

# Associative Responses to Double Entendre Drug Words: A Study of Drug Addicts and College Students

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*Discrete word associations to double entendre drug words and double entendre aggression words were studied in a drug addict group and a college student group. In addition, drug usage, drug attitudes, social knowledge of drugs, and factual knowledge of drugs were measured by use of a drug-behavior inventory. Findings indicated that addicts and students differed in associative responses to drug stimuli but not in associations to aggression stimuli. Drug usage, drug attitudes, and social knowledge of drugs correlated with free associative drug responses in most groups (i.e., addicts, students, males, females, Blacks, and Caucasians). In addition, a score reflecting variety of drug usage correlated positively with free associative aggression responses within the drug addict group, but correlated negatively with aggression responses within the college student group.*

Word association techniques as a methodology for measuring personality variables largely have been ignored for several decades. Nevertheless, by paying close attention to the selection of stimulus words, by careful selection of subjects who differ clearly on personality and cultural variables, and by attending to the semantic content of associations rather than relying exclusively upon response latencies, word association tests might have demonstrable value for certain assessment purposes.

Ambiguous or multiple-meaning words, including sexual double entendres, aggressive double entendres, drug argot, and homophones, have been considered potentially useful research tools by many psychologists (Brook & Heim, 1960; Galbraith, 1968; Galbraith & Taschman, 1969; Haertzen & Hooks, 1973; Jones, 1965; Lyle, Miller, & Monroe, 1970; Secord, 1953). Many multiple-meaning words have both socially stigmatized and socially acceptable meanings. Often the direction in which the words are encoded and the semantic content of associative responses can be predicted upon the basis of personality variables or from knowledge of the cultural groups in which individuals are immersed.

One area of research using multiple-meaning words has focused upon the reactions of drug addicts to words from the drug argot. Jones (1965) has shown

that drug addicts have a lower tachistoscopic recognition threshold for argot words than for nonargot words, matched for beginning letter, length, and Thorndike-Lorge frequency count. No threshold differences existed for control subjects composed of personnel working in a drug addiction hospital. An additional pair of studies (Altman, Bernick, & Mintz, 1972; Bernick, Altman, & Mintz, 1972), based upon the assumption that the emotional content of stimuli produces pupillary changes, showed that addicts showed greater pupil contraction to argot words than to nonargot words. Hospital personnel familiar with the drug argot, however, also showed the same degree of pupillary contraction.

In a study dealing directly with the word associations of drug addicts, Lyle et al. (1970) elicited associations to 30 drug words, and 20 words from prison slang. They tested five groups of subjects differing primarily in the length of their immersion in illicit drug use. Their findings showed that illicit drug users gave significantly more drug-related associations than subjects who were medically addicted, prisoners with no history of drug use, and hospital personnel who were also familiar with drug argot. They also found that illicit drug users and prisoners gave more antisocial (but nondrug) associations than other groups. The word association procedure seemed to hold promise as a means of measuring addicts' degree of past and present identification with the drug subculture. Subsequently, Haertzen and Hooks (1973) developed a dictionary of drug terms and drug associations for use by other investigators.

During recent years American college students have experimented with many types of drugs and shown attitudinal shifts about drug usage. The way in which people encode and associate to words from the drug argot is presumably a function of their past drug experience, their degree of knowledge or familiarity with drug terms, and the positivity-negativity of their attitudes toward drug usage. No prior research has examined differences between college students and drug addicts in regard to their associations to double entendre drug words. The purpose of the present study was (1) to compare the drug associations of college students and drug addicts, (2) to examine the role of attitudes, experience, and knowledge as determinants of the drug-related associations of college students and drug addicts, and (3) to examine aggression (or hostility) in the word associations of the two groups.

## METHOD

### Subjects

The experiment used 200 subjects. The college student sample consisted of 100 subjects recruited from Washington State University (50 Ss) and Central Community College of Seattle (50 Ss). The college student sample was further subdivided into 50 males (25 Black and 25 Caucasian) and 50 females (25 Black and 25 Caucasian).

The drug addiction sample consisted of 100 subjects recruited from the Center for Addictive Services, an affiliate of the Central Breakthrough Main-

tenance program in Seattle, Washington. This sample also consisted of 50 males and 50 females, with half of each gender group Black and half of each group Caucasian. Addict subjects were clients at the Central Breakthrough agency, which is a treatment center for opiate addicts. Only subjects who at the present were reportedly taking no drug other than methadone were used in the sample.

The two groups were equated on sex and race but did differ on age. The college student sample had a mean age of 19.38 ( $SD = 2.08$ ) and the addict group had a mean age of 25.71 ( $SD = 3.11$ ). The addict group also had a higher incidence of legal offenses, but precise data on arrests and convictions were not collected.

Subjects in both samples were seen anonymously. Only numbers assigned to the subjects were used for identification. All subjects were volunteers who were given repeated opportunities to discontinue without penalty.

### Double Entendre Word Association Test

The word association stimulus list consisted of 90 words, 60 of which were double entendre, or multiple-meaning, words and 30 that were neutral words used as filler items. The 60 double entendre words were divided into two classes: 45 words taken from the drug argot and 15 that could be encoded either aggressively or nonaggressively. The 45 drug-related words with numbers indicating their serial position in the total word list are as follows:

(1) acid, (2) pot, (3) dime, (6) bag, (7) dust, (9) powder, (10) bust, (11) bomb, (13) barb, (14) coke, (15) hit, (17) junk, (18) brick, (20) dog, (21) papers, (22) fix, (23) script, (25) lid, (26) shoot, (27) peanut, (28) crisscross, (31) button, (32) grass, (33) horse, (36) rig, (37) gold, (38) snort, (41) smack (42) windowpane, (43) flash, (45) crystal, (46) spike, (48) speed, (49) snow, (51) spoon, (52) roach, (53) track, (56) tea, (57) score, (58) rat, (60) trip, (61) sunshine, (62) joint, (63) charge, and (64) blues.

Of these argot words 68% were taken from the Haertzen and Hooks Dictionary (1973). The additional words were added from the authors' knowledge of drug slang.

The 15 words considered double entendres for aggression—some of which are homophones—are given with their serial position in the total list as follows:

(67) beat, (68) maul, (70) sock, (71) whip, (73) knock, (74) box, (77) punch, (78) club, (80) pound, (81) pop, (83) slug, (84) break, (86) mean, (87) dual, and (90) mug.

These aggressive double entendres followed the drug argot words in the total list. Their inclusion in the list parallels, but does not duplicate, the use of antisocial prison slang in the Lyle et al. (1970) study.

The remaining 30 words in the word association stimulus list, used as filler items, were neutral words (i.e., largely devoid of drug or aggressive connotations) taken primarily from the Kent-Rosanoff list (Kent & Rosanoff, 1910). Associative responses to these words were not scored in the study and the words are, therefore, not listed.

### Measurement of Drug Experience, Attitudes, and Knowledge

Stimulus affectivity (i.e., emotional impact) and stimulus familiarity are known to be potent influences upon word association responses (Cramer, 1968). The affectivity and familiarity of drug argot stimulus words is likely to be influenced by (1) past experience with drugs and the drug subculture, (2) attitudinal disposition toward drug usage, and (3) knowledge of drugs and the drug subculture. To measure these three variables a Drug Behavior Scale developed by Althoff (Schill & Althoff, 1975) was used.

The Drug Behavior Scale is a complex and lengthy questionnaire from which 11 different scores can be calculated. It attempts to measure attitudes toward five different classes of drugs and frequency of experience with the same five drug groups. The five drug groups are (1) marijuana, (2) hallucinogens, (3) stimulants, (4) depressants, and (5) opiates. Each drug category is defined for respondents and examples of specific drugs in each category are enumerated. The scale also measures subjects' knowledge of drugs and the drug subculture.

For purposes of this research, the scoring of the scale was simplified to yield four scores: (1) an overall attitude score, (2) a variety of experience score, (3) a factual knowledge score, and (4) a social knowledge score. No attempt was made to discriminate finely among attitudes and experiences with the five different classes of drugs.

The overall attitude score was calculated from 31 items that subjects marked on a six-point scale ranging from "strongly agree" to "strongly disagree." The first set of 21 items were cast as follows:

- (1) \_\_\_\_\_ helps make one more creative.
- (2) Those who use \_\_\_\_\_ are emotionally unstable people.

Subjects marked each of the above type items for each of the five drug categories but their responses were summed across categories to yield an overall attitude score. A second set of 10 items, dealing primarily with the value orientations of drug users and marked on the same six-point scale, were added to the 21 items previously outlined to yield an overall attitude score for each subject.

The drug experience score was calculated from 17 items that required subjects to respond "yes" or "no" to whether they had "tried" each of 17 drugs ranging from marijuana and amphetamines to opium, heroin, LSD, and cocaine. The score thus reflects primarily a *variety* of usage index.

A factual knowledge score was calculated from 10 multiple-choice items, 2 examples of which are as follows:

- (1) Peyote comes from which of the following:
  - (a) the cactus
  - (b) it is a synthetic chemical
  - (c) morning glory seeds
  - (d) from a fungus common to certain species of rye
- (2) Regarding the medical use of LSD:
  - (a) LSD has never been used for medical purposes.

- (b) LSD has been used to treat epilepsy.
- (c) Lower dosages of the drug have been used successfully to treat persons dependent on heroin.
- (d) LSD has been used, experimentally, in the treatment of emotional disorders.

Each item had four alternative choices and each item was scored for correctness.

A social knowledge score was calculated from 11 items dealing with the drug subculture and drug argot. An example of a social knowledge item is as follows:

- (1) The term "lid" refers to which of the following:
  - (a) a quantity of marijuana required to fill the bowl of a pipe
  - (b) one ounce of marijuana
  - (c) the quantity of marijuana required to make 10-15 cigarettes
  - (d) the quantity of marijuana required to fill one shot glass

Little is known concerning the reliability and validity of the Drug Behavior Scale. It was used in the present study because it possesses face validity for the measurement of drug attitudes, drug experiences, and drug knowledge, which were theoretical variables of central interest.

## Procedure

The research was conducted in two phases. All subjects were run individually. The first phase consisted of the administration of the word association test. After the experimenters had introduced themselves, assured the subjects of confidentiality, assigned code numbers to subjects, and stressed the voluntary nature of Ss participation, the word association test was administered in an oral, discrete association fashion. Subjects were instructed to respond with the first word they were reminded of when they heard the stimulus words. They were also instructed to respond as quickly as possible and response latencies were timed with an openly displayed stopwatch. The stimulus words were presented in the same serial order to all subjects. No prior information concerning the types of words in the stimulus list was given to subjects.

Following completion of the word association test, subjects were given a short rest and then introduced to the Drug Behavior Scale, which consisted of 70 items and required approximately 45 minutes for completion. Subjects marked their answers to the items on an IBM form sheet and the scale was later computer scored. They placed only their code numbers on their answer sheets.

Eight different male experimenters were used to collect data. Each one was trained to administer the tests in a standard fashion. Four of the experimenters were Black and four were Caucasian. Each tested an equal number of males and females, and Black and Caucasian subjects.

## RESULTS

Associative responses were scored by a procedure adapted from earlier work by Galbraith (1968). Each response to the argot words and aggressive double entendres was assigned a weight of zero or one. A score of zero was used for all

responses that clearly were devoid of drug or aggressive connotations. A score of one was assigned to all responses that were unambiguously drug related or aggressive. Questionable responses that conceivably might be drug related or aggressive—but conceivably might not—were scored zero. All tests were scored by the first author, word by word across subjects rather than subject by subject across words. Only the drug-argot stimulus words were scored for drug-related responses. Only the aggressive double entendres were scored for aggressive responses. A major prerequisite for scoring the associative responses is that the scorer be familiar with drug argot. To check for reliability of scoring, 40 randomly selected test protocols were independently scored by a graduate student and the first author. The Pearson correlation coefficients were .99 for drug responses and .98 for aggressive responses.

To examine relationships between drug associations and aggressive associations, Pearson coefficients were calculated between the two sets of scores for college students, drug addicts, males, females, Blacks, and Caucasians. None of the coefficients reached statistical significance. The largest was a negative  $r$  of .12 for female subjects. In the realm of word associations there is no support for the notion that drug-related responses are associated positively or negatively with aggression/passivity.

To check on differences in the extent to which various subgroups gave drug-related associations, the data were first analyzed by means of analyses of variance examining for main effects and interaction effects between high and low groups on the Althoff Drug Behavior subscales, race of subject, sex of subject, and race of examiner. The data within each group (i.e., students and addicts) were also subjected to stepwise multiple regression analyses using the four subscales of the Drug Behavior Scale as predictors. The major findings of this study, however, can be summarized by a limited set of  $t$ -tests and by simple correlation coefficients. With  $t$ -tests, the difference between drug addicts ( $M = 20.57$ ;  $SD = 11.46$ ) and college students ( $M = 14.91$ ;  $SD = 11.48$ ) was statistically significant [ $t(198) = 3.53$ ,  $p < .001$ ]. No other major comparison (i.e., Blacks versus Whites; males versus females) attained significance. Giving drug-related associations to double entendre drug words seems to be influenced by the differential experiences of drug addicts versus college students, but not by the differential experiences of males versus females or Blacks versus Whites.

To examine the relationship between free association drug responses and drug attitudes, and drug experience and drug knowledge, correlational analysis was conducted. Table 1 gives the intercorrelations between the variables measured by the Drug Behavior Scale and the free association drug response scores as measured by the word association test.

In Table 1, the correlations are only reported for the major subgroups. Correlations for the smaller subgroups (e.g., White male college students; Black female drug addicts) were generally insignificant and therefore not reported. It can be seen in Table 1 that 19 of 28 correlations (68%) were significant beyond the .05 level of confidence. Of 28 correlations 15 were significant beyond the .01

TABLE 1 Correlations Between Drug Behavior Subscales and Free Associative Drug Responses

<i>Samples</i>	<i>N</i>	<i>Drug Behavior Subscales</i>			
		<i>Attitude</i>	<i>Experience</i>	<i>Factual Knowledge</i>	<i>Social Knowledge</i>
College students	100	.35**	.53**	.13	.36**
Drug addicts	100	.18	.21*	.04	.10
Blacks	100	.24*	.41**	.14	.25*
Whites	100	.37**	.51**	.10	.48**
Males	100	.43**	.52**	.22*	.44**
Females	100	.18	.37**	.06	.28**
Total sample	200	.30**	.45**	.11	.35**

\* $p < .05$ ; \*\* $p < .01$ .

level of confidence. Clearly, free associative drug responses are related to the variables measured by the Drug Behavior Scale.

Looking more closely, factual knowledge of drugs (i.e., technical, scientific, and terminological knowledge) does not correlate appreciably with associative drug responses. Social knowledge (i.e. knowledge of drug usage, paraphernalia, and street terminology), however, correlated with associate drug responses in practically all subgroups. Also of interest, the two groups that showed the lowest pattern of correlations were drug addicts and females. Among drug addicts the only Drug Behavior Scale score that correlated with associative responses was the score reflecting the variety of past drug experiences. Among females, only the experience and social knowledge scores correlated with free associative drug responses. Finally, the one variable that showed the highest pattern of correlations with associative drug responses was the drug experience variable.

The same type of analysis as reported in Table 1 was conducted for the aggressive associations given to the double entendre aggressive words. The only correlations that reached significance were an  $r$  of .31 ( $p < .01$ ) between drug experience and aggressive associations for the drug addict group, and an  $r$  of  $-.20$  ( $p < .05$ ) between drug experience and aggressive associations for the college student sample. The two groups, however, did not differ in the extent to which they gave aggressive, or hostile, associations.

## DISCUSSION

The major findings from the study are threefold. First, in popular thinking it is often assumed that drug addicts are either (a) more aggressive and antisocial than others, or (b) that the drug experience of addicts makes them more passive and withdrawn than others. In regard to these issues, the addict group did not give a greater number of aggressive word associations than the college student group. Additionally, although drug associations were related to several drug-usage variables (i.e., group membership attitudes, experience, and knowledge),

drug associations did not correlate with aggressive associations in any group. Aggressive responses and drug-related responses were neither positively nor negatively correlated. There is thus little support for the popularly held opinions about aggressivity in drug addicts in the word association data. The only exception is that the extent of self-reported drug experimentation (i.e., the experience variable) was positively related to aggressive responses in the drug addict group but negatively related to aggressive responses within the college student group. This is an interesting finding, but its basis is not readily apparent. The findings from this study diverge somewhat from earlier data reported by Lyle et al. (1970). Their study, however, did not contrast drug addicts and college students.

The second major finding is that addicts do indeed give significantly more drug-related associations to double entendre drug words than do college students. This finding lends support to earlier studies indicating the potential value of word association methodology in studying the cognitive—and associative—processes of drug addicts. Neither males versus females nor Blacks versus Caucasians differed in their free associative drug responses. The differential responsiveness of drug addicts is related in some fashion to their own unique experience with drugs.

A third, and major, finding is that measures of drug experience, drug attitudes, and drug knowledge correlate significantly with free associative responses to drug-related stimuli. Past experience with drugs correlates positively with drug-related associations in all groups studied. Past experience with drugs has a determinative influence on the way that subjects encode and respond to ambiguous drug-related words. In addition, a measure of the positivity/negativity of attitudes toward drugs and a measure of informal, social knowledge about drugs also correlates positively with free associative drug responses. A measure of scientific and technical knowledge about drugs, however, failed to correlate appreciably with drug associations in most groups studied. This last finding is not surprising in view of the fact that people, including addicts, develop very detailed scientific knowledge about the chemistry, physiology, and origin of commonly used drugs. Many people—including college students and addicts—however, develop a sizable fund of knowledge about the social milieu in which drugs are used and exchanged. This set of findings about the relationship between attitudes, experience, knowledge, and free associative drug responses lends some initial validity to the Althoff Drug Behavior Scale, and further supports the potential value of word association methods in the assessment of drug addiction problems.

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