Development of Utah's Incentive and Response Matrix

Year 1 Report

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COLLEGE OF SOCIAL WORK
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Background

In 2013, The Utah Sentencing Commission appointed a committee to research and develop an Incentive and Response Matrix for Utah probationers and parolees. Members participating in this committee included representatives of the Utah Sentencing Commission, Administrative Office of the Courts (AOC), the Utah Department of Corrections (UDC), specifically their Adult Probation and Parole (AP&P) division, and the Board of Pardons and Parole (BP&P). The Utah Criminal Justice Center (UCJC) was asked by their Board of Directors to provide consultation and research for the committee as they embarked on this endeavor. This report provides a summary of this first year's efforts, including a review of the literature on behavior modification (e.g., rewards and sanctions) in the criminal justice system, a narrative of the process in Utah to develop an Incentive and Response Matrix, and recommendations for next steps in documenting and evaluating the use of a matrix.

Literature Review

The principles of behavior modification have been integrated into criminal justice programs and practices over the last several years, most notably in the drug court (Marlowe & Meyer, 2011) and intensive supervision (Wodahl, Garland, Culhane, & McCarty, 2011) models. Behavior modification is a critical component of evidence-based practices (EBPs) for treating offenders (Latessa, n.d.). Through the provision of incentives (e.g., rewards) and sanctions (e.g., punishers), desired behaviors can be increased and maladaptive behaviors can be extinguished, respectively. National organizations such as, The Pew Center's Public Safety Performance Project (Pew, 2008), the American Probation and Parole Association (APPA), and The National Center for State Courts (APPA & NCSC, 2013) have championed the integration of behavioral principles in criminal justice practices. Through consultation with these groups, as well as independent efforts, several states have developed graduated sanction policies or sanction/incentive matrices that assist them with modifying offenders' behavior within the context of supervision. The following sections briefly describe the principles of behavior modification, the research behind the use of behavior modification within a criminal justice context, the movement and application of behavior modification within the criminal justice system, and the use of sanction and incentive matrices by other states and jurisdictions.

Principles of Behavior Modification

Behavior modification is known by many names, including contingency management, operant conditioning, motivational incentives, and positive reinforcement (Marlowe & Meyer, 2011). Regardless of the name, the principle remains the same: to increase desired behaviors through reinforcement (positive reinforcement includes giving tangible, token, or social rewards) and decrease undesirable behaviors through the administration of a sanction (punishment) or removal of a reward (response cost) (Marlowe, 2013). When administering rewards and sanctions to modify behavior, there are three principles to adhere to: certainty, celerity, and magnitude (Marlowe, 2013).

Certainty

When initiating a new behavior or skill with offenders, it is important to provide reinforcements at a Fixed Ratio 1 (FR1) schedule. This means that after each occurrence of the desired behavior or skill, some reinforcement is provided (which could include verbal praise). Once a behavior is initiated, intermittent reinforcement is most effective for sustaining the behavior.

Celerity

One difficult aspect of administering behavior modification principles in a criminal justice setting is the ability to apply the reward or sanction immediately following the behavior to be reinforced or punished. The principle of celerity notes that the reward or sanction should be administered as close to the behavior as possible. The effectiveness decreases exponentially as more time passes following the behavior as interference from new behaviors may occur in the interim.

Magnitude

The magnitude of the reinforcer/punisher should be commensurate to the precipitating behavior; however, the general rule is that moderate responses are best. If a sanction is too weak, there is the possibility that the offender may habituate to that sanction and it will never produce the desired effect of reducing the precipitating behavior. If a sanction is too severe, there is the concern of "ceiling effects" where there is no room to graduate the sanction in the future if the violations escalate (Marlowe, 2013). It is also important to note that offenders may not view the severity of a sanction the same way those administering it do. Surveys of offenders on Wyoming's Intensive Supervision Program (ISP), showed that many offenders do not view community-based sanctions as less punitive than jail time and that treatment-oriented sanctions are viewed as more severe than other types of graduated sanctions (Wodahl, Ogle, Kadleck, & Gerow, 2013). Perceptions of sanction severity also varied by individual characteristics, such as age, gender, education level, and marital status.

Other Considerations

There are other considerations when applying behavior modification principles in a criminal justice setting. Programs should be aware that negative reinforcement is more common (such as taking away supervision fees or curfews as a reward for good behavior) than positive reinforcement (giving a reward, such as gift cards and tokens). As such, programs should look to find ways to integrate positive reinforcement (giving rewards) into their systems, especially since many offenders have a reinforcement deficit from prosocial influences (Marlowe, 2013).

Programs should also be cognizant of learned helplessness or ratio burdens on their participants. Offenders can get discouraged if there are too many requirements and expectations before they can master new behaviors. Use of rewards should be consistent in early phases of programming/ supervision to help solidify mastery of the new skills. Proximal behaviors (ones that offenders should display immediately, such as compliance with drug testing or probation officer meetings) should be given a lower magnitude reward when they occur and a higher magnitude sanction when they do not. This is because these are "easier" behaviors that are expected to be learned and mastered earlier in the program/supervision process. Distal behaviors (such as sobriety) should be

sanctioned with a lower magnitude if they don't occur and rewarded with a higher magnitude if they do, since these behaviors will take longer to master (Marlowe, 2013).

Lastly, just as the severity of sanctions can be perceived differently by different offenders, there are no "universal" reinforcers or punishers. Although some things are consistently considered reinforcers (e.g., tangible/monetary prizes) or punishers (e.g., incarceration), they are not universal. What works for one offender may not work for another. For example, praise administered in a group treatment setting may be a reinforcer for one participant, but a punisher for another if he or she is shy. When administering rewards and sanctions, it is imperative to observe the response to the reinforcer/punisher to observe if it had the desired effect (e.g., increased or decreased the preceding behavior).

Research Supporting Behavior Modification in Criminal Justice Settings

The application of reinforcers and punishers plays an instrumental role in cognitive-behavioral treatment (CBT) (Latessa, n.d.). CBT has been long-supported in the criminal justice literature as the "how" for treating criminal offenders (see Smith, Gendreau, and Swartz, 2009, for a review). The risk, need, and responsivity (RNR) literature that guides much of criminal justice interventions posits that treatment programs should serve high risk offenders ("who"; risk principle), target the criminogenic needs that influence their likelihood of re-offense ("what"; need principle), and employ CBT ("how"; responsivity principle) (Andrews & Bonta, 2006). The majority of meta-analyses of offender treatment literature have shown at least a 15% reduction in recidivism over the control condition when CBT approaches are used (Smith et al., 2009). Research on therapeutic integrity also supports the use of "effective reinforcement and disapproval" as crucial in delivering effective services to offenders (Smith et al. 2009). The use of rewards along with sanctions is more effective than the use of sanctions alone (Marlowe & Kirby, 1999). In a study of progressive sanction guidelines in Ohio, Martin and Van Dine (2008) found that the use of the violation response grid was not associated with reduced recidivism for parolees overall; however, they did find that combining treatment services with restrictive sanctioning among high-risk parolees did significantly reduce recidivism.

A study of the use of incentives and sanctions in Wyoming showed that sanctions were significantly related to supervision completion, but that incentives (and particularly incentives in a higher ratio to sanctions) produced the best outcomes (Wodahl et al., 2011). This study examined an intensive supervision program (ISP) with behavioral tools in Wyoming that was created in response to the research that demonstrated the high revocation rates and costs of typical surveillance-only oriented ISPs. A random sample of 20% of the supervised population (68% probationers; 32% parolees) in ISP during 2000-2003 were selected and their program records were reviewed for demographics, criminal and substance use histories, compliance while on supervision, use of rewards and sanctions by their officer, and eventual supervision exit status. Sanctions included several options ranging from verbal reprimand to program extension/regression to jail time. Rewards included options such as verbal praise, good time, approval of special activities, and reduced fees. Most ISP participants experienced at least one sanction (80.2%; Mn = 2.7), while slightly more experienced at least one reward event (82.3%; Mn = 3.5). Just under two-thirds (63.6%) of the sample successfully completed ISP.

The authors found that after controlling for several factors, including number of high risk violations during ISP (which was consistently related to lower likelihood of successful completion), receiving more sanctions was significantly related to higher likelihood of successful exit (Wodahl et al., 2011).

In a separate model, receiving more rewards was significantly related to higher likelihood of successful exit, with a greater proportion of variance explained, suggesting that the use of rewards has an even stronger influence on successful exit. Lastly, a model looking at the total use of rewards and sanctions, as well as the rewards to sanction ratio, showed the strongest influence on successful exit. At the point where the rewards to sanction ratio was 4:1, likelihood of successful exit jumped to approximately 71% (compared to 19% for 1:2 ratio; 36% for 1:1 ratio; 57% for 2:1 ratio). Woodahl and colleagues noted that this finding supports the long-time recommendation in the criminal justice literature to use a 4:1 ratio of rewards to punishers to achieve positive outcomes (Andrews & Bonta, 2006; Gendreau, 1996; Lester, Braswell, & Van Voorhis, 2004).

Use of Behavior Modification in Criminal Justice Settings

The use of behavior modification is well integrated into the drug court model. In fact, several resources exist that outline how incentives and sanctions should be utilized within a drug court framework (Marlowe, 2012) and examples of specific incentives and sanctions used by courts around the country (NADCP & NDCI, n.d.). Research has also shown the successful integration of rewards and sanctions into community supervision models, including Hawaii Opportunity Probation with Enforcement (HOPE), South Dakota's 24/7 Sobriety Project, Georgia's Probation Options Management (POM) Program, and Wyoming ISP (all summarized in APPA & NCSC, 2013). A study of four pilot POM sites demonstrated that sanctions were occurring more quickly after the violation in POM sites than in comparison sites (Speir, Meredith, Baldwin, Johnson, Hull, & Bucher, 2007). Data also demonstrated that hearing officers were using a range of sanctions, with more severe options being applied to probationers who were already in elevated supervision statuses or those with more serious violations. Lastly, implementation of POM was associated with significantly less jail use and courtroom time; both of which represented cost savings to the system (Speir et al., 2007).

Based on these positive findings regarding the use of rewards and punishers in criminal justice settings, several leading groups have advocated for their increased use. APPA and NCSC (2013) working in conjunction with The Pew Charitable Trusts developed a document for supervision agencies reviewing the important elements of rewards and sanctions (e.g., swiftness, certainty, proportionality, ratio), as well as related concerns that should be addressed when implementing behavioral elements within supervision (e.g., legal/constitutional issues, key stakeholder buy-in, structured grids, and evaluating fidelity/outcomes). Similarly, the Pew Center on the States Public Safety Performance Project has worked with many states (e.g., AR, GA, LA, MO, NH, NC, SC) to integrate evidence-based practices into their systems (e.g., objective risk assessments, individual case plans, EBP in supervision and treatment) and develop formal policies on administrative sanctions and rewards (Pew, 2008). Consistent with the research, the Pew guidelines require that community corrections agencies "adopt a set of swift, certain and graduated sanctions and rewards to respond to violations and compliance with the conditions of supervision," as well as establish "authority for agencies to impose graduated sanctions and rewards through an administrative process" (p. 3, Pew, 2008).

The Vera Institute, Council of State Governments Justice Center, Bureau of Justice Assistance, and Crime and Justice Institute have also assisted states with developing formal graduated sanction policies (sometimes including matrices) (APPA, n.d.). In their 2011 guide to reducing recidivism in probation departments, the Council of State Governments Justice Center prepared a report for The Bureau of Justice Assistance (BJA) recommend redesigning incentive and sanctioning strategies as one of their ten steps (Fabelo, Nagy, & Prins, 2011). Their specific checklist for accomplishing this

step includes the following: working with stakeholders to develop the appropriate incentives/ sanctions, issuing a report that details transparent procedures to be followed, training officers, emphasizing use of incentives over sanctions, and reserving jail and revocations for the most serious violators (Fabelo et al., 2011).

Sanction and Incentive Matrices

The result of these national movements has been the adoption of graduated sanction policies in over half of the U.S. states, with several integrating a formal sanction/violation grid into their processes. Fewer states, however, have grids that include incentives or rewards for positive behaviors, despite the research showing the importance of including rewards with sanctions in order to modify behavior.

Table 1 summarizes the use of formal sanction policies and grids in other states. All 37 of the states listed in Table 1 have formal graduated sanction policies developed; with those 28 that have a "yes" under the "Has Sanction/Violation Grid" column having a formal sanction grid as well. If there is not a "yes" indicator in that column, it means that no grid was found for that state (although one may exist). For those that have an identified sanction grid, the last column, "Has Incentive Grid," indicates whether rewards for positive behaviors are also included in their graduated response grids. It is far less common for states to have formal reward structures as part of their grids, with only seven states having them included. As previously noted, sanctions are much more effective when used in combination with rewards to modify behavior (Andrews & Bonta, 2006; Gendreau, 1996; Lester et al., 2004; Marlowe & Kirby, 1999; Wodahl et al., 2011).

Many of the states' grids incorporate offender risk level into the decision-making for applying an appropriate sanction (e.g., HI, MA, NV, PA, SD, WI), with several others at least considering the supervision level or supervised offense severity of the offender in addition to the violation severity (e.g., NC, NH, MO, WV). Some states even consider if the specific violation (e.g., curfew violation) is a first or repeat violation (e.g., HI, KY, NH, SD). Electronic copies of all of the grids referenced in Table 1 have been provided to the Utah Incentive and Response Matrix Committee.

Table 1 States with Formal Graduated Sanction Policies[1]

State	Has Sanction/Violation Grid	Has Incentive Grid
Arkansas	yes	no
California	yes	no
Colorado	yes	no
Delaware		
Florida		
Georgia	yes	yes
Hawaii	yes	no
Idaho		
Illinois		

[1] The Interstate Commission for Adult Offender Supervision (ICAOS) provides several of the violation grids referenced in this table. Their website indicates that commission members may log in to view additional violation grids: http://www.interstatecompact.org/StateDocs/ViolationGrids.aspx

State	Has Sanction/Violation Grid	Has Incentive Grid
Kansas	yes	yes
Kentucky	yes	no
Louisiana	yes	no
Maine		
Maryland	yes	no
Massachusetts	yes	no
Michigan		
Missouri	yes	no
Montana		
Nebraska	yes[1]	no
Nevada	yes	yes[3]
New Hampshire	yes	no
New Jersey	yes[2]	yes[2]
North Carolina	yes	no
Ohio	yes	no
Oklahoma	yes	no
Oregon	yes	no
Pennsylvania	yes	no
South Carolina		
South Dakota	yes	no
Tennessee	yes[4]	
Texas[5]	yes	yes
Vermont	yes	no
Virginia	yes[4]	
Washington	yes	no
West Virginia	yes	yes[3]
Wisconsin	yes	no
Wyoming	yes	yes

[1]Nebraska has a parole violation grid. Probation responses are only a policy. For the policy, see website: http://uniweb.legislature.ne.gov/laws/statutes.php?statute=29-2266&print=true
[2]Vera Institute "Supervision Response Guidelines" indicates that New Jersey has positive and negative responses in a graduated sanction grid; however, one could not be located online.
[3]Vera Institute "Supervision Response Guidelines" indicates that Nevada and West Virginia have positive responses as part of their grids. Only ones with sanctions could be located online.
[4]ICAOS website says a grid is available for members who log-in
[5]Multiple jurisdictions in Texas have implemented graduated sanction policies, including a replication of HOPE in Tarrant County and a sanction and incentive grid in Travis County

Development of Utah's Incentive and Response Matrix

In 2013, The Utah Sentencing Commission appointed a committee to research and develop an Incentive and Response Matrix for Utah probationers and parolees. This committee, co-chaired by Debra Moore, District Court Administrator, and Geri Miller-Fox, Adult Probation and Parole (AP&P) Division Director, hosted a presentation on evidence-based practices by The Pew Charitable Trusts on October 23, 2013. This presentation at the Commission on Criminal and Juvenile Justice (CCJJ) reviewed Pew's Public Safety Performance Project (PSPP), cost savings from Georgia's and South Dakota's justice reinvestment actions, and the principles of evidence-based supervision.

At the Pew presentation, Utah representatives discussed several evidence-based practices currently occurring in Utah's supervision system. AP&P is currently conducting risk assessments (LSI-R) at intake and exit, as well as annually or at "significant events," for all probationers and parolees in the community. Judge Thomas Low from Utah's Fourth District Court has been running a pilot graduated sanctions program with AP&P for several years that allows probationers to sign a waiver for their right to see a judge at the time of a probation violation and receive an immediate sanction from their probation officer. This pilot could serve as a model for the committee, although it has not been previously studied due to a lack of research-ready data.

The committee continued to meet throughout the fall of 2013 and winter of 2013-2014 to identify several current practices that could be built upon for the development of the Incentive and Response Matrix. In November 2013, representatives from each AP&P region presented their innovative alternative sanction practices. In December 2013, AP&P Northern Region representatives presented on EBPs, including the agency's use of motivational interviewing (MI) and risk assessments (LSI-R). The first drafts of the Incentive and Response Matrix and "Guidelines for Designing Responses for Community Supervision Matrix" were shared with the committee at the January 2014 meeting. Various barriers to full implementation, such as accuracy of LSI-R scores and availability of jail beds for short-term sanction stays were also discussed. At the request of the working group, UCJC Senior Research Analyst, Kort Prince, presented findings from the 2013 Level of Service Inventory-Revised (LSI-R) implementation evaluation at the February 2014 meeting. Following this meeting, the co-chairs, Debra Moore and Geri Miller-Fox, along with Sentencing Commission Director Jennifer Valencia, cancelled the March 2014 meetings and took up the task of creating a new draft matrix to present back to the full working group.

Next Steps: Data Collection and Evaluation Plan

The UCJC research team will continue providing consultation for and documentation of the Incentive and Response Matrix Committee's efforts. Activities will include attending the committee's professional meetings, assisting partner agencies with implementation steps (including concept testing the matrix with supervisees, building the matrix system into the management information system (MIS), and educating partners, such as the judiciary, on the new matrix), and documenting these efforts and accomplishments for subsequent narrative reports.

Considering that there are no "universal" rewards or punishers, and views of sanction severity can vary by individual characteristics, such as age, gender, education level, and marital status (Wodahl et al., 2013), the committee has had the foresight to plan a focus group with probationers and parolees. Once a draft Incentive and Response Matrix is ready for concept testing with those on supervision, UCJC has Institutional Review Board (IRB) approval to assist with recording and analyzing focus group results. Findings from the focus group could help the committee to further refine the matrix to reflect incentives that are the most rewarding for those on supervision and responses that are the strongest deterrents.

UCJC staff will also partner with Utah Department of Corrections (UDC) researchers and MIS experts to ensure that the data collection for the Incentive and Response Matrix in UDC's O-track database is both user-friendly to AP&P agents and research-ready. When data collection forms are not intuitive (Prince & Butters, 2013) or are too cumbersome to easily integrate into daily work activities (Hickert, Worwood, & Butters, 2011), documentation suffers. If the consistent use of the Incentive and Response Matrix cannot be accurately tracked, it will be difficult to impossible to tie the matrix's use to any participant outcomes (e.g., fewer violations, completion of supervision, recidivism). It is also imperative that the use of the Incentive and Response Matrix be tracked in a research-friendly data format (rather than a case note or narrative format). At the very least, the following elements (see Table 2) should be recorded in a data table/pull-down menu format to limit the need for free text analysis/coding during the process and outcome evaluation of the matrix's implementation.

Table 2 Basic Suggested Data Elements for Tracking
Incentive and Response Matrix Use by Agents

Precipitating Event (offender behavior)	Incentive/Sanction (agent response)
Date	Date
Type: Positive Behavior (to reward) or Negative Behavior (to sanction)	Type: Incentive or Sanction
Type Detail should include options linked to supervision conditions, such as: - Pull-down menu for positive behaviors: clean UAs, met reporting requirements, maintained employment, completed treatment - Pull-down menu for negative behaviors: missed UA, high/dilute UA, missed treatment, new offense	Type Detail should include level of incentive/sanction and where it falls into the matrix based on behavior severity, offender risk level, behavior frequency (i.e., if repeat behavior), and details on any overrides/deviations from the matrix suggested response

Lastly, as part of the implementation of the Incentive and Response Matrix, UCJC researchers will work with UDC research staff to determine the best strategy for identifying an appropriate

comparison group against which to compare potential differences on the outcomes of successful supervision completion, number of violations, and recidivism. Several options exist for identifying a comparison group, each with relative strengths and weaknesses. Three options are presented here, all of which warrant further consideration and discussion with respect to their viability in terms of application, available data, and time investment (which is also a determinant of cost).

One often adopted strategy is to use a historical comparison group, where a period pre-implementation of the matrix is compared to a cohort after its use was instituted. This approach, though, has some rather severe limitations. As discussed by Singer and Willett (2003), cross sectional data (such as these) can never account for the possibility of history effects, and the effect of implementation of the matrix is inexorably confounded with differences caused by the periods from which data were collected. The advantage of these studies is that they are relatively easy to complete, as data already exist for the historical group, a collection procedure is in place for the post-implementation group, the methods do not require withholding services (i.e., matrix-based rewards and sanctions ratios), and they are relatively simple analytically. If cost allows, however, it is generally advisable to avoid cross-sectional designs such as these.

An improvement on this methodology involves matching offenders based on similar histories (on all theoretically important variables). In this design, often referred to as propensity score matching or genetic matching, participants are paired such that one individual serves as a comparison for an individual receiving services. This ensures relative equivalency of the two groups. One drawback of this methodology, however, is that, in order to establish a comparison sample from which to draw, a group must have services withheld. How exactly this is accomplished in application is highly variable, but it could include three viable options in Utah's population: (1) random implementation of the matrix by AP&P region, (2) random implementation of the matrix by agent, or (3) random implementation of the matrix by offender within agent. All of these choices suffer from similar methodological concerns. In the instance of randomly assigning the matrix to be used in some regions but not other, one must assume the regions are comparable to one another (so that one can serve as the matched comparison for another), which may not be a viable conclusion. If random assignment occurred at the level of the agents, agents within the same region would be expected to employ different approaches to treatment of their cases relative to another agent. It may not be reasonable to assume diffusion effects would not occur. The same is also true if offenders were randomly assigned within the same agent's caseload. If a comparison matching approach is deemed most viable, it should be considered whether it can be implemented with fidelity.

The third approach is the most analytically demanding, and involves modeling expected trajectories (through Latent Curve Growth Modeling (LCGM) or Latent Class Growth Analysis (LCGA)) for the outcomes based on historical patterns within an offender. Deviations from the expected trajectory can then be attributed to the application of an intervention (the Incentive and Response Matrix here). While this model allows the strongest inferences to be drawn from outcomes, it does require accurate collection of historical data at several time points pre- and post-intervention in order to establish an accurate trajectory for an offender's expected outcome. Other than this data requirement, however, LCGMs and LCGAs are very robust and analytically sound. They allow for unequally spaced measurement periods and can handle missing waves of data. They also do not require withholding of services for a comparison group, as each offender serves as his or her own comparison. The primary deterrents to use of these approaches are the considerable amount of time involved and the associated cost. It may be determined that the benefits of these methods do not outweigh the costs.

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