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Drug Testing and Oregon Workers : Is Perceived Fairness of Corporate Drug Testing Moderated by Drug Use?

Leslie James Normandy
Portland State University

DRUG TESTING AND OREGON WORKERS: IS PERCEIVED FAIRNESS OF CORPORATE DRUG TESTING MODERATED BY DRUG USE?

by

JAMES LESLIE NORMANDY

A thesis submitted in partial fulfillment of the

requirements for the degree of

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COMMITTEE APPROVALS:

[redacted]

Donald Truxillo, Chair

[redacted]

Leslie Hammer

[redacted]

William Feyerherm

[redacted]

Talya Bauer
Representative of the Office of Graduate Studies

DEPARTMENT APPROVAL:

[redacted]

Roger Jennings, Chair
Department of Psychology

ABSTRACT

An abstract of the thesis of James Leslie Normandy for the Master of Science in Psychology presented September 25, 1997.

Title: Drug Testing and Oregon Workers: Is Perceived Fairness of Corporate Drug Testing Moderated by Drug Use?

This study proposed that two predictors of perceived fairness of organizational drug testing would be moderated by drug use. These two predictors, outcome of a positive drug test and whether respondents were ever previously tested for drug use, had been found to be predictors of perceived fairness of drug testing. It was expected that the theories of organizational justice and cognitive dissonance would explain these relationships. Additionally, it was proposed that drug users would perceive drug testing as less fair than would non-drug users.

Participants were 191 adults randomly selected throughout the state of Oregon. The survey items measuring the perceived fairness of drug testing were added to an existing drug prevalence study funded through the Oregon Department of Human Resources.

The study supported the notion that workers who use drugs will perceive drug testing as less fair than those who do not use drugs. This dissatisfaction with drug testing programs among drug users may be due to issues of cognitive dissonance. The

findings supported the proposed model in which drug use moderated the relationship between outcome of a positive drug test and perceived fairness of drug testing. However, contrary to results of earlier studies, no differences were found on the fairness measures between workers who had been previously tested for drugs and those who had not. This may indicate a change in attitudes toward drug testing in general and that this process is becoming more accepted.

Results of this study suggest that other previous predictors of drug testing fairness may also be affected by this "extraneous" variable of drug use. In addition, these results support the use of organizational justice theory in studying attitudes toward drug testing and provide similar justification for the use of cognitive dissonance theory in future drug testing research.

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James L. Normandy

Portland State University

Drug Testing and Oregon Workers: Is Perceived Fairness of Corporate Drug Testing Moderated by Drug Use?

Drug use and its effects on organizations have become serious and costly issues. Although it is difficult to measure the extent of drug use in organizations nationwide, some figures are available. Results from the 1988 National Household Survey on Drug Abuse (NHSDA) sponsored by the National Institute on Drug Abuse (NIDA) estimated that 8.2% of all full-time, employed workers were currently using an illicit drug. Estimates for the subgroup of males aged 18-25 years were even higher; illicit drug use in this category was 23.8%. In other words, 1 in 4 males age 18-25 used an illicit drug at least once in the month prior to the survey (cited from Gust, Walsh, Thomas, & Crouch, 1991).

Whether using drugs on or off the job, workers can create significant loss of revenue for their companies and put coworkers as well as themselves in danger. Some of the consequences of organizational drug use include absenteeism, illness, theft, injury to self and others and breakage (Cohen, 1984) as well as lessened productivity, safety problems and increased turnover (Potter & Orfali, 1990). In a longitudinal study conducted by the U.S. Postal service, a sample of 5,465 applicants screened for drug use and post-hire activities were monitored for 1.3 years. It was found that those who tested positive for an illicit drug had an absenteeism rate 59.3% higher than those who tested negative (Normand, Salyards, & Mahoney, 1990). The use of illicit drugs

has also been found to be directly related to "job withdrawal behaviors" such as spending work time doing non-work related activities, day dreaming, sleeping on the job, or taking extended lunch breaks (Lehman & Simpson, 1992).

Research in this area indicates that the direct and indirect costs of drug abuse to organizations is substantial. The Metropolitan Life Insurance Company has estimated the direct costs of employee drug abuse to industry at $85 billion per year (as cited in Crant & Bateman, 1990). The latest study from NIDA estimated a loss of $100 billion per year to organizations from alcohol and drug-related productivity losses (as cited in Newcomb, 1988). Because employee drug use can create such an enormous liability for organizations, instruments have been developed to reduce or prevent the hiring of these applicants who otherwise may appear normal. Similar steps have been taken to identify drug use by incumbents. Besides self-reported drug use or "pencil and paper tests", the primary instruments used for the detection of drug use are known collectively as drug testing (DT).

Drug Testing

The development of DT began in the military during the 1970's (Executive Knowledgeworks, 1987). Since then, at least 50% of Fortune 500 companies test applicants for drug use, and the implementation of DT programs in smaller organizations is growing every year. The widespread use of DT can now be felt in every level of industry. An American Management Association study estimated that job applicants now have a 1 in 3 chance of being tested for drugs (as cited in Rosse,

Miller, & Ringer, 1996).

There are a number of different ways to test for drugs. These methods vary depending on what substance(s) are to be detected, how much one is willing to pay for each test, and time required for analysis (Potter & Orfali, 1990). The more accurate and sensitive the analyses are, the more expensive the drug test is (Campbell & Graham, 1988; Potter & Orfali). Although drugs can be detected in the human body by analyzing hair, blood, or urine, the most frequently used screening method is urinalysis. Not only is urinalysis relatively inexpensive, but chemicals are detectable in the urine longer than in blood, therefore extending the window of detection (Campbell & Graham).

There are several different ways of implementing a DT program. These include: (1) pre-employment, in terms of an organization's application process, this method may be used as part of the first round of "hurdles" that an applicant must pass in order to qualify for further consideration. Other methods involve current employees or "incumbents"; such as (2) for cause, when there is reason to believe that a drug problem exists; (3) scheduled, where a company might enforce an annual or bi-annual, organization-wide DT program. This practice of testing incumbents without just cause may serve as a system for "weeding out" those who made it through the pre-employment screening for drug use; and (4) random, except for adding an element of surprise, this method is similar to Scheduled DT. Almost all companies who have a DT program use at least the Pre-Employment method (Executive Knowledgeworks,

1987).

As is the case with many human resources selection methods, DT programs have been subject to criticism. Invariably they have led to litigation by minority groups, unions, and employees claiming wrongful discharge or invasion of privacy (Klotz, 1990). In response to these negative reactions, researchers have recently begun investigating how applicants and incumbents react to the implementation of a DT program and how this affects the organization.

Attitudes Toward DT

Since its relatively recent beginnings as a topic of research study, the effects of a number of independent variables on attitudes and reactions toward DT programs have been explored (see Table 1). Some DT policies, it seems, can elicit more negative reactions than others, and may even provoke aggression or hostility from disgruntled workers (Stone & Kotch, 1989). One of the most controversial of these methods is random DT. Random testing procedures usually consist of arbitrarily selecting a small "subset" of workers to be tested at a random time. Employees have been found to have more positive attitudes toward DT if advance notice is given (Raciot & Williams, 1993; Stone & Kotch, 1989) and if the testing is for just cause (e.g., suspicion of drug use; Murphy, Thornton, & Reynolds, 1990; Stone & Bowden, 1989). In addition, applicants will be more likely to apply to an organization and have more positive attitudes toward DT if all applicants are to be tested (Stone & Bowden).

The outcome of a positive DT result has also been found to affect employee

reactions. For example, people react more positively toward DT if they know that the results will be used to help detected drug users quit (Murphy et al., 1990) and that the DT program's purpose is to rehabilitate rather than to punish (Crant & Bateman, 1993; Raciot & Williams, 1993; Stone & Kotch, 1989; Tepper & Braun, 1995). Organizations that permit individuals testing positive for drugs to undergo rehabilitation, whether it be company sponsored through an employee assistance program (EAP) or paid for by the employee, can be perceived as providing more control over outcomes (Raciot & Williams, 1993). This policy, as opposed to one which forces immediate termination, is interpreted as "signaling greater concern and respect for employee rights and well-being" (Raciot & Williams, 1993, p. 1881). Termination, however, is deemed justifiable when the job under consideration is safety sensitive (Raciot & Williams, 1993; Tepper, 1994).

Negative attitudes toward these DT program characteristics may lead to a number of behaviors that are undesirable to organizations. Negative perceptions of selection system characteristics (e.g., DT policies) have been hypothesized to affect performance, absenteeism, and turnover, and they may even influence prospective employees' decisions to apply to an organization (Gilliland, 1993). From a managerial perspective, advance planning of the implementation of a DT program is crucial.

Drug Users' Attitudes toward DT. The bulk of research done on DT seems to focus on characteristics of the DT program itself. Few studies have investigated individual differences between employees. This small subset of studies includes

variables such as employment experience and political ideology (Murphy et al., 1990) or managerial status and number of times tested (Tepper & Braun, 1995) and how these characteristics can affect attitudes or behavior. One other worker characteristic is the employee's personal use of drugs. Drug users have been found to respond negatively to several forms of human resource testing including urine analysis, overt integrity testing, personality testing (Rosse et al., 1996), and polygraph testing (Garland, Giacobbe, & French, 1989) as compared to non-users. Individuals who use drugs may be less likely to apply to or accept a job offer from an organization that conducts DT (Crant & Bateman, 1993). Perhaps, from a human resource perspective, this is good news. It seems likely that managers would be more inclined to value their DT program if it not only detected drug use, but in addition swayed drug users from even applying for a job. However, this same study also found that drug users can hold less favorable attitudes toward the company than non-users (Crant & Bateman, 1993). Herein lies the bad news for managers if their screening process does not prevent these individuals from becoming incumbents. As mentioned earlier, the result of these negative attitudes can be costly. In addition, it seems important to explore the reactions of non-users to DT policies.

The relationship between personal drug use and DT programs has received little attention in the literature. To date, this variable has been used only in research conducted with samples of students who read hypothetical vignettes describing work situations (e.g., Crant & Bateman, 1993; Murphy et al., 1990; Rosse et al., 1996.) In

the Murphy et al. (1990) study, three separate samples of college students were selected to participate in the survey. Four characteristics of DT programs were manipulated in order to determine attitudes toward testing; (1) who is subject to testing, (2) the circumstances that led to testing, (3) the administrative procedures used in testing, and (4) the consequences of failing a test. Vignettes were varied by job type ranging from airline pilot to janitor. As expected, approval of DT varied as a function of the safety sensitivity of the job, administrative procedures involved in testing, and consequences of testing positive (more punitive DT was less favorable). Included in the study were several individual differences which included employment experience, whether or not the individual had been previously tested for drugs, political orientation, number of job offers received, GPA, personal drug use and exposure to others' drug use. A weak relationship was found between approval of DT and political orientation, such that, more conservative subjects approved more of DT. The strongest individual difference found was with personal drug use. The frequency of drug use was negatively correlated with DT approval (more frequent use meant lower approval ratings of DT). Similar results were found in Crant and Bateman's (1993) study. Using college students as subjects, dependent variables (applicants intention to apply to company, attitudes toward company, and willingness to accept a job offer) were measured by manipulating two characteristics of a DT program; (1) the purpose of the program (to rehabilitate or to punish) and (2) the DT selection method (random or scheduled). Again, the manipulations had no effects, but several individual

differences, including personal drug use, predicted the dependent variables.

To date, the only research that has used the variable drug use as its primary focus was conducted by Rosse et al. (1996). Not unlike the two previously mentioned studies on drug users and DT, their study used similar undergraduate subjects for a sample. Responding to a hypothetical vignette, 509 college of business undergraduates' and MBA students' reactions were assessed toward three different types of testing; (1) urinalysis, (2) overt integrity testing, and (3) personality inventories. As predicted, drug users responded more negatively to urinalysis than did non-users. In addition, drug users responded equally negatively to all three forms of testing.

In order to build on previous research of drug users' attitudes about DT it would be beneficial at this point to begin investigating these relationships using actual workers or job applicants. Tepper's (1994) study provided some evidence that students, although eventually entering the workforce, can perceive the impact of DT and its effects disparately from workers in the field. Personal experience with drug policies and the knowledge of what the consequences may be when one tests positive may be a factor that distinguishes these two sample types.

Organizational Justice

In order to conduct empirically based research on the effects of DT programs, it has been necessary to begin analyzing these concepts within a theoretical framework. One such framework has been organizational justice theory, which was

developed to better understand and predict organizational behavior. Organizational Justice "attempts to describe and explain the role of fairness...in the workplace" (Greenberg, 1990, p. 400) and is useful for explaining the impact selection systems have on an applicant's fairness reactions (Gilliland, 1994) as well as judgements of invasiveness by incumbents (Tepper & Braun, 1995). Organizational justice is comprised of two sub-categories of justice: distributive justice and procedural justice.

Distributive justice. Distributive justice is based on a ratio wherein workers weigh distributions of inputs and outcomes using one of three distributive rules, most commonly that of Adams' (1965) equity theory (Gilliland, 1993). For example, inputs can be defined as the knowledge, skills and abilities (KSAs) or any other contributions that individuals bring to their work. Outcomes are the product or perceived rewards for these KSAs, usually in the form of money, praise, or promotions. Equity theory involves the assessment of these distributions in comparison to others or even expectations of oneself (e.g, what you get paid compared to perceived self-worth; Adams, 1965; Cohen, 1987). If the ratio of inputs to outcomes is equal to that of another, then no tension is perceived and equity exists. If there is a significant difference in this ratio to the referent comparison, inequity exists and the worker is motivated to reduce the tension (Landy, 1989). Inequity can either be positive (termed overpayment) or negative (termed underpayment) in order for tension to exist. In terms of distributive justice, this tension may be reduced by either changing one's behavior (e.g., work harder, work longer hours) or distorting the cognitions associated

with perceptions of unfairness (e.g., expectations, self perceptions; Gilliland, 1993). In Gilliland's 1993 model of selection system justice, distributive justice is partitioned into three distinct rules; Equity (described above), Equality, and Needs. Equality refers to making unbiased personnel decisions based not on personal characteristics such as race, religion, sex, etc., but perceived or real differences in KSAs as well. Individuals, based on this rule, should have an equal chance at receiving the outcome. In the context of selection, "irrelevant differences" such as age or sex are more salient than relevant characteristics and would more likely result in the violation of equality. Such a violation might result in a discrimination law suit. The needs distribution rule refers to reward allocation or selection based on individual or special needs (e.g., preferential treatment such as defined by affirmative action programs).

Procedural justice. Procedural justice refers to the structural characteristics of a procedure, explanation of procedures and decision making, and the quality of the interpersonal treatment associated with decision making (Greenberg, 1990). Two main themes or perspectives exist which explain procedural justice. The first, from a study by Thibaut and Walker (1975), views procedural justice in terms of legality and focuses on "the role of process control or voice of the individual in fairness perceptions" (Gilliland, 1993, p. 696). Procedures, it seems, are perceived as more fair when workers have a chance to offer input toward or be involved in the decision making process (Gilliland). The second perspective is based on specific procedural rules which may be either satisfied or violated to invoke perceptions of fairness

(Leventhal, 1980). These rules state that "decisions should be made consistently, without personal biases, with as much accurate information as possible, with interests of affected individuals represented in a way that is compatible with their ethical values, with an outcome that could be modified" (Gilliland, 1993, p. 697) and "represents the concerns of all recipients" (Greenberg, 1990, p. 404). Gilliland's 1993 selection fairness model also offers a number of rules which relate to procedural justice in terms of selection procedures. Those rules which seem most relevant to DT are: (1) job relatedness: As described earlier, the safety sensitivity of the job in question is directly related to fairness of DT. An airline mechanic would most likely consider DT (punitive or not) more fair than an airline ticket agent. (2) reconsideration opportunity: This rule refers to the individual's opportunity to modify or challenge rules and outcomes. If an organization whose DT program required termination as a result of a positive drug test this rule would be violated. On the other hand, an organization that allowed for negotiable outcomes (e.g., an individual who tested positive could have his or her choice between termination or rehabilitation and might perhaps be placed on probation of some sort) would have met this rule. (3) consistency: This rule requires that all DT procedures are administered consistently across individuals. If an applicant were tested for drugs based on his appearance (e.g., long hair) and discovered that a clean-cut cohort was not tested for the same position, this rule would be violated. (4) feedback: Timeliness and informativeness of test results produce increased fairness judgments. Improvements in this area, notes

Gilliland, are a cost-effective way to improve employee relations as opposed to many other areas. (5) selection information: A priori information about the justification of the test and advance notice of the test relate directly to DT. (6) interpersonal effectiveness of administrator. The kindness of rudeness of the test DT administrator combined with the personal treatment of the applicant during the process can affect the individuals overall attitude toward the testing process. (7) two-way communication. This rule refers to allowing "applicants to offer input or to have their views considered in the selection (DT) process". Finally, Gilliland discusses a potential procedural justice rule, invasion of privacy, this rule seems particularly relevant to DT. According to Gilliland, prior experiences with selection procedures (e.g. previously tested for drugs) may tend to make some of these procedures more salient and affect overall fairness ratings.

One recent study provides an understanding of how this model of organizational justice works in a selection context. For example, Gilliland (1994) examined the relationship between both procedural and distributive justice on a simulated personnel selection situation. Procedural justice was examined by manipulating two characteristics of a selection system's procedures. First, the extent to which the selection procedures (a work sample, a cognitive ability test or an overt integrity test) were related to a clerical task job was found to influence procedural justice (and even some determinants of distributive fairness reactions) as well as job performance. The second characteristic was the explanation offered for the selection

procedures. Participants were either offered explanation of the validity and decision making process of the procedures or no explanation at all. This influenced applicants' intentions to recommend the company to others. Distributive justice was also examined in Gilliland's (1994) study. Experimental conditions for this component of justice were selection decision outcome and hiring expectations, that is, did they get hired and did they expect to get hired. An interaction was found between these two variables on perceived fairness of the selection and applicants' recommendations to others. Gilliland admits that limitations to this study included the use of undergraduate students and that the job was only part-time. Because of this latter point, motivation to get the job may have been lowered.

Organizational justice and DT. Because organizational justice seems to be a useful framework for studying selection system characteristics, it may provide an effective model for studying DT fairness. Organizational justice has been used to explain attitudes toward DT on a number of dependent measures. Crant and Bateman (1989) described a mechanism which specifically illustrates how the experiences of distributive justice and procedural justice influence attitudes toward DT programs. The model's central variable is perceived fairness of the DT system. Perceived fairness is described as being a function of both distributive and procedural justice. Distributive justice, in the specific context of DT, could be viewed as the ratio of employee costs (e.g., inconvenience of submitting the test, anxiety, and privacy violation) and benefits (e.g., feelings that the DT increases safety on the job).

Distributive justice, according to the model, occurs when these benefits out-weigh the costs. Procedural justice is described by Crant and Batemen as being directly related to the DT program's characteristics. Perceived fairness is improved when the program follows Leventhal's (1980) rules of fairness mentioned earlier (Crant & Bateman). In reviewing Crant and Bateman's (1989) study, Tepper and Braun (1995) described examples of these rules that directly relate to DT (p. 213). Employees are more likely to hold favorable overall attitudes toward DT programs when:

1. The DT procedures accurately discriminate users from nonusers.
2. Individuals who receive treatment or rehabilitation can have their record expunged.
3. Individuals do not feel that they have been singled out for DT.
4. The consequences of testing positive for drug use are not excessively punitive.

Konovsky and Cropanzono (1991) used organizational justice to predict employee performance and attitudes on a number of dependent measures. In a study of 255 workers at a pathology lab, five specific criterion variables were analyzed: job satisfaction, organizational commitment, trust in management, employee turnover intentions and job performance. The two predictor variables, procedural justice and outcome fairness (distributive justice), were developed based on an earlier study by Tyler (1989). Procedural justice was measured by participants' judgements of fairness of the DT procedures and explanations from managers for the DT. Process fairness of

DT was based on two statements (1) "The drug testing process at this company is fair" and (2) "My employer uses fair procedures to conduct drug tests". These questions gave the subjects a chance to respond within a 5-point scale. The anchors to the scale ranged from "strongly agree" to "strongly disagree". Outcome fairness was also assessed by statements adapted from Tyler (1989). Specifically they were (1) "The results of the drug tests conducted by my employer are used fairly" and (2) "People get what they deserve as a result of our DT program". Results of the study indicated that procedural justice predicted all 5 criterion variables. Konovsky and Cropanzono (1991) note that "this pattern of results indicates the importance of procedural justice in the drug testing context" (p. 703). Contrary to expectations, hypotheses concerning outcome fairness did not receive any support from the hypotheses. However, the authors note that this may have been due to the relatively low reliability (alpha =.70) of their outcome fairness measure, or to unique characteristics within that specific company's DT procedures. Further investigation of the study's measures are suggested in order to obtain generalizability of results. In a later study by Konovsky and Cropanzano (1995), the perceived fairness questions described above (when combined into one fairness scale) had an alpha coefficient of .85. This later study used the same sample as Konovsky and Cropanzano (1991), but used the justice measures to investigate what they called the "justice dilemma", the dilemma being that workers will sometimes perceive valid assessment techniques to be unfair. Results suggest that the justice dilemma can be resolved (increase fairness) by increasing perceptions of

voice, advance notice, grievance systems, and justifications. These perceptions interacted with outcome negativity to predict overall fairness ratings.

Cognitive Dissonance Theory and Drug Use

From a psychological perspective, the theory of cognitive dissonance (CD) (Festinger, 1957) might be helpful in understanding the relationships between perceived fairness of DT, drug use, and one's employment at an organization which has a DT policy.

Festinger's theory, stated briefly, is based on psychological inconsistencies. That is, if one has a firm belief or value system against something (e.g., a behavior) and for some reason (e.g., peer pressure) acts contrary to the belief or value (e.g., engages in this behavior), CD will exist. This dissonance then is said to cause psychological discomfort, and the person is motivated to reduce the dissonance. This can be accomplished by changing the behavior or the belief, or by trivializing (or rationalizing) the inconsistency. To borrow Festinger's metaphor, "cognitive dissonance can be seen as an antecedent condition which leads to activity oriented toward dissonance reduction just as hunger leads to activity oriented toward hunger reduction" (p. 3). The two hypotheses which form the basis of Festinger's theory are: (1) The existence of dissonance, being psychologically uncomfortable, will motivate the person to try to reduce the dissonance and achieve consonance (consistency); and (2) When dissonance is present (p. 3), in addition to trying to reduce it, the person will actively avoid situations and information which would likely increase the dissonance

(e.g., DT). Using Festinger's theory, people who use drugs and apply for a job or currently work at an organization that uses DT should experience some level of CD. Apparently the greater the inconsistency (e.g., the more one uses drugs and embodies the counter culture behavior associated with this lifestyle) the greater the psychological discomfort felt from the CD. According to the theory, this is called forced compliance when some sort of reward (e.g., salary) is "sufficiently attractive to overcome the existing resistance" (p. 85). This "forced compliance" would represent the opposite side of the inconsistency, thus inducing CD. To reduce this dissonance, one might: (1) rationalize the drug use behavior perhaps by believing that one's drug use does not affect work performance and that DT is not job-related; (2) Trivialize the inconsistency, perhaps by concluding that it is alright to use drugs occasionally or that DT is unfair and unnecessary anyway; (3) change behavior by eliminating drug use, thus changing one's schema (or self perception) into one which considers himself a "non-user"; or (4), as mentioned earlier, avoid organizations that employ a DT policy altogether. Thus, persons using drugs, would be expected to have negative reactions to or avoid DT programs.

Drug Prevalence Study

Because the current study is connected to an existing survey, it is necessary to provide some background information and discuss the relationship between the two. The Drug Prevalence Study (DPS) was conducted at The Regional Research Institute using a federal grant funded through the Oregon Department of Human Resources.

The questionnaire used for the study was developed in conjunction with the National Technical Center based at Harvard Medical School. The DPS had an original sample size of 8,396 adults and was designed to provide the first available statistical projection of the number of adults in the state who would be in need of treatment for alcohol or other substance abuse (of marijuana, heroin, cocaine, methamphetamine, and hallucinogens) and dependency. The study was conducted in conjunction with 12 other states as part of a national project by the Center for Substance Abuse Treatment to demonstrate the feasibility of obtaining scientifically based estimates of the need for substance abuse treatment. The study used criteria based on the American Psychiatric Association's Diagnostic and Statistics Manual (DSM) standards for classifying reported behavior as representing substance abuse or dependency. The DSM III system defines dependency as a set of cognitive, behavioral and psychological symptoms that indicate the person has impaired control of substance use and continues use of the substance despite adverse consequences. In other words, simple use is not the same as dependency or abuse, which are characterized by the inability to control the use and some set of adverse consequences. The system defines nine symptom categories, as follows:

1. Taken in larger amounts or for a longer period than desired.
2. Persistent desire for the substance, or unsuccessful efforts to control use.
3. Much time spent getting, taking, or recovering from the substance.
4. Frequent intoxication or withdrawal symptoms when fulfilling role obligations at

work, school, or home, or when used in physically hazardous settings.

5. Significant usual activities given up or reduced because of the substance.
6. Continued substance use despite knowledge of persistent problem caused or exacerbated by the substance use.
7. Marked tolerance - diminished effects of the same amount of use, or greatly increased amounts of use in order to achieve the same effect.
8. Withdrawal symptoms.
9. Use of the substance to relieve or avoid withdrawal symptoms.

Dependency is established as a situation in which three or more of the symptoms are present. Situations in which one or two symptoms are present are defined as abuse. The study results in Oregon demonstrated that at least 6.3% of the adult population may be classified as dependent on either alcohol or other drugs, and an additional 5.7% of the adult population may be classified as abusing these substances. Translated into population numbers, these represent a total of over 133,000 persons dependent on and nearly 120,000 abusing drugs (Feyerherm & Skokan, 1996).

Because additional data were needed for the original DPS study, a second phase of the survey was conducted. The proposed estimate for this study called for a sample of 600 participants. With permission from the Oregon Department of Human Resources and the DPS' project director, Dr. William Feyerherm, respondents were surveyed in conjunction with the drug testing data needed for the current research.

The current study used a survey methodology based on the original DPS study including items which were specifically related to the fairness of drug testing in organizations. Because of small sample type in the three categories of use, the current study's hypotheses were be based on criteria of drug use or non-use alone. For an elaboration on the perceived fairness of DT programs questions and how they fit into the original DPS study, refer to the Method section and Appendix.

Present Study

The major purpose of the current study was to build on previous research findings indicating that drug users differ from non-users (Crant & Bateman, 1993; Murphy, Thornton, & Reynolds, 1990; Rosse et al., 1996) in their attitudes toward drug testing and to investigate these differences using the perceived fairness measures used in Konovsky and Cropanzono's (1991, 1995) studies. As mentioned above, their hypotheses were not supported with respect to their measure of outcome fairness (or distributive justice). As already noted, the relatively small body of research on drug users and their attitudes toward DT was generated from samples of college students (Crant & Bateman, 1993; Murphy et al., 1990; Rosse et al., 1996). The findings from these data, one might argue, may only be generalizable to this specific population. In order to generalize to real world applications, future research should focus on actual workers confronted with actual DT. To that end, having the opportunity to take advantage of the DPS's sample, the current study was able to generate data based on responses from actual Oregon workers.

In terms of justice perceptions, non-users should have little reason to dispute the procedures of a DT program or possible outcomes that may insue from a positive test. Assuming that false positives are not an issue, the fact that non-users have "nothing to worry about" should illicit more positive attitudes. Non-users may support the existence of a DT program in order to keep users out of the organization and away from themselves as well as to increase their own chances of being hired. Whether for reasons of increasing organizational safety and production rates or due to morals and idealism, non-users should have a vested interest in some form of DT. Festinger's (1957) theory might also help to predict how drug users will respond to DT in terms of fairness reactions. The first of his rules concerning the magnitude of dissonance (p. 18) states: "If two cognitive elements are relevant (e.g., drug use and DT), the relation between them is either dissonant or consonant".

Using this model, CD would exist if a drug user responds positively to DT. Drug users, upon being surveyed about procedural or distributive justice (fairness), should respond negatively (low on fairness scales) to DT in order to avoid CD. Furthermore, drug users might see DT as violating the equality rule of distributive justice. Thus, Hypothesis 1a states:

Hypothesis 1a) Those who are classified as drug users will perceive drug testing as less fair (in terms of procedural and distributive justice) than those who are classified as not drug users (have never used drugs).

As noted earlier, researchers have studied the effects of whether individuals

were previously tested for drugs on perceived fairness. But again, these effects were always investigated in conjunction with some other measure (e.g., punitiveness of the DT program) and have not been analyzed alone. Two of the previous studies on number of times tested produced disparate results. The conflicting results from Tepper (1994) were from separate studies. The first used undergraduate college students for its sample; the second was a field study based on answers from employees in two professional companies. Apparently, workers differed from the students on the saliency of several issues, especially the punitiveness of the DT program and whether or not the subject had previously been tested. Contrary to expectations, workers from the field study reported more negative reactions toward punitive DT in safety-sensitive positions than did students from the laboratory study. Furthermore, it seems likely that individuals who have previously been through the DT experience have more knowledge of its invasiveness, a possible procedural justice rule. This knowledge may allow recipients to possess distinct criticisms of the processes and procedures which non-tested people are unaware of. Gilliland (1993, p. 713) describes this as a "factor that is predicted to influence the weighting of procedural rules" and may moderate hypothesis 1a (see figure 1). Thus, Hypothesis 1b states:

Hypothesis 1b) Whether people have been previously tested for drugs will moderate the relationship between drug use/non-use and fairness. The negative relationship between drug use and fairness will be greater among those who have been previously tested for drugs.

Such familiarity with the DT process and its outcomes should also directly affect fairness reactions because of invasiveness issues (Gilliland, 1993). The current study, therefore, was interested in exploring the direct effects of this variable, whether workers were previously tested, for its effects on perceived fairness (see figure 1). Thus Hypothesis 1c states:

Hypothesis 1c) People who have been previously tested for drugs will perceive DT as less fair (in terms of procedural and distributive justice) than those who have not been tested previously.

As mentioned earlier, DT policies that allowed or provided rehabilitation as opposed to termination elicit more positive reactions. In a survey of 255 college students, Raciot and Williams (1993) found that organizations whose DT policy allows individuals to seek rehabilitation were perceived as more fair than those that required termination. But again, as noted by the authors, the use of college students as respondents and the use of hypothetical scenarios limited the generalizability of the findings. In any case, these findings are consistent with Gilliland's (1993) justice model, in terms of the rules of equity and reconsideration opportunity. Building on these findings, the current study also considers the notion that individuals who use drugs may be more sensitive to this issue. That is, drug users could have considerably more at stake than non-users if the DT program were punitive, thus lessening perceptions of fairness. Such an effect is also congruent with CD theory. In addition, whether individuals have been previously tested, as well as drug use, may moderate

the relationship of punitive outcomes and fairness similar to hypothesis 1b (see figure 2 and 3). Thus, Hypotheses 2a, 2b and 2c state:

Hypothesis 2a) Workers whose employers require termination as the consequence of a positive drug test as opposed to rehabilitation (punitive DT policy) will perceive DT as less fair (in terms of procedural and distributive justice) than workers whose employers provide rehabilitation.

Hypothesis 2b) Drug-use/Non-use will moderate the relationship between DT policy and fairness. The negative reaction to a punitive DT policy will be greater among drug users than non-users.

Hypothesis 2c) Previously tested will moderate the relationship between punitive DT policy and fairness such that previously tested workers will perceive a punitive DT policy as less fair than non-tested workers.

Method

Participants

The sample consisted of 656 subjects who were surveyed over the telephone within a three month period. Of these, 191 met all of the criteria for analyses (DT at current or previous job) and were included in the final sample. Subjects were randomly selected (phone numbers were purchased through an outside entity) by using Random Digit Dialing (RDD) technology, which ensures that all areas of the state were included and that persons with unlisted numbers were included in the sample. The original sample was representative of the population of the state of Oregon (in

terms of, gender, socio-economic status, and race/ethnicity). After selecting participants who met all criteria for the analyses, the sample was considerably different from the original 656 in terms of the previously mentioned demographics. Of the 191 subjects, 171 were white (6 percent of these claimed to be of hispanic origin), 0.5 % were African American, 3.7 % were Asian or Pacific Islander, 2.1 % were Native American, 2.6 % were Eskimo or Aleut, and 1.6 % did not know or refused to divulge their ethnicity. Although gender was close to Oregon's numbers (51.8 males, 48.2 females), socio-economic status was somewhat off the average. Where Oregon has an average income hovering around $25,000, the current studies subjects reported significantly higher annual earnings (43% reported incomes higher than $40,000). A minimum age of 18 was required of the respondents (the mean age was 47.9). In order to fit into the current model subjects had to be employed at least part time (twenty hours per week).

Procedure

Subjects who were contacted were first given the name of the interviewer and his/her affiliation with Portland State University. Subjects were randomly selected by asking for the person in that household who had the most recent birthday and fit the age criteria (must be over 18). A brief description of the survey was given and confidentiality was assured. Respondents who were not contacted the first time were "called back" on a regular basis until reached. Respondents who refused to respond to the survey were contacted one more time, after a week or longer, in an attempt to

complete the interview.

Materials

The survey was conducted using the Computer-Assisted-Telephone Interviewing (CATI) system software on four computers. This CATI system included an elaborate "callback" system where, if the given respondent was not available at the time of contact, measures could be taken to schedule "a more appropriate time to call back". An internal calendar monitored these events and, as a backup system, graduate students working as research assistants reviewed every case before it was returned to the system.

Ten interviewers called during 8, four-hour shifts per week over the course of approximately three months. Drug usage questions were those that comprise the Diagnostic & Statistical Manual of Disorders (version III), commonly referred to as DSM-III classification.

Measures

All items that were added to the original DPS study can be found in the appendix. The survey in its entirety is available upon request.

Demographics. The first section of the survey asked about general demographics and then inquired about the subjects' health in general (so as not to jump directly into the sensitive topic of drug usage). The demographics that were pertinent to the current study and consequently used in the analyses as control variables were age, income, marital status, and education.

Drug usage. Participants began the drug usage section of the survey by first being asked about tobacco use, alcohol use, and use of other substances (Marijuana, Heroin, Cocaine, Methamphetamine, and Hallucinogens). Respondents who indicated more than casual use of these substances were asked additional questions based on the APA's DSM-III criteria, which were used to classify individuals according to the DSM categories. As noted earlier, dependency was established as a situation in which three or more of the symptoms are present. Situations in which one or two symptoms are present are defined as abuse.

These questions, in accordance with the DSM-III, determined the classification of the respondent into categories of drug user, drug abuser, drug dependent, or non-user. The original DPS provided a more than sufficient sample of drug users, abusers and dependent drug users (see table 2). Because the current study's sample is considerably smaller, it did not provide sufficient numbers in the categories of abuse ($n = 2$) and dependency ($n = 3$). Therefore all categories of use were classified into one variable of drug-use/non-use. The category of "user" included past users ($n = 89$), current users, and those who had used drugs within the past 18 months ($n = 27$), and subjects who indicated use of non-prescribed barbiturates ($n = 12$).

If the respondent did not have (or did not know of) a drug testing program at their current job or was not currently employed, a similar set of questions was asked based on previous employment (see appendix questions M11a-M11d). If the respondent did not fit this criterion either, a general question of DT fairness was asked

(see appendix question M12). This item was included to provide a fairness estimate from people who do not work or have not encountered DT, but still fit the drug use criteria. Only those who work or have worked for a DT company were included and these subjects were combined for the analyses. To better understand the design of these questions and how they fit into the instrument, please refer to the flow chart provided in figure 4.

DT fairness. The questions tapping the perceived fairness of DT programs were taken from Konovsky and Cropanzano (1991, 1995) and were intended to assess the fairness of the DT procedures (procedural justice, M10a and M10b) and outcome fairness (distributive justice, M10c and M10d). Konovsky and Cropanzano (1991) reported internal consistency estimates (coefficient alpha) for the procedural justice questions and distributive justice questions to be .90 and .70 respectively. As noted earlier in Konovsky and Cropanzano (1995), the perceived fairness questions described above (when combined into one fairness scale ranging from 1 = low perceived fairness to 5 = high perceived fairness) had an internal consistency estimate of .85. In the present study, I attempted to keep the two scales separate for theoretical reasons. However, low alpha (distributive justice = .64 and procedural justice = .75) did not permit this for the current research. Combined, the four-item DT fairness scale had an internal consistency estimate of .79. Responses were made on a 5-point scale from "strongly agree" to "strongly disagree". On the final scale, 1 = low perceived fairness to 5 = high perceived fairness as in Konovsky and Cropanzano.

Rehabilitation (vs. termination). Two items measured the result of a positive test for current or previous employment (see appendix questions M10e-M10f and M11e-M11f). These two questions were combined into one rehabilitation/termination continuum by reverse scoring one of the items. The internal consistency estimate of the combined measure was .74, where, on a 4-point Likert scale, (from "very likely" to "not at all likely") a low score indicated a likelihood that the worker would be fired for a positive drug test, and a high score indicated a likelihood that the employer would offer or agree to some sort of rehabilitation for a positive drug test.

Previously tested. All participants who indicated the knowledge of a DT program in their current or previous organizations were asked if they have ever been tested for drugs (see appendix questions M10h and M11h). These two questions simply required a yes/no answer and did not inquire about the number of times tested as in Tepper (1995).

Results

Means, standard deviations, and intercorrelations of the primary research variables are presented in Table 3. In order to explore differences between drug users and non-users on perceived fairness of drug testing (Hypothesis 1a), a t test for independent groups was performed with drug-use/non-use as the independent variable and the justice variable as the dependent variable (see Table 4). Results of the analysis revealed significant differences between the means, $t(188) = 2.40$, $p = .018$ such that drug users were more likely to perceive DT as less fair than non-drug users, thus

supporting Hypothesis 1a. To test Hypothesis 1b, that being previously tested for drugs will moderate the relationship between drug use/non-use and fairness, three regression equations were calculated in a hierarchical fashion with the justice variable as DV. The control variables (education, age, marital status, and income) were included in the first step, drug-use/non-use and previously tested were included in the second step, and the interaction of Drug Use/Non-Use X Previously Tested was included in the third. Results are presented in Table 5. Because there was no significant increase in $\underline{R}^2$ on step three, no Drug Use X Previously Tested interaction was indicated.

Next, to explore fairness reactions of previously tested and non-tested workers (Hypothesis 1c), a $\underline{t}$ test for independent groups was performed with the fairness measure as the dependent variable and previously tested (or not) as the independent variable. Results (see Table 3) indicated no significant difference between means, $\underline{t}(189) = 1.19$, $\underline{p} > .05$. To test Hypotheses 2a and 2b, that a rehabilitation (vs. termination) drug policy will affect fairness perceptions and that drug use/non-use will moderate the relationship, three regression equations were calculated in a hierarchical fashion with the fairness measure as the dependent variable. The control variables were entered in the first step, drug-use/non-use and rehabilitation were entered in the second step, and the interaction of Drug-Use/Non-Use X Rehabilitation entered in the third. Results are presented in Table 6. In support of Hypothesis 2a, a main effect was found in step two for rehabilitation, $\beta = .19$, $\underline{t} = 2.55$, $\underline{p} < .05$ such that rehabilitation

outcomes were viewed as more fair than those requiring termination. However, this main effect was qualified by a significant interaction. Specifically, a Drug Use/Non Use X Rehabilitation interaction was found for perceived fairness of DT, as indicated by a significant increase in R^2 with the addition of the interaction term ($\Delta R^2 = .03$, $F = 5.58$, $p < .05$). The interaction (see Figure 5) supports the moderator effect predicted in Hypothesis 2b in that perceived fairness of DT was higher for drug users when the organization was more likely to provide or allow for rehabilitation as opposed to termination.

To test Hypothesis 2c, that whether a person has been previously tested for drugs will moderate the relationship between a rehabilitation (vs. termination) policy and fairness perceptions, three hierarchical regression equations were calculated. Demographic variables were entered in the first step, previously tested and rehabilitation policy entered in the second step, and the interaction of Previously Tested X Rehabilitation policy entered in the third, with the fairness measure as dependent variable. Hypothesis 2c was not supported (see Table 7).

Discussion

Results of this study support the hypothesis that workers who use drugs will perceive DT as less fair than those who do not use drugs (Hypothesis 1a). Building on previous research which produced similar results utilizing student samples (Crant & Bateman, 1993; Murphy, et al., 1990; Rosse, Miller, & Ringer, 1996), the current study provides validity beyond the laboratory setting. Dissatisfaction with DT

programs as a whole may be due to issues of cognitive dissonance. As noted earlier, Festinger's (1957) theory of CD suggests that individuals must rationalize, trivialize, change, or avoid a behavior (e.g., drug use) or psychological discomfort will result.

No differences were found on the fairness measure between workers who had been previously tested for drugs and those who had not (Hypothesis 1c). In addition, the previously tested variable did not moderate the relationship between drug use/non-use and fairness (Hypothesis 1b) or between rehabilitation outcome and fairness (Hypothesis 2c). As noted earlier, Tepper (1994) produced disparate results from two different studies (a laboratory study and a field study presented in the same article) on the variable of previously tested; that is, workers from the field study reported more negative reactions toward punitive DT in safety-sensitive positions than did students in the lab study. Results from the current study may indicate that merely undergoing DT does not affect attitudes toward DT in actual selection settings, and that DT is becoming more accepted. Indeed, a recent study (Mastrangelo, 1997) indicates a positive change in college student attitudes toward DT. The author suggests that we may be seeing a "new generation" of people that accept DT as part of the recruitment process or perceive testing as a necessary element of the selection process.

Another purpose for examining drug use was to test whether drug use/non-use moderated significant main effects for previously tested and rehabilitation policy on reactions to DT found in previous studies. It is important to note that because drug use/non-use moderated the effects of DT policy (Hypothesis 2b), the validity of other

previous research that found a main effect for DT policy (Crant & Bateman, 1990; 1993; Konovsky & Cropanzano, 1991; 1995; Murphy, et al., 1990; Raciot & Williams, 1993; Rosse, Miller, & Ringer, 1996; Rosse, Ringer, & Miller, 1996; Stone and Kotch, 1989; Tepper, 1994; Tepper & Braun, 1995) may be suspect, or the situation may be somewhat more complex than indicated by these studies. In the present study, only drug users found a punitive DT policy to be unfair. The differences between drug users and non-users may go beyond that of rehabilitation policy: that is, because drug use may be a moderator of this proven predictor of reactions to DT, the role of this moderator in the effects of other independent variables (e.g., advance notice of DT; perceived need for the program; DT schedule for due cause, random, or mandatory; DT warning type; safety sensitivity of the job; criteria for testing) may need to be reviewed as well.

Implications for DT Programs

Results of the current study suggest that among applicants, drug users will tend to be most dissatisfied with DT selection procedures. As noted earlier, all of the previous studies on DT that used drug use as an independent variable were laboratory studies or used undergraduates as participants. The current study logically builds on this past research by using actual workers in organizations throughout Oregon. These "real world" data offer increased external validity about drug users' reactions to DT.

Implications for Organizations

From an organizational perspective, these findings provide encouragement to

organizations which may have avoided such selection procedures. Organizations that avoid DT, whether for reasons of perceived fairness reactions (e.g., turnover, attitude toward organization, loss of select applicant pool, etc,) or for fear of reactions based on invasion of privacy issues, should consider the current study's results when evaluating the use of DT in selection. In addition, these results suggest that organizations may want to offer rehabilitation as an outcome to a positive drug test for current employees, although this may mostly affect the perceptions of those who have used drugs.

Future Research

The reaction to DT of those whose significant others are involved in drug use deserves exploration. Fairness measures may be affected if such a person has particularly strong feelings, positive or negative, about drug use. Because family members of drug users could make up a significant proportion of a given sample, this variable should also be included in future perceived fairness of DT analyses. Reactions may also be affected depending on whether the respondent is also a drug user or a non-user and whether CD has influenced said respondent (through rationalization or avoidance) to accept the drug use or disapprove of it.

Previous literature has not examined whether drug users were either drug abusers or addicted to drugs. Because the current study was not able to separate the DSM-III categories for lack of sufficient sample size, it was not possible to determine levels of drug use in some way to determine its usefulness in predicting fairness

reactions to DT programs. In future research, the differences between drug usage, abuse, and addiction should be examined in this way to determine if this classification scheme is meaningful in the context of reactions to DT. Because the personal values of those addicted to or dependent on drugs are associated with lifestyle behaviors inherent to this population, they may differ from the imposed values of the organization more than casual users'. From a socio-cultural perspective, casual users simply stray from the norm less often than abusers or dependents. This "occasional impropriety", it would seem, might allow casual users to regard themselves as fitting into the mainstream population with much less difficulty than their less conforming counterparts. In addition, the reactions of those who have ever used drugs but are not current users should be explored, as they could be quite different from current users.

Future efforts in DT fairness research should also concentrate on developing better measures of procedural and distributive justice. One could argue that the ability to measure both types of justice independently would produce greater understanding of reactions toward DT. For example, the current study's results of rehabilitation policy may be more of a procedural than distributive justice issue. Because both scales were combined into one measure of "fairness", the distinction can not be made as to which justice rule(s) are more pertinent to this particular variable in assessing DT fairness. Perhaps an elaboration of the current study's review of Gilliland's (1993) model of justice (and it's relation to DT fairness) could be a basis for new and improved measurement scales.

Cognitive Dissonance Theory and DT. CD may also hold promise as a framework for studying reactions to DT. For example, two rules regarding the magnitude of CD (Festinger, 1957, p. 18) might help to predict differences between addicted or dependent users, casual drug users, and non-users. They state:

(1) The magnitude of the dissonance (or consonance) increases as the importance or the value of the elements increases; and

(2) The total amount of dissonance that exists between two clusters of cognitive elements is a function of the weighted portion of all relevant relations between the two clusters that are dissonant.

The term "weighted proportion" is used because each relevant relation would be weighted according to the importance of the elements involved in that relation. According to Festinger (1957), the amount of CD that frequent drug users experience should be greater than that of casual drug users. Assuming the importance of drugs (the value of the elements) is greater to frequent drug users than casual users, the magnitude of the "weighted proportion" should differ between the two, thus as noted earlier, influencing organizational justice measures accordingly. Similarly, non-users would not be expected to experience CD, and have even more positive reactions to DT. Non-drug users may differ from casual users in that non-users may in fact perceive any and all drug use as deleterious compared to casual users (who obviously condone "some" use). CD may be particularly helpful, therefore, in explaining reactions to DT.

Organizational Justice and DT. Gilliland's (1993) model of justice was somewhat effective in predicting the results of the current study's hypotheses. For example, a rehabilitation policy was found to positively affect DT reactions, in support of Gilliland's equity and reconsideration opportunity rules; and although having been drug tested (a potential violation of Gilliland's privacy rule) did not predict fairness reactions, societal changes as noted in Mastrangelo (1997) may cause DT not to be seen as an invasion of privacy anymore. Thus, organizational justice models such as Gilliland's appear to be useful frameworks for future DT studies.

Limitations

It should be noted that the current study's measure of previously tested consisted of asking only whether or not the subject had been tested, in contrast to Tepper's (1995) measure of the actual number of times tested. Based on Gilliland's (1993) argument for invasion of privacy, the event of having been tested at all should create a schema of sorts which predisposes the subject to positive or negative reactions upon being tested in the future. Because the current study's measure of previously tested did not provide significant results, a confirmation of these findings using Tepper's measure is warranted.

Another possible limitation to the current study is sample type. The relatively liberal population of Oregon, on average, may regard drug use (specifically marijuana) differently than the population of a more conservative state. Oregon has been repeatedly noted as a state in which marijuana use is quite common. In fact, the

original DPS found that over 50% of Oregonians admitted to having used marijuana at least once (Feyerherm and Skokan, 1996). One may, however, liken the differences between Oregon and other states to those of Portland Oregon and the small Eastern Oregon city of Pendelton. These two regions differ in total drug use dramatically. According to results found in the original DPS study, the northwest region of the state where Portland is located indicates 32.8% total drug usage where as the eastern region totals 9.8% drug usage (Feyerherm & Skokan). The breadth of the current study's sample, across both liberal and conservative parts of the state, may allow for generalization beyond just Oregon. In addition, it should be noted that range restriction was not a problem for variables used in the current study. In particular, the range of all demographic variables (i.e., race, age income, marital status, education) were fully represented. In addition, even in this relatively liberal state, reactions to DT were fairly positive among non-drug users.

One of the geatest limitations of this study was the necessity of combining those who had ever used drugs with those who were current users. If a subject had "tried" marijuana "once as a teenager many years ago", they were classified for the current study's purposes as a user. If enough current or recent "moderate users" had been available to analyze as a separate group, effect sizes may have been larger. Future research may benefit from separating these two user types into separate analyses.

Finally, as noted earlier, it was not possible to analyze the procedural and

distributive justice measures independently. The two scales were combined in order to increase reliability, but this reduced the breadth of the present study's inductiveness. Similarly, the combination of all three drug use types (casual use, abuse, and dependency) into one variable may have reduced the effect size. A larger sample size may increase the likelihood of sufficient numbers in the last two categories and provide enough data for analysis.

Table 1
Chronology of Independent Variables from **Attitudes toward DT Program Research

Author(s)	Key Variable(s)	Significant Results and Sample Type*
Stone, D.L. and Kotch, D.A., 1989.	1.Advance notice of drug testing (not provided vs provided) 2.Outcome of positive test result (termination vs rehabilitation)	Attitudes toward drug testing were influenced significantly by both 1 and 2. *73 blue collar employees from a manufacturing firm.
Murphy, K.R., Thornton, G.C., & Reynolds, D.H., 1990.	1. Employment experience 2. Qualifications 3. Political Ideology 4. Exposure to others drug use 5. Personal drug use	Attitudes toward DT varied extremely on 1-4. 5 was negatively correlated with acceptability of DT. *371 college undergraduates
Crant, J.M. & Batemen, T.S., 1990.	1. The presence of a DT program 2. Perceived need for the program	Attitudes toward co. and intention to apply were significantly affected by 1 and 2. *163 college undergraduates
Konovsky, M.A. and Cropanzono, R., 1991.	1. Procedural justice 2. Outcome fairness	Procedural justice but not outcome fairness predicted all 6 attitude and behavior variables. (See K&C, 1995) *195 employees from a pathology laboratory.

**Attitudes as a result of DT programs (or dependent variables used in the history of the DT program research) include: Perceived fairness of DT programs, attitudes toward company (by potential job applicants or current workers), intention to apply to organization, willingness to accept a job offer, invasion of privacy.

Table 1 (continued)
Chronology of Independent Variables from **Attitudes toward DT Program Research

Author(s)	Key Variable(s)	Significant Results and Sample Type*
Crant, J.M. and Bateman, T.S., 1993.	1. Purpose of DT program (rehabilitate or to punish) 2. DT schedule (for due cause, mandatory or random)	Manipulation of 1 and 2 had no effects but several individual difference variables (personal use of drugs, attitudes toward drugs and drug testing, and subjective norms toward DT predicted the dependent variables. *128 business undergraduates
Raciot, B.M. & Williams, K.J., 1993.	1. Warning type (No warning vs. advanced warning) 2. Outcome of positive test result (Termination vs. rehabilitation) 3. Safety sensitivity of the job	DT was found to be more fair and termination more justifiable for safety sensitive jobs. *225 undergraduate students

**Attitudes as a result of DT programs (or dependent variables used in the history of the DT program research) include: Perceived fairness of DT programs, attitudes toward company (by potential job applicants or current workers), intention to apply to organization, willingness to accept a job offer, invasion of privacy.

Table 1 (continued)
Chronology of Independent Variables from **Attitudes toward DT Program Research

Author(s)	Key Variable(s)	Significant Results and Sample Type*
Tepper, B.J., 1994. (3 separate studies)	1. Outcome of DT program (punitive vs non-punitive) on safety sensitive vs non-safety sensitive positions 2. Previously tested workers on highly punitive DT programs	Lab study: Subjects held more favorable attitudes toward punitive DT in safety sensitive jobs. Correlational field study: Drug tested Ss in safety-sensitive jobs held more negative attitudes toward punitive DT than did Ss in less safety-sensitive jobs. Inductive investigation of fairness determinants: Tested and non-tested Ss invoked different justice rules when assessing the fairness of highly punitive DT. *Study 1: 75 undergraduates *Study 2: 108 employees from two firms. *Study 3: 664 from random phone survey.

**Attitudes as a result of DT programs (or dependent variables used in the history of the DT program research) include: Perceived fairness of DT programs, attitudes toward company (by potential job applicants or current workers), intention to apply to organization, willingness to accept a job offer, invasion of privacy.

Table 1 (continued)
Chronology of Independent Variables from **Attitudes toward DT Program Research

Author(s)	Key Variable(s)	Significant Results and Sample Type*
Konovsky, M.A. and Cropanzono, R., 1995.	1. Criteria for testing (suspicion of drug use) 2. Participants are allowed voice 3. Advance notice of DT 4. Existence of grievance system 5. Justifiable cause for DT 6. Outcome of positive test	Employee perceptions of 2, 3, and 4 increased fairness beliefs in DT. Outcome negativity was consistently (and inversely) related to fairness. 2, 3, and 4 interacted with 6 to predict overall fairness. *195 employees from a privately owned pathology lab
Tepper, B.J. and Braun, C.K., 1995.	1. Management position 2. Number of times tested 3. Perception of outcome (punitive vs less punitive) for positive DT	Ss viewed random DT to be less invasive when they (a) hold mgmt. positions, (b) been tested for drugs fewer times, (c) outcomes less punitive, (d) DT more accurate. *108 from 2 firms.

**Attitudes as a result of DT programs (or dependent variables used in the history of the DT program research) include: Perceived fairness of DT programs, attitudes toward company (by potential job applicants or current workers), intention to apply to organization, willingness to accept a job offer, invasion of privacy.

Table 1 (continued)
Chronology of Independent Variables from **Attitudes toward DT Program Research

Author(s)	Key Variable(s)	Significant Results and Sample Type*
Rosse, J.G., Miller, J.L., and Ringer, C.R., 1996.	1. Drug use vs. Non-use on urinalysis, overt integrity testing, and personality inventories	Drug users had more negative reactions to all types of testing than non-users. *509 undergraduates and 2nd year MBA students.
Rosse, J.G., Ringer, C.R. and Miller, J.L., 1996.	1. Overt tests vs personality tests vs urinalysis vs non-tested	When DT was required, Ss were most satisfied with overt testing and urinalysis and least satisfied with personality inventories. *702 students

**Attitudes as a result of DT programs (or dependent variables used in the history of the DT program research) include: Perceived fairness of DT programs, attitudes toward company (by potential job applicants or current workers), intention to apply to organization, willingness to accept a job offer, invasion of privacy.

Table 2

Percent of Adults' (18 yrs. +) Drug Frequencies From Original DPS Sample

Value Label	Value	Frequency	Percent
Never Use	0	4659	55.5%
Over 18 Months Ago	1	2745	32.7%
Within 18 Months	2	556	6.6%
Frequent Use	3	165	2.0%
Abuse Indicated	4	81	1.0%
Dependency Indicated	5	184	2.2%
Total		8390	100.0%

Table 3

Descriptive Statistics and Intercorrelations of Research Variables

Variable	M	SD	1	2	3
1. Justice	4.25	0.71	(.79)		
2. Rehabilitation	2.76	0.97	.20**	(.74)	
3. Drug Use	0.61	0.49	-.16*	-.12	--
4. Previously Drug Tested	0.73	0.44	.09	-.14	-.02

Note: $n = 191$. *$p < .05$; **$p < .01$.

Note: Control variables were age, income, education, and marital status. Drug use was coded 1 = have used drugs, 0 = never used drugs. Rehabilitation was on a 4-point Likert scale; a low score indicated a likelihood that the worker would be fired for a positive drug test, and a high score indicated a likelihood that the employer would offer or agree to some sort of rehabilitation for a positive drug test. Perceived fairness scores based on 5-point scales; 1 = low perceived fairness, 5 = high perceived fairness. Previously tested was coded 1 = previously tested for drugs in current or past organization, 0 = never tested for drugs at an organization.

Table 4

Results of Independent t-tests: Mean Perceived Fairness Scores by Drug Use and Previously Tested

	n	M	SD	t-value	2-Tail Sig
Drug use	116	4.16	.78	2.40*	.018
Non-drug use	75	4.39	.55		
Previously tested for drugs	140	4.29	.70	1.19	.237
Never tested for drugs	51	4.15	.73		

Note: n = 191. *p < .05; **p < .01.

Note: Perceived fairness scores based on 5-point scales; 1 = low perceived fairness, 5 = high perceived fairness.

Table 5

Hierarchical Regression for Previously Tested and Drug Use on Perceived Fairness of Drug Testing (Justice).

	Perceived Fairness		
	R^2	ΔR^2	β
Step 1:	.01		
Control Variables			
Step 2:	.04	.03	
Control Variables			
Previously Tested			.10
Drug Use			-.15
Step 3:	.05	.01	
Control Variables			
Previously Tested			.19
Drug Use			-.03
Previously Tested X Drug Use			-.17

Note: n = 191. Control variables were age, income, education, and marital status. Drug use was coded 1 = have used drugs, 0 = never used drugs. Previously tested was coded 1 = previously tested for drugs in current or past organization, 0 = never tested for drugs at an organization.

Table 6

Hierarchical Regression for Rehabilitation and Drug Use on Perceived Fairness of Drug Testing (Justice).

	Perceived Fairness		
	R^2	ΔR^2	β
Step 1:	.01		
Control Variables			
Step 2:	.06	.05**	
Control Variables			
Rehabilitation			.19*
Drug Use			-.13
Step 3:	.09*	.03*	
Control Variables			
Rehabilitation			-.07
Drug Use			-.65**
Rehab X Drug Use			.58*

Note: n = 191 *p < .05; **p < .01. Control variables were age, income, education, and marital status. Drug use was coded 1 = have used drugs, 0 = never used drugs. Rehabilitation was on a 4-point Likert scale; a low score indicated a likelihood that the worker would be fired for a positive drug test, and a high score indicated a likelihood that the employer would offer or agree to some sort of rehabilitation for a positive drug test.

Table 7

Hierarchical Regression for Rehabilitation and Previously Tested on Perceived Fairness of Drug Testing (Justice).

	Perceived Fairness		
	R^2	ΔR^2	β
Step 1:	.01		
Control Variables			
Step 2:	.06	.05**	
Control Variables			
Rehabilitation			.22**
Previously Tested			.12
Step 3:	.07	.01	
Control Variables			
Rehabilitation			.38*
Previously Tested			.38
Rehab X Previously Tested			-.29

Note: $n = 191$ *$p < .05$; **$p < .01$. Control variables were age, income, education, and marital status. Previously tested was coded 1 = previously tested for drugs in current or past organization, 0 = never tested for drugs at an organization. Rehabilitation was on a 4-point Likert scale; a low score indicated a likelihood that the worker would be fired for a positive drug test, and a high score indicated a likelihood that the employer would offer or agree to some sort of rehabilitation for a positive drug test.

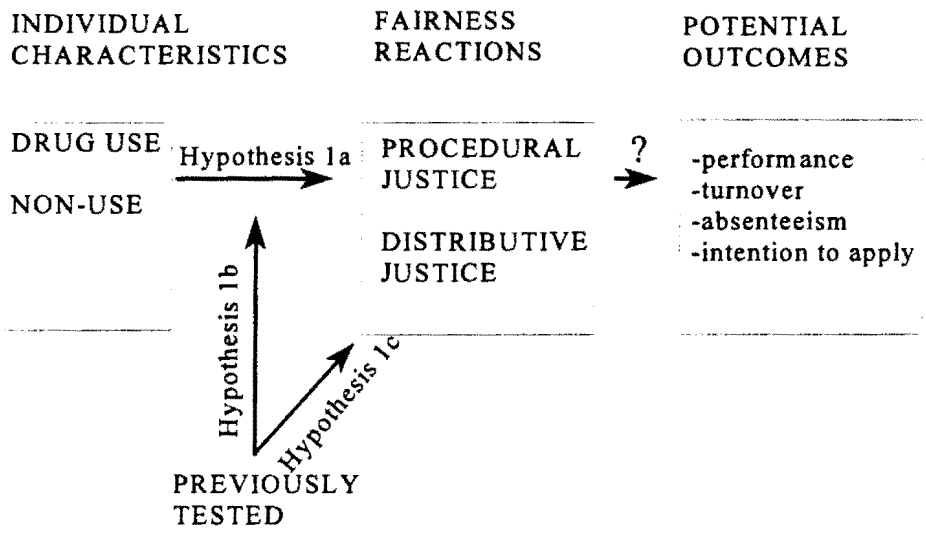

Figure 1. Relationship between individual characteristics (including previously tested), fairness reactions, and outcomes with previously tested as a moderator (based on Gilliland, 1993).

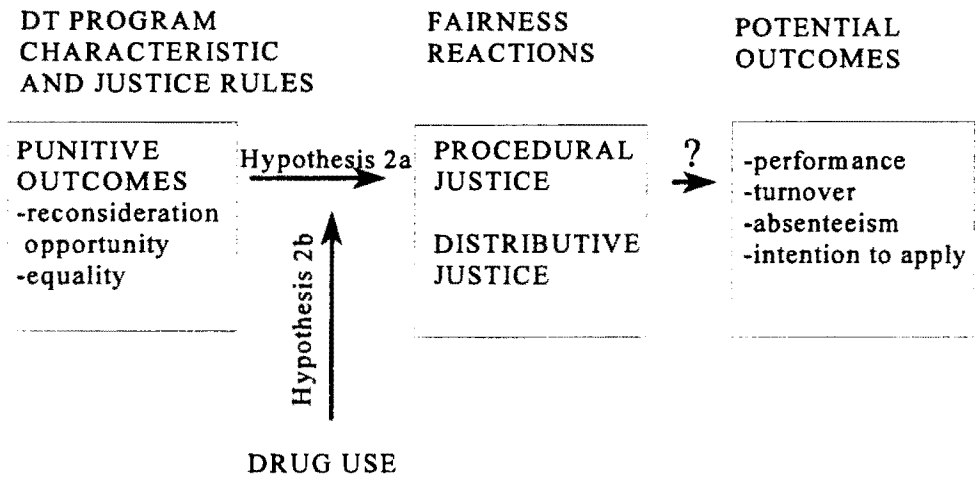

Figure 2. Relationship between DT program characteristics, fairness reactions, and outcomes with drug use as a moderator (based on Gilliland, 1993).

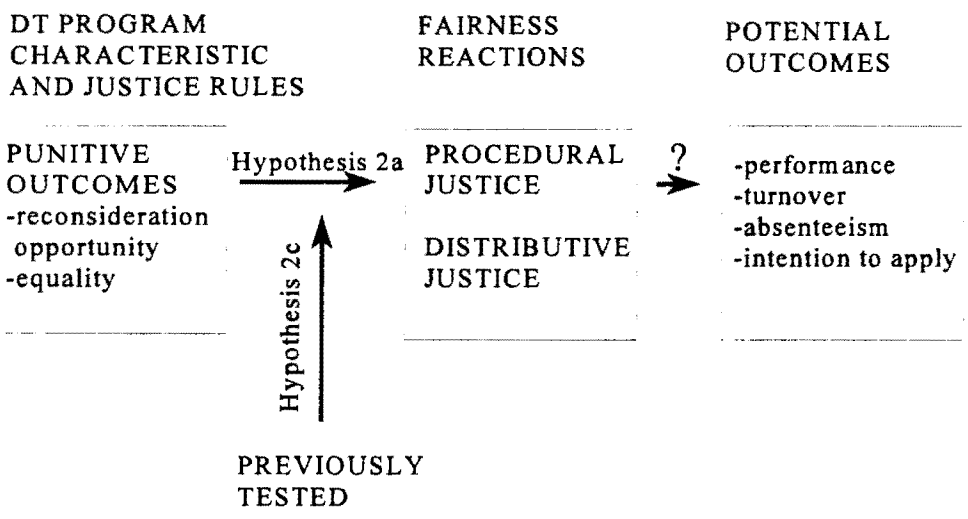

Figure 3. Relationship between DT program characteristics, fairness reactions, and outcomes with previously tested as a moderator (based on Gilliland, 1993).

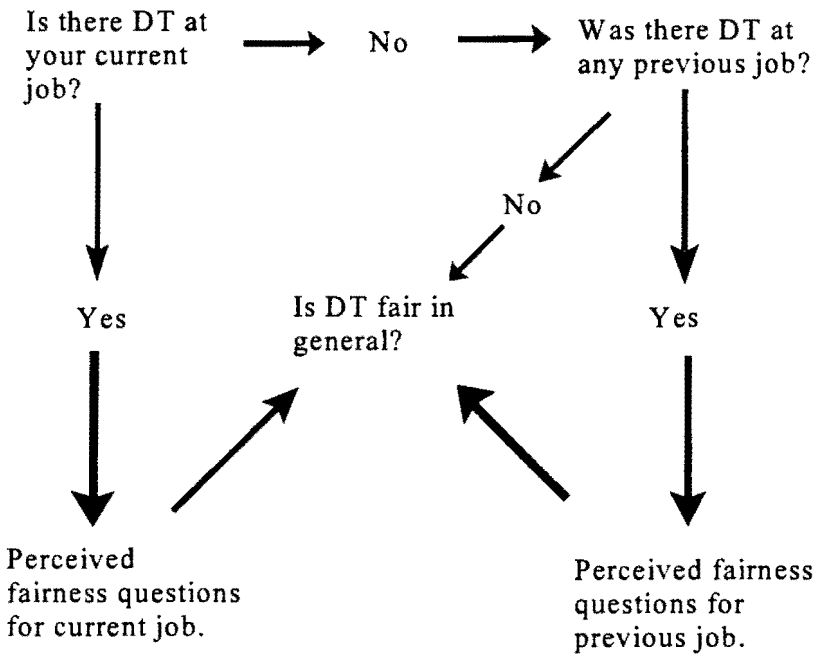

Figure 4. Flow chart for perceived fairness questions in survey instrument.

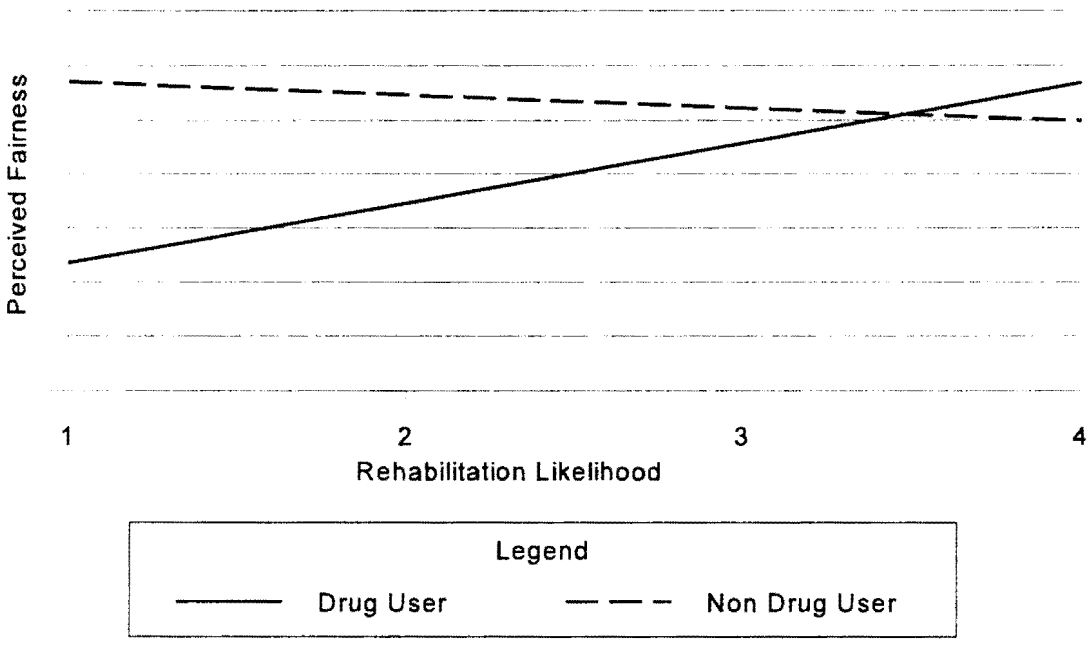

Figure 5. Drug use/non-use by rehabilitation potential interaction on perceived fairness of drug testing programs.

Note: Lower values indicate a greater likelihood of termination; higher values indicate a greater likelihood of rehabilitation.

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Appendix

>M1a< Which of the following best describes your employment situation?
(READ ENTIRE LIST)

Are you:

<1> Employed full time
<2> Employed, but on parental (maternity) leave or on leave for some other reason
<3> Employed part-time
<4> Not employed [goto M11]

<7> DON'T KNOW
<8> REFUSED

===>

>M9< What is your occupation? That is, what type of work do you do?

[allow 30]

===>

>M9a< How long have you worked at that job?

#years_
<1-99>
<77> DON'T KNOW
<88> REFUSED

===>

>M10< Is there any kind of drug testing at your current job?
Drug testing can be random, regularly scheduled, or used as part of

Appendix

an application process.

<1> YES

<2> NO [goto M11]

<7> DON'T KNOW [goto M11]

<8> REFUSED

===>

>M10a< Please tell me how much you agree with the following statements about the drug testing at your job.

The drug testing at this company is fair.

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
<1>	<2>	<3>	<4>	<5>

DON'T KNOW <7> REFUSED <8>

===>

Appendix

>M10b< My employer uses fair procedures to conduct the drug tests.

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
<1>	<2>	<3>	<4>	<5>

DON'T KNOW REFUSED

<7> <8>

===>

>M10c< The results of the drug tests conducted by my employer are used fairly.

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
<1>	<2>	<3>	<4>	<5>

DON'T KNOW REFUSED

<7> <8>

===>

>M10d< People get what they deserve as a result of our drug testing program.

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
<1>	<2>	<3>	<4>	<5>

DON'T KNOW REFUSED

<7> <8>

===>

Appendix

>M10e< If a person at your job tests positive for drugs, how likely is it that your employer will:

Offer or agree to some sort of rehabilitation program?

<1> Very likely
<2> Somewhat likely
<3> Not very likely
<4> Not at all likely

<8> DON'T KNOW
<9> REFUSED

===>

>M10f< (If a person at your job tests positive for drugs,)

How likely is it that your employer will: Fire the person?

<1> Very likely
<2> Somewhat likely
<3> Not very likely
<4> Not at all likely

<8> DON'T KNOW
<9> REFUSED

===>

Appendix

>M10g< If there are other things that are likely to happen, could you tell me what that would be?

<1> TO TYPE COMMENT/// [specify]

<7> DOES NOT APPLY

<8> DON'T KNOW

<9> REFUSED

===>

>M10h< We're not interested in the results, but have you ever been tested for drugs at any place where you've worked or as part of an application process?

<1> YES

<2> NO

<7> DON'T KNOW

<8> REFUSED

===> [goto M12]

>M11< Did you ever work at a job where there was drug testing?

Drug testing can be random, regularly scheduled, or used as part of an application process.

<1> YES

<2> NO [goto M12]

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<7> DON'T KNOW [goto M12]

<8> REFUSED

===>

>M11a< Please tell me how much you agree with the following statements about the drug testing at that company.

The drug testing process at that company was fair.

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
<1>	<2>	<3>	<4>	<5>

DON'T KNOW REFUSED

<7> <8>

===>

>M11b< My employer used fair procedures to conduct the drug tests.

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
<1>	<2>	<3>	<4>	<5>

DON'T KNOW REFUSED

<7> <8>

===>

>M11c< The results of the drug tests conducted by my employer were used fairly.

Strongly	Neither agree	Strongly

Appendix

Agree Agree nor disagree Disagree Disagree
<1> <2> <3> <4> <5>

DON'T KNOW REFUSED
<7> <8>

===>

>M11d< People got what they deserved as a result of that drug testing program.

Strongly Neither agree Strongly
Agree Agree nor disagree Disagree Disagree
<1> <2> <3> <4> <5>

DON'T KNOW REFUSED
<7> <8>

===>

>M11e< If a person at that job tested positive for drugs, how likely was it that your employer would:

Offer or agree to some sort of rehabilitation?

<1> Very likely
<2> Somewhat likely
<3> Not very likely
<4> Not at all likely

Appendix

<8> DON'T KNOW

<9> REFUSED

===>

>M11f< (If a person at that job tested positive for drugs,)

How likely was it that your employer would fire that person?

<1> Very likely

<2> Somewhat likely

<3> Not very likely

<4> Not at all likely

<8> DON'T KNOW

<9> REFUSED

===>

>M11g< If there were other things that were likely to happen, could you tell me what that would have been?

<1> TO TYPE COMMENT///[specify]

<7> DOES NOT APPLY

<8> DON'T KNOW

<9> REFUSED

===>

>M11h< We're not interested in the results, but have you ever been tested for drugs at

Appendix

any place where you've worked or as part of an application process?

<1> YES

<2> NO

<9> REFUSED

===>

>M12< Please tell me how much you agree with the following statement.

I think it's fair for organizations to conduct drug testing on their employees?

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
<1>	<2>	<3>	<4>	<5>

DON'T KNOW	REFUSED
<7>	<8>

===>

>TM1b< [if M1a ne <4> goto M1c]

>M1b< Are you: (READ CHOICES)

<1> Retired?

<2> A full-time homemaker? [goto M1c]

<3> Disabled? [goto M1c]

<4> Other [goto M1c]

Appendix

<5> Retired, but work occasionally

<7> DON'T KNOW

<8> REFUSED

===>

>M1c< Are you attending school full- or part-time?

<1> Full-time student

<2> Part-time student

<3> Not a student [goto M2]

<8> REFUSED

===>

>M2< So that we can be sure we're getting a cross section of all people, I'd like you to estimate your family's total income before taxes were taken out for the calendar year, 1995. Include wages, social security, welfare and any other income. Into which of the following categories does it fall? (READ CHOICES)

<1> Less than $10,000

<2> Between $10,000 and $20,000

<3> Between $20,000 and $30,000

<4> Between $30,000 and $40,000

<5> Between $40,000 and $50,000

<6> $50,000 or more

Appendix

<7> DON'T KNOW

<8> REFUSED

===>

>M3< How much school have you completed? (CHECK CATEGORY THAT APPLIES)

<1> No school completed

<2> First through 8th grade

<3> Some high school, but no diploma

<4> High school graduate (or equivalent; GED)

<5> Some college, but no degree

<6> Associate degree (1-2 yr. occupational or academic program)

<7> Four year college graduate

<8> Advanced degree (including master's, professional degree, or doctorate)

<11> DON'T KNOW

<12> REFUSED

===>

>M4< What is your marital status? Are you (READ CHOICES)

<1> Single and never married

<2> Married

<3> Living together

<4> Divorced

<5> Separated

<6> Widowed

Appendix

<8> REFUSED

>M8< And finally,[noncase]would you please tell me what county you live in?
[allow 15]

===>

>CLOS< That completes our survey. We appreciate your time and cooperation.

(ENTER <g> [cyan]or <1-9>[normal] TO EXIT THE CASE.) ===>

>TEND< [allow 4] [settime TEND]

>ETME< [allow 4] [subtime TIME from TEND into ETME]

>finl< [complete]