump	<i>Drugs</i> ups downs pot heroin LSD	<i>Food</i> steak potatoes spaghetti chicken hamburger	<i>Clothing</i> shirt pants shoes hat socks	<i>Utensils</i> glass cup plate spoon pan	<i>Tools</i> file drill hammer axe saw
V Black/White	<i>National Leaders</i> R. Nixon J. Kennedy A. Lincoln G. Washington H. Kissinger	<i>Musicians</i> John Denver Jim Croce Rolling Stones Elton John Beatles	<i>Dances</i> Irish jig rock 'n' roll lindy bump twist	<i>Black Leaders</i> M. L. King H. R. Brown Jesse Jackson Angela Davis Malcolm X	<i>Soul Food</i> ribs cornbread chitlins greens chicken	<i>Black Musicians</i> James Brown Jackson 5 S. Wonder Temps Marvin Gaye

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Results

The data were analyzed in terms of the effect by list content, race, and grade, and their interactions. There was a significant main effect by list content in recall and organization— $F(4,60) = 3.26, p < .02$, and $F(4,60) = 3.80, p < .01$, respectively. Table 14.2 shows that the subjects' performances varied, both in amount recalled and in organization, according to type of list. Moreover, there is a rank difference correlation by type of word list between amount recalled and organization— $\rho = .99, p < .05$; that is, there was a relationship between those lists from which little was recalled and those producing a low degree of organization.

A comparison of group means by list shows that the largest difference in recall and organization occurred between the Black/White and White/White lists. Both recall and organization were better with the White/White list than with the Black/White list—recall: $t(14) = 2.89, p < .02$; organization: $t(14) = 3.53, p < .01$. Performance on the Black/White list was lowest. Recall performance on this list also differed significantly from the Black/Black list— $t(14) = 2.66, p < .02$ —and differed in organization from the White/Universal list— $t(14) = 2.50, p < .05$. No other significant differences among group comparisons were obtained.

There was no significant main effect or interaction in either amount of recall or organization of memory by race of the subjects. This result is contrary to the expected impact of the socioeducational content of materials on ethnic group differences in recall, as well as to the trend of evidence on this topic in prior research (Franklin and Fulani 1974; Jensen and Frederiksen 1973).

A significant main effect for grades and interaction between grade and list type was obtained. Table 14.3 shows that subjects in the lower grade levels (ninth and tenth) recalled and organized their recall less than subjects in the higher grade levels (eleventh and twelfth)—recall: $F(1,60) = 13.45, p < .001$; organization: $F(1,60) = 8.90, p < .005$. The significant

TABLE 14.2
Recall and Memory Organization by Type of Word List

Type	\bar{X} Recall (rank)	\bar{X} Z-Score (rank)
Black/Black	15.84 (2)	3.29 (3)
White/White	16.24 (1)	3.64 (1)
Universal/Universal	14.41 (4)	2.54 (4)
White/Universal	14.42 (3)	3.31 (2)
Black/White	12.91 (5)	2.01 (5)

interaction between list type and grade shows that the amount of recall and organization varied for grades according to the type of word list content presented—recall: $F(4,60) = 3.59, p < .02$; organization: $F(4,60) = 3.76, p < .01$.

Duncan's Multiple Range Tests were calculated to analyze performances between groups ($p < .05$). The results include analysis in both recall and organization.

Group Comparisons within Grade Level

For the students in the lower grade levels, the amount of recall in the UU list was significantly less than performances in both the WW and BW lists ($UU < BB$ and WW). There were no other significant differences among the other group comparisons for recall within these grades. For the upper grade level, only the mixed content list (BW) differed significantly from the amounts recalled in all the other lists ($BW < WU, UU, WW, BB$).

Analysis for the extent of categorical clustering proved that in the lower grades there was significantly less organization of recall in the UU list than in the WW and BB groups ($UU < WW$ and BB). In the upper grade level, organization of recall was only significantly different between the UU and BW groups ($UU < BW$).

Group Comparisons between Grade Levels

Comparison of group means between grade levels showed that recall for two list types in the lower grades was significantly less than the performances among four groups in the upper grade level; that is, the UU and WU groups in the lower grades recalled significantly less than the upper grade groups for the WU, UU, WW, and BB lists. In addition, the amount recalled for the BW group in the lower grades was significantly less than the amount recalled for the WW and UU groups in the upper grade levels.

TABLE 14.3
Recall and Memory Organization by List Type and Grade Level

Type	Lower Grade Level (9 and 10)				Upper Grade Level (11 and 12)			
	Recall (rank)		Z-Score (rank)		Recall (rank)		Z-Score (rank)	
BB	15.60	(1)	3.31	(4)	16.07	(3)	3.28	(4)
WW	14.92	(2)	3.32	(5)	17.55	(4)	3.96	(2)
UU	11.20	(5)	1.02	(1)	17.62	(5)	4.06	(1)
WU	12.80	(4)	2.72	(3)	16.05	(2)	3.90	(3)
BW	13.30	(3)	2.15	(2)	12.52	(1)	1.87	(5)
\bar{X}	13.56		2.50		15.96		3.41	

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Between grade analysis for the extent of categorical clustering revealed that only the UU group in the lower grades had significantly less organization of recall than the UU, WW, WU, and BB groups in the upper grade levels.

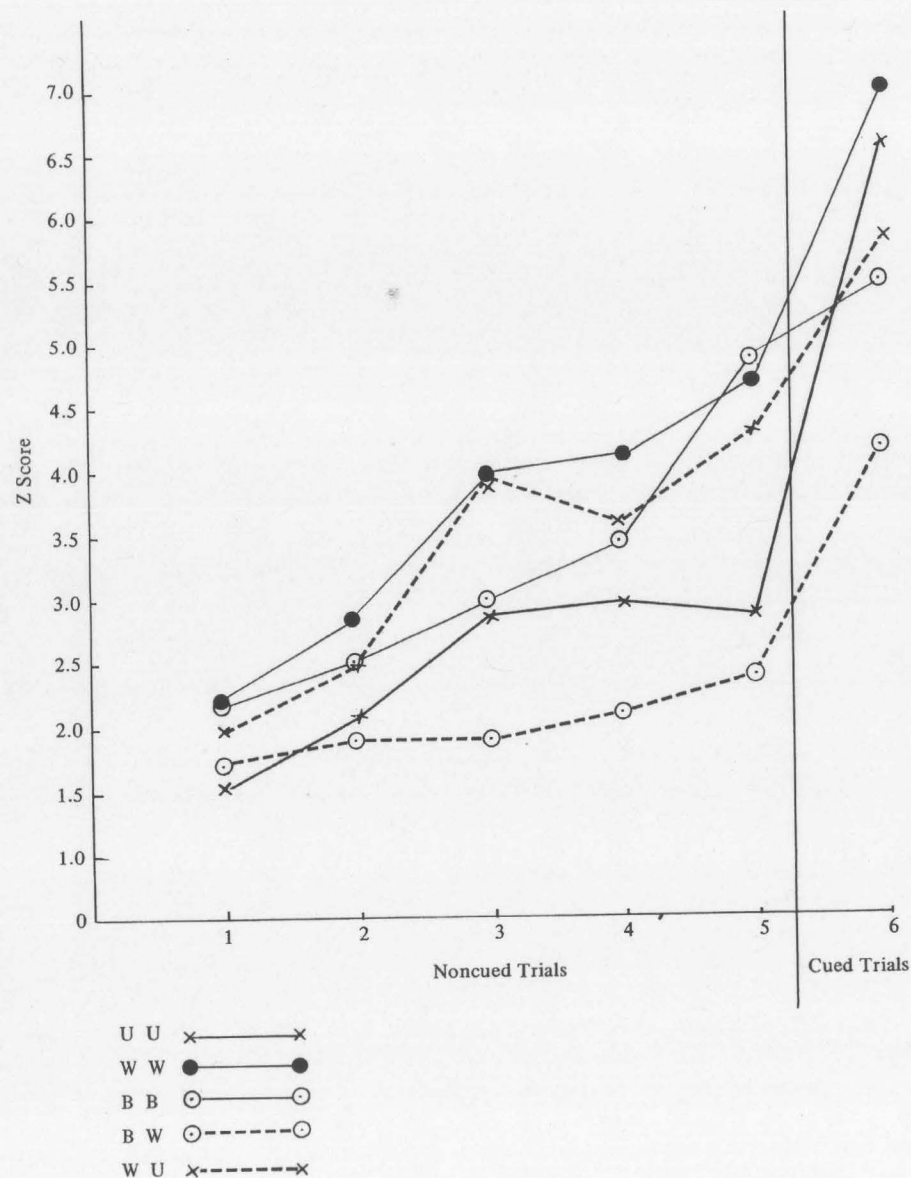
Commensurate with the previous evidence on variation in performance is the significant improvement of organization of recall across all trials (see Figure 14.1), but with varying levels of achievement by list type— $F(16,40) = 1.74, p < .05$. It is of interest that the mixed content of the Black/White list showed little progressive improvement from the first to the fifth trial, substantiating its apparent level of difficulty for subjects. Other content groups at least eventuated into steeper slopes of trial-by-trial achievement. The order of level of difficulty between list types remained fairly consistent across all trials for organization of recall.

Figure 14.1 also shows the impact, on the organization of recall, of describing the categorical structure of word lists to subjects in a subsequent (sixth) cued trial. Clustering the recall increased significantly for all list types between the fifth and sixth trial— $F(4,60) = 5.75, p < .001$. The most outstanding improvement occurred in the Universal/Universal list, where organization of recall more than doubled that of the preceding trial (see Table 14.4). All other lists remained in the same ordered position as for previous trials. There was no significant increase in performance by amount of recall between the fifth and the sixth trials— $F(4,60) = 0.59$.

Discussion

The purpose of this study was to determine whether the variations in the sociocultural source of word list content differentially affected free recall performance. The data confirmed that different levels of performance can be obtained by manipulating content of word lists according to their source of derivation. A factor in the variation in performance is the degree to which the composition of a word list is homogeneous in source content rather than mixed. This is particularly revealed in the performance on the mixed Black/White list when compared with the structurally homogeneous lists (that is, BB and WW). In one instance, the organization of recall in a mixed list (WU) excelled that of the Black/White mixed content. This can possibly be attributed to the more traditional categories of the WU list than to those of the Black/White list. From these results, the structural characteristics of a word list become extremely important in determining

FIGURE 14.1
Organization of Recall by List Type: Noncued and Cued Trials



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TABLE 14.4
Organization of Recall between the
Fifth Noncued Trial and the Sixth
Cued Trial by List Type

List Type	Noncued Trial 5	Cued Trial 6
Black/Black	5.31	5.57
White/White	4.78	6.75
Universal/Universal	2.98	6.52
White/Universal	4.30	5.76
Black/White	2.38	4.20

organizational ability in memory. Part of the mediating factor of performances in this study was the extent to which subjects were capable of distinguishing relevant categories for organizing the recall. An examination of the content of the various word lists indicated that one possible explanation for the overall poor performance on the BW list was the number of categories requiring the recall of proper names. Because of this, subjects differentiated between categories less, even though in the classification phase of the study such categories were distinguished.

Examination of the list type with the highest performance scores (WW) suggests that the subcategories have a greater pertinence in the mnemonic structure for the total adolescent sample. Certainly, each instance per category was germane and prevalent in the experiential domain of the subjects. In a postexperiment interview, subjects had little difficulty identifying and labeling the subcategories for the list of words. This was generally true for all lists. Analysis of subcategory labeling patterns per list type revealed little difference in the success of category identification in each list. This, therefore, raises an empirical question about the relationship between a person's ability to generate exemplars for taxonomic classification and his ability to use them mnemonically when embedded in a recall task. The issue of correspondence between stimulus properties of taxonomic categories gained in classification studies, and the manner in which such information is stored and retrieved in human memory, still requires further research. Moreover, another aspect of such an empirical endeavor is to determine how the prevalent sociolinguistic history of a population further mediates the manner in which information is processed.

Confusing evidence from the study which conflicts with the argument of the effect of structural characteristics of word list content is the low performance on the homogeneous categories of standard words (UU). Given the categorical composition of this word list (that is, fruits, furniture, animals, clothing, tools, and utensils), and considering the developmental evi-

dence on free recall in children (Cole, Frankel, and Sharp 1971), one would expect that adolescents would excel on this list. The data reveal that subjects on the lower grade levels had the poorest performance on this list, whereas those on the upper grade levels performed as expected. Given the age of the lower grade subjects in comparison with that of subjects in other studies using similar categories, performance should have been better. One theoretical explanation for the difference in this performance involves episodic memory, which emphasizes the linkage of stored information to an autobiographic reference or temporally dated episodes (Tulving 1972). This suggests that Universal categories for this age group were not as dominant in their stored information as the categories, because of their possible position in the sociolinguistic hierarchy in contrast to the characteristics of the other word lists. Collins and Quillian (1972) indicate that the semantic properties of concepts are diverse and generate a variety of inferences that can effect the way information is stored and subsequently accessible for retrieval.

There is also the supposition that the Universal list content is more closely linked to formal educational experiences than the informal social usage of words contained in the content of the other lists. That is, although the Universal categories are words easily subsumed in classes, their frequency of use is more associated with either skills of literacy (that is, reading and writing) or limited situational circumstances in contrast to the other content conditions.

The further analysis of the data by group comparisons for within and between grades shows the Universal/Universal content for the lower grades consistently producing poorer performances than two other lists. This was not the case for subjects in the upper grade levels which had greater difficulty with the Black/White mixed content. For the lower grade subjects, also, this was a difficult list and accounted for differences in performance with other types of lists. In contrast, the lower grade level subjects showed greatest production on homogeneous content (BB and WW). Since there are no ethnic group differences in performance, in spite of the derivational intent for materials, this order of difficulty in content perhaps reflects the experiential differences in development. The fact that there are no significant race differences in performance lends greater credence to a developmental explanation of the results; that is, as adolescents increase their years in secondary education, they increase their capability to recall and organize different types of information. Therefore, there is a concomitant equalization in command of standard and socioeducationally specific materials. This expectation is certainly consistent with theory on cognitive development (e.g., Ginsburg and Oppen 1969).

The other possible interpretation of an absence of ethnic group differ-

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ences in performance is its implications for integrated education. This sample was drawn from a population whose members, although diverse in ethnic background (that is, approximately equal thirds of Black, Hispanic, and White), are essentially similar in their working-class family status and a history of common parochial school experiences. For this sample formal educational experience is comparable. Based on this evidence, the argument for integrated education is enhanced, and the pejorative empirical findings of ethnic group differences in cognitive ability are brought into serious question—particularly when there is an equating of aspects of experiential background in the sample. Therefore, in seeking to understand intellectual development, one must consider not only the cultural pluralism in our informal experiences but also the educational pluralism in our formal school experiences.

Finally, the performance on the sixth cued trial conforms with previous empirical findings (Tulving and Pearlstone 1966). Organization of recall was significantly improved, indicating a positive cuing effect. It is assumed that with the provision of category labels subjects' access to categories and available items facilitated the organization or recall across all list types. Although some theoretical controversy persists about the effects of cuing on recall and clustering (Postman 1972; Murdock 1974), the significance of the results in this study for testing a culture-specific hypothesis is that structurally diverse lists predicated on a sociocultural thesis can meaningfully influence performance levels. The task at hand is to sort out the hierarchical properties and associative strengths of categories and exemplars considered fundamental to the sociolinguistic history of experientially diverse groups.

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Story Recall in Young Black and White Children: Effects of Racial Group Membership, Race of Experimenter, and Dialect*

William S. Hall, Stephen Reder, and Michael Cole

A great deal of research in the past decade has been devoted to an evaluation of the significance of dialect differences for educational performance of Black and White schoolchildren. Two general questions, neither of them definitively resolved, have dominated inquiry in this area. First, what is the linguistic status of "Black English"? Is it a degraded version of Standard English or an autonomous linguistic system? Despite a great deal of disagreement about specifics, the bulk of scholarly evidence suggests that Black English is a separate system, historically connected to Standard English, but possessing distinct phonological and grammatical forms (cf. Baratz 1969; Hall and Freedle 1973; Labov 1970; Simons 1973; see Hall and Turner 1973, for a dissenting view).

A second question to which psychologists have addressed themselves is: Granted that Black English has at least some distinct features differentiating it from Standard English, what are the cognitive and educational implications of agreed-upon differences between Black English vernacular and Standard English?

Research on the cognitive implications of speaking Black English vernacular has most often concentrated on the role of Black English vernacular and Standard English dialects in the comprehension and production of isolated sentences. Although both comprehension and production differences have been reported for some populations and some tasks (e.g., Baratz 1969; Labov 1972; Osser, Wang, and Zaid 1969), there has been little direct evidence to support Baratz's contention that standard test perfor-

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