

2-2009

## A Quasi Experimental Evaluation of Thinking for a Change: A Real-World" Application


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### Original Citation

Lowenkamp, C. T., Hubbard, D., Makarios, M. D., , & Latessa, E. J. (2009). A Quasi-Experimental Evaluation of Thinking for a Change. *Criminal Justice and Behavior*, 36(2), 137-146. doi:10.1177/0093854808328230

### Repository Citation

Lowenkamp, Christopher T.; Hubbard, Dana Jones; Makarios, Mathew D.; and Latessa, Edward J., "A Quasi Experimental Evaluation of Thinking for a Change: A Real-World" Application" (2009). *Sociology & Criminology Faculty Publications*. 89.

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# A QUASI-EXPERIMENTAL EVALUATION OF THINKING FOR A CHANGE A “REAL-WORLD” APPLICATION

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This article was originally published in:

Lowenkamp, Christopher T. and Dana Hubbard *et al* (2009). A Quasi-Experimental Evaluation of Thinking for a Change a “Real-World” Application. *Criminal Justice and Behavior*, 36(2), 137-146.

Post-print standardized by MSL Academic Endeavors, the imprint of the Michael Schwartz Library at Cleveland State University, 2013



# A QUASI-EXPERIMENTAL EVALUATION OF THINKING FOR A CHANGE

## A “Real-World” Application

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Due to the popularity of cognitive behavioral interventions, programs that follow this model are often assumed to be effective. Yet evaluations of specific programs have been slow in coming. The current investigation seeks to bridge this gap by evaluating the effectiveness of Thinking for a Change (TFAC), a widely used cognitive behavioral curriculum for offenders. Furthermore, this evaluation provides a “real-world” test of TFAC, because it was implemented by line staff in a community corrections agency as opposed to being a pilot project implemented by program developers. The results of the analyses indicate that offenders participating in the TFAC program had a significantly lower recidivism rate than similar offenders that were not exposed to the program.

**Keywords:** cognitive behavioral interventions; community corrections

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Over the past three decades, much has been learned in regards to “what works” in reducing recidivism (Andrews, Bonta, & Hoge, 1990; Gendreau, 1996; Gendreau, French, & Taylor, 2002; Palmer, 1995). One finding that has consistently appeared is the effectiveness of cognitive behavioral therapy (CBT) in reducing recidivism (Landenberger & Lipsey, 2005). As a result, a variety of cognitive behavioral curricula that target criminal populations have surfaced. One such curriculum, Thinking for a Change (TFAC), has been developed by Bush, Glick, and Taymans (1997) with the support of the National Institute of Corrections. TFAC is becoming increasingly popular with implementation at some level in more than 45 states (personal communication with Steve Swisher, National Institute of Corrections, July 15, 2006). To date, however, very few evaluations of the TFAC program have been conducted (Reeves, 2006). In addition, although each study adds to the knowledge base on the effectiveness of TFAC, each study has limitations that are inherent in applied research.

Consequently, the purpose of the current study is to overcome some of the practical and methodological limitations of previous research using a quasi-experimental evaluation of

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**AUTHORS’ NOTE:** *The authors would like to thank Terra Lauer, Bernadean Iszler, the Tippecanoe County Probation Department, and Chief Probation Officer Kipp Scott for their assistance in conducting this research. Please direct correspondence to Matthew D. Makarios, University of Cincinnati, P.O. Box 210389, 600 Dyer Hall, Cincinnati, OH 45221-0389; e-mail: makarimd@uc.edu.*

the TFAC program. Practically, the program under evaluation was implemented and delivered by practitioners in the correctional system without the assistance and monitoring of an evaluator. Thus, this application of TFAC is a “real-world” application rather than a demonstration project. This has particular relevance because some research (see, for example, Lipsey, 1995) indicates that demonstration projects, managed by an involved evaluator or program designer, produce larger treatment effects than the same programs implemented in a “real-world” setting. Furthermore, because the program was delivered by correctional practitioners that were a part of the justice system, this study will provide correctional agencies with a more realistic picture of the effectiveness of a readily available cognitive behavioral curriculum.

### **THE INCREASING DEMAND FOR COMMUNITY SUPERVISION**

Over the past 10 years, prison populations increased by nearly 30%, from 1,078,000 inmates in 1995 to more than 1.4 million by the end of 2005 (Harrison & Beck, 2006). Given the large increase, many states have relied more heavily on community supervision agencies to reduce prison populations by both diverting offenders from prison and by providing early release to community control (Latessa & Smith, 2007). Consequently, the corresponding 31% increase of offenders under probation or parole supervision between 1995 and 2005 (from 3,757,000 to 4,947,000) is not surprising (Glaze & Bonczar, 2006).

The building and operation of prisons come at great cost to many other social services and needs of the community (Weisfeld, 2007). Although there is certainly a population of offenders that need to be incarcerated out of concern for public safety, policy makers have realized that much can be done to reduce state prison populations (Public Safety Performance Project, 2007). Thus, given the costs of prisons and the cuts these cause in other areas of state budgets, many state policies have begun to focus on stopping the growth of prison populations (Public Safety Performance Project, 2007).

Although community supervision provides a fiscally prudent alternative to prison, it is not without its own unique costs. As Petersilia (2000) notes, there are political, economic, and social consequences associated with offenders returning to the community while on supervision. A major source of problems for community supervision agencies is that they are expected to serve more offenders with fewer resources. For example, correctional populations tripled from 1982 to 1999 while at the same time there was little more than a doubling of staff (Gifford, 2002). Resources clearly have not kept pace with increasing numbers.

Perhaps the most important issue facing community supervision is that of public safety, which is usually measured through rates of recidivism. Although the recidivism rates of offenders supervised in the community range from 16% to 65% (Latessa & Smith, 2007), a significant percentage of recidivists are returned to prison for revocations due to technical violations. Furthermore, revocations are becoming an increasingly larger proportion of the prison population (Cohen, 1995). Given the widespread use of community supervision and the high costs associated with recidivism (both in terms of public safety and reincarceration), the need to maximize the effectiveness of community supervision is pressing.

### **REDUCING RECIDIVISM IN COMMUNITY SUPERVISION**

One promising approach to reducing the recidivism of offenders on probation is to provide treatment services to offenders (for a review, see Cullen & Gendreau, 2000). Although

probation alone is generally ineffective at reducing recidivism (Gendreau & Goggin, 1996), research indicates that if probation supervision is treatment focused, it can effectively reduce criminal behavior (Aos, Miller, & Drake, 2006; Hanley, 2002; Lowenkamp & Latessa, 2005; Petersilia & Turner, 1993; Taxman, Yancey, & Bilanin, 2006). However, it is important to note that not all treatment efforts are equally effective. Programs that adhere to specific principles of effective intervention have been shown to have the greatest impact on recidivism (Andrews, Zinger, et al., 1990) and should therefore serve as the basis of community supervision–based treatment services.

The three major principles of effective intervention—risk, need, and responsivity (Andrews, Zinger, et al., 1990; Andrews, Bonta, & Hoge, 1990; Andrews, Bonta, & Wormith, 2006; Lowenkamp & Latessa, 2005; Lowenkamp, Latessa, & Smith, 2006; Lowenkamp, Pealer, Latessa, & Smith, 2006)—are designed to provide a blueprint of effective intervention for correctional agencies to follow. Translated into practice, the principles of effective intervention suggest delivering behaviorally based programs (e.g., cognitive behavioral treatment), to higher risk offenders (those with the higher likelihood of recidivism), while focusing on relevant criminogenic needs (e.g., antisocial attitudes, values, and beliefs). Recent research suggests that probation agencies that follow these aspects have lower rates of recidivism than those which do not (Lowenkamp, Latessa, & Smith, 2006; Taxman et al., 2006).

At the core of providing effective correctional interventions in the community is delivering behaviorally based programming. Behavioral programming is based on the presumption that behavior is learned. Furthermore, once a particular behavior has been initiated, it is maintained or discouraged by the consequences of the behavior on one's attitudes, values, and beliefs (for a theoretical discussion, see Bandura, 1986; for an application to offending behavior, see Andrews & Bonta, 2006). For offenders to be retrained to exhibit prosocial behaviors, they must be given the opportunity to learn prosocial skills and attitudes. Meta-analytic reviews have consistently identified behavioral programs to be one of the most effective forms of correctional interventions aimed at reducing recidivism (e.g., Dowden & Andrews, 2000; Garrett, 1985; Lipsey, Chapman, & Landenberger, 2001; Wilson, Bouffard, & MacKenzie, 2005; Wilson, Gallagher, & MacKenzie, 2000).

## **COGNITIVE BEHAVIORAL THERAPY AND CORRECTIONAL INTERVENTIONS**

There are a number of justifications for using CBT with correctional populations (Andrews & Bonta, 2006). First, unlike many correctional programs that are based on so-called “common sense” approaches (Latessa, Cullen, & Gendreau, 2002), CBT is based on scientifically derived theories (cognitive and behavioral). Second, CBT is based on active learning, not talk therapy and consequently focuses on the *present* (how offenders currently think and behave), not past events that cannot be changed (Andrews & Bonta, 2006). Third, it targets major criminogenic needs in a structured group setting (Andrews & Bonta, 2006). Finally, cognitive behavioral programming has consistently been shown to reduce the recidivism of program participants (for a review, see Landenberger & Lipsey, 2005).

TFAC is a cognitive behavioral therapy developed to integrate cognitive skills and cognitive restructuring modalities of offender treatment. At its core, TFAC uses problem solving to teach offenders prosocial skills and attitudes. Consisting of 22 lessons, each lesson teaches participants important social skills, such as active listening and asking appropriate questions to more complex restructuring techniques, such as recognizing the types of thinking

that leads them into trouble and understanding the feelings of others. As such, TFAC both stresses interpersonal communication skills development and confronts thought patterns that lead to problematic behaviors.

Landenberger and Lipsey's (2005) meta-analyses of cognitive behavioral programs provides some insight into the effectiveness of TFAC. They reviewed 58 studies of cognitive behavioral programs and found that, on average, these programs reduced recidivism by 25%. Furthermore, they examined several different cognitive behavioral curricula, including five evaluations of TFAC. Landenberger and Lipsey (2005) found that TFAC was effective in reducing recidivism, as the results indicated that the effects of the five studies were not different than that average reduction in recidivism of 25%. However, none of the studies included in the analysis had been published in peer reviewed journals, and they had other methodological limitations (such as short follow-up periods, lack of statistical controls, and small sample sizes). Furthermore, Landenberger and Lipsey (2005) encourage continued studies of CBT, as very few of the studies they were able to locate (6 out of 58) were randomized studies in "real-world" settings.

Recently, Golden, Gatchel, and Cahill (2006) provided the first published outcome evaluation of TFAC. They examined the effects of TFAC on a sample of probationers and found that, compared to those who did not attend the program, participants who completed the program experienced reductions in problem-solving skills and in proportion of the group who committed a new offense. Although informative, this research had a follow-up time limited to 1 year and used a three group analysis which excluded treatment dropouts from the experimental group.

A three-group analysis compares differences in the recidivism between participants who (a) completed treatment, (b) dropped out of treatment, and (c) received no treatment. The experimental group is separated into treatment completions and dropouts because it is assumed that individuals who did not get the full dose of treatment will "water down" the true treatment effect. Unfortunately, comparing treatment completions to a control group creates a selection bias, because offenders who are likely to drop out of treatment (because they are unmotivated to change or are higher risk) exist in both groups but are only eliminated from the treatment group. Furthermore, as the selection bias is created by eliminating unmotivated and/or higher risk individuals from the treatment group, this process will tend to inflate the treatment effect. To address this issue, the present research includes all individuals who attended at least one session of TFAC in the treatment group regardless of whether they successfully completed the treatment.

This research also offers two other methodological advances over prior evaluations of TFAC. To measure recidivism, this research uses the outcome of arrest which is superior to some of the previous evaluations of TFAC that used intermediate outcomes such as pre/post measures of attitudes (Reeves, 2006). Furthermore, the follow-up time for the outcome is longer than previous studies, and while variable, averages just more than 2 years. In sum, this research provides an evaluation of TFAC in a real-world setting, while addressing the methodological limitations of prior research by using (a) a two group analysis, (b) arrest as a measure of recidivism, and (c) an extended follow-up.

## **METHOD**

### **RESEARCH LOCATION AND PROCEDURES**

The Tippecanoe County probation department is located in central Indiana and provides services to adult offenders brought into the correctional system for a felony or misdemeanor

offense. In addition to the probation department, Tippecanoe County also has a community corrections division that complements services provided by probation. Staff from both community corrections and probation provide TFAC services to offenders. The National Institute of Corrections provided the initial training for the Tippecanoe County employees, after which the agency developed their own training program and provided subsequent training for new facilitators as the program grew and new staff were added.

Offenders were referred to the TFAC program directly from court (as a condition of their probation sentence) or from their probation officer as a sanction for violation behavior. Probationers enrolled in the TFAC program were expected to complete all 22 sessions. The number of sessions attended ranged from 2 to 22 with an average of 20. The high average was likely due to almost 75% of the treatment group completing all 22 sessions. The program was delivered over 11 weeks (2 sessions each week for a total of 22 sessions) with an average of 12 participants in each class (class size ranged from 5 to 20). The TFAC program was typically administered by two facilitators; however, with larger classes, as many as four facilitators were used.

## **PARTICIPANTS**

The participants in this study ( $n = 217$ ) were individuals in Tippecanoe County that were placed on probation for a felony offense. Of the total, there were 121 treatment cases. Inclusion into the treatment group required that the individual on probation was referred to and attended at least one session of TFAC. Comparison cases ( $n = 96$ ) consist of offenders that were placed on probation during the same time period as the treatment cases but were not referred to TFAC. Cases were also required to have at least a 6-month follow-up period to be included in the study. For the treatment group, the follow-up requirement began 6 months from the time that they left the TFAC program, whereas the control group follow-up was based on the time they began probation. The demographic statistics of the two groups are contained in Table 1. The two groups were very similar in terms of age, race, and gender, with no statistically significant differences detected. Overall, the sample was predominantly White (84%), male (71%), and on average 33.5 years old.

## **MEASURES**

Since all offenders did not have a standardized risk/need assessment completed in their files, a risk measure was created that was based on factors used in prior analyses (Lowenkamp, Pealer, Latessa, & Smith, 2006; Lowenkamp & Latessa, 2005). Each offender was coded on seven factors based on file information. These factors included prior arrests (0 = *none*, 1 = *one or more*), prior prison commitments (0 = *none*, 1 = *one or more*), prior community supervision violation (0 = *none*, 1 = *one or more*), prior drug problem (0 = *no indication of a drug problem*, 1 = *some indication of a drug problem*), prior alcohol problem (0 = *no indication of an alcohol problem*, 1 = *some indication of an alcohol problem*), employed at arrest (0 = *unemployed at arrest*, 1 = *employed at arrest*), and education (0 = *completed less than Grade 12*, 1 = *high school graduate or above*). These factors were summed together to give a risk score that ranged in value from 0 to 7. Three categories (low, moderate, and high risk) were created based on the composite score.

The correlation between risk and any new arrest is 0.19 ( $p = .006$ ). The recidivism rates by risk level were 20% for low-risk, 31% for moderate-risk, and 50% for high-risk ( $\chi^2 = 7.938$ ,  $p = .019$ ). The two groups did differ significantly on this measure (see Table 1), with

**TABLE 1: Descriptive Statistics for Independent Variables**

<i>Variable</i>	<i>Treatment N = 121</i>	<i>Comparison N = 96</i>
Race (% White)	88	80
Gender (% male)	72	71
Age (average in years)	33.6	33.5
Time-at-risk (average in months)*	21.4	32.4
Risk score (average)*	4.0	3.5
Recidivism (% rearrested)*	23	36

\* $p \leq .05$ .

the treatment group scoring slightly higher than the comparison group (4.0 versus 3.5;  $t = 2.46$ ;  $p = .015$ ). Differences in risk between treatment and control groups may confound the final results, although the higher risk of the treatment groups suggests that the results would favor a null treatment effect. Still, to ensure the accuracy of the treatment effect, the final results control for differences in risk between the two groups.

Also, since offenders were followed for unequal periods of time, it was necessary to adjust for time at risk to recidivate. To do so, a variable was created that measured the number of months of follow-up time that recidivism was tracked. For the comparison group, the follow-up period began when the offender was placed on probation. For the treatment group, the follow-up period began when the offender entered the TFAC program. As indicated in Table 1, on average the comparison group has a considerably longer follow-up period than the treatment group ( $t = 5.10$ ;  $p = .000$ ). Since differences in time at risk can also confound the final results, this measure was included in all multivariate models.

To operationalize recidivism, a dichotomous variable indicating whether the offender received an arrest for a new criminal charge (misdemeanor or felony offense) was created. These data were retrieved from county and local databases; worth noting is that the measure is limited to offenses that were reported only in Tippecanoe County.

## ANALYSIS

First, a bivariate analysis compared differences in the proportion of individuals who recidivated between the treatment and control group. Second, to adjust for potential confounding factors, we developed a multivariate model. Because of the dichotomous nature of the outcome and the desire to control for multiple confounding factors, logistic regression was used to estimate the odds of recidivism for the treatment and control groups. Based on the results of these models, we adjusted recidivism rates for the comparison group and the treatment group.

## RESULTS

Results from the bivariate analysis of the impact of participation in the TFAC program are presented in Table 1. These indicate that there is a statistically significant difference in the proportion of individuals who recidivated between the treatment and control groups. Specifically, 23% of the treatment group recidivated (i.e., were rearrested for new criminal behavior) whereas 36% of the comparison group recidivated ( $\chi^2 = 3.93$ ;  $p = .047$ ). Thus, the



**TABLE 2: Multivariate Logistic Regression Model Using All Treatment Cases**

<i>Variable</i>	<i>B</i>	<i>SE</i>	<i>Sig</i>	<i>Exp(B)</i>
Group*	0.67	0.35	0.05	1.95
Risk category*	0.82	0.26	0.00	2.26
Gender	0.01	0.36	0.99	1.01
Race	-0.75	0.55	0.17	0.47
Age*	-0.04	0.02	0.03	0.96
Time at risk	0.20	0.13	0.12	1.22
Constant	-1.68	0.79	0.03	0.19

\* $p \leq .05$ .

difference in the odds of recidivating between the control and treatment groups indicates that the control group was 1.57 (or 57%) more likely to be arrested during the follow-up.

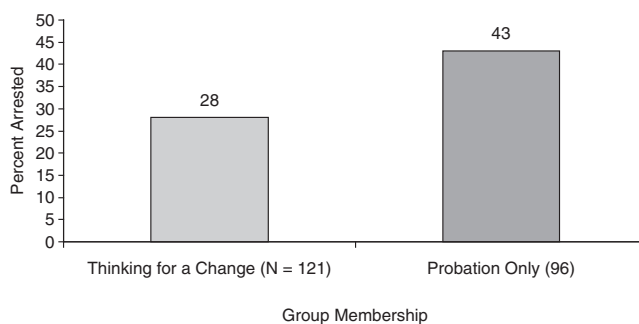
Since the groups differed significantly on several key variables, multivariate logistic regression was used to predict recidivism while controlling for time at risk, race, gender, age, and risk level. The results of this model are presented in Table 2. According to the results, the significant predictors of recidivism were age, risk category, and group membership. More specifically, younger offenders, higher-risk offenders, and offenders in the comparison group were more likely to be arrested for new criminal behavior during their follow-up.

Exponent B (Exp [B]) presents the change in the odds ratio for the dependent variable, which results from a one unit change in the independent variable of interest. As such, it is centered on 1.00, with values above 1 indicating increases in the odds of recidivism and values below 1 indicating decreases in the odds of recidivism. The coefficient for group membership indicates that when controlling for confounding factors, the odds of the comparison group being arrested during the follow-up were almost double (Exp [B] = 1.95) that of the treatment group. Comparing the differences in odds of being arrested in the bivariate analysis (1.57) to those of the multivariate analysis (1.95) indicates that controlling for confounding factors produces increases in the treatment effect.

Figure 1 presents the adjusted recidivism rates for the treatment and comparison groups, holding all other independent variables constant. At 28%, the adjusted rate of recidivism for the treatment group is modestly lower than that of the comparison group's rate of 43%. This indicates that adjusting for the net effects of risk, age, race, gender, and follow-up time produces a recidivism rate of the treatment groups which is 15 percentage points lower than that of the comparison group.

## DISCUSSION

The results of the current study indicate that participation in the TFAC program, as delivered by the Tippecanoe County probation department, is associated with an appreciable reduction in recidivism. This shows that a specific cognitive behavioral curriculum that is readily available to correctional agencies can work to reduce recidivism. Furthermore, the program was delivered by community corrections staff that did not necessarily possess any exceptional qualifications or credentials aside from training on the facilitation of the TFAC program. Also, unlike many evaluations of cognitive programs, neither was this study a



**Figure 1: Recidivism Rates Adjusted for Risk, Gender, Race, Age, and Time at Risk**

demonstration project nor was it delivered in an “optimal” or “artificial” environment. In sum, the current research indicates that a program that was delivered in a real-world setting was effective in reducing the recidivism of its participants.

While the results of this evaluation are encouraging, there are a number of limitations that should be noted. First and foremost, the participants in this study were not randomly assigned to the differing treatment conditions. Although the comparison and treatment groups were similar on most factors, there is still a possibility that there was some selection bias in assigning offenders to the TFAC groups. Again, some of this concern is tempered by the fact that the two groups of offenders were similar on demographic characteristics except for risk—a difference which favored the comparison group. The other identified difference between the two groups, length of follow-up time, is another limitation. We would have preferred a standardized time frame and lengthier follow-up period; unfortunately, certain contextual factors and data limitations prohibited this from occurring.

While an experimental design with standardized follow-up would be preferred, this limitation is not fatal, as statistical controls were implemented to adjust for potentially confounding factors. Furthermore, the potential for bias due to risk favors the control group (who were of lower risk), suggesting that, if anything, differences in risk would produce conservative estimates. While the same cannot be said for time at risk (the control group spent more time at risk, which potentially could lead to artificial increases in the recidivism of the control group), our analyses that control for this factor show that time at risk failed to be a significant predictor of recidivism, indicating that this factor is not confounding the present results.

The current investigation indicates that probation and similar community supervision agencies may be able to use their staff to provide meaningful rehabilitative services that lead to reductions in recidivism. Furthermore, this research is consistent with recent research that suggests that TFAC in particular (Golden et al., 2006) and cognitive behavioral programs in general (Landenberger & Lipsey, 2005) can produce meaningful reductions in recidivism. This is important, because it suggests that community corrections agencies can work toward the goal of enhancing public safety through the implementation of programming which has been shown to be effective in a “real-world” setting.

No single study in social sciences is definitive, and the current investigation is no exception. Further research should seek to conduct randomized trials to investigate the impacts of the TFAC program. Furthermore, while effective on this sample of probationers in Tippecanoe County, Indiana, practitioners and scholars should not jump to conclusions about the generalizability of this research. Future evaluations, if conducted across multiple

jurisdictions and with varied samples of offenders, would help to speak to the generalizability of TFAC in reducing recidivism. Also, continued testing of the efficacy of TFAC and other cognitive behavioral curricula will aid in the development of a base of knowledge to inform correctional agencies in making decisions regarding adoption and implementation of correctional programming.

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