# Treating the Tough Cases in Juvenile Drug Court: Individual and Organizational Practices Leading to Success or Failure

Michael Polakowski, Roger E. Hartley and Leigh Bates

*Criminal Justice Review* 2008; 33; 379
DOI: 10.1177/0734016808321462

**Criminal Justice Review**
Volume 33 Number 3
September 2008 379-404

10.1177/0734016808321462
http://cjr.sagepub.com
hosted at
http://online.sagepub.com

# Treating the Tough Cases in Juvenile Drug Court

## Individual and Organizational Practices Leading to Success or Failure

Michael Polakowski
Roger E. Hartley
*University of Arizona*
Leigh Bates
*New York State Office of Children and Family Services*

Drug Courts are a fundamental change to trial courts. They are considered less adversarial and may alter past notions of treatment for offenders. One goal of drug courts is to provide defendants the opportunity to alter their drug-addicted lifestyles through intense supervision, feedback, treatment, and graduated sanctions and rewards for behavior. This study uses logistic regression to examine measures of failure such as termination from drug court and two measures of offender recidivism. Although the literature on drug courts has been developing for several years, the reality is that universal templates for explanation do not yet exist in the juvenile arena. This paper examines correlates that explain the above measures of failure. The study also proposes the creation of new measures that may assist future research. Findings indicate that participant experiences within the drug court program are the strongest predictors of termination and recidivism.

***Keywords:*** *drug courts; recidivism; juvenile; failure; therapeutic jurisprudence*

The escalation of the war on drugs in the 1980s had several intended consequences including *just say no*, longer and more certain prison and jail sentences, and the creation of specialty drug task forces among many other policies. One of the more significant unintended consequences of these policies was the dramatic inflation of prison populations across the country. In the 1990s, some predicted that if nothing changed in the way the justice system handled drug offenses, incarceration facilities would overflow with nonviolent drug users and sellers. As anticipated, these dire predictions came true for federal facilities where 53% of federal inmates were incarcerated for drug crimes as of 2006, a figure that was up 26% since 2000 (U.S. Department of Justice [USDJ], 2007c). Due to statutory requirements, federal drug defendants served longer mean and median sentences than their

**Authors' Note:** The authors wish to thank the anonymous reviewers of the *Criminal Justice Review* for their helpful suggestions, editing, and comments. Correspondence concerning this article may be addressed to Mike Polakowski, University of Arizona, School of Public Administration and Policy, Eller College of Management, 405 MM McClelland Hall, 1130 E. Helen Street, Tucson, AZ 85721; e-mail: mikep@eller.arizona.edu.

contemporaries excluding some convicted of violent offenses and weapons charges (USDJ, 2006). Even though the majority of states only experienced moderate fluctuations in the proportion of offenders sentenced for drug crimes over the past decade, there was a significant increase in the number of offenders housed in state correctional facilities for drugs (2007). The U.S. Department of Justice reports that this figure increased from 18,000 in 1980 to more than 249,000 in 2004 (USDJ, 2007b). A large portion of this increase was among persons under the age of 18 (USDJ, 2007a).

As a response to these trends, a movement began in 1989 to create treatment-centered drug courts that emphasized community based programming, diversion, and supervision for nonviolent drug offenders. Many of these programs arose because of the availability of federal grant funds and the belief that intensive community treatment might mitigate future criminal behavior (Douglas & Hartley, 2004; Nolan, 2001). These alternatives were offered to reduce the burden that drug defendants posed on the broader, resource-strapped, criminal justice system (Nolan, 2001). Among many individual-centered goals, the reduction of recidivism was a prominent reason for adopting these programs. By 2003, more than 1,000 drug courts were either operating (1,093) or planned (414) across the nation with more than 200 of these offering services strictly to juveniles (Office of Justice Programs [OJP], 2003).

Unlike traditional court-ordered treatment, drug courts require more intensive interaction with the defendants and are unique in that court and treatment staff members combine their talents as a team to ensure that the defendant abides by all of the conditions of the program. The primary focus is on treatment (Nolan, 2001). Drug courts, by their very nature, require consistent, repetitive, and long-term involvement of offenders and drug court team members. This includes attending treatment programs, frequent drug tests, frequent attendance at weekly drug court hearings at the court, and the provision of other services like job and educational training.

The literature on drug courts has grown and there remain significant debates about what constitutes a successful outcome and what characteristics of either an individual or a program predict such a result (Sloan & Smykla, 2003). The intense program requirements may be a significant factor in whether a defendant succeeds or fails. Feeley (1983) notes that past court innovations, similar to drug courts, failed simply because the "supposedly formal and harsh traditional court offers a speedier and more lenient alternative" to some court reforms (Feeley, 1983). Feeley's warning predates the drug court movement but surely captures the concern of some contemporary observers of the evolution of therapeutic or restorative court programs (see Baar & Solomon, 2000; Sloan & Smykla, 2003). Baar and Solomon (2000) argued that some restorative or therapeutic justice programs in practice emphasized strict protocols that maintain public order rather than emphasizing treatment and other individual needs of offenders.

This study begins by examining the termination or graduation of juvenile drug court participants in a Southwest community and compares the postprogram behavior (referrals to court and convictions) of both graduates and those that were terminated from the program as measures of recidivism. The study builds on existing literature by examining both individual and structural characteristics of the program that appear to lead to successful outcomes. The results add to the evolving discussion of what are successful drug court participants and program procedures. Several comparisons are made between our empirical results and the reports collected by the Office of Justice Programs Drug Court Technical Assistance Project housed

at American University. The conclusions of the paper also address the policy implications of our results and provide suggestions for those who manage drug courts.

## The Rise of Drug Courts

The introduction of drug courts during a period of getting tough and just desserts appears to represent an anomaly. Martinson's (1974) exclamation of nothing works, in terms of the 1940s-1960s rehabilitation programs, may have been an overgeneralization but it paved the way for social and legislative attitudes and policies emphasizing deterrence, retribution, and incapacitation (Inciardi, 2000; Wilson, 1980). The rise of drug courts represents a middle ground between positivist and classical ideologies. They are positivist in that these innovative courts are based on the belief that, to overcome their addiction, defendants require intensive treatment, supervision, and support mechanisms to alter social and personal circumstances that led to the original addictive behavior (National Association of Drug Court Professionals [NADCP], 2000; Zvekic, 1996). They are classical in that these courts largely accentuate sanctions over rewards along with rational choice and responsibility over predetermination (Belenko, 1998; Goldkamp, 1994; Roberson, 2000). Nolan (2001) further argued that drug courts are part of a broader social movement based on a therapeutic ethic within American jurisprudence.

The search for alternatives to traditional court processing was not driven by the perception that drug use causes crime but that these illegal behaviors are highly correlated with one another (Harrison & Gfroerer, 1992). The realization that drug use was increasingly consuming the resources of the criminal justice system during the past several decades was also a significant area of concern. A national survey of jail inmates in 1998 showed that little had changed since 1989 because nearly 70% of defendants had committed a drug offense or used drugs regularly prior to their current incarceration (Wilson, 2000). Moreover, between a third and a half of these offenders had already participated in some form of an in-custody treatment program.

Drug courts represent an unorthodox team concept linking previously distinct organizational roles—courts, defense, probation, prosecution, diversion, treatment—into a cooperative environment in which all parties adopt a hands-on attitude meant to ensure the compliance of the defendant with the rules of the court (Goldkamp, 1994). The majority of drug courts originated from federal initiatives that included planning and implementation grants that taught a standard drug court model to localities that wished to adopt them (Hartley & Douglas, 2003). The actual practices of drug courts only abstractly mirror formal policy, just as Feeley (1983) had found for alternative dispute resolution programs of an earlier era. In a national review of drug court studies, Steven Belenko (1998) acknowledged that one of the weaknesses of existing evaluations was the paucity of experimental designs that lend themselves to generalization beyond the immediate jurisdiction under investigation. It is fair to suggest that the proliferation of drug courts in such a short period of time fostered many different models of locally controlled and weakly evaluated court options across the country (Torres & Deschenes, 1997). A greater concern is the speculation that many of these courts could disappear as soon as the federal funding period has been exhausted (Douglas & Hartley, 2004).

Because of the infancy of drug courts and the multiple local ways in which they are designed and implemented, there are few national evaluations that have authoritatively changed the way contemporary drug courts operate. The overlapping features that do exist emanate from a therapeutic jurisprudence base that underscores the judge as coach rather than referee, that is forward looking rather than backward, that is needs versus rights based, that is collaborative rather than adversarial, and that searches for a therapeutic outcome rather than a legal one (Belenko, 1998; Rottman & Casey, 1999; Senjo & Leip, 2001). Consequently, most empirical evaluations of drug courts present simple numerical comparisons of or across jurisdictions but few adopted rigorous multivariate modeling until more recently (Belenko, 1998; Torres & Deschenes, 1997). In addition, most studies focus on adult drug courts rather than the juvenile variety.

Several studies employ rigorous modeling tools but report contradictory findings for characteristics related to successful drug court completion. These correlates range from race to prior criminal history, to education level, and to drug preference (Goldkamp, White, & Robinson, 2001; Miller & Shutt, 2001; Schiff & Terry, 1997; Sechrest & Shicor, 2001). Like evaluations of intensive supervised probation or the relationship between drug tests and pretrial misconduct, evaluations of drug court programs need to flesh out the characteristics of the client population related to success. The characteristics of offenders, as correlates, provide one way of differentiating those who are successful in drug courts and those who are not. They also help us understand which offenders are more likely to recidivate. Other factors are also important. Scholars have called attention to the need for experimental analyses and other studies that focus on the type of program and its process (see Heck & Thanner, 2006; Marlowe, Heck, Huddelston, & Casebolt, 2006). What happens inside the black box of drug courts can have an impact on the behavior of drug court participants. Evaluations must precisely operationalize what characteristics of locally implemented programs yield the most appropriate outcomes as well. For instance, implementation factors like the number of hearings that participants attend (weekly, biweekly, etc.), how participants are rewarded or sanctioned, the role of the judge, the composition of the drug court team, and the type of treatment provided are all said to be important factors that differentiate drug courts from traditional trial courts (Belenko, Mara-Drita, & McElroy, 1992; Goldkamp, Gottfredson, Jones, & Weiland, 1995; Marlowe, Festinger, Lee, Dugosh, & Benasutti, 2006; Tayman & Pennell, 1992; Turner, Petersilia, & Deschenes, 1992). This study addresses several of these issues but falls short of a true experimental design that many researchers discuss as lacking in the literature (Belenko, 1998).

## Method of Analysis

The present study compares a sample of drug court graduates with a similar sample of randomly selected drug court failures in a southwestern community. The sample groups were tested and found to be similar in demographic composition. In the initial presentation of the sample, ANOVA models were used to test independence or dependence between selected characteristics of the individuals and their success or failure in the program. Because much of the prevailing literature is limited to this sort of analysis, this study provides a comparison of our sample to those of previous studies. In addition, the success or failure dichotomy is used to examine the relationship between several characteristics of the program and the eventual

outcome of the groups under study. This evaluation should provide the ability to search for any trends in program procedure that affect completion status. This analysis, then, is not experimental; it only compares the differences between groups of those individuals who succeed or fail as well as those who recidivate or not. The ANOVA provides both chi-square and phi statistics. The chi-square provides information to assess the statistical significance of the relationship between the measures involved in each independent model, whereas the phi statistic corresponds to a correlation coefficient (Jones, 1996).

Following the preliminary comparisons, logistic regression was used to test the correlates of termination or graduation and traditional measures of recidivism such as postbehavior measures of new referrals and new adjudications in juvenile court. These recidivism measures were collected on individuals after termination or successful completion of the program. The follow-up period of our study, for the latter measures, was constrained by the unexpected termination of the program due to the exhaustion of federal funds and the hesitation of local officials to shoulder the financial burden.

Due to the small sample size and proportion of the sample that experienced repeated referrals or adjudications, these post drug court measures were limited to yes or no dichotomies. Past research has shown that logistic regressions are more appropriate than linear regression models for the analysis of dichotomous outcomes (Hosmer & Lemeshow, 1989; Knoke & Bohrenstedt, 1994). In addition, the logistic regression models are presented in a stepwise fashion to investigate the relative impact of each new group of measures added to the regression equation. Logistic regression produces a likelihood ratio that can be used to compare the relative fit of nested models. The difference in likelihood statistics between nested models approximates a chi-square statistic that can be evaluated by the difference in associated degrees of freedom arising from the two models compared. Finally, a discussion of the odds ratios of select measures is offered as a means to gauge the relative impact of a particular characteristic or program experiences on termination from the program and new referrals following the program. In addition, interested parties can request from the authors a table of odds ratios that mirror the results presented in Tables C1-C3.

## Site Description and Data Collection

The drug court in this Southwestern community was implemented in 1998 and admitted 50 juveniles during the first year of operation. The drug court program was designed for juvenile offenders between 12 and 16 years of age to ensure they could complete all requirements before turning 18. Juveniles must have had a previous delinquent adjudication and a significant history of drug abuse. Juveniles on intensive Probation or juveniles adjudicated for a serious sex offense or a violent felony were ineligible to participate in the program. Juveniles were referred to the program by their assigned probation officer. Because this program was created with the acquisition of a federal grant, the implementation and operation of the court was prescribed by guidelines, but not mandates, of the federal drug court program.

Once admitted to the drug court, the participants moved through a four-phase system of treatment. The juvenile was placed at each level for a minimum of 6 weeks and spent a minimum of 7 months in the drug court program. During that time, he or she participated in weekly drug recovery classes, weekly drug court reviews, random drug and alcohol

screenings, and various family and/or individual therapy sessions. As participants advanced through the levels, they received later curfews, attended different family or individual counseling sessions, and reported to court less often. By the time the juvenile graduated, he or she attended family and individual sessions as prescribed by treatment personnel, maintained school and/or work, completed two volunteer hours per week, submitted to random drug or alcohol testing, and appeared in court for reviews biweekly.

The judge rewarded good behavior with such incentives as fewer drug tests, later curfews, movie passes, time off, or gift certificates for programmatic improvement. Similarly, participants were sanctioned for poor behavior in the program. Sanctions included written assignments, community service, or detention. Sanctions were assigned for any violation of program rules. The drug court judge had the power to terminate a participant for failing to comply with program requirements, for being rearrested, for failing to appear at scheduled reviews, or for violating probation.

If the participant graduated from the drug court program, the instant charges could be dropped or greatly reduced. If the juvenile was terminated from the program, his charges were adjudicated and new charges could have been brought as well.

The county juvenile drug court program under study was dismantled in 2002 because of budget cuts. At that time, and for the purposes of data collection, there were approximately 74 graduates from the program and 150 participants who were terminated. The decision to terminate the program was, in part, due to a lack of available resources to continue the local effort. It also appears that the discontinuation of the program in 2002 was partly political in nature, because a drug court was later reconstituted within the juvenile justice system using State and Federal resources. It may be that the program was deemed unsuccessful due to the high recidivism rates of juveniles alone or it may be that the operation of the juvenile drug court was believed to be ineffective because it was largely organized as a last ditch effort prior to incarceration. We take up these issues in more detail later in the discussion section as well as with references to interviews with key players in the system.

## Sample

Juveniles screened but not admitted into the program were not included in the present sample. Files were divided by drug court personnel into two groups—participants who graduated from the program ($N = 75$) and participants who were terminated from the program ($N = 150$). Because the data described are provided by a public organization concerned with anonymity of their clients, our research is constrained both by the local culture of the information traditionally collected as well as by the fact that long-term follow-up was limited because the juvenile drug court ceased operation during the data collection period. Although the latter issue affects the potential for deriving conclusions about the effects of various program experiences and personality characteristics over time, it does not preclude us from reasoned discussion about the short-term effects of personal and program experiences on successful completion of the program or new criminal justice activities immediately thereafter.

Data were collected from every graduate case file that had sufficient information for the present analysis ($N = 73$). Within a few weeks of the onset of the research project, local

county administration indicated that the juvenile drug court would be terminated. Because of the time and processing constraints, the court had anticipated the termination and warehoused the files of cases that were not currently opened. The research team decided to collect case file data from the terminated cases to match the size of the graduated sample. Because the files were organized alphabetically and requests had to be processed for each case file by drug court personnel, the first file was included in the sample as well as every second file thereafter ($N = 76$). There was no obvious bias introduced in this way and it minimized the impact on drug court personnel. Although it would have been preferred to access every file in the latter group, it was the judgment of the research team that this option would result in the greatest amount of cooperation from the drug court personnel. Finally, juveniles who were participants in the program at the time the program ended were not included in the sample as their program status did not allow sufficient postprogram data gathering. This was the most prudent action because discussion of the impact of program events was already going to be constrained by the limited amount of follow-up time.

### Variables and Measures

Our dependent variables in this study included measures of client success or failure in the program as well as two measures of recidivism. Client success or failure is a dichotomous, dummy variable coded 1 if the individual is terminated from the program or 0 if the client graduated. Measures of recidivism included whether a drug court client was referred back to juvenile court and whether there were any new adjudications after leaving the program. Both measures captured events that occurred within 6 months of leaving the drug court program. Each of these variables is also dichotomous (where 1 was assigned to being referred back to juvenile court as well as new adjudications no matter how many times each event may have occurred. This strategy was adopted because the number of persons with multiple events was extremely small).

The independent variables in the study were drawn primarily from the client case files and are categorized into three classifications. These include demographic variables, variables measuring deviant history, and programmatic experiences within the drug court. These measures and their hypothetical correlation with the dependent variables are listed in Appendix A.

## Results of ANOVA Models

Tables 1-4 present simple ANOVA comparisons between groups based on how one left the program (graduated vs. terminated). In Table 1, basic demographic comparisons are presented. As indicated in the last column, there are no significant differences between the graduated and terminated subgroups. The racial categorization of the sample is limited to White or non-White because there are insufficient numbers in several of the race or ethnicity options (Native American, Hispanic, Black, and the like) collected by juvenile court staff. As expected, this sample of juveniles does not differ dramatically from the national averages reported by the Office of Justice Programs (OJP, 2001). However, due to the southwestern location of the site, it was expected that it would have a slightly higher proportion of minorities than the national average (60% vs. 53%). This is indicative of the

**Table 1**
**Demographic Characteristics of Juvenile Drug Court Participants**

| | Program Outcome Status | | |
|---|---|---|---|
| | Graduated ($N = 73$) | Terminated ($N = 76$) | Difference |
| Age | 15.53 | 15.46 | *ns* |
| Gender (male) | 74.0% | 84.0% | *ns* |
| Race (White) | 48.0% | 33.0% | .062 |
| Grade | 8.39 | 8.24 | *ns* |
| Years held back in school | 0.66 | 0.70 | *ns* |

Note: Grade = last grade completed.

higher proportion of Hispanics in the southwest. We did not create a separate column for national statistics in the tables as many of the categories may not perfectly coincide with the national measures. However, it is instructive as a heuristic to continue making qualified comparisons where appropriate.

The sample is also almost a year younger than the national average and consequently has not progressed as far in school. Because the criminological literature is replete with discussions of school failure or problems and deviance, a unique measure was created using age and grade in school at the beginning of their drug court experience—this measure was labeled *years held back*. In a cross-tabulation between age and grade in school, it was assumed a traditional 2-year-age period step for each grade. Those falling above or below that axis were categorized as being held back, or moved forward, x years. As it turned out, 66 individuals in the whole sample were held back one grade whereas 16 were held back for two. However, this measure does not significantly differentiate those who have graduated from those who were terminated from the program.

Table 2 summarizes the deviant backgrounds of individuals referred to drug court by various measures that have been prominent in the criminological literature as well as some time-dependent measures of programmatic experiences that might be beneficial to future research in criminal justice. In the first three rows, the drugs of preference do not appear to be dramatically different between the graduated or terminated groups. In comparison to national reports, the current sample did not experiment with as many alternatives as those reported in other drug court sites, but the dramatic preference for marijuana over alcohol does appear to be distinctive. This can be attributed to regional preferences, availability of drugs, or current usage trends. Moreover, the average age at first use for our sample is somewhat lower—although not statistically different for our own two groups—than the national average (OJP, 2001, p. 14).

When comparing prior contact with the criminal justice system, the subsamples do not dramatically differ from one another. However, they appear much more deviant than the national sample (79.7% with more than three prior contacts vs. 37% nationally). These statistics led us to more thoroughly interview program staff regarding screening rules for the drug court. This is discussed more completely in our conclusions but it appears that the drug court under study was employed by staff in this community as a last chance before long-term detention or removal from the current residence. If this is the case, it belies the traditional rehabilitative philosophy underlying the national drug court movement.

**Table 2**
**Deviant History of Juvenile Drug Court Participants**

| | Program Outcome Status | | |
|---|---|---|---|
| | Graduated ($N = 73$) | Terminated ($N = 76$) | Difference |
| Drug preference (multi) | 12.3% | 15.8% | *ns* |
| Drug preference (marijuana) | 84.93% | 81.58% | *ns* |
| Drug preference (alcohol) | 2.74% | 2.63% | *ns* |
| Age of first use | 11.33 | 11.37 | *ns* |
| Number of prior adjudications | 2.67 | 2.42 | *ns* |
| Prior warrants (yes) | 15.1% | 25.3% | *ns* |
| Days in detention | 12.47 | 20.49 | .015 |
| Days in placement | 26.42 | 29.54 | *ns* |
| Referrals (mix) | 32.8% | 25.0% | *ns* |
| Referrals (drug) | 23.3% | 18.4% | *ns* |
| Referrals (legal) | 12.3% | 17.1% | *ns* |
| Referrals (property) | 21.4% | 33.0% | *ns* |
| Referrals (status) | 6.8% | 9.2% | .108 |
| Referrals (violent) | 12.3% | 7.9% | *ns* |

Note: Days in detention = day in a lock up environment; Days in placement = number of days in a group home, foster care, or other nonincarcerative environment.

The number of prior treatment programs the sample groups experienced does appear to coincide with the national average. The terminated subgroup spent significantly more days in detention prior to drug court than the graduated group even after correcting for some extreme outliers. This and other duration measures were included in our analysis as a means to investigate whether the length of certain criminal justice experiences may be instructive in their effects. In addition, the prior types of referrals (coded here as most often for each defendant) for the individuals in the sample runs the gamut from status to violent offenses. Whereas many drug courts eliminate individuals with any violent past, this particular jurisdiction did not. Once again, this is discussed later when speculating about the impact of organizational policies versus individual characteristics.

Several programmatic measures are presented in Table 3 that show significant differences arising between our graduated and terminated subgroups. In each category, excluding severity of sanctions, the graduated group scored significantly below that of the terminated group. Although by no means are the graduates model citizens, there is a significantly lower proportion with positive urinalysis (UA) or requiring residential treatment than their terminated counterparts. The rate of sanctions was computed by dividing the number of sanctions received while in the program by the number of days in the program multiplied by 10,000. The latter number was chosen merely to put this measure into a metric that did not yield unreasonably large values in logistic regression models. Regardless of the multiplier, the difference between groups was always significant. A second measure severity of sanctions was also created. For example, a two-page paper, predominantly used for initial violations, was rated as possessing a low sanction, whereas electronic monitoring, residential treatment, or weekend incarceration—typically enacted just prior to termination—was rated as high sanction severity. A more thorough discussion of this measure will be

**Table 3**
**Programmatic Experiences of Juvenile Drug Court Participants**

| | Program Outcome Status | | |
|---|---|---|---|
| | Graduated ($N = 73$) | Terminated ($N = 76$) | Difference |
| Positive UA | 12.0% | 27.0% | .000 |
| Residential treatment | 17.8% | 31.6% | .052 |
| Sanction rate | 2.50 | 18.65 | .000 |
| Severity of sanctions (scale) | 32.34 | 29.61 | *ns* |
| Rewards (days off) | 20.55 | 5.13 | .000 |

Note: UA = urinalysis; Sanction rate = the total number of sanctions/days in program; Severity of sanctions = the construction of a variable described in Appendix B.

provided on request. At this point, however, it is sufficient to note that we believed that because our discussions with court staff indicated a trend toward using the drug court as a "last line of defense" and that sanction severity would be gradually increased, as noted in Appendix B, before termination occurred. However, we do recognize that individual juvenile perceptions of the sanctions were not taken into account here and that future research may be useful in moving from a staff-dependent severity scale to a client-based perceptual measure. Finally, the only tangible reward in this program was the reduction of time spent in the program. As shown in Table 3, the graduated group, on average, received significantly more days off of their total program time than did the terminated group. The differences enumerated here were expected and will be used to examine organizational decision making in the conclusion.

Measures indicating recidivism after program completion or termination were also collected. Postprogram activity has not been universally monitored or reported by drug court sites throughout the nation (OJP, 2001, pp. 26-27). Table 4 presents three measures indicating increasing severity of deviant activity of the sample members after leaving the drug court program. Only 38% of the graduated group was not referred back to juvenile court within a year of leaving the program. Comparatively, only 6% of the terminated group was able to go this long without a referral. Moving to the next level, there appears to be an even starker distinction. Only 25% of the graduated group received a new adjudication in comparison to 92% of the terminated group. Finally, no one from the graduated group was incarcerated within the 1st year following completion of the program, whereas 53% of the terminated group experienced such an event.

The dramatic distinctions in the preceding tables are limited to program activity and postprogram behavior. The next section presents the results of logistic regressions for termination as well as postprogram referral and adjudication in the next section. Although it is anticipated that the most significant measures will arise from programmatic characteristics, several measures of prior deviant behavior are also expected to be significant in the multivariate models. For example, the earlier juveniles used drugs the more likely they will fail in the drug court, and as the number of prior adjudications increase it is expected that the likelihood of failure will also increase.

**Table 4**
**Postprogram Experiences of Juvenile Drug Court Participants**

| | Program Outcome Status | | |
|---|---|---|---|
| | Graduated ($N = 73$) | Terminated ($N = 76$) | Difference |
| New referrals | 61.7% | 94.4% | .000 |
| New adjudications | 25.4% | 91.7% | .000 |
| New detention | 00.0% | 52.6% | .000 |

## Logistic Regression Results and Discussion

In this analysis, three separate models examine the correlates of program termination, the number of referrals back to court after leaving the drug court, and the number of adjudications after leaving the drug court. The first dependent variable is a measure of whether a participant is terminated (or not) from the program, whereas the latter two dependent variables are measures of recidivism or, alternately, the ability of the drug court to mitigate future deviance. Logistic regression analyses are presented for each of these measures but these issues are also examined in other ways that may be discussed throughout this section.[1] Prior to running these analyses, standard multicollinearity checks were performed for each of the variables in the models; no evidence was found for concern in any of the final models.

The first logistic regression model examines the correlates of termination or graduation from the drug court. These models are presented in a stepwise fashion to examine the relative impact of each group of measures collectively as well as the importance of individual predictors. The results in Table 5 indicate that the likelihood of termination from the drug court is not well predicted by either demographic or prior deviant history measures. The only really significant finding in the second step of this model is that as the number of prior adjudications increases, the likelihood of termination decreases. Unfortunately, for the present analysis we do not know the reason for those prior adjudications. Whereas the comparison of the –2 log likelihood statistics for these models indicate a significant improvement in the fit of this model from Step 1 to Step 2, the last two measures shown in the table suggest that the measures in these first two steps do not explain the likelihood of termination very well. The quality of the final model in this table is quite good. The percentage of cases classified correctly is 90.4% and the pseudo *R*-squared is also quite high (.80 Nagelkerke; see Berman, 2002). The latter measure suggests that 80% of the variance of the dependent variable was predicted by the model. The dramatic improvement in –2 log likelihood statistic is also evidence that the model is significantly improved in this final step. In addition, the Hosmer and Lemeshow chi-square test remains insignificant (not shown but available), which indicates a good fit of the model in logistic regression.

The lack of significant findings in the first two steps of this model was surprising. It may be that more comprehensive measures are needed in each of the first two steps, or it might be that the screening process effectively muted the variance in these measures but did not forestall termination for the majority of drug court participants. Gender (males) is the only significant demographic characteristic related to termination in the final model ($p < .05$). In terms of the odds ratios (see tables in Appendix C), males are eight times more likely to be

**Table 5**
**Logistic Regression of Termination from Juvenile Drug Court ($N = 135$)**

| | Demographics | Deviant History | Program Experiences |
|---|---|---|---|
| Age | –0.203 (0.240) | –0.186 (0.261) | –0.101 (0.446) |
| Gender (male) | 0.776 (0.443) | 0.732 (0.475) | 2.10 (1.09)* |
| Race (White) | –0.537 (0.368) | –0.618 (0.401) | –0.367 (0.846) |
| School (years back) | 0.221 (0.277) | 0.225 (0.300) | –0.600 (0.641) |
| Drug preference (multi) | | 0.240 (0.551) | 0.715 (1.17) |
| Age of first use | | 0.045 (0.088) | 0.021 (0.184) |
| Number of prior adjudications | | –0.301 (0.148)* | –0.349 (0.300) |
| Prior warrants (yes) | | 0.088 (0.507) | 1.58 (1.15) |
| Days in detention | | 0.022 (0.012)* | 0.031 (0.030) |
| Days in placement | | 0.003 (0.005) | –0.005 (0.010) |
| Referrals (mix) | | | 0.187 (0.791) |
| Positive UA | | | 6.64 (3.62)* |
| Residential treatment | | | 3.26 (0.949)*** |
| Sanction rate | | | 1.32 (0.335)*** |
| Sanction severity | | | 0.076 (0.031)** |
| Rewards | | | 0.062 (0.026)** |
| Constant | 2.55 (3.62) | 2.13 (3.80) | –10.78 (7.24) |
| –2 log likelihood | –181.554 | –174.179 | –62.225 |
| Degrees of freedom | 4 | 10 | 16 |
| Difference in –2 log likelihood | | 14.75** | 223.88*** |
| Nagelkerke *R*-squared | 0.054 | 0.122 | 0.805 |
| Predicted correctly | 57.8% | 60.7% | 90.4% |

Note: Beta values reported above; Standard errors are represented in parentheses; School (years back) = years held back in school; Drug preference (multi) = drug preference (the proportion of the samples that reported using multiple drugs); Referrals (mix) = a person being referred for a variety of status or other legal problems. *$p < .10$. **$p < .05$. ***$p < .001$.

terminated compared to females in this particular program (final column only). As expected, the remaining measures of the model predicting the likelihood of termination, that is, those relating to the administration and process of the drug court, achieved statistically significant results. The only exception to this was the positive and significant relationship reported for rewards. It was anticipated that as the number of days that defendants received off of their program sentence for good behavior increased, the likelihood of their termination would decrease. A significant bivariate association was observed (Table 3) between rewards and termination or graduation in the expected direction. On further examination, several of the terminated defendants received more than 30 days off of their original sentence to drug court even though they later failed to complete the program. This unexpected group was responsible for the positive relationship in Table 5. It may be that program staff was trying to gain cooperation by extending these rewards only to find that it did not improve the behavior of defendants later on.

As shown in the preceding discussion, defendants in both groups shared in the positive and negative experiences of the drug court process. For example, individuals in both graduated and terminated groups were found to have positive UA results during their tenure in

the program. As the proportion of positive UA results increased, the likelihood of termination increased. Future research might try to examine whether there is a tipping point in this relationship that can predict such an outcome. Moreover, although nearly all defendants experienced some sort of sanction during the program, the individual is significantly more likely to be terminated as the number of sanctions they experience increased in relation to the number of days spent in the program. Again, this is a measure that needs to be refined because we found that a higher sanction rate may increase termination by three to four times compared to their counterparts who experience few sanctions in relation to their time in the program. Finally, as the severity of sanctions experienced increased, the prospect of termination also increased. Each of these findings was expected and each tells us a bit about the behavior surrounding program administration. Moreover, each of these measures is somewhat unique to the present investigation because few other research efforts have gone much beyond sanction frequency. We hope that our presentation of these measures, even though limited, might promote more investigation of time and duration issues in criminal justice.

Residential treatment was significantly related to termination. Theoretically, there may be an expectation that intensive treatment would lead to recovery rather than failure. However, it may be that residential treatment is used as a sanction or punishment rather than as a means to promote drug abstinence. There appears to be some truth to this notion. As the sanction severity measure was coded for this analysis, we noticed a pattern where judges would start with smaller sanctions (e.g., an apology letter or writing a paper) and progressively lead up to detention. Interestingly, treatment options (Alcoholics Anonymous and residential drug treatment) were listed among sanctions and imposed as violations of the rules progressed. It was not uncommon for residential treatment to be prescribed after the sanction of detention. This finding was also confirmed in a later interview with the former director of the juvenile drug court. In fact, the use of residential treatment increased the odds of termination by 26 times among those exposed to this sanction as compared to those who did not have such an experience.

The second logistic model presented in Table 6 examines the first measure of recidivism—whether a client was referred back to juvenile court after leaving the drug court. The results of this analysis are much richer than the preceding model although the pseudo *R*-squared values achieved here are not as high. Overall, the model predicted 88.1% of the cases correctly in the final model and the difference between this and the first model is much less than that reported for the analysis of termination. The quality of the model, although good (.584 Naglekerke), is also not as strong as the model of termination. Nevertheless, the relative improvement in each step of this model, as indicated by the difference in –2 log likelihood statistics, shows that each group of measures added to the model improves our understanding of recidivism.

Unlike the model of termination, significant results were found in the first models of new referrals. These findings are consistent across the remaining steps of the logistic regression. As age increases, the likelihood of new referrals decreases. The odds ratio (see tables in Appendix C) indicates that for each 1-year increase in age the ratio of a new referral is cut in half. Also, the odds of a male experiencing a new referral is more than four times greater than a female in the program.

**Table 6**
**Logistic Regression of New Referrals After Drug Court ($N = 118$)**

| | Demographics | Deviant History | Program Experiences | Terminated |
|---|---|---|---|---|
| Age | –0.684 (0.347)** | –0.642 (0.387)* | –0.794 (0.452)* | –0.980 (0.518)* |
| Gender (male) | 1.28 (0.530)** | 1.45 (0.619)** | 1.88 (0.771)** | 1.54 (0.805)* |
| Race (White) | 0.138 (0.488) | –0.081 (0.548) | 0.982 (0.779) | 1.42 (0.886) |
| School (years back) | –0.400 (0.351) | –0.411 (0.406) | –0.916 (0.534)* | –0.847 (0.578) |
| Drug preference (multi) | | 1.86 (1.12) | 1.99 (1.29) | 2.25 (1.41) |
| Age of first use | | –0.158 (0.139) | –0.291 (0.192) | –0.349 (0.209)* |
| Number of prior adjudications | | –0.002 (0.178) | 0.017 (0.232) | 0.140 (0.256) |
| Prior warrants (yes) | | –1.27 (0.639)** | –1.81 (0.834)** | –1.99 (0.862)** |
| Days in detention | | 0.009 (0.016) | 0.016 (0.022) | 0.009 (0.024) |
| Days in placement | | 0.008 (0.007) | 0.009 (0.009) | 0.009 (0.010) |
| Referrals (mix) | | | 1.46 (0.816)* | 1.31 (0.872) |
| Positive UA | | | 0.593 (2.78) | 0.445 (2.68) |
| Residential treatment | | | 0.831 (0.813) | –0.123 (0.901) |
| Sanction rate | | | 0.317 (0.110)** | 0.135 (0.092) |
| Sanction severity | | | 0.047 (0.024)** | 0.048 (0.026) * |
| Rewards | | | 0.044 (0.021)** | 0.047 (0.022)** |
| Terminated | | | | 2.87 (1.15)** |
| Constant | 11.25 (5.29)** | 12.22 (5.84)** | 11.01 (6.75) | 14.52 (7.62)* |
| –2 log likelihood | –113.439 | –101.979 | –75.557 | –67.951 |
| Degrees of freedom | 4 | 10 | 16 | 17 |
| Difference in –2 log likelihood | | 22.92*** | 52.84*** | 15.21*** |
| Nagelkerke *R*-squared | 0.137 | 0.266 | 0.520 | 0.584 |
| Predicted correctly | 80.5% | 84.7% | 86.4% | 88.1% |

Note: Beta values reported above; Standard errors are represented in parentheses; School (years back) = years held back in school; Drug preference (multi) = drug preference (the proportion of the samples that reported using multiple drugs); Referrals (mix) = a person being referred for a variety of status or other legal problems. *$p < .10$. **$p < .05$. ***$p < .001$.

The effects of two measures introduced in the deviant history step were surprising. The older the defendants were when they began using drugs reduces the likelihood they will experience a new referral after drug court although the odds ratio is only reduced by about 30% for each year. Second, if a court had previously issued a warrant for their arrest, they were less likely to experience a new referral. We had anticipated an opposite sign for the latter measure and a much more significant effect for the age at first use measure. Both the criminological and treatment literatures have historically shown the difficulties of dealing with juveniles that start exhibiting deviant behavior early (Elliot, Huizinga, & Ageton, 1985; Wilson & Herrnstein, 1985). These results support this but not significantly.

Surprisingly, having warrants issued against offenders before entering the drug court results in their being less likely to be referred again after leaving drug court. It was predicted that a larger number of warrants would indicate a tougher case for drug courts and thereby predict recidivism. In general, warrants are typically only issued against the more serious of juvenile offenders or those who repeatedly fail to live up to the conditions of their

release, that is, attending school, treatment sessions, or court hearings. It is possible that this finding is among the most important of this study. If a tough case comes into the drug court and is less likely to recidivate, then this may be an indication that the drug court is really working and reforming the individual. To further test this assertion, we used a cross-tabulation to analyze warrants versus referrals while controlling for termination or graduation.[2] Our analysis indicated that of those who were terminated, those with more warrants were less likely to be referred to court again. The resulting negative correlation was significant at the $p < .001$ level. Of those who graduated, there was also a negative relationship but one that was statistically insignificant. These findings suggest that the juvenile drug court could have been achieving its goal of reducing recidivism for those who were the tougher cases (as measured by the number of warrants before entry into the program) even though it was purportedly closed for failing the majority of these cases.

These, however, are only speculations from the data and are not proof of drug court success or failure. One additional concern was that those with warrants were not referred to court later because they were sent to detention instead. To investigate these issues further, we performed an additional cross-tabulation to investigate if those with a high number of previous warrants were more likely to be detained after the drug court.[3] No significant relationship was found between warrants and being detained after the drug court. The insignificance of this relationship suggests that detention does not explain the lack of referrals or adjudications by those with a high number of prior warrants. Although this issue needs much more examination, these results suggest that the harder cases may be less likely to recidivate because the drug court is providing the necessary stability and treatment for these individuals. Or it may be indicative of an aging out of deviance process that we have yet to uncover.

Similar to the model of termination, program experiences were significantly predictive of referral. Sanction severity, sanction rate, rewards, and termination in the final step were all positively related to a referral back to court (at the $p < .05$ level). It was not surprising that the sanction rate increased the odds ratio (see tables in Appendix C) of new referrals by 30% and that experiencing a termination from drug court increased the odds ratio of a new referral by nearly 17 times. However, rewards of time off from the program were again found to be opposite our predictions although rewards and sanction severity only increased the odds of a new referral by a mere 1%. Again, there is no indication of why rewards are positively associated with referrals to court other than indicating that a significant subgroup of persons with new referrals also received in excess of 30 days off of their total program time. We can only speculate that if the system is easier on them (or if they receive less attention or supervision via these rewards) then they may not be as deterred from crime. Whether this is a psychological or a supervision effect is currently unknown. Lastly, the mitigation of several effects in the final step of the model, with the introduction of termination, suggests that many of the same factors predicting termination are important in predicting recidivism.

Finally, Table 7 presents a second form of recidivism found in the juvenile justice literature—new adjudications. Once again, the statistics indicate a strong model overall. The final step in the model correctly predicted 87.3% of the cases and we see a steady increase in correct prediction across all steps of the model. Moreover, 87.3% is above the range that is considered good for a logistic regression (Berman, 2002). The Nagelkerke *R*-squared indicates that the model explains 70% of the variation in whether an individual is adjudicated

**Table 7**
**Logistic Regression of New Adjudications After Drug Court ($N = 118$)**

| | Demographics | Deviant History | Program Experiences | Terminated |
|---|---|---|---|---|
| Age | –0.795 (0.301)** | –0.806 (0.316)** | –0.943 (0.410)** | –1.08 (0.472)** |
| Gender (male) | 1.12 (0.487)** | 1.09 (0.517)** | 1.60 (0.761)** | 1.22 (0.913) |
| Race (White) | 0.097 (0.416) | –0.021 (0.443) | 0.972 (0.666) | 1.51 (0.791)* |
| School (years back) | –0.452 (0.307) | –0.447 (0.331) | –1.26 (0.491)** | –1.35 (0.572)** |
| Drug preference (multi) | | 0.253 (0.608) | 0.646 (0.906) | 0.538 (1.06) |
| Age of first use | | 0.054 (0.104) | 0.045 (0.151) | 0.022 (0.183) |
| Number of prior adjudications | | –0.214 (0.155) | –0.226 (0.210) | –0.103 (0.245) |
| Prior warrants (yes) | | –0.140 (0.560) | –0.146 (0.838) | –0.371 (0.947) |
| Days in detention | | 0.015 (0.013) | 0.004 (0.023) | –0.007 (0.025) |
| Days in placement | | 0.005 (0.006) | 0.006 (0.007) | 0.008 (0.009) |
| Referrals (mix) | | | 0.541 (0.625) | 0.404 (0.723) |
| Positive UA | | | –0.273 (2.56) | –1.05 (2.91) |
| Residential treatment | | | 1.34 (0.724)* | 0.136 (0.916) |
| Sanction rate | | | 4.54 (1.26)*** | 2.50 (1.41)* |
| Sanction severity | | | 0.038 (0.020)* | 0.033 (0.024) |
| Rewards | | | 0.024 (0.018) | 0.030 (0.022) |
| Terminated | | | | 3.30 (0.969)** |
| Constant | 12.20 (4.56)** | 12.01 (4.67)** | 9.59 (5.89) | 12.02 (6.95)* |
| –2 log likelihood | –142.476 | –138.597 | –89.068 | –73.066 |
| Degrees of freedom | 4 | 10 | 16 | 17 |
| Difference in –2 log likelihood | | 7.76 | 99.06*** | 32.00*** |
| Nagelkerke *R*-squared | 0.173 | 0.212 | 0.603 | 0.698 |
| Predicted correctly | 72.0% | 76.3% | 82.2% | 87.3% |

Note: Beta values reported above; Standard errors are represented in parentheses; School (years back) = years held back in school; Drug preference (multi) = drug preference (the proportion of the samples that reported using multiple drugs); Referrals (mix) = a person being referred for a variety of status or other legal problems. *$p < .10$. **$p < .05$. ***$p < .001$.

or not and the –2 log likelihood comparisons also indicate an incremental improvement in the fit of the last two steps.

In this model, the background factors of age, race, and education were significantly related to whether an individual was later adjudicated. Not surprisingly, those terminated by the drug court had increased their odds (see tables in Appendix C) of being adjudicated again later by more than 27 times ($p < .001$).

With regard to the background factors, the older the clients were, the less likely they were to be later adjudicated ($p < .024$) with each year of age reducing the odds ratio by half. This may indicate that the individual had become more mature and aged out of criminal behavior. Whites were more likely to be adjudicated after leaving the program than minorities ($p < .064$). Surprisingly, the measure of education (how long a client was held back in school) was negatively correlated with adjudication. This contradicted our expectations. This result may suggest that those who are held back in school are viewed as riskier by drug court officials and consequently they are given more attention, which pays off with

reduced recidivism later. There are no further data to support this possible explanation, however, for each increment of being held back, the odds of experiencing a new adjudication were .26 their contemporaries who were educationally on track. Clearly, the analyses suggest that more data are needed on the level of supervision each client receives. Finally, sanction rate again increased the odds of experiencing a new adjudication by nearly 12 times. In our future research, we need to attend to a more refined designation of sanction rates and look for possible tipping points that would better inform policy considerations.

## Conclusions

The findings and implications from this research are based on much more than just the statistical results previously discussed. The drug court in this jurisdiction began because of the acquisition of federal funding, which had associated rules of implementation and the like. One objective of this study was to compare the local sample and implementation rules with the general set of conventions outlined by the federal funding authority. As shown, the local administration of the court differed dramatically in several respects that may have led to the higher than average failure rate of the sample. Additionally, in-depth interviews were conducted with local staff and administrators of the juvenile drug court. The most telling aspect of these interviews was the overwhelming belief that the drug court program was often considered the last community treatment available before the youth would be considered incorrigible and sentenced to a term of confinement in a youth facility. It was repeatedly expressed that a high failure rate was less of a concern than providing the drug court mandated youth with a final chance at rehabilitation. Therefore, if some of the youth were able to amend their deviant tendencies, the court staff considered the program a successful intervention. These issues, along with our statistical findings, led us to the following conclusions.

The statistical analyses yielded several interesting findings, not the least of which is that characteristics traditionally related to screening of clients in drug courts nationally do not appear to be related to graduation or termination in the current study. The strongest and most significant measures across all three logistic regressions appear to be programmatic experiences, as opposed to demographic or prior deviance measures. In addition, information arose to indicate that supposed rewards or assistance may not have been administered or utilized as expected. For example, residential treatment may have been used as a sanction.

Given the current state of juvenile justice, it is not uncommon that defendants have prior contact(s) with the system. The disparity uncovered in the examination of our participants' deviant history and that reported for a recent national report are quite dramatic. According to the national juvenile drug court report, 37% of the participants had three or fewer prior contacts with the criminal justice system (OJP, 2001). In this study, 79.7% of the participants had more than three prior contacts with the mean number of priors being 7.68 and the median number of contacts being 6. In addition, the national report indicates that 69% of participants involved in drug courts nationwide had never been involved in a prior treatment program, 26% had participated in one such program, and the remaining participants had participated in two programs (OJP, 2001). In this study, only one individual had no prior treatment with 83% reporting participation in three or more court-ordered treatment

programs. Similar results exist for measures such as the age of first drug use, prior warrants, violent criminal history, and days in detention or placement.

Although these measures did not significantly add to our investigation of who was terminated or graduated from the juvenile drug court under study, it does indicate that federally prescribed screening criteria may not have been well employed in the current jurisdiction. In fact, the drug court may have taken tougher cases on purpose. This in fact was confirmed in an interview with the former director of the juvenile drug court. A more thorough examination of who was turned away from the drug court in this jurisdiction is currently under way but remains hampered by the fact that case files have been warehoused. Several of these issues may also be the reason that two thirds of the drug court participants in this jurisdiction are terminated from the program in comparison to the national average of 32% (OJP, 2001).

The most significant effects in predicting the likelihood of termination or recidivism are measures categorized as program experiences. Although some of the measures created in this study are not commonly seen throughout the literature, we believe they represent issues that scholars and policy makers need to consider in the future. For example, two different variables were created to measure the sanctions experienced by our sample members. Rather than merely reporting use or frequency of sanctions, we generated a rate of sanctions that takes into account not only the frequency but also the timeframe (days) within which the frequency occurred. Although not as dynamic as a time series analysis, this measure allows the infusion of time into the model. Second, the sanction severity measure was created by comparing the incremental sanctions imposed with the frequency of sanctions as well as the violation from which the sanction arose. Examples of low sanction severity are two-page papers whereas examples of high sanction severity are electronic monitoring and in-house drug treatment.

Each of these sanction measures significantly predicted termination and recidivism. However, the fact that residential treatment appeared at the apex of sanction severity was somewhat paradoxical. On one hand, this makes sense in that drug courts are largely structured to deliver services in the community. On the other hand, it appears that in-house treatment should have occurred much earlier in the sanction experience than just prior to termination. This confusion of sanctions or treatment should be examined more completely in future studies.

In addition, only one measure in the data available was found that could be considered a reward for successful behavior within the program. For attending treatment, appearing in court, and abiding by all the rules of the drug court, participants were given days off of their total drug court program sentence. In the bivariate comparison (Table 3), there was a highly significant difference between the graduated and terminated subgroups, but there was a small cadre of terminated individuals who have received in excess of 30 days off of their program time for good behavior. In a multivariate model, this was enough to reverse the expected sign of the reward coefficient (Tables 5-7). Although this remains mere speculation, this small cadre of terminated individuals may indicate the need for vigilance in supervising all participants throughout the entirety of the program. This may be difficult because it is common to provide increased supervision for the most troubling cases and reducing our oversight of persons who are cooperating. This strategy cannot work with a group as

deviant as the criminal history of our participants. Any relaxation of vigilance may be detrimental to the youth as they see this as an opportunity to get away with something that lands them in more serious trouble later on. Alternately, the use of time off from the program may have been used as a means to gain the cooperation of the tougher cases. It is evident that this did not work effectively in changing behavior.

## Policy Implications

What do these findings say about juvenile drug courts and their administration? What can policy makers take away from these findings? This study is among few that analyze the correlates of drug court client failure and recidivism. As such, the findings provide some logic for future research by scholars who evaluate juvenile drug courts.

First, the results indicate a need to closely examine the screening processes used by drug court administrators. For instance, by examining our findings (and those of similar studies), drug court managers may be able to create better risk assessments for who is (and who is not) appropriate for drug courts. This is especially true given that many of the tough cases were sent to this drug court as a last chance for treatment. As such, the drug court had unusually high failure rates that were used later by policy makers to close the program. This finding may also indicate a real difference between juvenile and adult drug courts. Given the principle of *parens patriae* emphasized in juvenile justice, it may be more likely that drug courts are used for tougher juvenile offenders to see if it works. This is very unlikely in adult drug cases where drug court is generally used for offenders who lack a criminal record.

These results also indicate that drug court oversight committees should examine the theoretical assumptions of its program structure and whether they are consistent with the actual practices of program staff. When reviewing the drug court literature, it seems that a more structured definition of rewards and sanctions is needed. This is especially true given our findings that treatment was used as a sanction for clients who did not follow the rules. These and other internal programmatic features of drug court programs indicate that the process of a drug court matters. As such, these results, when combined with others, may spur future research on what type of a drug court process (e.g., rewards and sanctions) is most effective.

As it stands now, evidence of what measures capture the success or failure of drug courts is still in debate. In fact, scholars are still learning which correlates are most important. For instance, most studies do not employ experimental methods but instead analyze correlates that predict those who fail or succeed. This study is no exception. This paper does present some new avenues for assessing the success (or failure) of drug courts, operationalizes new variables to test, and suggests the need for more research in these areas. A deeper examination and knowledge of the screening process as well as the administration of drug courts may hold the key to their survival. As federal grants run out, states and localities are looking for good evidence of how well these programs work. Studies that report that drug courts have high client failures and recidivism rates may be used by policy makers to close programs as was done here. Studies like this one might help policy makers and program evaluators to determine why a program works or not and which clients are most appropriate for the program.

# Appendix A
# Variables and Hypothetical Correlations

| Dependent Variables | |
|---|---|
| Terminated | 1 if terminated/0 if graduated from drug court |
| New referral | 1 if referred back to juvenile court within 6 months after program/0 otherwise |
| New adjudication | 1 if new adjudication within 6 months after program/0 otherwise. |

| Independent Variables and Direction of Correlation | | | | |
|---|---|---|---|---|
| | | Hypothetical direction | | |
| Variable | Measure | Terminated | Referral | Adjudication |
| **Demographic Variables** | | | | |
| Age | in years | Negative | Negative | Negative |
| Gender | 1 if male/0 female | Positive | Positive | Positive |
| Race | 1 if White/0 minority | Negative | Negative | Negative |
| Grade | Grade in school | Negative | Negative | Negative |
| School | Years held back in school | Positive | Positive | Positive |
| **Deviant History Variables** | | | | |
| Drug preference (multi) | 1 if prefers multiple use | Positive | Positive | Positive |
| Drug preference (Pot) | 1 if prefers marijuana | Positive | Positive | Positive |
| Drug preference (alcohol) | 1 if prefers alcohol | Positive | Positive | Positive |
| Age of first use | in years | Negative | Negative | Negative |
| Prior adjudications | Number of prior adjudications | Positive | Positive | Positive |
| Prior warrants | 1 if yes, 0 if no | Positive | Positive | Positive |
| Days in detention | Number in days | Positive | Positive | Positive |
| Days in placement | Number in days | Positive | Positive | Positive |
| Referrals (mix) | 1 if referral for mix drug | Positive | Positive | Positive |
| Referrals (drug) | 1 if referral for drug | Positive | Positive | Positive |
| Referrals (legal) | 1 if referral for legal offense like probation violation | Positive | Positive | Positive |
| Referrals (property) | 1 if referral for property crime | Positive | Positive | Positive |
| Referrals (status) | 1 if referral for status offense. | Positive | Positive | Positive |
| Referrals (violent) | 1 if referral for violent | Positive | Positive | Positive |
| **Programmatic Experiences Variables** | | | | |
| Positive UA | Number of positive drug tests | Positive | Positive | Positive |
| Residential treatment | 1 if sent to residential treatment | Positive | Positive | Positive |
| Sanction rate | Total sanctions/days in program | Positive | Positive | Positive |
| Severity of sanctions | Scale measure (Appendix B) | Positive | Positive | Positive |
| Rewards (days off) | No. of days off for good behavior | Negative | Negative | Negative |

# Appendix B
# Operationalization of Sanction Severity Variable

The Scale. This variable measures the severity of sanctions in the drug court based on an ordinal scale of 1 to 5. The scale is based on the agreement of the research team on sanctions that take more time (or less) for the offender to complete or that would require other costs of the offender in effort. First, we made a list of the most common sanctions and then rated each on a scale of 1-5 below:

0 *No Sanctions*
1 *Low Sanction Severity*
2 *Moderately Low Sanction Severity*
3 *Moderate Sanction*
4 *Moderately High Sanction Severity*
5 *High Sanction Severity*
9 Missing Data

Variable Dimensions Explained. The following is a list of common sanctions and our justification for each of these variable dimensions:

*2 Page Paper on a Topic of Misbehavior:* We argue that this sanction type is *low* or 1 in severity because it involves simply writing a paper and does not require detention or time of the offender's family.

*Journal Entries:* Same as above. Rated *low* or 1.

*Detention (24 hour; weekend; 48 hour; or until clean):* We argue that this is *high* sanction severity or 5 because it takes away the freedom of the offender and imposes heavy costs on him or her.

*AA Meetings:* require attendance and participation in alcohol therapy. We rated this as *moderately high* or 4.

*Family Group Decision Making Session:* These sessions require time of the offender as well as the family. We did not consider it to be an ongoing commitment like AA so we rated this as *moderate* or 3.

*Work Detail:* This requires time of the offender, but not of a family. The punishment is still strenuous and is tougher than community service. Rated this one *moderate* or 3.

*Community Service:* As noted above, community service requires effort, but is less strenuous than work detail. We therefore judge this to be 2 or *moderately low*.

*Making up Individual Sessions that were missed:* Requires effort to attend and participate. We argue this is similar to community service in effort. Rated this one *moderately low* or 2.

*Electronic Monitoring:* Electronic monitoring is a severe sanction that restricts movement and freedom to move. We argue that it is not as severe as detention or in house drug treatment, but is still *moderately high* or 4.

*Drug Treatment:* In house drug treatment is nearly like detention in ways and is intensive. Drug treatment, then, carries a similar weight with us as detention in effort and cost. We rank this dimension to be a 5 or *high* in severity.

Coding of the Variables. A number of the individuals had more than one sanction. Therefore we created an additive index based on the scale above. For example, if an offender had 1 assignment of a report and 1 for detention, they would have a score of 6 (1 + 5).

# Appendix C
# Odds Ratios for Logistic Regression Tables 5-7

## Table C1
## Odds Ratios for Table 5 of Logistic Regression for Termination from DC ($N = 135$)

| | Program Experiences | Odds Ratio |
|---|---|---|
| Age | –0.101 (0.446) | 0.904 |
| Gender (male) | 2.10 (1.09)** | 8.135 |
| Race (White) | –0.367 (0.846) | 0.693 |
| School (years back) | –0.600 (0.641) | 0.549 |
| Drug preference (multi) | 0.715 (1.17) | 2.043 |
| Age of first use | 0.021 (0.184) | 1.021 |
| Number of prior adjudications | –0.349 (0.300) | 0.706 |
| Prior warrants (yes) | 1.58 (1.15) | 4.851 |
| Days in detention | 0.031 (0.030) | 1.031 |
| Days in placement | –0.005 (0.010) | 0.995 |
| Referrals (mix) | 0.187 (0.791) | 1.205 |
| Positive UA | 6.64 (3.62)* | 761.107 |
| Residential treatment | 3.26 (0.949)*** | 26.088 |
| Sanction rate | 1.32 (0.335)*** | 3.759 |
| Sanction severity | 0.076 (0.031)** | 1.079 |
| Rewards | 0.062 (0.026)** | 1.064 |
| Constant | –10.78 (7.24) | |
| –2 log likelihood | –62.225 | |
| Degrees of freedom | 16 | |
| Predicted correctly | 90.4% | |

Note: Beta values reported above. Standard errors are represented in parentheses.
*$p < .10$. **$p < .05$. ***$p < .001$.

## Table C2
## Odds Ratios for Table 6 of Logistic Regression of New Referrals After DC ($N = 118$)

| | Terminated | Odds Ratio |
|---|---|---|
| Age | –0.980 (0.518)* | 0.375 |
| Gender (male) | 1.54 (0.805)* | 4.641 |
| Race (White) | 1.42 (0.886) | 4.139 |
| School (years back) | –0.847 (0.578) | 0.429 |
| Drug preference (multi) | 2.25 (1.41) | 9.453 |
| Age of first use | –0.349 (0.209)* | 0.705 |
| Number of prior adjudications | 0.140 (0.256) | 1.150 |
| Prior warrants (yes) | –1.99 (0.862)** | 0.137 |
| Days in detention | 0.009 (0.024) | 1.009 |
| Days in placement | 0.009 (0.010) | 1.009 |
| Referrals (mix) | 1.31 (0.872) | 3.690 |

*(continued)*

**Table C2 (continued)**

| | Terminated | Odds Ratio |
|---|---|---|
| Positive UA | 0.445 (2.68) | 1.561 |
| Residential treatment | –0.123 (0.901) | 0.884 |
| Sanction rate | 0.135 (0.092) | 1.145 |
| Sanction severity | 0.048 (0.026)* | 1.050 |
| Rewards | 0.047 (0.022)** | 1.048 |
| Terminated | 2.87 (1.15)** | 17.670 |
| Constant | 14.52 (7.62)* | |
| –2 log likelihood | –67.951 | |
| Degrees of freedom | 17 | |
| Difference in –2 log likelihood | 15.21*** | |
| Nagelkerke *R*-squared | 0.584 | |
| Predicted correctly | 88.1% | |

Note: Beta values reported above. Standard errors are represented in parentheses.
*$p < .10$. **$p < .05$. ***$p < .001$.

**Table C3**
**Odds Ratios for Table 7 of Logistic Regression of New Adjudications After DC ($N = 118$)**

| | Terminated | Odds Ratio |
|---|---|---|
| Age | –1.08 (0.472)** | 0.340 |
| Gender (male) | 1.22 (0.913) | 3.375 |
| Race (White) | 1.51 (0.791)* | 4.570 |
| School (years back) | –1.35 (0.572)** | 0.259 |
| Drug preference (multi) | 0.538 (1.06) | 1.713 |
| Age of first use | 0.022 (0.183) | 1.022 |
| Number of prior adjudications | –0.103 (0.245) | 0.902 |
| Prior warrants (yes) | –0.371 (0.947) | 0.690 |
| Days in detention | –0.007 (0.025) | 0.993 |
| Days in placement | 0.008 (0.009) | 1.008 |
| Referrals (mix) | 0.404 (0.723) | 1.497 |
| Positive UA | –1.05 (2.91) | 0.349 |
| Residential treatment | 0.136 (0.916) | 1.145 |
| Sanction rate | 2.50 (1.41)* | 12.212 |
| Sanction severity | 0.033 (0.024) | 1.033 |
| Rewards | 0.030 (0.022) | 1.030 |
| Terminated | 3.30 (0.969)*** | 27.109 |
| Constant | 12.02 (6.95)* | |
| –2 log likelihood | –73.066 | |
| Degrees of freedom | 17 | |
| Difference in –2 log likelihood | 32.00*** | |
| Nagelkerke *R*-squared | 0.698 | |
| Predicted correctly | 87.3% | |

Note: Beta values reported above. Standard errors are represented in parentheses.
*$p < .10$. **$p < .05$. ***$p < .001$.

## Notes

1. Note that our sample $n = 149$ but that missing data drop the $n(s)$ of the logistic regression models to $n = 135$, $n = 118$, and $n = 118$ in the first, second, and third models respectively.

2. These data were not reported to save space. The results are available on request.

3. Again, we did not report the cross-tabulation statistics here to conserve space. These results are available on request.

## References


Barr, C., & Solomon, F. F. (2000). The role of the courts: The two faces of justice. *Court Manager, 15*(3), 19-27.

Belenko, S. (1998). Research on drug courts: A critical review. *National Drug Court Institute Review, 1*(1), 1-42.

Belenko, S., Mara-Drita, I., & McElroy, J. E. (1992). Drug tests and the prediction of pretrial misconduct: Findings and policy issues. *Crime and Delinquency, 38*, 557-582.

Berman, E. M. (2002). *Essential statistics for public managers and policy analysts*. Washington, DC: CQ Press.

Douglas, J. W., & Hartley, R. E. (2004). Sustaining drug courts in Arizona and South Carolina: An experience in hodgepodge budgeting. *Justice System Journal, 25*(1), 75-86.

Elliot, D. S., Huizinga, D., & Ageton, S. S. (1985). *Explaining delinquency and drug use*. Beverly Hills, CA: Sage.

Feeley, M. (1983). *Court reform on trial: Why simple solutions fail*. New York: Basic Books.

Goldkamp, J. S. (1994). *Justice and treatment innovation: The drug court movement*. Washington, DC: U.S. Department of Justice, Office of Justice Programs.

Goldkamp, J. S., Gottfredson, M. R., Jones, P. R., & Weiland, D. (1995). *Personal liberty and community safety: Pretrial release in the criminal court*. New York: Plenum.

Goldkamp, J. S., White, M. D., & Robinson, J. B. (2001). Do drug courts work? Getting inside the drug court black box. *Journal of Drug Issues, 31*, 27-72.

Harrison, L., & Gfroerer, J. (1992). The intersection of drug use and criminal behavior. *Crime and Delinquency, 38*, 422-443.

Hartley, R. E., & Douglas, J. W. (2003). *The origins and institutionalization of drug courts in the states: Funding sources and isomorphic forces in a comparative context*. Paper accepted for presentation at the 2003 Annual Meetings of the American Political Science Association in Philadelphia, PA.

Heck, C., & Thanner, M. H. (2006). Evaluating drug courts: A model for process evaluation. *Drug Court Review, V*, 51-82.

Hosmer, D. W., & Lemeshow, S. (1989). *Applied logistic regression*. New York: John Wiley.

Inciardi, J. A. (2000). *Elements of criminal justice* (2nd ed.). Fort Worth, TX: Harcourt College.

Jones, P. R. (1996). Risk prediction in criminal justice. In A. T. Harland (Ed.), *Choosing correctional options that work* (pp. 33-68). Thousand Oaks, CA: Sage.

Knoke, D., & Bohrenstedt, G. W. (1994). *Statistics for social data analysis*. Itasca, IL: F.E. Peacock.

Marlowe, D. B., Festinger, D. S., Lee, P. A., Dugosh, K. L., & Benasutti, K. M. (2006). Matching judicial supervision to client's risk status in drug court. *Crime and Delinquency, 52*, 52-76.

Marlowe, D. B., Heck, C., Huddelston, C. W., II, & Casebolt, R. (2006). A national research agenda for drug courts: Plotting the course for second generation scientific study. *Drug Court Review, V*, 1-32.

Martinson, R. (1974). What works? Questions and answers about prison reform. *Public Interest, 35*(Spring), 22-54.

Miller, J. M., & Shutt, J. E. (2001). Considering the need for empirically grounded drug court screening mechanisms. *Journal of Drug Issues, 31*, 91-106.

National Association of Drug Court Professionals. (2000). *Law enforcement/drug court partnerships: A case study of partnerships in four California counties*. Alexandria, VA: Author.

Nolan, J., Jr. (2001). *Reinventing justice: The American drug court movement*. Princeton, NJ: Princeton University Press.

Office of Justice Programs. (2001, June). *Juvenile drug court activity update*. Washington, DC: American University, School of Public Affairs.

Office of Justice Programs. (2003, November 7). *Summary of drug court activity by state and county*. Washington, DC: American University, School of Public Affairs.
Roberson, C. (2000). *Introduction to criminal justice* (3rd ed.). Incline Village, NV: Copperhouse.
Rottman, D., & Casey, P. (1999). Therapeutic jurisprudence and the emergence of problem-solving courts. *National Institute of Justice Journal, 240*(July), 12-19.
Schiff, M., & Terry, W. C. (1997). Predicting graduation from Broward County's dedicated drug treatment court. *Justice System Journal, 19*, 291-310.
Sechrest, D. K., & Shicor, D. (2001). Determinants of graduation from a day treatment drug court in California: A preliminary study. *Journal of Drug Issues, 31*, 129-148.
Senjo, S. R., & Leip, L. A. (2001). Testing and developing theory in drug court: A four part logit model to predict program completion. *Criminal Justice Policy and Review, 12*, 67-87.
Sloan, J. J., III, & Smykla, J. O. (2003). Juvenile drug courts: Understanding the importance of dimensional variability. *Criminal Justice Policy Review, 14*(3), 339-360.
Tayman, J., & Pennell, S. (1992). Toward a causal model of drug use. *Crime and Delinquency, 38*, 583-601.
Torres, S., & Deschenes, E. P. (1997). Changing the system and making it work: The process of implementing drug courts in Los Angeles County. *The Justice System Journal, 19*, 267-287.
Turner, S., Petersilia, J., & Deschenes, E. P. (1992). Evaluating intensive supervision probation/parole for drug offenders. *Crime and Delinquency, 38*, 539-556.
U.S. Department of Justice. (2006). *Compendium of federal justice statistics, 2004*. Washington, DC: USDJ, Office of Justice Programs, Bureau of Justice Statistics.
U.S. Department of Justice. (2007a). *Crime in the United States, 2006*. Uniform Crime Reports. Washington, DC: USDJ, Federal Bureau of Investigation.
U.S. Department of Justice. (2007b). *Key facts at a glance: Number of persons under the jurisdiction of state correctional authorities by most serious offense, 1980–2004*. Washington, DC: USDJ, Office of Justice Programs, Bureau of Justice Statistics Bulletin. Retrieved on June 19, 2008, from http://www.ojp.usdoj.gov/bjs/glance/tables/corrtyptab.htm
U.S. Department of Justice. (2007c). *Prisoners in 2006*. Washington, DC: USDJ, Office of Justice Programs, Bureau of Justice Statistics Bulletin.
Wilson, D. J. (2000). *Drug use, testing, and treatment in jails*. Washington, DC: U.S. Department of Justice, Office of Justice Programs.
Wilson, J. Q. (1980). What works? revisited: New findings on criminal rehabilitation. *Public Interest, 61*(Fall), 3-17.
Wilson, J. Q., & Herrnstein, R. (1985). *Crime and human nature*. New York: Simon & Schuster.
Zvekic, U. (1996). Probation in international perspective. *Overcrowded Times, 7*(2), 5-8.

**Michael Polakowski** is an associate professor and has been involved with the criminal justice system since the 1970s when he worked as a police officer in Wisconsin. While finishing his PhD at the University of Wisconsin, he was involved in the study of law enforcement issues with the Madison Police Department. He has been with the University of Arizona since 1990 and assisted local police, prosecutors' offices, pretrial service bureaus, drug courts, and the Department of Corrections with the creation, implementation, and evaluation of cutting edge programs. He has consulted with criminal justice and nonprofit groups in the areas of hiring, reorganization, crime prevention issues, and creative limitation of services among others. He has been recognized for his leadership and teaching as well as the publication of articles in leading journals in his field. He served 6 years on the Governor's Commission on Arizona Police Officer Standards and Training which oversees certification and educational issues for both law enforcement and correctional officers in Arizona.

**Roger E. Hartley**, PhD, is an associate professor of public administration and policy at the University of Arizona's Eller College of Management and is codirector of the program in criminal law and policy at the University's James E. Rogers College of Law. He received his PhD in political science from the University of Georgia where he specialized in public law, American politics, and public policy. He teaches undergraduate and graduate level courses on judicial administration and reform as well as other courses on law and courts. He has

served the American judicial branch in numerous capacities including expert testimony, consulting work, and service on numerous commissions, committees, and boards. His research also focuses on court administration and court reform. Specifically, he has studied court reforms such as alternative dispute resolution and drug courts, state court budget politics, and the increased politicization of lower federal court nominees. To date he has published articles in such journals as *Public Administration Review*, *Public Budgeting and Finance*, *Political Science Quarterly*, *Administration & Society*, *Law and Society Review*, *American Journal of Criminal Justice*, *Court Manager*, *Judicature*, *Justice System Journal*, *Judges Journal*, and *State Constitutional Commentary and Notes*. He is also author of *Alternative Dispute Resolution in Civil Justice Systems* published by LFB Scholarly Press in 2002.

**Leigh Bates**, PhD, is a research scientist with the New York State Office of Children and Family Services. She recently earned her PhD in criminal justice at the State University of New York at Albany. Her research interests include juvenile delinquency, structural correlates of crime, and program evaluation.