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Social Learning and Deviance Abstention:

Toward Understanding the Reasons for Initiating,

Quitting, and Avoiding Drugs*

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ABSTRACT

Tests of theories that attempt to explain why individuals currently
use drugs are widespread; however, the theoretical examinations of
abstention from drugs and the cessation of their use are rare. For its
part, social learning theory has been supported consistently in its
delineation of the process by which substance use is learned. We propose
that cessation and abstention are also learned behavior. Using discriminant
analysis, we examine the ability of social learning variables to
distinguish between nonusers, current users, and former users of illicit
drugs within a sample of 1,686 middle and high school students in two
widely separated communities. Results indicate that social learning
variables clearly distinguish nonusers from current users, followed by
former users and current users; they are less able to distinguish former
users from nonusers.

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Relative to the vast amount of research in the past 25 years on the
causes of drug use, the general topic of drug cessation or even abstinence
has received scant attention in the drug literature. Indeed, the analysis
of various stages of substance use and abuse has been largely ignored,
while studies attempting to predict current use abound. But drug use is
not a static phenomenon. Individuals appear to move back and forth through
a series of behaviors from nonuse to experimental use to steady use to
reduced use to former use and even to re-use. To understand these forms of
drug-using behaviors, theories of a processual nature are more useful than
those whose scope is limited to explaining deviance at one point in time.

One of the more empirically powerful processual theories of deviance
is social learning theory (Akers 1985). The social learning model views
deviant behavior as a learned response to a configuration of social
reinforcers and definitions provided by individuals with whom one
associates. Changes in behavior are therefore explained by changes in the
learning environment (see Sellers and Winfree 1990). The present study
uses social learning theory to explain the process of drug use by focusing
on a variety of distinct stages of avoidance, current use, and cessation.

DRUG USE ABSTENTION: WHAT WE KNOW AND DON'T KNOW

While drug avoidance has been a relatively neglected area in the drug
literature, this is not the same as saying no such research exists. In
fact, there have been a handful of studies throughout the 1970s and 1980s
that have contributed to our understanding of drug abstention and
cessation. Prominent among social researchers of drug behavior for the

past 20 years, Denise Kandel and her associates have examined the effects of aging and maturation on the initiation, persistence, and cessation of substance use. In general, these studies have found that the age of initiation varies by drug type; however, the decline in use of most drugs begins usually by the mid-20s (Kandel and Logan 1984; Raveis and Kandel 1987; Yamaguchi and Kandel 1984a; Yamaguchi and Kandel 1984b). In a much earlier study, however, Henley and Adams (1973) demonstrated that it was not aging per se, but significant status changes such as marriage and parenthood which correlated with cessation of marijuana use among those in their mid- to late-20's.

The study by Henley and Adams was perhaps the first to examine why some individuals initiate, continue, or quit using drugs. Two more recent studies attempt to answer these same questions by focusing on the self-reported reasons for drug avoidance. Examining only marijuana use and nonuse, Goodstadt, Sheppard, and Chan (1984) found that factors such as peer pressure, attitudes toward use of drugs by persons one's own age, and attitudes toward current drug laws were not useful in distinguishing between users and nonusers. Winfree, Beasley, and Cary (1981), focusing on the use of a variety of controlled substances, determined that the best predictors of drug-use initiation were hedonism, self-medication, and peer pressure. Reasons for cessation involved the imposition of personal or internal controls rather than external controls, a finding consistent with Goodstadt et al.'s research.

While the reasons given for changes in drug-using behavior have been examined, few attempts have been made to place these reasons within a systematic theoretical framework. Brown, Glaser, Waxer, and Geis (1974) argued that marijuana use and disuse must be understood within the context

of the student subculture, a position consistent with Suchman's (1968) classic observations of the 1960s "hang-loose ethic." Those graduates who discontinued marijuana use after college did so primarily as a result of social isolation from marijuana-using students as well as commitment to non-student, post-college roles. Those ex-students who initiated or continued marijuana use after college were found to adhere strongly to values associated with the "expressive student subculture" (Brown et al. 1974:530).

Sadava and Forsyth (1977), on the other hand, took a social-psychological approach to changing patterns in marijuana use. A "use-prone syndrome" was identified, based on Rotter's social learning framework (Rotter, Chance, and Phares 1972). This syndrome consisted of elements such as social reinforcers and sanctions for use, models for drug use, and personality items such as independence, locus of control, and measures of delayed gratification. In Sadava and Forsyth's study, the entire use-prone syndrome was most successful in predicting initiation of marijuana use. Only the personality elements of the syndrome, however, were predictive of discontinued use of marijuana.

A study by Lanza-Kaduce, Akers, Krohn, and Radosevich (1984) represents a comprehensive attempt to place changes in self-reported drug use within a theoretical framework. Using Akers' (1973) social learning theory and focusing on five types of drugs, the authors distinguished between adolescents who use drugs and those who have discontinued use. In general, differential peer associations played the largest role in explaining cessation of drug use, particularly that of alcohol, marijuana, and stronger drugs. But Lanza-Kaduce et al. (1984) focused only on the distinctions between current and former users; they neglected to make any contrasts between either group and those who never used drugs.

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Goodstadt et al. (1984, p. 23) noted that focusing on nonuse, continuation, and quitting seems appropriate as these behaviors (and non-behaviors) are central to the issues of treatment and prevention. They reported that there are three distinct populations of target youth, including those that have quit (who need to have the correctness of this decision reinforced), those that have never tried (who also need reinforcement since they could try drugs in the future), and current users (who need to be encouraged to reconsider the implications of their pro-drug decisions). Goodstadt et al. also suggested that there are empirical bases upon which to distinguish among these different groups; however, they did not articulate the theoretical reasons.

We hope to add to the study of drug abstention, then, by including theoretically based criteria for distinguishing among current users of illicit drugs, current nonusers, and total abstainers. The theoretical linchpin for this discussion is social learning theory.

SOCIAL LEARNING THEORY AND DRUG USE ABSTENTION

According to social learning theory, users should be distinguishable from nonusers not simply in terms of their drug-using behavior, but also that drug users have learned pro-drug associations, orientations and outlooks (Akers, 1985). It is conceivable that some nonusers, particularly those that may be predisposed to use controlled substances but simply have not yet done so, may possess some pro-drug orientations. Overall, however, these two groups should exhibit rather different response patterns.

Users should also be distinguishable from former users in terms of social learning factors. Both groups have learned to use drugs, but it seems likely that the "de-learning" of drug use by former users should occur gradually. Simply giving up the use of a controlled substance does.

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not necessarily mean that an individual completely disassociates oneself from all drug-using peers, especially those described as best friends. The behavior may be extinguished in former users, then, before their associations and attitudes have completely changed. Therefore, while users and former users may both indicate pro-drug associations and definitions, those of the latter group should show some erosion.

Extending this logic, former users and nonusers should also be distinguishable in terms of social learning factors for two reasons. First, former users, at some point in the past, "learned" pro-drug techniques of neutralization, orientations and outlooks in sufficient quantity and quality to support some level of controlled-substance use and abuse. Second, it is doubtful that all of these techniques, orientations and outlooks disappeared coterminous with the extinction of the behavior. In sum, former users should, as a group, exhibit sufficiently high levels of social learning to distinguish them from nonusers, although not to the same extent that these factors distinguish current users from nonusers.

DATA AND MEASURES

The Sample

The data for this study were collected from survey instruments administered with identical procedures in the middle schools and high schools of two very different communities. One of the communities, located in the Southwest, is best described as rurban in nature. The city in which the students all resided, with a population of nearly 16,000 residents, lies approximately 35 miles from a nearby Standard Metropolitan Statistical Area (SMSA). The SMSA has a population of over 2 million. In spite of the fact that the local press refers to the community as a "suitcase" or "bedroom" community for the SMSA, the majority of its inhabitants were

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employed in light industry. African Americans comprised the largest minority group in the community and made up less than 10 percent of the official population; over 80 percent of the community was Caucasian.

The rural community differed from the rurban one in four dramatic respects. First, it was far smaller: with only 2,500 inhabitants it had roughly one-sixth the rurban community's population. In addition, the nearest larger community, one with slightly more than 10,000 inhabitants, was nearly one hundred miles away; the nearest community in excess of 2,500 inhabitants was thirty miles away. Second, the rural community was mainly populated by farmers and local businessmen, with the latter catering to seasonal tourist and summer recreational trade. Third, the region represented by this rural community was the Rocky Mountains, rather than the Southwest. Finally, the endemic minority group was not African Americans. Instead, roughly 17 percent of the population in the community was American Indian, the largest minority group in the school as well.

The surveys were conducted in the spring of 1982 in the middle schools and high schools in each of the two communities. Detailed descriptions of the two samples are provided in the Appendix. The samples differ in two ways: the composition of the largest ethnic minority-group (Mexican-American in the rurban sample, American Indian in the rural sample) and mean age (the rural sample is about one year younger than the rural sample). A total of 1,335 questionnaires were completed by the rurban students, a figure representing over 90 percent of the students enrolled. The rural sample provided 549 questionnaires, or about 80 percent of the available students. Missing data on critical variables such as race/ethnicity, gender, current drug use patterns and the like caused about 11 percent of the returned questionnaires in the rurban sample and 7.5

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percent of those from the rural sample to be excluded from the analysis.
The study is based on the responses of 1,686 children.

Dependent Variable

The dependent variable is the use of illicit or controlled
substances.[1] Specifically, we focus on the use or nonuse of drugs other
than alcohol, including marijuana, cocaine, stimulant ("uppers") and
depressant ("downers") pills, heroin, and other hallucinogenic drugs (e.g.,
LSD and peyote). Respondents were classified as either nonusers, current
users, or former users of these controlled substances. To avoid both the
inaccurate classifications as nonusers, former users and current users and
the inappropriate inclusion of use and cessation of drugs where the
patterns are truly trivial or very experimental (i.e., once or twice in a
person's lifetime), a restrictive method of defining involvement status was
employed. In order for respondents to be considered nonusers, they must not
have used any drug other than alcohol more than once or twice in their
lifetime and must have indicated separate self-evaluations as nonusers.[2]
Former users must have used a drug other than alcohol more than once or
twice in their lifetime and have indicated separate self-evaluations as
former users. Finally, in order for respondents to be classified as current
users, they must have indicated that they used a drug other than alcohol
more than once or twice in their lifetime and that use patterns were also
accompanied by separate self-evaluations as current users.

Independent Variables

Two sets of independent variables were used in the analysis: personal-
biographical characteristics and social learning variables. The personal-
biographical set included age as a continuous variables and dummy variables
measuring gender, ethnicity, and rural residence. (See the Appendix.)

The second set was divided into three subsets of social learning

variables. First, Akers' (1985, pp. 52, 115; see too Akers et al. 1979, p. 638) differential peer association variable was measured by two questions: (1) "How many of your best friends use marijuana?" and (2) How many of your best friends use drugs other than alcohol and marijuana?" The possible responses were (1) I don't know and none, (2) less than half, (3) about one-half, (4) more than one-half. A composite measure labeled as Differential Peer Association, with values ranging from two to eight, was obtained by summing responses. The higher the scale score, the greater the involvement of best friends with drugs other than alcohol.

Second, following Akers' lead (1985, pp. 48-51, 115; see too Akers et al. 1979, p. 638) three separate measures of differential definitions were included: (1) personal approval, (2) peer approval, and (3) differential peer definitions. Personal Approval and Peer Approval were each measured on a five-point Likert-type scale indicating strong disapproval to strong approval of drugs other than alcohol: the higher the scale score, the higher the approval rating of the use of drugs other than alcohol.

Our third differential definitions measure, Differential Peer Definitions was constructed by a method originally devised by Johnson, Marcos and Bahr (1987); they reported that anti-drug definitions are stimuli that are principally designed to extinguish behavior and pro-drug definitions are stimuli whose primary purpose is to continue or increase behavior. Our measure addressed the frequency and content of peer discussions. A screen question indicated the frequency of drug-related discussions the youths had with their close friends. Possible answers included (1) never, (2) rarely, (3) occassionally, and (4) often. After it was ascertained that discussions had occurred, the specific content was broached. The dangers of drug use (anti-drug content) and the enjoyments

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that drugs bring (pro-drug content) were two possible subject matter choices. A ratio scale was created by assigning a value of "1" if both types of topics were discussed or if they never discussed drugs with their peers. If they never discussed anti-drug topics but did discuss pro-drug topics, then respondents received ratios ranging from 2 (rarely) to 4 (often), with the latter signifying the condition most conducive to the learning of pro-drug definitions. If subjects and their best friends never discussed pro-drug topics but did discuss anti-drug topics, then they received ratios ranging from .5 (rarely) to .25 (often), with the latter value signifying the condition least conducive to the learning of pro-drug definitions.

We also employed a set of social learning variables that consisted of reasons for initiation of drug use (to distinguish between current and former users) and reasons for abstention from drug use (to distinguish between nonusers and former users). These variables reflect Akers' theoretical interest in imitation and both social and nonsocial differential reinforcers (Akers 1985 p. 43-47; Akers et al. 1979 p. 637-639). Preliminary analyses (not presented here) revealed that only two reasons for initiating drug use were relevant. These were Hedonism (combined social/nonsocial reinforcer reflecting anticipated or experienced and unwelcome physical or actual costs of using drugs) and Imitation (imitating the behavior of others).

Reasons for avoiding drug use included two social reinforcers: (1) "Drugs are illegal" (reflecting a concern for formal deterrences) and (2) "My parents might find out" (reflecting informal parental control). In addition, four items measured combined social/nonsocial reinforcements: (1)"I don't want to mess up my body," (2) "I don't want to mess up my mind," (3) "Drugs are too expensive," and (4) "Drugs are too hard to find."

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Design of the Analysis

The method of analysis used in the present study to "distinguish" between groups is discriminant analysis. This multiple regression analog begins with the need to statistically distinguish between at least two groups of cases (Nie, Steinbrenner, and Bent 1975, p. 435; see too Marascuilo and Levin 1983, pp. 294-301; Norusis 1985, pp. 75-122; Van de Geer 1971, pp. 243-283). The "groups" are defined in terms of some research need. In the current case, the group characteristics are based on the status of respondents as (a) nonusers of controlled substances, (b) former users, but current abstainers from controlled substances, and (c) current users of controlled substances.

In order to distinguish between the two groups considered at any given time, certain discriminating variables must be selected. In the current study, these discriminating variables include, generally, personal biographical characteristics, general social learning variables, and, where appropriate, reasons for drug initiation and reasons for current abstention. The factors are then weighted and linearly combined so that the groups are forced to be as distinct as possible from one another.

Three statistics are produced by discriminant analysis (Nie et al. 1975, p. 435). The first analytical products, the standardized canonical correlation function coefficients, are analogous to the beta weights in multiple regression (Nie et al. 1975, p. 443; Norusis 1985, p. 91). The size of the coefficient indicates the relative contribution to the discriminator associated with that particular variable. As is the case in multiple regression, the variables are standardized to a mean of 0 and a standard deviation of 1.[3] A second statistic is the canonical correlation coefficient. This statistic is a measure of the degree of association

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between the discriminant score and the groups. In two-group discriminant analysis, the canonical correlation is simply the Pearson correlation coefficient between the resulting discriminant score and the group variable (Norusis 1985, p. 90). Squaring it reveals the amount of variance in the group variable accounted for by the discriminant created from the independent variables.

Case classification is the final task performed by discriminant analysis. It is important to note that the percentage of cases classified correctly is an inflated estimate.[4] Discriminant analysis produces three indicators of classification. The percentage of Group 1 correctly and incorrectly predicted as being members of Group 1 on the basis of the classification factors is reported; similar figures are typically reported for Group 2. Finally, the percent of "grouped" cases correctly classified is reported. This latter statistic is an overall and not a group-specific figure. The direct method, in which all independent variables are entered into the analysis concurrently, is utilized.

EXTREMES IN DRUG ATTITUDES AND ORIENTATIONS: NONUSERS AND CURRENT USERS

This section describes the discriminant analysis of nonusers and current users, two groups which were theoretically the furthest apart of all three groups on the social learning variables. That is, the nonusers should have had the lowest scores on the social learning variables and current users the highest. The level of correct classifications should, in theory, be higher, for example, than will later be reported for classifications involving former users and current users or former users and nonusers.

Model 1: Personal-biographical Features Only

Table 1 contains the discriminant analyses for nonusers and current

users. Model 1, which involved personal biographical features only, was able to correctly classify 69 percent of the nonusers and 77 percent of the current users. Overall, the "grouped" cases classification figure was also 69 percent. (Recall that with only two attributes in the dependent variable, random assignment will be correct in 50 percent of the cases.) The squared canonical correlation was less than 10 percent. In short, the performance of these predictors was rather mediocre.

Table 1 About Here

The single best predictor in Model 1 was age, which, with a standardized canonical correlation of .95 (hereafter referred to as B_{da}, signifying that it is a Beta equivalent derived from discriminant analysis) made four times the contribution of its nearest rival, gender. Older males were far more likely than younger females to be in the current users group. Mexican Americans were more likely to be found in the nonuser group than any other minority group, although the coefficients for any of the ethnic-racial groups were so slight as to suggest negligible contributions.

Model 2: General Social Learning Variables Only

The second model contains the results of the discriminant analysis for the general social learning variables only. That 95 percent of the members of Group 1 (nonusers) were correctly classified was impressive. These same variables were somewhat weaker (87 percent) predictors of current users status. Overall, the level of prediction reported for the grouped cases remained impressive (94 percent). Comparing the classification results for Model 1 to those obtained for Model 2 suggested that indeed the social learning variables alone allowed for better classification of the subjects into their respective groups, an interpretation reinforced by the squared

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canonical correlation value (46 percent).

Differential peer associations was the best predictor (B_{da} = .57): those perceiving high levels of peer drug use were found among current users and not nonusers. The next two strongest predictors were all definitional variables, differential peer definitions (B_{da} = .41), and personal approval (B_{da} = .35). The relative impact of the remaining variable, peer approval, was negligible.

Model 3: Personal-biographical Features and Social Learning Variables

Model 3 contains all ten predictors, personal-biographical and social learning variables alike. The classification results were only slightly different from those observed for Model 2, which contained the social learning variables alone. Also, with the exception of being African American (B_{da} = -.10), the personal-biographical variables simply were not able to compete with the far stronger social learning variables. This interpretation is attested to by a third observation: the relative contributions of the social learning variables were virtually identical to those observed in Model 2. Finally, the squared canonical correlation for this model was only slightly greater than that for Model 2.

SIMILAR BUT DISSIMILAR: NONUSERS AND FORMER USERS

Table 2 contains seven models, each representing a single discriminant analysis. The presence of a third set of predictor variables - the social learning social and nonsocial reinforcers - accounts for the increased number of models. The reasons for current nonuse were common to both target groups, although they functioned in a slightly different fashion for each. In the case of nonusers, these are the reasons they never used drugs; among former users, these are the reasons that they quit using drugs. Owing to the fact that a respondent may or may not have indicated

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such a reason, these variables were dummy-coded, with a positive response receiving a value of "1" and a nonresponse receiving a value of "0".

Table 2 About Here

Model 1: Personal-biographical Features Only

The personal-biographical features in Model 1 were barely able to distinguish nonusers from former users. These variables performed slightly better in classifying Group 1 (73 percent) than Group 2 (60 percent). Overall, the correct classification of "grouped" cases occurred in 72 percent of the cases. The squared canonical correlation (.05) supports the view that the personal-biographical features provided a poor basis of classifying nonusers and former users.

Being American Indian (B_{da} = .58) and a person's age (B_{da} = .71) made the largest contributions to the grouped classification. Apparently, former users were most likely to be older American Indian youths. On the other hand, gender, place of residence and being Mexican American or African American contributed little to the analysis.

Model 2: General Social Learning Variables Only

On the basis of social learning variables alone we were able to classify correctly 83 percent of the nonusers, but only 72 percent of the former users. Former users appear to have a great deal in common with nonusers, making correct classification difficult. On the basis of social learning responses alone, three in ten former users were incorrectly classified as nonusers. Overall, however, the "grouped" cases classifications revealed that correct classification occurred in a healthy 84 percent of the cases. The explained variance coefficient (15 percent)

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suggests that the social learning variables provided a better basis of discriminating between nonusers and former users than did the personal-biographical features alone, although their contributions were still small.

Model 3: Social Reinforcers Only

Model 3 contains the discriminant analysis for the social learning reinforcer variables, the reasons for nonuse. These variables were slightly better discriminators than the personal-biographical features alone. They were able to form the basis for the correct classification of 75 percent of the members of Group 1, 61 percent of Group 2, and 74 percent of the "grouped" cases. These classification results differed little from those observed for personal-biographical features and were consistently lower than those observed for the general social learning variables. The six reasons for nonuse still managed to explain roughly twice the variance reported for Model 1, but only about two-thirds that for Model 2.

The individual contributions of the various reasons for nonuse were, in spite of these caveats, instructive. Former users were more likely than nonusers to cite all of the reasons with the exception of concern for the illegality of drugs. The strongest predictors were, in descending order, the illegality of drugs ($B_{da} = -.79$), concern that one's parents might find out ($B_{da} = .59$), concern for the threat that drugs pose to one's mind ($B_{da} = .47$), the expenses involved in their use ($B_{da} = .33$) and concern for the threat that drugs pose to one's body ($B_{da} = .31$). Problems associated with obtaining drugs did not distinguish between group members.

Model 4: Personal-biographical Features and General Social Learning Variables

The fourth model examines the relative impact of one set of variables, in this instance the personal-biographical and general social learning variables. Correct classification was 82 percent for Group 1, 73 percent

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for Group 2, and 81 percent for the grouped cases. The squared canonical correlation coefficient (18 percent) was similar to that reported for Model 2, involving general social learning variables alone.

The standardized coefficients for the social learning variables were only slightly lower in this model than reported for Model 2. However, the standardized canonical correlations for the personal-biographical features were, as a group, negligible. More important was the extent to which former users had "learned" attitudes and orientations favorable to the use of drugs, which, in spite of behavioral extinction (i.e., stopping the use of controlled substances) continued to distinguish them from nonusers.

Model 5: Personal-biographical Features and Social Learning Reinforcers

Model 5 examined the relative impact of both personal-biographical features and the social learning reinforcers. There is only a slight improvement in the correct classifications observed for this model over those reported for Model 1. Knowing a subject's personal-biographical characteristics and reasons for nonuse allowed for correct classification of 80 percent of the nonusers, 67 percent of the former users and 78 percent of the grouped cases. The squared canonical correlation for this model (13 percent) suggested that perhaps the effects were additive.

The social learning reinforcers had less of an effect on the direct contributions of the personal biographical features than was the case for social learning variables. The Model 5 correlations for the personal-biographical characteristics were indeed lower than observed in Model 1 but greater than observed in Model 4. The best personal-biographical predictors of nonuse and former use status were, once again, age and being American Indian. On the other hand, the direct effects of the reasons for current abstention were little affected by the concurrent consideration of the

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personal-biographical characteristics. Most of the reasons for nonuse contributed at a level virtually identical to that observed in Model 3.

Model 6: All Social Learning Variables

Unlike Models 4 and Model 5, Model 6 reveals generally lower direct effects for the general social learning variables and social and nonsocial reinforcers. There are four exceptions to this generalization: personal approval, differential peer association, and concern for one's mind and body. The level of correct classification, particularly nonusers and grouped cases is high (86 percent and 85 percent, respectively). The squared canonical correlation (.25), while not nearly as high as observed in Table 1, is the highest yet observed in Table 2. It also appears that this explained variance indicator is additive (see Models 2 and 3), and that the general social learning variables contributes the most.

Model 7: All Variables

Model 7 included all three sets of predictive variables. Compared to Model 1, the contributions of the personal-biographical features were, as a whole, rather negligible. Once again, only the correlations for racial minority indicators were even marginally non-negligible. Three reasons for nonuse, specifically the illegality of drugs, their expense and concern that one's parents might find out, made contributions that were also roughly one-half those observed in Models 5 and 6 and, in some instances, nearly one-third that reported in Model 3. Still, the reasons for nonuse coefficients were the equal of or higher than all but one of the general social learning variables, differential peer association. Concern for the difficulties associated with obtaining drugs and the costs of drugs exhibited weak links to the discriminant.

The classification results reinforced the primacy of social learning variables and, at the same time, made it apparent that their ability to

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correctly distinguish between the two groups was more limited than was the case for nonusers and current users. Overall, only 14 percent of the grouped cases were <u>misclassified</u> and the model explained 26 percent of the variance. These results suggest that the personal-biographical features are a very poor basis upon which to classify nonusers and former users. The group prediction results are also interesting. Among nonusers, 87 percent were correctly classified, a figure consistent with the correct classification of nonusers in Table 1. However, only 74 percent of the former users were correctly classified. This means that 26 percent of the former users reported general social learning and reasons for nonuse measures that were more consistent with being a nonuser than a former user. Certain key characteristics of the former users were unknown, including precisely how long ago these youths ceased the use of drugs and with what commitment. Nor was the extent of their commitment to drugs known beyond the fact that they had used some drug other than alcohol more than once or twice in their lifetime.

Taken together, the findings in Tables 1 and 2 suggest that while we may know quite a bit about current users and nonusers, the former users are more elusive. Furthermore, former users may have more in common with nonusers - they were misclassified as nonusers in over one-quarter of the cases - than current users. To clarify this relationship, we turn next to a comparison of current users and former users.

DISCRIMINATING BETWEEN "LIKE TYPES:" FORMER USERS AND CURRENT USERS

The final series of discriminant models are presented in Table 3. The two groups share some key experiences in common: both groups have used drugs. The key definitional major difference is that at the time of the surveys, the members of one group claimed to have given up the use of

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controlled substances while the others were still involved with drugs. Both personal-biographical features and social learning variables were included as predictors. Two additional variable were included in this analysis, hedonism and imitation as reasons for drug initiation.

Table 3 About Here

Model 1: Personal-biographical Features Only

Gender made a discernible direct contribution in Model 1: males were more likely to be current users than former users. Age made the largest contribution (B_{da} = .82), followed by being male (B_{da} = .44), and living in rural areas (B_{da} = .28). American Indians (B_{da} = -.31) and, to a lesser extent, Mexican Americans (B_{da} = -.16) were more likely to be former users than current users. Correct classification was observed for only 63 percent of all cases. Taken together, they explained 10 percent of the variance in the dependent variable.

Model 2: General Social Learning Variables Only

The second model examined the utility of using the social learning variables alone. There were far more correct classifications using the discriminant which resulted from this model than that observed in Model 1. There was very little difference between the correct classifications for Group 1 (80 percent), Group 2 (83 percent), and grouped cases (81 percent). The drug attitudes of current users constituted a strong basis for distinguishing them from, in this case, former users. The social learning variables alone accounted for 41 percent of the variance, or four times that recorded for personal-biographical features alone.

The standardized coefficients contained no major surprises. Peer

associations (B_{da} = .60) made the greatest contribution, but, in this instance, was followed closely by personal approval (B_{da} = .59). The coefficients for differential peer definitions and peer approval were considerably lower (B_{da} = .19 and B_{da} = -.12, respectively).

Model 3: Reasons for Initiation

Hedonism's link to this discriminant was equal to unity. However, this variable told us little about current users as 35 percent were misclassified. Among those that had stopped the use of drugs at the time of the survey, 25 percent were incorrectly classified as current users. Overall, 70 percent were correctly classified. Youths who stated that their drug initiation was in part due to hedonistic interests were more likely to be drug dropouts as opposed to continuing users: Simply wanting to feel good may not constitute a strong enough rationale for continued involvement with drugs. On the other hand, youths that indicated they initiated the use of drugs as a result of imitation were likely to be current users. Although the coefficient is not nearly as strong as that for hedonism (-.35 v. 1.00), it does signify that this social reinforcer mitigates for social learning of drug use patterns. Together, these two variables accounted for a greater share of the variance (17 percent) than did all six personal-biographical variables.

Model 4: Personal-biographical Features and General Social Learning Variables

The discriminant in Model 4 was no better at correct classifications than the one for social learning variables alone. In fact, the direct effects of all personal-biographical variables, except age (B_{da} = .30), being male (B_{da} = .29) and being African American (B_{da} = -.21), were negligible. The direct impact of the social learning variables was little altered by the inclusion of the personal-biographical variables. As one

might expect, the classification results were in line with those reported for Model 2; the squared canonical correlation, on the other hand, was slightly higher (.46).

Model 5: Personal-biographical Features and Reasons for Initiation

Combining the personal-biographical variables with reasons for imitation (Model 5) resulted in fewer correct classifications of former users than was observed for hedonism alone (Model 3) but more than for personal-biographical variables alone (Model 1). The classification of current users was better in Model 5 than in either Models 1 or 3. In spite of these similarities and small differences, the combined model explained 25 percent of the variance in group membership, a squared canonical correlation that was at least 45 percent higher than that reported for either Models 1 or 3. However, the explained variance for this model was also nearly 50 percent less than that reported for Models 2 or 5, the models that contained the social learning variables.

With respect to the direct effects of the independent variables, being male (B_{da} = .29) and older (B_{da} = .42) were associated with current user status. Residence pattern and minority group status contributed little to the discriminant. Finally, hedonism provided the strongest link to the discriminant, as hedonists were once again likely to be former users rather than current users (B_{da} = .74); the contribution of imitation was negligible.

Model 6: All Social Learning Variables

Introducing all social learning variables into the discriminant in Model 6 resulted in coefficients and classification results that differed little for those observed for the general social learning variables (Model 2). More than signifying the negligible direct effects of the reasons for

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initiation, Model 6 supports the primacy of the general social learning variables when current users are compared to any other nonusing group.

Model 7: All Variables

Model 7 reinforced the notion that the general social learning variables provided a consistently reliable basis of discriminating between groups that included current users. Combining general social learning variables with the other independent variables did little to improve classification or to enhance the explained variance. In fact, the classification results for Model 7 were virtually identical to those obtained in Models 2, 4, and 6. The direct effects of the social learning variables also differed only slightly from those reported in Models 2 and 4. The contributions of hedonism (B_{da} = .20) and imitation (B_{da} = - .18) to the discriminant in Model 7, on the other hand, was now more in line with that observed in Model 6. For their part, the personal biographical variables contributed on a par with their performances in Model 4, when they were also combined with social learning variables.

The general social learning variables provided the best means of correctly classifying current users of controlled substances and former users. Similarly, these same variables played superior roles in the discriminant analyses for current users and nonusers and former users and nonusers. As predicted, the variables were best at distinguishing between nonusers and current users, followed by former users and current users. They provided fewer insights, however, into the classification of nonusers and former users. Nonetheless, there appeared to be considerable residual effects of the social learning process which enabled the orientations and attitudes associated with this process to function as discriminating factors even after the deviant behavior itself had been terminated.

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SUMMARY

Drug abstention, whether it is a case of never having used controlled substances or ceasing their use, is, by all accounts, a little understood phenomenon. We anticipated that independent variables derived from social learning theory would discriminate best between nonusers and users, worst between nonusers and former users, and moderately well between users and former users. In order to provide as thoroughgoing a test as possible, social learning variables were compared to, in the case of users and former users, reasons for initiation such as hedonism and imitation; in the case of nonusers and former users, the reasons for nonuse were also used.

The first comparison involved nonusers and current users. This was the group for which it was anticipated that the discriminant would correctly classify the most cases. In the grouped cases, fully 93 percent of the nonusers and current users were correctly classified using only the personal-biographical and social learning variables. The following additional findings are highlighted:

1. The social learning variables contributed far more to the discriminant than the personal-biographical variables; this difference was observed both by looking at the correct classifications accounted for by each and the resultant squared canonical correlations.

2. The best single predictor was the level of peer use of drugs, followed by differential peer definitions and personal approval; adding the personal-biographical features little changed the relative impact of each of these variables.

Nonusers and former users shared one special characteristic in common: neither were currently using controlled substances (although both could conceivably have been drinking alcohol). The members of both groups were

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asked to select as many reasons for their current abstention as were meaningful. These reasons, along with their respective personal-biographical characteristics and social learning indicators, were used to discriminate between the two groups. The discriminant based on these variables correctly classified, on average, 86 percent of the subjects as either nonusers or former users, which was below the 93 percent recorded for the comparison between nonusers and current users. The following observations seemed particularly insightful:

1. Social learning variables alone and in concert with person-biographical features correctly classified fewer subjects when they were either nonusers or former users than if they were nonusers and current users.

2. While the social learning variables, and the differential peer associations in particular, continued to contribute more to our understanding of who was in which group, certain reasons for nonuse contributed nearly as much to the discriminant.

3. A former user was distinguished from a nonuser on the basis of the former's greater concern for his or her mind and body and what his or her parents might think if they found out; in fact, concern for one's mind was on a par with personal approval of drugs as a contributing factor.

3. Those concerned for the illegality of drugs were more often nonusers than former users.

4. Reasons for nonuse enjoyed higher utility than the personal-biographical features, but alone they accounted for only about two-thirds the variance evidenced by general the social learning variables.

The final segment of the paper addressed the classification of former drug users and current drug users. The members of these two groups once shared, in theory at least, much in common. Currently, they have at least one feature which separates them: the members of one of the groups admit to the use of controlled substances while those in the other maintain that they have stopped using them. In comparison to the first attempt at classifying nonusers and current users, the final discriminant analysis used two additional predictor variables, hedonism and imitation. While the fully explicated model was only able to classify 84 percent, the squared canonical correlation was roughly equal to that observed in the case of nonusers and current users. Consider too the following observations drawn from this final series of discriminant analyses.

1. Males and older youths were consistently found in the current user group, which implies that females and younger youths were in the former user group; the links between these variables and correct classification were not greatly affected by the social learning variables.

2. The impact of hedonism and imitation, which, by temselves and in concert with personal-biographical variables, provided a solid basis for classifying the subjects, was rather meager in direct comparison to the general social learning variables.

3. Among the general social learning variables the differential peer associations, personal approval and differential peer definitions. were by far the most consistent performers of all the variables.

4. In past analyses, the differential peer associations always exhibited the strongest direct impact on the discriminant; however, in the case of former users and current users, personal approval made nearly as great a direct contribution.

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Whether we were comparing nonusers to current users, nonusers to former users, or former users to current users, variables drawn from social learning theory provided the most consistent basis for making correct classifications. With the exception of the comparison between former users and current users, differential peer associations was the strongest single factor; in the one instance that this variable clearly was not the best performer, it virtually tied with personal approval. In either of the comparisons involving current users, the differential associations or differential definitions variables provided the best bases for group classification, and, as noted above, these classifications were consistent with social learning theory.

The comparisons involving nonusers and former users provided us with further insights into the scope of social learning theory. The members of these two groups were not currently using drugs or, by definition, never have used controlled substances. What was significant about the findings was the observation that the social and non-social reinforcers, or what were referred to as the reasons for nonuse, distinguished between the two groups nearly as well as the associational and definitional variables. In fact, with the exception of differential peer associations use, the reinforcers, as a group, constituted a far more consistent set of factors.

Undeniably, then, the theoretically derived factors provided the best bases for distinguishing among members of the various groups. Gender, age, ethnicity, and place of residence were secondary and often tertiary factors. This is not to say that these variables contributed nothing to the study of drug use and abuse. For example, there is a significant body of literature to suggest that real differences by race and ethnicity exist (Higgins, Albrecht, and Albrecht 1977; Kleinman and Lukoff 1978; May 1982;

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Tucker 1985), as well as rural-urban differences (Gleaton and Smith 1981; Napier, Goe, and Bachtel 1981; Winfree and Griffiths 1983, 1985). There is also sufficient cause to believe that processual theories such as social learning cross racial, ethnic, and geographic boundaries (Sellers and Winfree 1990; Winfree and Griffiths 1983; Winfree, Griffiths and Sellers 1989).

The findings contain a number of implications for each of the three groups examined. Those who have never used drugs tend to operate in a learning environment that encourages abstention. They associate with non-using peers and are exposed to definitions that are disapproving of drugs. It is important that any kind of intervention reinforce these associations and orientations among nonusers, and it should occur early enough that these youths do not begin to go beyond nonuse and experimentation to more serious patterns of substance use and abuse. Once adolescents become part of the current-users group, efforts to get them to quit are likely to be less successful. Intervention still may focus on removing them from drug-using peers (differential peer associations) and providing anti-drug definitions, but the likelihood of cessation will not be high, particularly among older males. Another concern is for maintaining former users in that status. Those who have quit must be encouraged somehow to continue abstaining from illegal substances. Again, interventionists may focus on peer use and definitions, but reinforcing concerns about the effects of drugs on one's mind and body may also be useful.

The social learning model most easily distinguished between those who have never used and those who are currently using drugs. These two groups had the most dissimilar learning environments. That is, nonusers were exposed to nonusing peers with anti-drug orientations; current users generally had drug-using friends who approved of drug use. That the model

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had difficulty distinguishing former users from nonusers may be crucial. Strategies that work to maintain nonusers may not work to maintain former users or to get users to quit. Social learning theory was also less successful in distinguishing current and former drug users. This finding suggests that both groups may still operate within the same social learning context: both have drug using peers, as well as pro-drug orientations and reinforcers of drug using behavior. The danger is especially high, then, that as a result former users may relapse into drug-using behavior. For that reason, it may be instructive for future research to focus on a fourth stage in the series of behaviors involving substance use and nonuse: that of re-use of drugs by those who had quit. Moreover, much remains to be done to determine just how to alter social learning environments and to identify other factors that affect youthful drug use or avoidance.

[1]O'Malley, Bachman, and Johnston (1983) have examined the issue of internal validity, or reliability, and have found that with some exceptions, the responses of their high school seniors exhibited a high degree of reliability. What we are addressing here is a nonrandom error, in which case all or the majority of the youth interpreted the term "drug" as excluding alcohol. It is possible that some youths did indeed quit using alcohol and considered themselves former drug users. The best response seems to be to limit any interpretations to "controlled substances" or what are often referred to as illegal or illicit drugs (Gordon 1983).

[2]It is interesting to note that among those youth indicating that they had never used drugs, including alcohol, 14 percent later indicated that they had used alcohol up to two times in their lives. Still, another 52 percent of the "nonusers" indicated that they had truly never had a drink of alcohol in their lifetime. For marijuana and other drugs, between 98 percent and 99 percent of the nonusers reported no use or experimental (1-2 times in a lifetime) use.

[3]Interpreting the sign involves a slightly more complex process. In point of fact, the signs are arbitrary (Norusis 1985: 91). But an examination of the groups of variables which have different signs reveals which variables result in large and small function values, with function values equal to the values accorded the dependent variable. For example, assume that in a comparison of nonusers (Group 1) and former users (Group 2), a particular social learning discriminator, for differential associations, exhibited a positive sign or a large function value. Youths that perceive high levels of drug use by their friends, or high differential associations, are more likely to be former users, since this group has been assigned the larger

function value of 2.

[4]This caveat is identical to the one issued to users of multiple regression analysis concerning the interpretation of R^2 (Norusis 1985: 87).

Table 1. Discriminant Analysis: Nonusers (N = 1388) versus Current Users (N = 138) with Standardized Canonical Correlations, Membership Prediction, and Squared Canonical Correlations.

Predictor Variables	Theoretical Models		
	Model 1	Model 2	Model 3
Personal-Biographical:			
Male	.25		.04
Age	.95		.03
American Indian	.06		-.06
African American	-.04		-.10
Mexican American	-.13		-.06
Rural	-.02		-.09
General Social Learning Variables:			
Personal Approval		.35	.35
Differential Peer Associations		.57	.56
Peer Approval		-.02	-.01
Differential Peer Definitions		.41	.40
Classification Results: Correctly Predicted			
Group 1 (Nonusers)	.69	.95	.93
Group 2 (Current Users)	.77	.87	.88
Grouped Cases	.69	.94	.93
Squared Canonical Correlations	.07	.46	.47

Table 2. Discriminant Analysis: Nonusers (N = 1388) versus Former Users (N = 155) with Standardized Canonical Correlations, Membership Prediction, and Squared Canonical Correlations.

Predictor Variables		Theoretical Models					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Personal-Biographical							
Male	-.12			-.08	-.07		-.06
Age	.71			.09	.46		.09
American Indian	.58			.24	.32		.16
African American	-.10			-.14	-.06		-.12
Mexican American	-.11			-.07	-.12		-.10
Rural	-.15			-.14	.04		-.10
General Social Learning Variables							
Personal Approval		.18		.17		.26	.26
Differential Peer Associations		.65		.56		.61	.55
Peer Approval		.20		.21		.12	.14
Differential Peer Definitions		.29		.28		.18	.19
Social and Nonsocial Reinforcers: Reasons for Nonuse							
Illegal			-.79		-.61	-.33	-.31
Mind			.47		.45	.45	.45
Body			.31		.23	.26	.25
Expense			.33		.20	.15	.14
Parents			.59		.47	.29	.26
Obtain			.00		.04	-.06	-.05
Classification Results: Correctly Predicted							
Group 1 (Nonusers)	.73	.83	.75	.82	.80	.86	.87
Group 2 (Former Users)	.60	.72	.61	.73	.67	.72	.74
Grouped Cases	.72	.82	.74	.81	.78	.85	.86
Squared Canonical Correlations	.05	.15	.09	.18	.13	.25	.26

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Table 3. Discriminant Analysis: Current Users (N = 138) and Former Users (N = 155) with Standardized Canonical Correlations, Membership Prediction, and Squared Canonical Correlations.

Predictor Variables	Theoretical Models						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Personal-Biographical							
Male	.44			.30	.29		.30
Age	.82			.29	.42		.28
American Indian	-.31			-.11	-.26		-.11
African American	-.05			-.21	.08		-.21
Mexican American	-.16			-.06	-.00		-.07
Rural	.28			-.00	.10		.01
Social Learning Variables							
Personal Approval		.59		.60		.52	.43
Differential Peer Associations		.60		.53		.57	.51
Peer Approval		-.12		-.09		-.11	-.07
Differential Peer Associations		.19		.17		.14	.13
Social and Nonsocial Reinforcers: Reasons for Initiation							
Hedonism			1.00		.74	.22	.20
Imitation			-.35		-.04	-.16	-.18
Classification Results: Correctly Predicted							
Group 1 (Current Users)	.63	.80	.65	.83	.74	.81	.83
Group 2 (Former Users)	.63	.83	.75	.84	.70	.83	.84
Grouped Cases	.63	.81	.70	.84	.72	.82	.84
Squared Canonical Correlations	.10	.41	.17	.46	.25	.42	.48

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Appendix. All Subjects: Age, Race, Grade Level and Gender by Residence

	Sample		
	Rural (N = 508)	Rurban (N = 1,178)	Total (N = 1,686)
Characteristics	% (n)	% (n)	% (n)
Age:			
11	0.2 (1)	7.5 (88)	5.3 (89)
12	9.1 (46)	15.7 (185)	13.7 (231)
13	16.3 (83)	16.7 (197)	16.6 (280)
14	14.4 (73)	18.3 (215)	17.1 (288)
15	18.5 (94)	15.5 (183)	16.4 (277)
16	12.2 (62)	13.3 (157)	12.9 (219)
17	12.2 (62)	8.2 (97)	9.4 (155)
18	12.6 (64)	4.7 (53)	6.9 (117)
19	3.7 (19)	0.3 (3)	1.3 (22)
20	0.8 (4)	0.0 (0)	0.2 (4)
Race/Ethnicity:			
Caucasian	73.2 (372)	82.4 (971)	79.6 (1343)
American Indian	22.2 (113)	2.1 (25)	8.2 (138)
Mexican American	0.0 (0)	10.0 (118)	7.0 (118)
African American	4.5 (23)	5.4 (64)	5.2 (87)

Appendix (Continued). All Subjects: Age, Race, Grade Level and Gender by Residence

	Sample		
	Rural (N = 508)	Rurban (N = 1,178)	Total (N = 1,686)
Characteristics	% (n)	% (n)	% (n)
Grade Level:			
6th	17.7 (90)	14.5 (171)	15.5 (261)
7th	14.6 (74)	18.8 (222)	17.6 (296)
8th	16.5 (84)	16.8 (198)	16.7 (282)
9th	15.4 (78)	18.6 (219)	17.6 (297)
10th	12.2 (62)	12.9 (152)	12.7 (214)
11th	12.4 (63)	10.6 (123)	11.0 (186)
12th	11.2 (57)	7.7 (91)	8.8 (148)
Gender:			
Female	49.8 (253)	50.9 (600)	50.6 (853)
Male	50.2 (255)	49.1 (578)	49.4 (833)