




# An experimental trial of a dog-training program in a juvenile detention center

Eric Grommon<sup>1</sup>  · Dena C. Carson<sup>1</sup> · Lauren Kenney<sup>2</sup>

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## Abstract

**Objectives** This research examines the effect of a dog-training program among juveniles ordered to a county juvenile detention facility in a large, Midwestern city.

**Methods** A pre-test, post-test experimental design was constructed to examine changes in self-esteem, empathy, optimism, pessimism, compassion, and social competence between juveniles who were randomly assigned to the canine-assisted activity program and to the standard conditions of the detention center without access to the program. Two-way and repeated measures ANOVA models are used to assess the differential effect of the program.

**Results** The dog-training program evaluated in this study did not differentially benefit nor did it harm participants in relation to juveniles who received the standard operating practices and procedures of the detention center.

**Conclusions** Generalized conclusions about the effectiveness of dog-training programs in secure correctional facilities should not be made from this study. Despite the unique program model structure used in this study, the results demonstrate that once selection effects are mitigated through randomization, the mere exposure to a dog-training program does not translate to improved outcomes. The results raise more questions about the influence of selection effects on reported findings and stimulate inquiry on dog-training program models, research designs used to assess program effects, and the importance of intermediate interventions.

**Keywords** Dog-training program · Juvenile · Detention · Experimental design · Program evaluation

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✉ Eric Grommon  
egrommon@iupui.edu

Extended author information available on the last page of the article

## Introduction

Dog-training programs in secure correctional facilities can improve the well-being of participants and the operations of host facilities (Cooke and Farrington 2014, 2016). Scholars have called for the examination of programs across correctional settings and with the use of experimental designs to improve knowledge on program effects (Cooke and Farrington 2014, 2016; Fournier et al. 2007). Not only is the random allocation of participants to programming missing, there also remains fundamental gaps in the research literature concerning the self-selection of participants in to or out of dog-training programs and the construction of appropriate comparison groups.

Much of what is known about dog-training programs originates from prisons (Britton and Button 2008; Cooke and Farrington 2015; Currie 2008; Hill 2016, 2018; Richardson-Taylor and Blanchette 2001; Turner 2007; van Wormer et al. 2017). Participants in these settings are enrolled for a series of months or years and have loosely regulated access to dogs (Britton and Button 2008; Currie 2008; Fournier et al. 2007). The most rigorous evaluations in these settings are quasi-experimental. Propensity matched studies have detailed reductions in serious and violent infractions (Hill 2016, 2018; van Wormer et al. 2017) and recidivism rates (Hill 2016, 2018). Studies with unmatched groups have reported improvements in psychosocial functioning and social skills (Fournier et al. 2007). Reductions in loneliness (Richardson-Taylor and Blanchette 2001) and criminal behavior (Fournier et al. 2007) also have been observed. Additional unmatched studies have found mixed results on psychosocial outcomes of self-esteem, self-control, depression, and self-efficacy (Gilger 2007; Richardson-Taylor and Blanchette 2001).

Programs have also been implemented in facilities with shorter average lengths of stay than prisons, where participants engage in activities for 2 to 10 weeks (Chianese 2009; Seivert 2014) and access to dogs is limited (Harbolt and Ward 2001; Seivert 2014). This type of program structure tends to originate from juvenile detention centers. Detention centers may be a suitable setting to test the efficacy of dog-training programs, particularly if the threat of selection bias can be mitigated through the random assignment of participants who choose to participate in this type of activity. Detention negatively affects mental health and physical well-being of juveniles (Holman and Ziedenberg 2006). Youth placed to detention are 10 times more likely to suffer from major psychoses in relation to the general adolescent population (Fazel et al. 2008). Further, the setting offers little capacity to deliver appropriate treatment services, leaving few opportunities to receive *any* form of programming (Hockenberry et al. 2016). In combination, these factors may further damage adolescent development and leave juveniles at-risk for future justice system contact. Dog-training programs may offset some degree of harm or risk by cultivating human-animal bonds and a sense of purpose or identity (see Cooke and Farrington 2014), but the evidence to support such claims is underdeveloped.

Studies of programs in detention centers or those targeting juveniles suffer from many of the same methodological limitations as those involving adult prison facilities. Programs have been found to develop or enhance self-efficacy and empathy (Cooke and Farrington 2014, 2015; Davis 2007; Harbolt and Ward 2001; Leonardi et al. 2017; Merriam 2007), improve resident—staff relationships (Merriam 2007), and reduce

recidivism (Chianese 2009; Merriam 2007) via quasi-experimental or descriptive case study designs. However, Seivert (2014) has found no improvements in empathy or psychosocial development. This research is the only study to make use of an experimental design that assigned juvenile detention center participants to deliver obedience training or the responsibility of walking a dog. No randomization to a pure, “normal conditions” control group was used in this study.

While the results of dog-training programs demonstrate promise, there remain critical and untested questions about the influence of selection bias on reported outcomes. As one or more comparison groups are integrated into evaluation designs, the anticipated benefits of programs become less conclusive and these results may be driven, in part, by pre-existing differences between participants and non-participants. This study heeds the call of scholars and furthers the body of knowledge in three main areas: (1) it uses an experimental design to minimize selection issues; (2) it includes a control group that experienced “normal conditions” of a secure correctional facility; and (3) it tests the application of a short-term program model in a juvenile detention center, where the normal conditions of the facility are more uniformly experienced given the lack of available programming opportunities.

## Description of the dog-training program

The program aims to improve youth development by providing participants with an opportunity to deliver obedience training, bond with dogs, and learn tangible skills. In partnership with the county animal shelter, 12 youth are matched to six shelter dogs and six adult program volunteers that supervise and assist with training. Each dog is paired with two participants and one program volunteer across program sessions to maintain continuity. The program is held monthly and consists of 5, 1-h long sessions held across 1 week. The model most closely resembles those studied by Chianese (2009) and Seivert (2014), but deviates from these two models with its short duration.

In the first session, an experienced dog handler presents information on how to approach and interact with dogs. A certified service dog is present to demonstrate program content and facilitate participant interaction. An overview of behavioral conditioning is provided and participants are informed of program rules. Remaining sessions are direct training periods. A lead handler instructs two obedience skills each day and demonstrates techniques to teach commands and positive reinforcement schedules. Volunteers model commands and reinforcements for participants. Participants are responsible for replicating training content and are encouraged to care for their dog by using toys, grooming tools, and treats. Commands become increasingly more complex in subsequent training sessions. On the final day of the program, a closing ceremony is held. Participants demonstrate the obedience training they have learned by directing their dog through a set of commands in front of participants and program staff. Each participant is individually congratulated and receives a graduation certificate. In turn, each shelter dog is provided a certificate of obedience training and statement authored by participants detailing how the dog is to be trained. These documents accompany the dogs as they return to the shelter for public adoption at the end of a program session.

## Methods

The detention center sponsoring this study was a county-operated facility located in a large, Midwestern city. The center receives youth under the age of 18 who await adjudication and youth who have been adjudicated and await transfer to a state facility. This includes juveniles arrested on direct file charges. The facility had a rated capacity of 96 residents and contained six living units, four of which were reserved for males and two for females. One additional unit was used for isolation. Across the time of this study, the average daily population of 84 residents had an average length of stay of 21 days.

The average resident was a 16–17-year-old black male. Thirteen percent of the population was female. Eighteen percent of residents were white, 8% were two or more races, and 3% were Hispanic or Latino. A larger proportion of residents was between the ages of 15 to 16 (52%) and was followed by residents aged 17 to 18 (29%) and 12 to 14 (19%). Almost half (49%) of residents were charged with felony offenses, 35% were ordered to detention for probation violations, and 16% were charged with misdemeanor offenses. In proportions of descending order, felony offenses consisted of property, persons, weapon, and drug cases. Misdemeanor offenses involved weapons, persons, drug, and property cases.

An intent-to-treat pre-test, post-test experimental design with random assignment of eligible youth to the program participant group and a normal conditions group was employed. Residents opt-in to be considered for participation through their case manager. Residents who opt-in may then become eligible for participation if they had participated required educational classes; earned sufficient daily points in an internal token economy system used to monitor compliance; had not received a misconduct violation; do not have a history of crime against animals; and had their next court date scheduled after the last program session date. Detention center administrators conducted eligibility screens using a standardized protocol. If a resident was found eligible, they were entered into a lottery and randomly assigned to one of the experimental conditions across a 2-year period. Straight random assignment procedures were used. Program staff and line-level detention center staff were blind to assignment procedures. The final sample consisted of 310 eligible participants.

All eligible participants were subject to the normal operations of the detention center, which included educational services from licensed educators each weekday throughout the calendar year and access to case managers, medical professionals, licensed psychologists, legal counsel, and voluntary religious programming. All participants were provided at least 1 h of physical education each day and were afforded recreational opportunities. All participants were provided access to communal area phones to contact parents or guardians and were permitted two visitations per week. All participants could request to opt-in to special programming activities led by volunteers from the community as they become available. All participants were subject to facility rules and discipline for non-compliance in a modified token economy.

The *treatment group* was exposed to the dog-training program, while the *control group* experienced the standard conditions of the detention center without access to the dog-training program. Per the standard policy and procedure, members of the control group could participate in other volunteer-led activities if they were available or engage in recreational or leisure activities while the dog-training program was in session.

Although the various types of volunteer programs and resident attendance in such programs are not systematically recorded, anecdotal accounts indicate that a majority of volunteer-led programs are unstructured and involve religious or secular mentorship functions. Fifty-seven percent of the sample ( $N = 177$ ) were randomly assigned to the treatment group and the remainder were assigned to the control group ( $N = 133$ ).

Data were generated from voluntary pre-program, post-program survey collections. While the pre- and post-program surveys contained the exact same survey items, the ordering of post-program survey items were shuffled to minimize participant recall. Pre-program surveys included a set of five demographic questions. These items included subjects' *race/ethnicity* and *age* as well as measures of whether subjects had been previously bitten by a dog (*previously bitten*), had previously observed a dog fight (*previously observed dog fight*), and currently had at least one dog at home (*currently possess dog*).

Six dependent variables were collected. Each variable corresponds to psychosocial constructs collaboratively specified as outputs or short-term outcomes during logic model development with detention center and program stakeholders. Constructs also relate to elements of positive youth development (Steinberg 2009). *Self-esteem* is generally defined as one's favorable or unfavorable attitude toward the self (Rosenberg 1965). The measure consists of eight items and ranges in value from zero to three. *Empathy* relates to an emotional response to or sympathy for another's feelings or experiences (Bryant 1982). Ranging in value from zero to three, the measure contains 17 items. *Optimism* and *pessimism* respectively relate to one's expectations about the future (Ey et al. 2005). Both variables consist of a set of six items that range in value from zero to three. *Compassion* is defined as one's treatment of themselves and their ability to view one's feelings of suffering with a sense of concern and connection to others (Raes et al. 2011). The measure involves seven items and ranges in value from one to five. *Social competence* broadly relates to one's beliefs about their social attributes (Harter 1985). This measure assesses one's views about their own social competence in relation to their peers. Five items are used and range in value from zero to three. Electronic supplementary material accompanying this short report details the list of items used to create outcome scales.

## Results

Prior to examining outcomes, it is critical to make a determination of fidelity to the random assignment procedure. As expected, bivariate analyses revealed no statistically dependable differences between the two groups on available pre-treatment demographic characteristics (see Table 1).

**Outcomes** Tables 2 and 3 summarize the results of two-way and repeated measures ANOVA models used to examine the differential effect of exposure to the program on psychosocial functioning. At pre-test, both groups are relatively similar to one another on the primary constructs used in this study. One deviation exists: the control group was slightly more pessimistic than the treatment group [ $F(1, 280) = 4.07, p < 0.05$ ].

Repeated measures ANOVA models test whether there were unique changes that differentially affected the treatment group. Overall, there were no statistically

**Table 1** Demographic characteristics

	Treatment group ( <i>n</i> = 177)	Control group ( <i>n</i> = 133)	Total sample ( <i>n</i> = 310)
Race/ethnicity			
Black	65%	64%	65%
White	18%	13%	16%
Hispanic or Latino	6%	9%	7%
Other	11%	14%	12%
Age			
12–14	10%	11%	11%
15–16	47%	53%	50%
17–18	42%	34%	38%
19+	1%	2%	1%
Previously bitten			
Never	50%	63%	55%
Before age 5	5%	3%	4%
Between ages 6–10	20%	10%	16%
Between ages 11–15	19%	18%	19%
Between ages 16–Above	6%	6%	6%
Previously observed a dog fight	18%	25%	21%
Currently possess dog	25%	17%	22%

\* $p < 0.05$

significant differences between experimental conditions on any of the psychosocial constructs. There were a few substantive trends to note. First, compassion increased over time and improved at a rate that was approximately the same for both groups. Second, empathy, optimism, pessimism, and social competence were largely static. Third, although the rate of change is marginal, self-esteem decreased over time for both groups.

**Table 2** Pre-test survey standardized means by group (*n* = 310)

	Treatment group M (SD)	Control group M (SD)
Self-esteem	2.27 (0.46)	2.17 (0.42)
Empathy	1.70 (0.27)	1.63 (0.30)
Optimism	2.31 (0.57)	2.37 (0.46)
Pessimism	1.05 (0.63)*	1.21 (0.67)*
Compassion	3.35 (0.57)	3.35 (0.57)
Social competence	1.99 (0.50)	1.97 (0.47)

\* $p < 0.05$

**Table 3** Repeated measures ANOVA

	Pre-test M (SE)	Post-test M (SE)	<i>F</i>	df	$\eta_p^2$
<b>Self-esteem</b>					
Time	2.25 (0.04)	2.13 (0.05)	0.06	1, 129	0.00
Group			0.10	1, 129	0.00
Time $\times$ group			1.20	1, 129	0.01
Treatment group	2.27 (0.05)	2.09 (0.06)			
Control group	2.24 (0.06)	2.16 (0.07)			
<b>Empathy</b>					
Time	1.68 (0.02)	1.67 (0.02)	0.04	1, 129	0.00
Group			3.33	1, 129	0.03
Time $\times$ group			0.13	1, 129	0.00
Treatment group	1.72 (0.03)	1.70 (0.03)			
Control group	1.64 (0.03)	1.63 (0.03)			
<b>Optimism</b>					
Time	2.34 (0.04)	2.39 (0.05)	1.43	1, 143	0.01
Group			2.45	1, 143	0.02
Time $\times$ group			0.47	1, 143	0.00
Treatment group	2.29 (0.06)	2.31 (0.06)			
Control group	2.39 (0.07)	2.48 (0.07)			
<b>Pessimism</b>					
Time	1.10 (0.05)	1.10 (0.06)	0.01	1, 142	0.00
Group			1.63	1, 142	0.01
Time $\times$ group			0.16	1, 142	0.00
Treatment group	1.15 (0.07)	1.18 (0.08)			
Control group	1.04 (0.09)	1.02 (0.09)			
<b>Compassion</b>					
Time	3.38 (0.05)	3.61 (0.05)	3.47	1, 139	0.02
Group			0.61	1, 139	0.00
Time $\times$ group			0.01	1, 139	0.00
Treatment group	3.35 (0.07)	3.58 (0.07)			
Control group	3.41 (0.08)	3.65 (0.08)			
<b>Social competence</b>					
Time	1.98 (0.04)	2.00 (0.04)	0.73	1, 142	0.01
Group			0.01	1, 142	0.00
Time $\times$ group			0.00	1, 142	0.00
Treatment group	1.98 (0.05)	2.00 (0.05)			
Control group	1.98 (0.06)	2.01 (0.06)			

\* $p < 0.05$ 

**Sensitivity Analysis** Similar to other pre- and post-test designs, the current study experienced challenges in collecting a post-test survey. The routine activities of the

juvenile court and detention center contributed to the rate of attrition. Participants were unable to complete a post-test survey because their court date changed, release orders were executed, or new sanctions were imposed. While there were no differences between participants who completed the post-test and those who did not on pre-treatment demographic characteristics nor on the dependent variables, a multivariate analysis of variance (MANOVA) model indicated that participants assigned to the treatment group who were unable to complete the post-test had lower pre-test pessimism scores ( $M = 1.00$ ;  $SE = 0.07$ ) in relation to similarly situated control group members ( $M = 1.35$ ;  $SE = 0.09$ ). While this sensitivity test does raise a concern about differential attrition, it is important to interpret this result within its broader context. First, MANOVA pairwise comparisons indicate significant differences between experimental conditions on pre-test pessimism scores, but there were no differences between participants who did and did not complete the post-test by group. This finding is consistent to those reported in Table 3. Second, the magnitude of attrition bias is not likely to reverse the overall findings for pessimism. Participants assigned to the treatment group who completed the post-test had identical pessimism pre-test scores ( $M = 1.10$ ;  $SE = 0.08$ ) to those assigned to the control group who also completed their post-test ( $M = 1.10$ ;  $SE = 0.08$ ). Attrition appears to have conservatively biased the overall findings (i.e., raising probability of false negative) instead of amplifying potential pseudo-effects (i.e., raising probability of false positive).

## Discussion

Through the use of an experimental design, participants who opted-in to a short-term dog-training program were randomly assigned to be exposed to the program or to experience the normal conditions of a local juvenile detention center. There is no evidence to suggest that the program under study enhanced the psychosocial functioning of participants. Overall, the findings of this study are consistent with a past randomized trial that assigned juvenile detention center participants to two different forms of canine-assisted activities, but contrast with, and call into question, a small body of quasi-experimental empirical literature that reports promising psychosocial outcomes.

Despite the randomized design used here, generalizable conclusions about the effectiveness of dog-training programs should not be made from this study due to the uniqueness of the current program. The short duration of the program translates to a small or diluted “dose” of intervention. Further, participants were not provided unlimited access to dogs and dogs were not continuously housed on site. The combination of these two program factors, coupled with a narrow interval between pre- and post-test surveys, raises relevant questions about the strength of the program model. To advance best-practice principles, future research must take care to report dog-training program models with sufficient details on curricula, duration, contact hours, setting, eligibility criteria, participant characteristics, and regulations on access to dogs. In turn, this information can be used to inform meta-analyses to determine what type of model works best for which type of setting and participant.

Two additional limitations must be considered when interpreting results. First, compensatory rivalry and treatment diffusion may have contributed to the overall



findings. As indicated in the pre-test survey results (see Table 2), knowledge of being provided with or prevented from an opportunity to participate in the program may have contributed to pre-test differences in pessimism. At no point, however, were members of the control group provided access to the program or its dogs while the study was active. This limitation is common to evaluations of dog-training programs (Cooke and Farrington 2016; Fournier et al. 2007) and cannot be completely ruled out from this study. Future studies will need to use cluster randomization and other innovative research designs to minimize these internal validity threats.

Second, this study focused on a set of internalizing outcomes (Cooke and Farrington 2016), which are difficult to measure and may not sufficiently change within short periods of time. Yet, these same constructs are central to advancing positive and pro-social youth development (Steinberg 2009). Replications of this work should seek to integrate externalizing measures (e.g., misconducts, recidivism) and establish partnerships with physical scientists to measure physiological outcomes used in human-animal bonding research (Baun et al. 1984).

The findings of this research offer important insights for policy and research. First, this study demonstrates that the randomized exposure to a short-term dog-training program does not improve psychosocial outcomes. Given the presence of randomization to mitigate selection bias in this study and its absence in other studies, it will be essential to design future controlled trials of more common, longer-term programs housed in adult prisons. To do so will minimize participant selection issues that may be driving the results of available research. Second, the results of this study can advance dialogue on the role of dog-training programs as an intermediate intervention. It is important to acknowledge the null results reported in this study indicate that the program was *no less effective* than standard practice. Anecdotal evidence from participants, detention staff, and the juvenile court signal that the program is held in high regard. Delivery of a dog-training program—even with less than optimal results—provides another outlet for detention center residents; one that supplements educational and recreational activities at relatively low cost (Cooke and Farrington 2014). The lack of harmful results coupled with an inexpensive program that provides an opportunity for participants to give back to the community in tangible or intangible ways may be enough evidence for administrators to sponsor animal-assisted activity programs in their facilities.

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**Eric Grommon** is an Associate Professor within the School of Public and Environmental Affairs at Indiana University–Purdue University Indianapolis. His research interests include corrections, prisoner reentry, and the evaluation of criminal justice programs, policies, and operations. His research has been published in *Criminology and Public Policy*, *Evaluation Review*, *Journal of Experimental Criminology*, *Journal of Quantitative Criminology*, and *Justice Quarterly*.

**Dena C. Carson** is an Assistant Professor within the School of Public and Environmental Affairs at Indiana University–Purdue University Indianapolis. Her research interests include youth violence, victimization, gangs, and delinquent peer groups. Her recent publications have appeared in *Criminal Justice Review*, *Journal of Crime & Justice*, and *Justice Quarterly*.

**Lauren Kenney** earned her Master of Science in Criminal Justice and Public Safety from the School of Public and Environmental Affairs at Indiana University–Purdue University Indianapolis. Lauren is currently the Prison Division Training Program Manager for the Wyoming Department of Corrections. Her research interests include justice system administration, homeland security and emergency management, community capacity building, research methods, and evidence-based programming in correctional settings.

## Affiliations

**Eric Grommon<sup>1</sup> · Dena C. Carson<sup>1</sup> · Lauren Kenney<sup>2</sup>**

Dena C. Carson  
carsond@iupui.edu

Lauren Kenney  
lauren.kenney@wyo.gov

<sup>1</sup> School of Public and Environmental Affairs, Indiana University-Purdue University Indianapolis, 801 W. Michigan Street, Indianapolis, IN 46202, USA

<sup>2</sup> Wyoming Department of Corrections, 1934 Wyott Drive, Suite 100, Cheyenne, WY 82002, USA