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AUTHOR O'Donnell, Roy C.
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ABSTRACT

The purpose of this study was to explore the possibility of designing an instrument to obtain information about word associations with certain factors held stable. The instrument developed, Words in Pairs, consisted of 20 items, each item containing four words. The first eight items required the subject to pair a noun with another noun of the same subcategory or with a verb or adjective. Items 9 through 16 required pairing a noun with another noun, items 17 and 18 allowed pairing of a verb, and items 19 and 20 allowed pairing of an adjective with another adjective. the instrument was administered to 87 ninth graders. The results indicated that words of the same syntactic category tend to be paired on word associations tasks and that the strongest ties are between words of the subcategory. The results of administering the instrument suggest that Words in Pairs is easy to administer and score; however, both the number of items were inadequate. It was suggested that a revised instrument should include a wider range of words and more items in order to allow greater variety of responses. (WR)

AN INSTRUMENT TO EXPLORE CATEGORY FEATURES AS DETERMINANTS OF CHOICE IN PAIRING WORDS

by

Roy C. O'Donnell

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Department of Language Education, The University of Georgia
Athens, Georgia

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More than fifty years ago Woodrow and Lowell (1916) found that the word associations of children differ from those of adults. Numerous studies have confirmed the consistency of the pattern of differences. Woodworth (1938) contrasted the responses of 1000 children and 1000 adults to such stimulus words as table, dark, man, deep, etc. Adults tended to associate the noun chair with the noun table (274 out of 1000) and the adjective light with the adjective dark (427 out of 1000). Children tended to associate the verb eat with table (358 out of 1000) and the noun night with dark (421 out of 1000). Adult associations of table and eat and of dark and night were much less frequent than were those of children. Similar differences were reported for various words.

Using semantic terminology, it can be said that children give more contiguity and whole-part responses, while adults give more coordinate, contrast, and similarity responses. Using syntactic terminology, it can be said that children tend to associate adjectives with the nouns they might modify and to associate verbs with object nouns. Ervin (1957) emphasized the syntactic aspect of the differences between child and adult responses. She called attention to the fact that associative responses of adults more often belong to the same part-of-speech category than do the responses of children. Thus, the adult type of response may be referred to as homogeneous by part of speech and the child type of response as heterogeneous by part of speech. More recently, homogeneous responses have been referred to as paradigmatic and heterogeneous responses as syntagmatic.

Brown and Berko (1960) administered a free association test consisting of 36 words equally distributed among the following part-of-speech categories.

and subcategories: count nouns, mass nouns, adjectives, transitive verbs, intransitive verbs, and adverbs. Their results confirmed that adults tend to associate words by category and indicated a pattern of association by subcategory as well, e.g., count nouns were associated with count nouns and intransitive verbs with intransitive verbs.

Brown and Berko's test instrument allowed free association responses and was administered in oral form to children as individuals. For their purposes, as for the purposes of most such studies, individually administered oral tests are necessary, but the procedures are obviously cumbersome and time-consuming. It is conceivable, however, that valuable information about word associations of adults and school-aged children could be obtained from a different testing format. It is the purpose of the study reported here to explore an alternative to the free association word test administered in oral form to individual subjects.

Miller (1969) devised a technique for elicitation of non-oral responses. By the use of cards with individual words written on them, he was able to get subjects to reveal their associational preferences. Anglin (1970) used this sorting technique and compared its results with results obtained using free-association and free-recall techniques. Smith (1972) used a similar sorting technique in a study of semantic features in children's language. He gave each of his subjects an envelope containing 26 slips of paper that had been shuffled to avoid setting up any definite order. On each slip was printed one of the 26 words used in his study. Subjects were told to put the words that meant "the same sort of thing" into the same pile and were not restricted as to number of piles or number of items per pile. Later the same subjects were asked to sortthe 26 words into three piles. No time limit was imposed

on either task. Zaidman (1972) modified the sorting technique by placing selected words in groups by common syntactic features, arranging the groups in columns, and asking subjects to pick out a matching word from an adjacent group. Subjects were told to "choose (for each item) the one word in the right-hand column that in your opinion is most similar in meaning to the group of words in the left-hand column." His technique allowed him to control the common features of words in test items and to administer the test to large groups. It also resulted in greater economy of time and effort in scoring responses.

The instrument used in the present study is titled "Words in Pairs." It resulted from an attempt to develop a simpler, more rigidly controlled instrument than the Zaidman test, which consists of 40 items, each item composed of six words. In contrast, "Words in Pairs" consists of only 20 items, each item composed of four words. This format provides faster response as well as tighter control over the features which may be associated than does the format of the Zaidman test.

The purpose of this study was exploratory. It was intended primarily to explore the possibility of designing an instrument to obtain information about word associations with certain factors held stable. It was also hoped that the instrument in its preliminary form would elicit interesting information about the relations of the words included.

Nouns included in "Words in Pairs" were selected to represent the following subcategories: Human (boy, man), Organic (tree, vine), Inorganic (pebble, stone), Abstract (justice, peace). Verbs (laugh, talk; die, grow; fall, roll; endure, fail) and adjectives (happy, sad; alive, dead; large, small; bad, good) were

selected on the basis of possible syntagmatic combinations (for example, Peace is good and may endure; A large stone may fall; A tree may be alive and grow; A happy boy may laugh; etc.).

Twenty items consisting of a stem word and three option words were constructed. The first eight items required the subject to pair a noun with another noun of the same subcategory or with a verb or adjective. Items 9 through 16 required pairing a noun with another noun, either of the same or a different subcategory (boy: man, tree, stone). Items 17 and 18 allowed pairing of a verb with another verb. Items 19 and 20 allowed pairing of an adjective with another adjective. Items 18 and 20 included the preposition into as one option.

The "Words in Pairs" instrument was administered to 87 ninth-graders in Banks County (Georgia) High School in November 1972. These students ranged between the second and ninetieth percentiles on the Cognitive Abilities, Verbal, section of the ITBS. Approximately half of them were ranked above the thirty-fifth percentile.

The number of subjects choosing each option was tallied for each item; this figure was divided by the total number of subjects (87) to determine the proportion of subjects choosing each option. In instances where two or more items allowed the same categories of response, the number of responses to each type of option was combined and divided by the number of items times 87. For example, items 1 and 5 call for pairing a human noun with an adjective, a verb, or another human noun. The number of noun-noun pairs for item 1 is 71 and the number for item 5 is 73; thus, a total of 144 out of a possible 174 (83%) of the pairs are human noun-human noun.

Results of the analysis of responses to "Words in Pairs" items are presented in Tables 1, 2, and 3. A copy of the instrument, with proportion of subjects responding to each option, is in the Appendix to this report. Comments on the results are given in the following paragraphs.

Data in Table 1 show that when subjects have the options of pairing a noun with an adjective, a verb, or another noun, the overwhelming preference (81%) is noun-noun. Noun-verb and noun-adjective pairs are comparatively infrequent (just over 9% for each).

TABLE 1

Proportion of Subjects Pairing Nouns with Nouns, Verbs, and Adjectives When All Three Options Are Available

	Nouns	Verbs	Adjectives
Nouns	.81	.09	.09

The choices of subjects by subcategory of noun are shown in Table 2. The most noticeable departures from the overall pattern of pairing nouns with other nouns are seen in the organic noun-verb pairs (17%) and the inorganic noun-adjective pairs (15%). Human nouns are paired with verbs by 11% of the subjects, and abstract nouns are paired with nouns of various subcategories by 91% of the subjects.

TABLE 2

Proportion of Subjects Pairing Nouns of Each Subcategory with Nouns, Verbs, and Adjectives

	Nouns	Verbs	Adjectives
Human Nouns	.83	.11	.06
Organic Nouns	.73	.17	.10
Inorganic Nouns	.79	.06	.15
Abstract Nouns	.91	.04	.05

Data presented in Table 3 show that when options are restricted to nouns of various subcategories, there is a strong preference for pairs of the same subcategory. At least, human nouns are paired with each other and organic nouns are paired with each other; items were not designed to test other subcategory pairs. The two items that allow pairing of a human noun with an organic noun, an inorganic noun, or an abstract noun (items 11 and 15) show a strong preference for human-abstract pairs (.88), but the number of items of this type is insufficient to show clear evidence of a pattern.

TABLE 3

Proportion of Subjects Pairing Nouns With Other Nouns When Only Noun Options Are Available

	Human Noun	Organic Noun	Inorganic Noun	Abstract Noun
Human Noun	.97	.02	.01	--
Organic Noun	--	.94	.01	.05

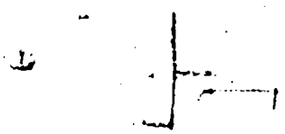
All items except the last four on the instrument required subjects to pair a noun with another word; items 17 and 18 included verbs and items 19 and 20 adjectives. It is interesting that verbs denoting human activity (talk and laugh) were paired by 97% of the subjects, but the verb denoting an organic process (grow) was paired with other verbs (roll and fall) by less than half the subjects. A stronger association of grow with the preposition into is indicated (.55). Items 19 and 20 show evidence of strong associations of alive with good (.85) and happy (.44). The association of grow with into may be accounted for by the fact that the two words frequently occur together in sentences. Happy, alive, and good share both syntactic and semantic features.

The accumulated evidence that words of the same syntactic category tend to be paired on word association tasks is supported by the results of this study. The more limited evidence that the strongest ties are between words of the same subcategory is also supported. On the other hand, the study offers some evidence that semantic ties are sometimes predominant. The frequency of human noun-abstract noun pairing (man, boy with peace, justice) and the pairing of semantically related adjectives may be interpreted as such evidence.

The results of administering "Words in Pairs" to 87 ninth-graders confirm that the instrument is indeed easy to administer and score. It seems evident, however, that both the number of words included in the instrument and the number of items are inadequate. The format of the instrument provides what appears to be a feasible approach to research in word association when it is desirable to restrict the range of choice, but there is obvious need for revision of the instrument itself.

The revised instrument should include a wider range of words and more items in order to allow greater variety of responses. It would also be desirable to collect data on the reliability of the instrument and to administer the instrument to subjects of various age levels.

APPENDIX



WORDS IN PAIRS

Directions: For each item, choose the one word in the group of three which you think goes best with the word on the left. Then mark on your answer sheet the space (a, b, or c) for the word you choose.

				**
1.	boy	a.	talk	.09
		b.	man	.82
	____	c.	happy	.09
2.	tree	a.	alive	.11
		b.	vine	.57
	____	c.	grow	.31
3.	stone	a.	fall	.07
		b.	pebble	.82
	____	c.	large	.11
4.	peace	a.	justice	.86
		b.	endure	.05
	____	c.	good	.09
5.	man	a.	boy	.84
		b.	laugh	.14
	___	c.	sad	.02
6.	vine	a.	dead	.09
		b.	die	.02
	___	c.	tree	.88
7.	pebble	a.	roll	.05
		b.	stone	.77
	____	c.	small	.18
8.	justice	a.	fail	.03
		b.	peace	.95
	____	c.	bad	.01
9.	boy	a.	man	.97
		b.	tree	.03
	____	c.	stone	.00
10.	tree	a.	peace	.07
		b.	stone	.00
	____	c.	vine	.93
11.	boy	a.	tree	.10
		b.	stone	.03
	____	c.	peace	.86
12.	tree	a.	peace	.33
		b.	stone	.54
	____	c.	justice	.11
13.	man	a.	pebble	.02
		b.	boy	.97
	____	c.	vine	.01
14.	vine	a.	pebble	.02
		b.	tree	.95
	____	c.	justice	.02
15.	man	a.	pebble	.05
		b.	justice	.91
	____	c.	vine	.05
16.	vine	a.	peace	.38
		b.	justice	.15
	____	c.	pebble	.47
17.	talk	a.	grow	.03
		b.	fall	.00
	____	c.	laugh	.97
18.	grow	a.	fail	.22
		b.	roll	.23
	____	c.	into	.55
19.	happy	a.	sad	.55
		b.	alive	.44
	____	c.	large	.01
20.	alive	a.	good	.85
		b.	into	.06
	____	c.	large	.09

**Proportion of subjects selecting option

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