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AN EQUINE-FACILITATED PRISON-BASED PROGRAM: HUMAN-HORSE RELATIONS
AND EFFECTS ON INMATE EMOTIONS AND BEHAVIORS

by

KEREN BACHI

A dissertation submitted to the Graduate Faculty in Social Welfare in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The Graduate School and University Center, the City University of New York

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This manuscript has been read and accepted for the
Graduate Faculty in Social Welfare in satisfaction of the
dissertation requirement for the degree of Doctor of Philosophy.

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THE CITY UNIVERSITY OF NEW YORK

Abstract

AN EQUINE-FACILITATED PRISON-BASED PROGRAM: HUMAN-HORSE RELATIONS AND EFFECTS ON INMTE EMOTIONS AND BEHAVIORS

by

KEREN BACHI

Adviser: Professor Gerald P. Mallon, DSW, LCSW

Policy makers and correctional authorities are seeking ways to enhance effectiveness of incarceration and reduce recidivism. Equine-facilitated prison-based vocational programs aim to rehabilitate inmates. Informed by the theories of attachment and desistance, this study evaluates the emotional and behavioral effects of such an intervention utilizing a quasi-experimental methodological triangulation design.

Recidivism and disciplinary misconduct are examined by clinical data-mining of institutional records. Propensity Score Matching, binary and multinomial logistic regressions are applied in a discrete-time event history analysis. Semi-structured interviews revealing the subjective experiences of participants are analyzed via the Listening Guide methodology. Quantitative questionnaires, exploring attachment and closeness to horses as compared to humans, are analyzed by linear regressions.

Quantitative findings suggest that program participants have a statistically lower chance to recidivate as compared with the control group. Otherwise, a reduction in the severity of disciplinary misconduct was not found. Findings of the questionnaires suggest that horses are approached as attachment figures, including all four features, while higher levels of attachment and closeness to horses were evident among older participants with stronger attachments to their

An equine-facilitated prison-based program

mothers.

Qualitative findings show the roles of human-horse relations within prison-context. Emotional features highlight the importance of providing alternative opportunities to experience companionship, which may help inmates process their relational issues and improve competencies. Additionally, the program helps inmates to cope with psychological impact of imprisonment. Behavioral features demonstrate how the program allows inmates to perform as mature individuals while being involved in meaningful activities, which can generate pro-social skills. Social learning exhibit how participants interpreted herd dynamics by projecting human interactions on horses. These could be further discussed to enhance social awareness and develop alternative approaches toward social situations. Furthermore, participants' evaluation of the program and vocational features reveal vocational skills that may be transferable to other settings. Adding an intervention that would help bridge between experiences in the program and other vocations after release could enhance the program's broad impact.

Knowledge gleaned from this inquiry has practical implications for the program, and suggests that rehabilitative approaches toward corrections can contribute to a more humane treatment of this population while also benefiting society.

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Introduction and Problem Formulation

Equine-facilitated prison-based interventions are correctional programs that utilize horses and aim to rehabilitate prison-inmates. Despite the proliferation of equine-facilitated prison-based interventions (Bureau of Land Management, 2011; Thoroughbred Retirement Foundation, 2012), limited knowledge actually exists in order to guide them. The idea of animal-facilitated interventions in institutions is not new. Its origin can be traced to the concept of the human-animal bond (HAB), a term first conveyed by pioneers such as Konard Lorenz and Boris Levinson (see Deaton, 2005; Levinson, 1969; Levinson & Mallon, 1997; Mallon, Ross, Klee, & Ross, 2010). Reports from 1919 confirm that dog-facilitated interventions were used in an American institution where individuals were confined (Strimple, 2003). Furthermore, during World War II animals played an important therapeutic role in American prison camps for German prisoners of war (Strimple, 2003).

Prison-based animal programs (PAPs) (Furst, 2006), which incorporate animals into correctional facility programming, are increasingly used throughout the U.S. Of the 46 states that participated in a national survey, 36 states reported having PAPs at 159 sites (Furst, 2006). These programs include a variety of animals such as dogs, horses, farm animals, wild animals and other domesticated animals. The specific involvement of equines in PAPs started in the 1980s. Today, PAPs that involve equines operate in correctional facilities in 15 states (Bureau of Land Management, 2011; Thoroughbred Retirement Foundation, 2012).

The most common PAP type is associated with community service, whereby participants train and care for animals (a typology of other PAPs appears in Table 1). The animals then are placed for adoption (Furst, 2006). There are a number of reasons prisons are increasingly implementing PAPs. First, PAPs aim to benefit inmates by providing various types of

rehabilitative interventions. These programs can also produce revenue for the prison (e.g. sale of animal products, initial training of service dogs). In addition, they can contribute to positive community relations fostered by the engagement of inmates in community service (Furst, 2006). Furthermore, department of corrections staff testimonials suggest that such programs can also improve the general prison atmosphere (Deaton, 2005). Finally, these programs can contribute to solving broader social issues such as the rescue of unwanted animals. By nursing and training the animals, the inmates help improve their chances of being adopted (Lai, 1998).

From a treatment standpoint, anecdotal reports (e.g. Bair & Osborne, 2003; Deaton, 2005; Fournier, Geller, & Fortney, 2007; Harkrader, Burke, & Owen, 2004; Jaspersen, 2010; Kochersperger & Heger, 2010; Moneymaker & Strimple, 1991; Strimple, 2003) propose that such programs have promising effects on inmate rehabilitation and transformation. Some of the proposed benefits are lower recidivism rates, increased self-esteem, trust and self-confidence, alleviation of loneliness, and acquisition of marketable skills and education, including college credits (Strimple, 2003). Suggested outcomes can also benefit the correctional institutions, other agencies, and the community (Deaton, 2005).

Empirical research on this topic, however, is scarce (Britton & Button, 2005; Currie, 2008; Fournier et al., 2007; Furst, 2007b). In an exhaustive search via online data bases and correspondence with scholars of this field, only 19 studies of PAPs were found. A detailed description and discussion of these studies will follow in the literature review. An overview of these studies reveals that only one study examined an equine-facilitated prison-based intervention (Cushing & Williams, 1995). Recent studies of such interventions were not found. Most other studies looked at dog-facilitated interventions, besides one that examined a cat-facilitated intervention (Nef, 2004). A range of methodologies was used to assess behavioral and

emotional variables such as recidivism, disciplinary reports, and the psychosocial states of participants. Findings are promising and point to emotional and behavioral competences of PAPs participants. For example, one qualitative study (Merriam-Arduini, 2000) revealed that participants in a dog-facilitated PAP had considerable behavior improvement in the areas of respect for authority, social interaction and leadership. Participants who completed the program reported improvement in the areas of honesty, empathy, nurturing, social growth, self-confidence and pride of accomplishment. A zero recidivism rate was also reported (Merriam-Arduini, 2000). Another quantitative study (Burger, Stetina, Turner, McElheney, & Handlos, 2011) with a three-group pre-post design found that participants in a dog-assisted group training, showed significantly more improvement than other groups in scales concerning emotion regulation, emotional self control, and acceptance of emotions. Furthermore, the PAP participants were able to reduce their depressive and aggressive emotions significantly, as well as their imbalanced feelings. Compared to two other interventions the PAP participants were able to benefit the most (Burger et al., 2011).

Knowledge from such studies is relevant and can be applied to the examination of equine-facilitated prison-based interventions (e.g. use of similar designs and variables) since they all share the underlying concept of the HAB in a prison context. As aforementioned, according to anecdotal reports, animal programs appear to be a cost-effective way of training inmates and lowering recidivism rates, but more research in this field is greatly needed (Strimple, 2003). A gap exists between practice and knowledge of PAPs in general and equine-facilitated prison-based interventions in particular. Research of this field is warranted in order to explore the nature of human-horse relations within a prison context, and to further examine issues, such as, the effectiveness of these programs, suitable participants for such programs and contraindications,

the impact of these programs on recidivism and disciplinary actions, and to perform cost-benefit analyses. Furthermore, variations in patterns of these interventions are underexplored. The literature lacks also specific information regarding the number of ex-offenders employed in the field after participating in a PAP (Furst, 2006). Studies have not thoroughly examined whether the results of animal-assisted interventions are due to the training program, the animal, its handler, or simply novelty (Currie, 2008). Nonetheless, such programs have become more common despite limited guidance by what is known about their effectiveness with regard to offender rehabilitation (Furst, 2006).

Hence, the nature of relationships that may develop between prison inmates and animals has not been explicitly and thoroughly examined (Furst, 2006). If found to be successful, findings from an examination of equine-facilitated prison-based interventions can be used to justify continuation of current programs, to seek additional funding, and to expand their scope. It will also add to existing literature and research in social work practice and in other allied fields that form the foundation of these interventions. Such research may provide practical and theoretical knowledge to the fields of animal-assisted interventions, and equine-assisted activities/therapies (EAA/T), specifically those in correctional facilities. In addition, this study will assist correctional scholars and administration in the design, implementation, and evaluation of such prison-based programs.

Development of a broader knowledge base for PAPs is also aligned with the social welfare profession's rehabilitative rather than retributive policy approach. Given the prevalent socio-cultural climate that favors "tough on crime" legislation, public officials and community members may reject a large-scale implementation of PAPs. However, rather than simply punishing an inmate, the time spent incarcerated can be used to address the issues that put an

inmate in prison initially and thus prevent him from recidivating. If those issues involve lack of concern for others, low self-esteem, lack of patience, and poor social skills, then PAPs may be effective vehicles for rehabilitation (W. G. Turner, 2007). Consequently, studies of PAPs have important implications for rehabilitation and reintegration of inmates and also have the potential to fuel discussions on broader criminal justice issues, such as retributive versus rehabilitative prison management practices (Fournier et al., 2007). In addition, such research could provide grounds for a theory of justice underlying PAPs (Furst, 2006). Prison-based animal programs can provide new meaning to restorative justice, whereby prisoners simultaneously gain new skills as they give back to the community (Granger & Kogan, 2006).

There is an ethical obligation to evaluate PAPs, especially because they serve prisoners, which are a vulnerable population of human beings being served by a vulnerable population of animals. Implementing programs in the correctional system that are not knowledge based is unethical because the population involved is confined and has limited options for rehabilitative programs. Examination of these programs can improve them, thus providing best practice to this population. Likewise, as aligned with the social work profession's commitment to the promotion of social justice, research can expose the voices of people on the margins of society (Humphries, 2008a), such as inmates. Research that records participants' real-life experiences (through qualitative interviews) promotes social justice for this population.

This research is especially relevant because few inmates in the U.S. receive mental health services during their incarceration, and most are ultimately paroled back into the community with little or no re-adjustment counseling. Consequently, such programs that serve a dual role of both psychosocial rehabilitation for inmates and service to the community will become increasingly in demand (Suthers-McCabe, Van Voorhees, & Fournier, 2004).

At a time when prisons are becoming more expensive to operate and there is little change in the high rate of recidivism, new thought should be given to alternative prison programs. As aforementioned, first-hand experience suggests that PAPs are beneficial (Strimple, 2003). However, empirical research is required in order to provide a foundation of knowledge for these interventions. In order to have effective policies that translate into formulating sound therapeutic goals and interventions, equine-facilitated prison-based interventions must be studied.

Literature review

Background

PAPs are implemented in the United States, Canada, England, Scotland, Australia, South Africa (Lai, 1998), Austria (Burger et al., 2011; K. Turner et al., 2011) and Switzerland (Nef, 2004). The earliest program included in a U.S. survey of PAPs (Furst, 2006) was identified as being established in 1885 and was a livestock care or farm model in Wisconsin. The next four oldest programs (1900, 1920, 1930, and 1981) were also livestock care or farm models. Six programs were established in the 1980s, 14 in the 1990s, and 34 since 2000. The primary animal involved in PAPs is dogs (66.2%). The community service design (40.4%) is the most common model of PAP that incorporates dogs. The next most common animals involved in PAPs are horses (12.7%) and cattle/cows (12.7%) (Furst, 2006). A typology of PAPs appears in Table 1.

Equine-facilitated prison programs have become more prevalent. However, there is deficit of empirical knowledge to guide them. Two models of equine-facilitated prison-based programs are used in correctional facilities in 15 states throughout the U.S. Typologically, both could be classified as multimodal programs composed of a vocational and community service program components. Interestingly, both models were initiated in response to issues pertaining to equine welfare, and evolved into programs aiming to also promote the welfare of prisoners.

Table 1
Prison-based animal programs (PAP) designs

Program Type	Description
Visitation programs	Companion animals brought to facility by humane society or nonprofit organization at specified times
Wildlife rehabilitation programs	Participants care for injured wildlife, which are then released
Livestock care programs	Farm animal care including milking and calf raising; fish breeding
Pet adoption programs	Animals are adopted and cared for by individual inmates
Service animal socialization programs	Assistance/work puppies or dogs are raised and taught basic commands; dog goes on to specialized training
Vocational programs	Participants are trained/certified in animal grooming/handling/care
Community service programs	Participants train and care for animals (including dogs and wild horses), which are then adopted out to the community
Multimodal programs	Usually vocational program component and community service program component

Note. Adapted from “Prison-based animal programs: A national survey,” by G. Furst, 2006, *The Prison Journal*, 86(4), p. 413. Copyright 2006 by Sage Publications.

TRF’s Second Chances program description

The Thoroughbred Retirement Foundation’s (TRF) Second Chances program, established in 1984, provides vocational training in the area of horse care and maintenance of retired racehorses. This program is implemented in correctional facilities in ten states (NY, KY, FL, SC, VA, MD, MA, IN, IL, and CA) serving adult men, women and juvenile delinquents. The TRF foundation aspires to rescue, retire, and rehabilitate thoroughbred racehorses that are not able to compete on the track to increase their chances of being adopted, and thereby address issues of neglect, abuse and slaughter (Thoroughbred Retirement Foundation, 2012). Sound horses are retrained and adopted by individuals, pony clubs, colleges, and EAA/T centers. TRF is responsible for all horse care costs. The Department of Corrections (DOC) provides: one full timed salaried program director and necessary security personnel; inmate labor; tractor and other

equipment to maintain pastures; and capital improvement costs, if possible (if not, TRF will raise funds in the local community for this purpose) (Thoroughbred Retirement Foundation, 2010).

In this program inmates are taught an extensive and rigorous course in horse care through a structured tested-curriculum, which involves theoretical and practical knowledge, according to 16-units. Farm-managers and professional instructors, teach participants all levels of horse care. At most locations TRF uses Groom-Elite program, which is recognized and taught at racetracks and training facilities across the U.S. Successful program completion requires participants to comprehend and demonstrate competence in advanced horsemanship, including but not limited to the following: learning how to be around and handle the horse; perform general stable procedures and racetrack procedures; identify horse behavior and psychology; identify horse confirmation; perform tack care; perform examinations of the horse; groom the horse; perform general horse care and health checks; understand horse nutrition; identify hoof-care procedures; identify equine health procedures (Thoroughbred Retirement Foundation, 2010). This course was initially accredited by the New York State Department of Education (Strimple, 2003). In this program inmates perform only un-mounted work, because these retired horses are often healing from the rigors of racing. The program aims to achieve two outcomes: the first relates to vocational rehabilitation in which graduates of the programs learn the highest level of horse care. This enables them to work at thoroughbred farms upon their release (moving on to second careers working with horses). The second outcome relates to behavioral and emotional aspects. The emotional benefits of this kind of work help many program graduates, upon completion of their sentences, to become productive citizens. The emotional benefits and improved self-esteem that is derived from caring for, trusting, and in many cases, loving another living being are evident. Furthermore, an integral part of this program's approach to horsemanship training is

patience, love and gentle leadership of the horse. This helps participants learn to know themselves better and understand how their actions are perceived by another being (Thoroughbred Retirement Foundation, 2010).

Anecdotal reports suggest that this program has profound effects on participants because for the first time in their lives they are learning valuable employment skills and how to care for other beings (Strimple, 2003). Reports point out additional transformations that inmates experience while in the program. For example, one participant shared that “horses demand respect and through them I’ve learned respect for life” (Adams, 2001). Another report proposes that many inmates are not taught good social skills as children and therefore they learn to rely on power and control to get what they want. One needs to have effective communication in order to work with horses. To create a safe and comfortable environment for horses, many inmates must depart from the conduct that cost them their freedom (Pedulla, 2001). Finally, this arrangement seems to positively impact all parties involved: inmates get to transform themselves, prisons get vocational program, the foundation gets free labor, and the horses get devoted care (Simon, 2001). Notably, however TRF’s Second Chances program has never been studied or evaluated by any research study.

Wild Horse Inmate program description

The second model of equine-based prison programs is the Wild Horse Inmate Program (WHIP), formed in 1986, is a cooperative agreement between the Bureau of Lands Management (BLM) and correctional institutes in five western states (CO, KS, NV, UT and WY). This model was initiated by Dr. Ron Zaidlicz in response to the 1971 congressional Wild Free-Roaming Horse and Burro Act, aiming to protect and manage wild horses and burros on public lands (Bureau of Land Management, 2011). In this rehabilitative program, male inmates provide

personal and extensive training, both mounted and un-mounted, to wild horses and burros. In addition, inmates feed and care for all other wild horses and burros at the facility. The inmates gain meaningful and marketable work experience that they can use when they are released (Bureau of Land Management, 2011). Wild Horse Inmate Programs employ contemporary low-resistance gentling and training approaches and require trainers to develop genuine empathy for their animals in order to remain in the program (Lamm, 2010). The WHIP program sells trained horses to people who may not have the experience, time, or the facilities to train an animal on their own (Bureau of Land Management, 2011).

Anecdotal reports about early WHIP suggest that not only was there success with regard to the prisoners, but also the Professional Industries in the DOCs made money to support the prison through the sale of trained horses (Strimple, 2003). Other anecdotal reports concerning current WHIP suggest a number of positive results for participants, horses, adopters, and the BLM (Lamm, 2010; Strimple, 2003). The human-animal relationship that develops in this program transforms both inmates and horses, preparing inmates for life beyond the correctional facility (Dalke, 2008). Participants learn to care for another being and develop trust, responsibility, empathy, teamwork, and other traits that could help keep them from returning to the behaviors that resulted in their incarceration. In addition, although it is not designed to develop vocational skills, the program enabled prisoners to learn all aspects of equine husbandry, including treating injuries and illnesses and gentling horses (Strimple, 2003). The horses are helped through the adjustment from wild behavior to being comfortable in a human environment. Being gentled and desensitized in a professionally supervised environment typically reduces adjustment stress and risk to the horses. The BLM benefits because they avoid having to put horses in holding facilities for years prior to adoption. Adopters, who might not possess the skill

set necessary to successfully gentle and train horses on their own, can acquire animals that have demonstrated the ability to safely make the transition into private care. These horses have a sound basic foundation that the adopters can further develop (Lamm, 2010).

One critic, however, points out a missing link in this scenario which occurs when inmates get paroled from this type of prison program (Lamm, 2010). Most parole criteria require inmates to be employed in full-time jobs. Part-time and “cash-paying jobs” are discouraged and in some cases not allowed since these kinds of activities are often associated with patterns that contribute to repeat offenses. Many of these inmate trainers get paroled with a specialized and beneficial skill set - the ability to gentle, train, "doctor" and trim horses. Yet, since those activities typically involve part time and “cash-paying jobs”, parolees typically end up working in unrelated jobs such as in warehouses or as laborers. Due to these restrictions many inmates lose the skills they have developed, and in many instances have come to love. Therefore, the author suggests enhancing the program by a structured syllabus including a certification based on proficiency of participants. It is assumed that this could increase employability chances for released WHIP graduates. Another criticism, which also relates to other forms of PAPs, is the issue of government entities exploiting prisoners’ labor and then refusing to employ the same individuals upon release (Furst, 2007a). The only research study found with regard to equine-facilitated prison-based programs looked into the effects of The Wild Mustang Program (Cushing & Williams, 1995), which was one of the early WHIP. This study, in addition to studies of other PAPs, will be reviewed and critically assessed in light of PAPs’ effects.

PAPs effects: Empirical findings

In absence of current studies of equine-facilitated prison-based programs specifically, research of PAPs with adequate rigor could serve as a point of reference and contribute to

knowledge of such interventions. Building on existing knowledge of PAPs can help design required studies that could ultimately advance our understanding of these interventions, as well as PAPs' knowledge foundation. In order to synthesize the empirical findings for this systematic review, I coded the findings from 19 PAPs studies according to a grouping of studied variables. These codes included effects on recidivism, disciplinary misconduct, emotional and psychological effects, socio-behavioral effects, and other aspects of theory and formative evaluation, according to the variables each study examined, as appears in Table 2.

Studies mentioned for the first time will be described in detail, and additional references will cite only relevant findings (since most examined multiple variables, coded into different groups). It is believed that this will reveal what has been studied, how it was measured, and what should be further explored and examined about PAPs. This could provide grounds for future studies.

Table 2
Typology of PAPs studies by findings

Topic	Findings of PAPs studies
Recidivism	No recidivism ¹ Lower recidivism rates compared with control ²
Disciplinary misconduct	Statistically significant improvement ³ Mixed findings ⁴
Emotional and psychological effects	Increased self-esteem ⁵ Other psychological competencies improved ⁶ Reduced clinical symptomatology and treatment issues ⁷ Enhanced emotion regulation ⁸ Mixed findings ⁹
Socio-behavioral effects	Improved interpersonal social skills ¹⁰ Improved intrapersonal social effects ¹¹ Bridged between inmates and the community ¹²
Other	No physiological impact of pet ownership on inmates ¹³ Symbolic Interaction toward a unique theory for PAPs ¹⁴ Reports on aspects of formative program evaluations ¹⁵ Some vocational effects ¹⁶

Recidivism

Five studies examined recidivism rates among PAPs participants. Two studies reported no recidivism of participants, and three other studies found lower recidivism rates among PAP participants as compared with other inmates. The two studies that found no recidivism among PAP participants examined the issue at hand for relatively long periods. In the first study (Furst, 2007a, 2007b), according to reports of prison administrators and the executive director of the

¹ Furst, 2007a, 2007b; Merriam-Arduini, 2000

² Chianese, 2010; Moneymaker & Strimple, 1991; Cushing & Williams, 1995

³ Fournier et al., 2007

⁴ Cushing & Williams, 1995; Moneymaker & Strimple, 1991; Katcher, Beck, & Levine, 1989; Furst, 2007a, 2007b

⁵ Currie, 2008; Cushing & Williams, 1995; Merriam-Arduini, 2000; Moneymaker & Strimple, 1991; Nef, 2004; W. G. Turner, 2007; Walsh & Mertin, 1994

⁶ Cushing & Williams, 1995; Moneymaker & Strimple, 1991; Merriam-Arduini, 2000; Currie, 2008; Nef, 2004; W. G. Turner, 2007

⁷ Nef, 2004; Fournier et al., 2007; Walsh & Mertin, 1994; Richardson-Taylor & Blanchette, 2001; Lee, 1987

⁸ Burger et al., 2011; Stetina, Gegenhuber, et al., 2009; Stetina, Kuchta, et al., 2009; K. Turner et al., 2011

⁹ Richardson-Taylor & Blanchette, 2001; Suthers-McCabe et al., 2004

¹⁰ Fournier et al., 2007; Stetina, Gegenhuber, et al., 2009; K. Turner et al., 2011; Moneymaker & Strimple, 1991; Richardson-Taylor & Blanchette, 2001; Nef, 2004; Merriam-Arduini, 2000; W. G. Turner, 2007; Lee, 1987

¹¹ Currie, 2008; W. G. Turner, 2007; Britton & Button, 2005; Currie, 2008; Merriam-Arduini, 2000

¹² Britton & Button, 2005; Richardson-Taylor & Blanchette, 2001

¹³ Katcher et al., 1989

¹⁴ Furst, 2007a, 2007b

¹⁵ Britton & Button, 2005; Suthers-McCabe et al., 2004

¹⁶ Cushing & Williams, 1995; Moneymaker & Strimple, 1991

affiliated non-profit organization, no participants had recidivated for a four to five year period since beginning a program. The sample included 15 female and seven male program participants that participated in individual interviews, as well as 14 male participants that formed a focus group. In this study, data was collected from inmates at two separate prisons who were volunteering in their facility's PAP. The first program, which is in a maximum-security facility for women, pairs participants with puppies who are socialized in preparation for advanced training in explosives detecting. The second program, which is in a medium-security facility for men, pairs participants with former racing greyhounds who are socialized for adoption to the community.

A second study (Merriam-Arduini, 2000), reporting no recidivism among PAP participants was a survey of adjudicated violent, incarcerated male juveniles aged 12-25 at a Juvenile Correctional Facility. The program, called Project Pooch, matches unwanted dogs with incarcerated youths who train and prepare them for adoption. Notably, this is one of the few programs where results were documented in a three-year study. Details about sampling, sample size, and methods for measuring recidivism were not obtained, since only an abstract was accessible for this study.

Reduced recidivism rates were found in three studies. A review of probation department records (Chianese, 2010) revealed that girls who participated in a PAP reoffended at half the rate of girls who had no exposure to a puppy. Those who did reoffend were charged only with probation violations and did not commit any new crimes. The program studied is called New Leash on Life, located in Orange County Juvenile Hall, Orange County, California. This program attempts to rehabilitate female juvenile delinquents by pairing them with foster puppies. Details of sampling, sample size were not obtained since only an abstract was accessible for this

study.

Another study revealed that approximately 11% of PAP participants recidivated; however, the length of time between their release until they have recidivated was unspecified. Additionally, 68% of the remaining members of the sample that were paroled did not return to prison (Moneymaker & Strimple, 1991). This study's duration was two years and it included 98 program participants, where 88 were considered valid cases due to their consistent performance. The researchers did not indicate methods of sampling, data collection and the statistical analysis was limited. Thus, the generalizability from this study's finding to its population is questionable. In addition, these findings were not compared to the institutional or state recidivism rate. In this program, at Lorton Prison in Virginia, prisoners were trained in an Assistant Laboratory Animal Technician course. Participants who excelled were helped to find employment in the field upon release. In addition, some were paired with shelter animals they could keep in prison or if transferred or released.

Finally, the only study found to examine an equine-facilitated correctional program, the Wild Mustang program (WMP) in New Mexico, also reported reduced recidivism rates among 56 male program participants (Cushing & Williams, 1995). Only 25% of study participants recidivated versus an average state recidivism rate of 38.12%. This was a mixed-methods study, composed of qualitative interviews and quantitative methods. The findings concerning recidivism were obtained from the master list of inmates and parolees who were under the supervision of New Mexico's Department of Corrections. However, since this list covered only New Mexico, the researchers cautioned that evidence regarding recidivism was inconclusive because data was not available if a former inmate happened to be incarcerated in another state (Cushing & Williams, 1995). This comment exhibits the complexity of measuring recidivism. A

conclusive examination of recidivism would require access to a criminal national database of state and federal incarcerations, which is not publically accessible (Pike, 2008). Each state, county, and federal jurisdiction maintains its own records, therefore it may be reasonable to assume that at this time any investigation of recidivism should be regarded as inconclusive.

Though these findings show positive effects of PAPs on recidivism, they also indicate that this outcome should be further and more thoroughly examined. Systematic collection of recidivism data which does not rely on subjective reports of parties involved in programs is required. Perhaps data that is collected routinely by correctional facilities could be used for examination of recidivism. This could enhance the rigor of such research. Furthermore, statistical analysis should be more comprehensive to determine whether differences in the reduction of recidivism are statistically significant or not. In addition, findings should be compared to the institutional or state recidivism rate to provide a more conclusive account of recidivism.

Additionally, a review of empirical correctional literature reveals that correctional inmate training and programs are associated with reduced recidivism (Jensen & Reed, 2006). However, there is a need to conduct program evaluations that will address the outcomes of programs in a more inclusive and holistic manner (Bazos & Hausman, 2004; Bouffard, MacKenzie, & Hickman, 2000; Jensen & Reed, 2006; Lichtenberger & Ogle, 2008; Wade, 2007). One of the fundamental issues in this research domain concerns the reasons for choosing recidivism as a central variable and its definitions. Recidivism rates are commonly employed when assessing the effectiveness of prison education/training programs because the American public demands accountability for money spent on correctional programs. Likewise, recidivism rates are frequently used in evaluation because policy makers who fund rehabilitation programs need empirical evidence that they reduce crime (Batiuk, Moke, & Rountree, 1997). However,

recidivism is defined in a variety of ways (e.g. arrest, conviction, re-incarceration), sometimes relating to the focus of the research. Hence, because of the many definitions of recidivism, it is difficult to determine whether prison programs are comparable in their effectiveness (Wade, 2007). In addition, the issue of recidivism is multifaceted and should be examined in accordance with various demographic and criminal characteristics of participants (see Kellam, 2009). Furthermore, program evaluations can affect policies that are aimed at giving inmates an opportunity for a purposeful future. Therefore, in addition to the issue of recidivism, programs must educate, train, and prepare inmates so they can successfully reintegrate into the community (Wade, 2007). Consequently, they should be followed by evaluation research that will examine all of these elements as well.

Disciplinary misconduct

Five studies examined disciplinary misconduct among PAPs participants. One study found a statistically significant improvement in the program group as compared to a control group, while four other studies found mixed findings among PAP participants concerning disciplinary misconduct.

Likewise, participation in PAP was associated with decreased institutional infractions in one study (Fournier et al., 2007). Statistically significant improvements in the frequency of institutional infractions were found for participants in the treatment group in comparison to the control group. It should be noted, however, that infractions were relatively infrequent, with PAP participants incurring zero to two infractions during the research period. Therefore, the more liberal p -value of .10 was accepted as statistically significant by the authors due to the small number of infractions being analyzed and the small number of participants. Moreover, the sample included only 24 male program participants (treatment group) and 24 males who were on

a waiting list for the program (control group). This study examined the “PenPals” program at a minimum security prison where inmates care for dogs from local shelters and train them for pet adoption. This was a quasi-experimental study with a pretest-posttest repeated-measures design via self-report and data-mining of institutional files methodologies. The researcher concluded that future replication with a larger sample could clarify the external validity of their findings.

Conversely, in another study, participation in the aforementioned WMP was not clearly associated with a reduction in the overall number of disciplinary reports, but the severity of reports swung away from major to minor (Cushing & Williams, 1995). In addition, disciplinary reports decreased by 55% for participants who also received substance abuse counseling. This finding is particularly relevant today because departments of corrections have become increasingly interested in getting inmates to participate in substance abuse treatment (Sherwin et al., 2006).

Another study of PAP in Lorton, Virginia found that only 12% of participants were discharged from the program due to rule violations (Moneymaker & Strimple, 1991). These included drug use, altercations with other inmates or staff, and/or abuse to the animals in the program. This study also revealed that 45% of participants reported in an anonymous questionnaire that they were actually involved with the distribution and use of drugs while in the program. However, the rest reported that they had either never used drugs or after entering the program chose to abstain from using them.

In a prior study of that same program at Lorton, Virginia, findings revealed a decreased frequency of disciplinary offenses among 20 program participants (Katcher, Beck, & Levine, 1989). However, there was no statistically significant change in the severity of the offenses. In the prior evaluation effort, criminal records were reviewed for two years prior to and the year

after the program ended, as well as comparing it to a control group.

Finally, another study (Furst, 2007a, 2007b) reported that only one participant was removed due to disciplinary misconduct at each of two facilities of the PAP during the four to five year period since the beginnings of programs. This finding was obtained from testimonials of prison administrators and the executive director of the affiliated non-profit organization. They also reported that participants are automatically removed from the program for receiving any minor or major-level infraction. It was not possible to gain access to participants' official disciplinary records in order to ground these reports.

This study examined participants in two dog programs. In the first, women socialize puppies for preparation for training in explosives detecting. In the second, men socialize former racing greyhounds. The sample included 15 women and seven men from the programs that participated in individual interviews, as well as 14 men who participated in a focus group (Furst, 2007a, 2007b). This study's finding indicates that there may be an issue of selective recruitment of program participants. It may also be that participants, knowing that any misconduct would result in expulsion from the program, were more careful about their behavior. This point could be tested by examining correlations between motivation for participation in the program and disciplinary misconduct.

Taken together, these findings suggest that PAPs are not clearly associated with a reduction in rates of disciplinary misconduct. This association is not well established. Studies should be replicated with larger sample sizes to further clarify the effects of PAPs on rates of disciplinary misconduct. A design of pre-post test as well as random sampling and comparison to a control group would help establish findings. More research should also investigate whether a combination of participation in PAPs as well as substance abuse treatment or maybe other

treatment can result in further decreases in disciplinary misconduct. Furthermore, similarly to the issue of recidivism, disciplinary misconduct should also be systematically collected, not relying on subjective reports of parties involved in programs, and followed by more comprehensive statistical analysis. This could enhance the rigor of such inquiries.

Emotional and psychological effects

Fourteen studies looked into a range of emotional and psychological effects of PAPs on participants. These studies concern psychological variables such as self-esteem and other psychological competences, clinical symptomatology and treatment issues, as well as aspects of emotion regulation. The majority of these studies demonstrate positive effects of PAPs on emotional and psychological competencies of participants. Some of them report on statistically significant associations. Only two of these studies report mixed findings.

Self-esteem is one of the most looked at variables concerning PAPs effects. Enhancement of self-esteem following PAP participation emerged as a qualitative theme in six inquiries (Currie, 2008; Cushing & Williams, 1995; Merriam-Arduini, 2000; Moneymaker & Strimple, 1991; Nef, 2004; W. G. Turner, 2007), and one quantitative examination (Walsh & Mertin, 1994). Statistically significant improvements in participants' self-esteem, based on standardized self-report measures, were found in an evaluation of a pilot program in a women's prison in Australia (Walsh & Mertin, 1994). This was a pre-post test design and the sample included eight women who participated in the program for six months. In this program the women trained companion dogs for elderly and physically challenged individuals. The researchers noted that their findings may have been somewhat contaminated, as some participants knew they were due for discharge at the time of post-assessment (Walsh & Mertin, 1994). Consequently, it is reasonable to assume that this may confound study findings. This point clarifies the importance

of controlling for these effects. This could be addressed by a design that includes a control group as well. However, these statistically significant findings are noteworthy considering the small sample size.

Conversely, two quantitative studies reported mixed findings concerning effects of PAPs on participants' self-esteem (Richardson-Taylor & Blanchette, 2001; Suthers-McCabe et al., 2004). No statistically significant differences of self-esteem were found in a comparison between 12 program participants and 11 non-participants, who served as a control group (Richardson-Taylor & Blanchette, 2001). Similar findings were reported also concerning variables of locus of control. This study was conducted in a canine program at Nova Institution for Women in Canada. The quantitative measurements in this study were administered only once as posttest (Richardson-Taylor & Blanchette, 2001). Hence, adding a pretest measurement and a larger sample size may have resulted in different findings. These are points to consider in the design of future studies. One more study reported no statistically significant findings of the measure of self-esteem among 16 participants in a service-dog training program (Suthers-McCabe et al., 2004). Similar findings were also reported for variables of empathy and personal control. This research was composed of pretest before the beginning of the program and posttest bimonthly thereafter during a one-year training period. The researchers noted that in addition to a small sample size, the lack of significant findings may be explained by a "ceiling effect", in that mean pretest scores on all measures were in the normal/healthy range, precluding further movement in the direction of improved psychological functioning (Suthers-McCabe et al., 2004).

A range of additional psychological improvements emerged as themes of PAPs effects on participants. These themes consist of self control (Cushing & Williams, 1995), sense of autonomy and responsibility (Cushing & Williams, 1995; Moneymaker & Strimple, 1991),

nurturing role (Cushing & Williams, 1995; Merriam-Arduini, 2000), self confidence (Merriam-Arduini, 2000), and pride of accomplishment (Currie, 2008; Merriam-Arduini, 2000).

Furthermore, the programs were perceived as humanizing the inmates (Currie, 2008; Merriam-Arduini, 2000), as they contribute to the development of empathy, honesty (Merriam-Arduini, 2000) and trust (Nef, 2004). Finally, PAPs were identified as increasing personal patience (Currie, 2008; W. G. Turner, 2007), fostering feelings of giving back to society (Currie, 2008), as well as contributing to participants' sense of achieving a better goal in life (Moneymaker & Strimple, 1991).

Some studies explored PAPs effects on clinical symptomatology and treatment issues. One qualitative inquiry concluded that participation in a prison cat adoption program resulted in improvements of emotional states that facilitate psychological treatment. For some inmates the cat provided the only reason to go on living while behind prison bars (Nef, 2004). Another aforementioned study discovered statistically significant progress of inmate treatment levels within the prison's therapeutic community for PAP participants. Compared with a control group, PAP participants exhibited better psychosocial functioning (Fournier et al., 2007). This is a substantial finding, as it suggests participation in this program beneficially impacts the treatment already in place at the prison.

Levels of participants' depression were also examined by PAPs studies. One study (aforementioned) found statistically significant improvements in participants' levels of depression, based on standardized self-report measures (Walsh & Mertin, 1994). Furthermore, a PAP group had lower scores of depression than the control group (a trend, not statistically significant) in another aforementioned study (Richardson-Taylor & Blanchette, 2001).

Additionally, psychiatric incarcerated patients with pets needed half as much medication,

and had no suicide attempts during a year-long comparison (Lee, 1987). The ward without pets had eight documented suicide attempts during the same year. Both wards had comparable patients and had equal levels of security. This data-mining of institutional records was conducted at the AAT program at Oakwood Forensic Center (formally, the Lima State Hospital for the Criminally Insane) in Lima, Ohio. Established in 1975, this was the first formal AAT program to use a maximum-security population in the U.S. and is one of the earliest PAPs studies.

Finally, three recent quantitative studies examined aspects of emotion regulation among inmate participants in dog-assisted group training in Vienna, Austria. Two of the studies were composed of a three group pre-post designed study with male criminal offenders who were substance abusers. Both used quantitative measures of emotion regulation, emotional self-control, and acceptance of emotions as well as other variables. Findings of the first study indicate that all participants were able to benefit from the different interventions (Burger et al., 2011). In addition, the PAP participants showed significantly more improvements than the other groups in the scales concerning emotion regulation, emotional self-control, and acceptance of emotions. Furthermore, the PAP participants were able to reduce their depressive and aggressive emotions significantly, as well as their imbalanced feelings. Here, one intervention group with 36 men participated in the PAP, the second group with 12 men attended a work-integration-training and the third group with 12 participants received the baseline treatment, which consisted of group therapy. The researchers concluded that the PAP proved to be effective in improving the participants' emotional competences and status. Compared to the two other interventions the PAP participants benefited the most (Burger et al., 2011).

Findings of the second study reveal that statistically significant improvements were observed in the intervention group in comparison to two other control groups (Stetina,

Gegenhuber, et al., 2009; Stetina, Kuchta, et al., 2009), including improvements in acceptance of their own emotions, emotion regulation, and emotional self-control. Furthermore, the intervention group experienced less emotion flooding and lesser feelings of lack of emotions. They also were significantly less emotionally exhausted and less aggressive. In addition, they felt more optimistic and secure. Significant improvements were also found regarding social competences (e.g. problem solving). Here, one intervention group with 28 men participated in the PAP, the second one with nine men took part in a work-related rehabilitation program and the second control group of nine men received no extra training. The researchers concluded that dog-assisted training had a positive influence on the development of healthy emotion regulation (Stetina, Gegenhuber, et al., 2009). The above two studies are remarkable considering their extensive design of a three group comparison as well as their findings and could serve as a model for future studies.

Lastly, statistically significant improvements with regard to empathy and emotion regulation were found among participants of the intervention (K. Turner et al., 2011). Improvements of perceived regulation of emotions and facial expression were also found (trend, which shows that the data provides support to the hypothesis, yet, it is weak and not statistically significant). This study was composed of a pre-post design using quantitative instruments and video recordings that were coded and statistically analyzed. The sample included ten mentally disordered prisoners who participated in a 12 week intervention. The researchers concluded that participants learned to deal with their emotions more effectively due to the intervention (K. Turner et al., 2011).

The emotional effects of PAPs on participants drew the attention of researchers, especially with regard to self esteem. Notable is the wide range of themes that emerged from the

qualitative inquiries. They highlight the richness of how PAPs might affect the psychological well-being of participants. In addition, PAPs effects on more clinical symptomatology and treatment issues as well as aspects of emotion regulation appear to be powerful, especially studies composed of a three-group pre-post design. Future studies could enhance knowledge by using designs that control possible contaminating effects, such as the impact of approaching release on participants' emotional states. Furthermore, current studies do not explore the emotional mechanism that underlies participants' psychological change. For example, what is the nature of the human-animal relationship that develops in a prison context, and how does it contribute to the emotional states of participants? The accumulating knowledge could be further advanced by such inquiries.

Socio-behavioral effects

Twelve studies looked into socio-behavioral effects of PAPs on participants. The majority of these studies reported on the ways in which PAPs improve social skills and help participants with their future reintegration into society. These studies explore interpersonal and intrapersonal social effects as well as broader social outcomes that bridge between inmates and the community.

A few studies suggest that PAPs enhance participants' intrapersonal social competencies. One quasi-experimental study reported on statistically significant improvements in one specific area of social skills and social sensitivity, which improved for the treatment group from pretest to posttest while the control group scores decreased on this variable (Fournier et al., 2007). This finding suggests participants may have improved in this skill as a result of working in the PAP. The broader implication is that PAPs may have socially rehabilitative effects for prison inmates and may serve as a buffer to prevent a decline of social skills. Perhaps inmates who do not

participate in such programs are prone to deterioration in their social skills caused by influences of imprisonment (Fournier et al., 2007). Consequently, this emphasizes the importance of having a control group in future studies.

Statistically significant improvements were also found regarding social competences in the area of problem solving (Stetina, Gegenhuber, et al., 2009) and communicational abilities (K. Turner et al., 2011). Moreover, statistically significant reductions in feelings of isolation among PAP participants were revealed in another study (Moneymaker & Strimple, 1991). Similarly, a PAP group scored significantly lower on a loneliness scale than did a control group (Richardson-Taylor & Blanchette, 2001). PAP provided a means of coping with loneliness. Participants interacted with and bonded to living beings that could be trusted and were non-judgmental. As well, taking care of an animal was an accepted way of showing and giving affection in prison (Nef, 2004). In addition, participants who completed a PAP reported improvement in social growth (Merriam-Arduini, 2000). Some emerging themes include considerable change in participants' outlook toward others (Moneymaker & Strimple, 1991), increase of patience and an opportunity to develop parenting skills, as perceived by participants (W. G. Turner, 2007). PAP served as a necessary diversion from standard prison life and a provision of companionship (Lee, 1987). It also drastically reduced incidents of violence (Lee, 1987).

Other studies indicate that PAPs have interpersonal social effects on the prison environment. A few qualitative inquiries suggest that PAPs improved social interactions among participants as well as with correctional staff (Suthers-McCabe et al., 2004). Some propose that PAPs may have a positive impact on the prison environment (Britton & Button, 2005; Currie, 2008; Nef, 2004) as they create a comfortable atmosphere (Lee, 1987) and a calming and normalizing effect within the correctional facility (W. G. Turner, 2007). Furthermore, PAPs can

promote social support, providing opportunities to help others (Currie, 2008; W. G. Turner, 2007) and may have a generally affirmative effect on behavior and attitudes (Britton & Button, 2005; Currie, 2008) in the areas of respect for authority, social interaction and positive leadership (Merriam-Arduini, 2000).

Conversely, one quantitative study found no statistically significant differences of correctional environment status, as assessed by a questionnaire about inmates' perceptions of their correctional environment (Richardson-Taylor & Blanchette, 2001). This disparity points out that the effects of PAPs on the prison environment should be further investigated by studies of various methods to provide a comprehensive inquiry of this issue.

Lastly, PAPs may contribute to broader social processes, bridging between inmates and the community. PAPs can provide participants with an opportunity to give back to the community (Britton & Button, 2005). As well, the program may have a positive impact on the community's perception of PAP participants (Richardson-Taylor & Blanchette, 2001).

The above findings highlight promising effects of PAPs on socio-behavioral variables concerning participants, prison environment and the community. The majority of findings emerged from qualitative inquiry, which is exploratory, as adequate for research of phenomenon with limited prior knowledge. Applying various methods in future studies could enrich our knowledge of this phenomenon. Notably, these studies were conducted in programs that were facilitated by small household pet animals (e.g. dogs or cats). It is necessary to examine the socio-behavioral effects of PAPs that involve other animals to complement existing knowledge.

Other possible outcomes of PAPs

Other PAP studies, which do not fit into the above categories, provide additional information that advances knowledge of theory as well as practice. One study looked into the

physiological impact of pet ownership on inmates (Katcher et al., 1989). No statistically significant differences of blood pressure measurements were found between PAP participants and a control group in a pre-posttest design. Participant blood pressure was recorded in the presence and absence of the pet (Katcher et al., 1989). Examination of blood pressure with other populations (not inmates) exposed to animals reveals contrary findings (Katcher, Friedmann, Beck, & Lynch, 1983). Moreover, findings indicate that increased social support through pet ownership lowers blood pressure response to mental stress (Allen, Shykoff, & Izzo, 2001). PAPs participants usually spend time with animals on a daily basis and being incarcerated could generate mental stress. Therefore, it would be beneficial to further examine whether or not PAPs reduces participants' blood pressure and/or improves other physiological measures, and if not, why not.

Another study employed a theoretical framework to guide exploration toward an initiation of a unique theory for PAPs (Furst, 2007a, 2007b). Conversely, most other studies only draw theoretical implications from their findings at this point of knowledge development. Applying the theory of Symbolic Interaction to PAPs revealed that inmates engaged in a similar process of assigning the dogs with which they work a human-like identity that in turn impacts their own human self-identity (Furst, 2007a, 2007b). These findings emerged despite the relatively limited length of time and more communal nature of the relationships formed in PAPs due to team work with dogs. In addition, as aligned with the theory of criminal desistance (which concerns the process of abstinence from criminal activity and identity), the interview data also revealed support for the theoretical construct that desisters are often "wounded healers". The researcher concluded that PAP participation may be able to provide a foundation for successful criminal desistance (Furst, 2007a, 2007b). This study offers a unique contribution to the

knowledge base because it pertains to a building of theoretical constructs that can guide the field. Therefore, this study could serve as a model study for further development of theoretical underpinnings for PAPs.

A few other studies report on findings that concern formative evaluations for program planning and development. One study explored participants' motivations and challenges in the program (Britton & Button, 2005). Participants reported that their main motivations for entering the program were their love of dogs, having the freedom of movement in the institution, and the opportunity to give back to community via the PAP. The challenges participants faced in their work concern a hyper-surveillance they felt as result of participation, conflict with other inmates with regard to dog handling, and the emotional burden of having to give up the dogs to adopter-recipients (Britton & Button, 2005). Another study reported on the rate of program attrition (Suthers-McCabe et al., 2004). The drop-out rate of inmates in the examined PAPs was high, with only 23% completing a full year in the program. A systematic study of dropouts from the program and their reasons as well as an examination of participants who completed PAPs successfully could help determine a profile of indication and contraindications for prospective participants. This would provide a more accurate depiction of the strengths and limitations of PAPs. Interestingly, though many of the PAPs have features of vocational programs, only a few studies looked at vocational effects on participants. A study of an equine-facilitated prison-based intervention revealed, through interviews, that the program was providing participants with meaningful and productive work (Cushing & Williams, 1995). Another study found that 95% of PAP participants chose not to participate in the facility's work-release program (Moneymaker & Strimple, 1991). The authors suggest inmates did not want to leave their animals to work a menial job. They preferred to attend classes to become certified as a laboratory animal technician

rather than participating in a work release program. This could be viewed as a possible unintended negative outcome of the program in the short-run. However, the authors reported that participants felt that their time would be better spent learning how to become a skilled technician so that upon release they would be more employable and better able to secure a practical and rewarding vocation (Moneymaker & Strimple, 1991).

In addition, PAPs teach participants the basic skills necessary for obtaining and keeping a job, including responsibility, dedication, and respect (Furst, 2006), as suggested by some research earlier in this review. An additional vocational aspect of PAPs stems from the training participants receive in a variety of animal-related tasks. Some programs even offer certifications that can lead to job opportunities (Lai, 1998; Strimple, 2003). Further examination, however, needs to evaluate whether or not PAPs enhances employability of participants and the ways in which this could be achieved. It should be noted that the literature lacks specific information regarding the number of released participants employed in the field after participating in a PAP (Furst, 2006).

The above findings concern program monitoring and process evaluations, which are extremely important for planning and funding entities. Such inquiries should be routine if program planning and program development are truly taking place (Smith, 2010, p. 35). In addition, these studies demonstrate a wide range of possibilities for future research of PAPs. Developing a broad knowledge base requires research of theory, routine conclusive evaluations for program planning and development and examination of other potential PAPs effects (e.g. vocational and physiological). This is fundamental in order to bridge the gap between knowledge and practice of these interventions.

Assessment of the literature and conclusions

The literature review reveals that studies of PAPs center on recidivism, disciplinary misconduct, emotional and psychological effects, socio-behavioral effects and other aspects of theory and formative evaluation. Except for a few studies, the majority reveal findings that support PAPs improvement of participants' well-being, which may also contribute to a positive reintegration into society. Some studies suggest that PAPs' effects are beyond the individual, pertaining to the institutional environment and the community. Research of equine-facilitated prison-based programs could draw its design implementing knowledge from these studies, given that these studies used good designs for estimating causal impacts. Since these programs are underexplored it appears that the required study should aim to explore and measure a wide range of features of this intervention. At this initial stage of knowledge development, the review illustrates that PAPs studies employ both exploratory as well as confirmatory methodologies. It highlights the need for a multi-methods methodology, which may make it possible to capture the full extent and the depth of this phenomenon. In absence of knowledge, exploratory inquiries are required as well as verification designs. Furthermore, it is not necessary to create a binary division between outcome and process (Humphries, 2008b). Social work and social care programs, like PAPs, form complex packages that develop in interaction with their context, and it is appropriate that evaluations are widened to take this into account. Outcome and process are intertwined. Outcome study refers to effectiveness, which is a cause-effect model while process study looks at the dynamic interaction among participants and the effect this has on the direction of the program. Combining these types of studies has a reciprocal progression since they inform each other. For example, studying process can expose effects and vice-versa (Humphries, 2008b). Therefore, an examination of the effects and processes of equine-facilitated prison-based

programs (e.g. study of human-horse relations) is required. Consequently, research of equine-facilitated prison-based interventions should look into effects: *What are the outcomes?* These are questions of ‘what’ and ‘how many’. As well, there should be an exploration of the mechanisms that create these effects: *How do the outcomes happen?* These are questions of ‘how’ and ‘why’. A study that synthesizes these features can and may also lead to a unique theory (a model of causation) for this intervention.

As to the general field of PAPs, there is a critical need for further empirical investigation of these programs as well as long-term follow-up with the inmates who participate in them. Researchers and practitioners need to assess the quality of PAPs according to what the field recognizes as the principles of effective treatment programs (Furst, 2006). Further examinations should compare various PAPs models and look at the differences between PAPs that are facilitated with different animals. Other issues that should be further examined are unique characteristics of PAPs for various populations of men, women and juvenile delinquents (see Jaspersen, 2010; Painz, 2010). In addition to the aforementioned critical analysis concerning each specific study, statistical analyses of PAPs studies should be more comprehensive to determine effect size of statistically significant findings. This matter calls also for a replication of studies and for the examination of whether findings reoccur in studies with larger samples as well. Other fundamental issues are that some studies did not include a control group or were measured only as a posttest. Such designs do not allow for determination of whether or not the intervention is the cause of the findings.

Additionally, some studies suggest positive effects of PAPs, yet, it is very hard to estimate causal effects in the social sciences even when randomized experiment are used (which is thought to be the best design for obtaining such estimates). The reviewed studies were not

randomized experiments and they did not use other methods statisticians/social scientists have come up with to estimate causal impacts. Consequently, their claims of having found impacts of PAP should be addressed with caution.

Furthermore, while a true experimental design is usually recommended for obtaining firm knowledge, it is unlikely prison administrators would allow inmates to be randomly assigned to PAPs (Fournier et al., 2007). A random assignment of inmates to PAPs could also be unethical, because it would not necessarily rely on individuals' needs or characteristics. Therefore, the group-randomized-trial (see Murray, 1998) in which whole groups are randomly assigned to treatment or control conditions, could be indicated as a research design to address this issue. Such a design would involve random assignment among correctional facilities utilizing similar PAPs. Findings from such a design involving several different correctional populations and settings would increase the possibility for generalizability (Fournier et al., 2007). In such a case, the facilities used should be similar to the ones the researcher intends to generalize to, in order to assure the external validity of the study. Additional methods that include investigator-designed randomized experiment and others that do not require randomization might also be applicable (see Murnane & Willett, 2011).

One more question that arises from the review is the small number of studies reporting a pattern of positive and in some cases statistically significant positive findings despite relatively small sample sizes. Alternatively, the very few studies that reported either weak or no effects of PAPs on participants raises a red flag that there may be more of these studies that have not been published ('hidden drawer syndrome' or 'publication bias').

It is difficult to increase general support and expand innovative ideas without an extensive evaluation of measurable data. More research-based evidence of PAPs characteristics

and effectiveness would certainly add validity to this field (Deaton, 2005). This evidence can be used by current programs to justify their continuation, to seek additional funding, and to expand the scope of programming (W. G. Turner, 2007).

Guiding theories

Additional research is needed to explore the theoretical underpinnings and implications of PAPs (Furst, 2006). Since current knowledge of equine-facilitated prison-based programs is absent, these interventions lack a unique theoretical foundation that could guide them. Studies of these interventions may rely on conceptual frameworks and theories that are driven by associated fields of knowledge. For example, one study applied symbolic interaction theory (Furst, 2007b) to explore the development of social identity of participants in a dog-facilitated PAP. Only a few studies propose a theoretical basis for equine-assisted activities/therapies (EAA/T) or explore the unique features that underlie these interventions (Esbjorn, 2006; Frame, 2006). These studies suggest that the human-horse interaction has a fundamental role in EAA/T because of certain features such as, relational aspects, metaphor and feedback. For example, in one of the studies (Frame, 2006) respondents perceived that interactions and exercises with the horses provided feedback mechanism, in addition to object representations of past and current relationships through which therapeutic change could take place.

Following previous research, two theories were chosen to inform this inquiry including attachment theory (Ainsworth, 1991) and the theory of desistance (Maruna, Lebel, Mitchell, & Naples, 2004). Attachment theory, which concerns intrapersonal and interpersonal processes, may provide an understanding of relational aspects that evolve during PAPs. Studies have shown that relationships with companion animals can physically and psychologically benefit their owners (Crawford, Worsham, & Sweinehart, 2006), and many people relate to their pets as close

family members (Phillips Cohen, 2002). This ability of humans to bond so closely with animals is a foundation of animal-assisted activities/therapies (AAA/T). Attachment theory may offer insights into the formation of strong relationships that can also be applied to the HAB (Bachi, 2013; Phillips Cohen, 2007; Zilcha-Mano, Mikulincer, & Shaver, 2011a, b). Some studies used attachment theory to explore the unique role animals play in the lives of humans. One researcher compared human attachment to dogs with human attachment to other humans (Kurdek, 2008) and found that dogs exhibited the feature of proximity maintenance equally as well as fathers and siblings. Following these findings, the model of features of an attachment figure identified by Ainsworth (1991) was chosen as a theoretical framework to lead exploration of intermediate emotional variables. This model is composed of four central features concerning attachment figures. The first, *Secure Base* (SB), indicates that the attachment figure is regarded as a dependable source of comfort who mitigates any vulnerability associated with exploring the world. The second, *Safe Haven* (SH), indicates that the attachment figure is sought for contact, assurance, or safety in times of distress. The third, *Proximity Maintenance* (PM), indicates that having the attachment figure physically near and accessible is enjoyable. And the fourth, *Separation Distress* (SD), indicates that being away from the attachment figure results in negative effects such as, missing or longing for the attachment figure. Using this model may enhance our understanding of human-horse relations. It may also shed light on whether human-horse relations within the prison context may compensate emotionally for a prisoner's separation from his/her loved ones. Therefore, this theory will be applied through this study, as a framework for the construction of some of the measurements as well as understanding of the findings. It could provide insight concerning underlying emotional processes of change in participant's state.

In addition, criminological theories of offender rehabilitation could complement the

understanding of prisoners' process of cognitive, emotional and behavioral change within prison context. The theory of desistance accounts for the ability of long-term offenders to abstain from criminal behavior (Maruna, Lebel, Mitchell, & Naples, 2004). Primary desistance concerns the most basic and literal level of desistance and refers to any lull or crime-free gap in the course of a criminal career. Because every deviant experiences a countless number of such pauses in the course of a criminal career, primary desistance would not be a matter of much theoretical interest. The focus of desistance research, instead, would be on secondary desistance which is the movement from the behavior of non-offending to the assumption of the role or identity of a "changed person". In secondary desistance, crime not only stops, but "existing roles become disrupted" and a "reorganization based upon a new role or roles will occur" (Maruna et al., 2004, p. 274). Furthermore, long-term desistance does involve identifiable and measurable changes at the level of personal identity or the "me" of the individual, which are reformed through a process of "pro-social labeling" (Maruna et al., 2004). This theory was applied to the study of dog-facilitated PAPs, since desistance, as examined through the perspective of labeling theory, may have particular salience when considering the implications of PAPs (Furst, 2007a). For example, PAPs provide participants with opportunities for being "re-labeled" since they are given the responsibility to care for other living beings – animals. Such a rewarding positive experience is rare in the criminal justice world. In fact, many PAPs increase participants' responsibilities as they progress in the program. This can be regarded as positive societal reaction needed for secondary desistance (Furst, 2007a). The researcher concluded that while training, socializing, and caring for the animals, PAP participants may develop the cognitions, skills, and behaviors associated with successful criminal desistance (Furst, 2007a, p. 43). Furthermore, the theory suggests that desisters may adopt a role as a "wounded healer", when

experiencing transformation of identity from ‘victim to survivor to helper’ (Maruna et al., 2004, p. 142). Altruistic activities and the theme of the “wounded healer” were also apparent among this study’s participants (Furst, 2007a). Research should further examine whether the theme of the “wounded healer” is more apparent in participants from a community-service model of programs where prisoners work with homeless animals that have often been abused or neglected. It may be that these individuals are able to more closely identify with the experiences of these animals (Furst, 2007a, p. 44). The theory of desistance will be applied through this inquiry to discuss and understand findings of change or lack of, in participants’ criminal behavior. It could provide an overarching framework to examine findings from the various methodologies in light of role transformation and the degree of abstinence from criminal behavior.

Relevance of research problem to social work and associated fields

Operating from the social work profession’s ecological perspective, which requires one to look at people in social and natural environments, social work must join other disciplines in incorporating the human-animal bond into its work (Risley-Curtiss, 2008). The interrelatedness between humans and animals has three forms that are essential for social workers to recognize and incorporate into research, education and practice: companion animals as pets are usually considered to be members of the family and hence part of family systems; animal cruelty is a strongly deviant behavior indicating need for mental health services as well as possibly being a marker for violence against humans (see Ascione & Shapiro, 2009); and the positive impact of animals, as adjuncts to therapy and other interventions, on the emotional and behavioral state of various populations (Risley-Curtiss, 2008). The current inquiry concerns human-horse relations and how they can impact the quality of life of prison inmates in prison and their future reintegration into society. This inclusion of human-animal relations in social work research

adheres to the grounding of social work in an ecological-systems perspectives that views humans within the context of their environments and as constantly in reciprocal interaction with significant others (e.g. other animals). Such an inclusion could be viewed as a natural extension of working with humans and their challenges, coping mechanisms, and resiliency factors. Consequently, social work research that considers human-animal relations provides an opportunity to maximize the ability to help clients (Risley-Curtiss, 2008).

Additionally, social work in corrections concerns prompting equality of access and resources, doing casework and advocating for the rights of those who are imprisoned (Baldry & Sotiri, 2009). Social justice and its application as a key social work value, have a particular resonance in the institutions of the criminal justice system (Baldry & Sotiri, 2009). For example, various approaches to social work are proposed as highly relevant for rehabilitating offenders since they emphasize the value of social justice as a framework for the exploration of social work and imprisonment. Some of these frameworks are critical social work (Baldry & Sotiri, 2009), the strength perspective (Van Wormer & Boes, 1998), and the framework of restorative justice (Gumz, 2004). Consequently, social work can invigorate its presence in corrections by affirming its traditional commitment to social justice, one of the primary tenets of the profession (Gumz, 2004).

Prison-based animal programs have important implications for the contentious social justice issue of whether inmates can or should benefit from rehabilitation programs. Current research has important implications for rehabilitation of inmates in a specific PAP, but also has the potential to fuel discussions on broader issues of criminal justice, such as retributive versus rehabilitative approaches to corrections. Therefore, the present study can be viewed as part of the efforts to restore and enhance the commitment of social work to its fundamental value of social

justice.

The purpose of this study is to examine an equine-facilitated prison-based program in a broad manner and provide practical knowledge that could be used to develop and refine it. The practical implications of this study regard the examination of whether this program enhances participants' emotional, behavioral and social competencies, and how it can be modified for improvement. This program's primary goal is to teach participants vocational skills that prepare them to work in the equine industry. However, considering the secondary goals of the program (Thoroughbred Retirement Foundation, 2010) this study will look at how the program prepares participants for employment in a range of vocations including but not limited to the equine industry and may contribute to their ability to successfully reintegrate into the community. This study intends to expose the gains and losses which may result from the human-horse relations component of this program (e.g. developing patience and responsibility; communication skills rather than violence). Furthermore, this study aims to explore how this program impacts participants' daily lives while they are incarcerated. Therefore, the study will question if and how these behavioral and emotional changes enable participants to better cope with life in prison, an environment in which they are faced with unique emotional challenges. For example, an exploration of attachment to horses as compared to attachment to humans may show whether or not attachment to horses plays an emotional role that perhaps helps inmates to better cope with being separated from loved ones.

Developing knowledge of equine-facilitated prison-based programs, as part of the broader field of animal assisted interventions as well as those specifically with equines, can generate guidelines for utilization of these interventions and help develop clearer expectations and protocols. Such research can also help these fields to further gain respectability in the mental

health arena (Fine & Mio, 2010). Finally, evaluation research is carried out to promote accountability, to examine effectiveness, to identify gaps and to develop knowledge (Humphries, 2008b). Ultimately, an evaluative study of equine-facilitated prison-based programs can provide the foundation of knowledge to guide this intervention.

Study purpose

Equine-facilitated prison-based interventions are proliferating, though limited knowledge actually exists to guide them. Therefore, this study aims to address part of the gap between practice and knowledge of a particular prison inmate-animal interaction program, which is facilitated with equines and is implemented in correctional facilities in eight states. The central research questions of this study are:

1. *What are the behavioral and emotional effects of this program on participants?*
2. *What are the processes that develop between humans and horses within a prison context, and how do they benefit human participants?*

To address these questions a methodological triangulation (see Denzin, 1978), applying and combining several research methodologies in the study of the same phenomenon, was chosen. By combining multiple observers, theories, methods, and empirical materials, the researcher hopes to overcome the weakness or intrinsic biases and the problems that come from single method, single-observer and single-theory studies.

Hence, this study explores the subjective experiences of program participants as well as examines the program's effects by objective measures of behavioral variables of recidivism and disciplinary misconduct. Another layer of this inquiry concerns an exploration of emotional variables of attachment and closeness to horses as compared to attachment to humans. Consequently, an integrative analysis of methodologies and findings may provide a wide and rich illustration of effects and processes that evolve during this intervention. Furthermore, this could perhaps contribute to the building of a model of effects and changes that participants undergo through this intervention.

Specifically, this is a study of TRF's Second Chances program, which provides

vocational training in the area of horse care and maintenance. Notably, however, TRF's Second Chances program has never been examined or evaluated by any research study. Therefore, the purpose of this study is to examine the TRF's Second Chances program in a broad manner and provide practical knowledge that can be used to develop and refine it. This program's primary goal is to teach participants vocational skills that prepare them to work in the equine industry. Implementing knowledge from research of other PAPs and considering the secondary goals of the program (Thoroughbred Retirement Foundation, 2010), this study looks at whether and how the program prepares participants for employment in a range of vocations (including but not limited to the equine industry) and may contribute to their ability to successfully reintegrate into the community. Additionally, this study intends to expose emotional and behavioral transitions experienced during the human-horse relations component of this program. Anecdotal reports and prior research show that human-animal interactions lead to positive emotional and behavioral changes (see Fine, 2010; Katcher & Beck, 2006; Levinson & Mallon, 1997). This study explores the transformations that participants experience through the program emotionally, behaviorally and socially. It aims to reveal whether and how the program is benefiting participants and what needs to be modified so that it can provide even more value. Furthermore, this study aims to explore how this program impacts participants' day-to-day lives while they are incarcerated. Finally, the study explores if and how these behavioral and emotional changes enable participants to better cope with life in prison, an environment in which they are faced with unique emotional challenges.

This program was introduced in 1984 in New York and at this writing has been replicated in correctional facilities in ten states. In 1999, the DOC and TRF opened a farm at the Blackburn Correctional Complex in Lexington, Kentucky and today it is among TRF's largest farms, which

serves as the site for this study. This program has a wide reach and it is suggested that it could benefit from a close independent examination. Therefore, this study aims to provide evidence and an academic foundation of research about it.

An additional purpose of this study is knowledge development concerning correctional vocational programs. In addition to findings of PAPs associations with reduced recidivism, a review of empirical literature reveals that the majority of studies found an association between vocational education and reduced recidivism (Jensen & Reed, 2006). However, there is a need to conduct program evaluations that will address the outcomes of vocational education in a more inclusive and holistic manner (Bazos & Hausman, 2004; Bouffard et al., 2000; Jensen & Reed, 2006; Lichtenberger & Ogle, 2008; Wade, 2007). Further research into the outcomes of such programs using correct statistical analyses is warranted. Moreover, different analytical methods should be used to examine the learning gains of former and current inmates associated with PAPs (Wade, 2007). Accordingly, this is designed as a mixed-methods study which aims to encompass a wide and rich description of this program's outcome and participants' gains. Furthermore, one way to improve studies of correctional vocational programs is by examining intermediate variables (Young & Mattucci, 2006), such as concerning participants' emotional state. Future studies could pursue the approach recommended by Wilson and colleagues (2000), derived from theory, where intermediate variables between program participation (cause) and recidivism (effect) are examined as explanatory links in the causal chain. If empirical support for the links exists, then even in the absence of true experimental designs, the case for causation is strengthened. Hence, this study is comprised of intermediate psycho-social and behavioral variables. Consequently, this study makes a significant contribution to knowledge development of equine-facilitated prison-based interventions.

Methodology

This section describes the study design and rationale, hypotheses for quantitative methods of study, population and sampling, ethical considerations and human subject protection, data collection methods, procedures for ensuring validity and reliability, and strategies for data analyses.

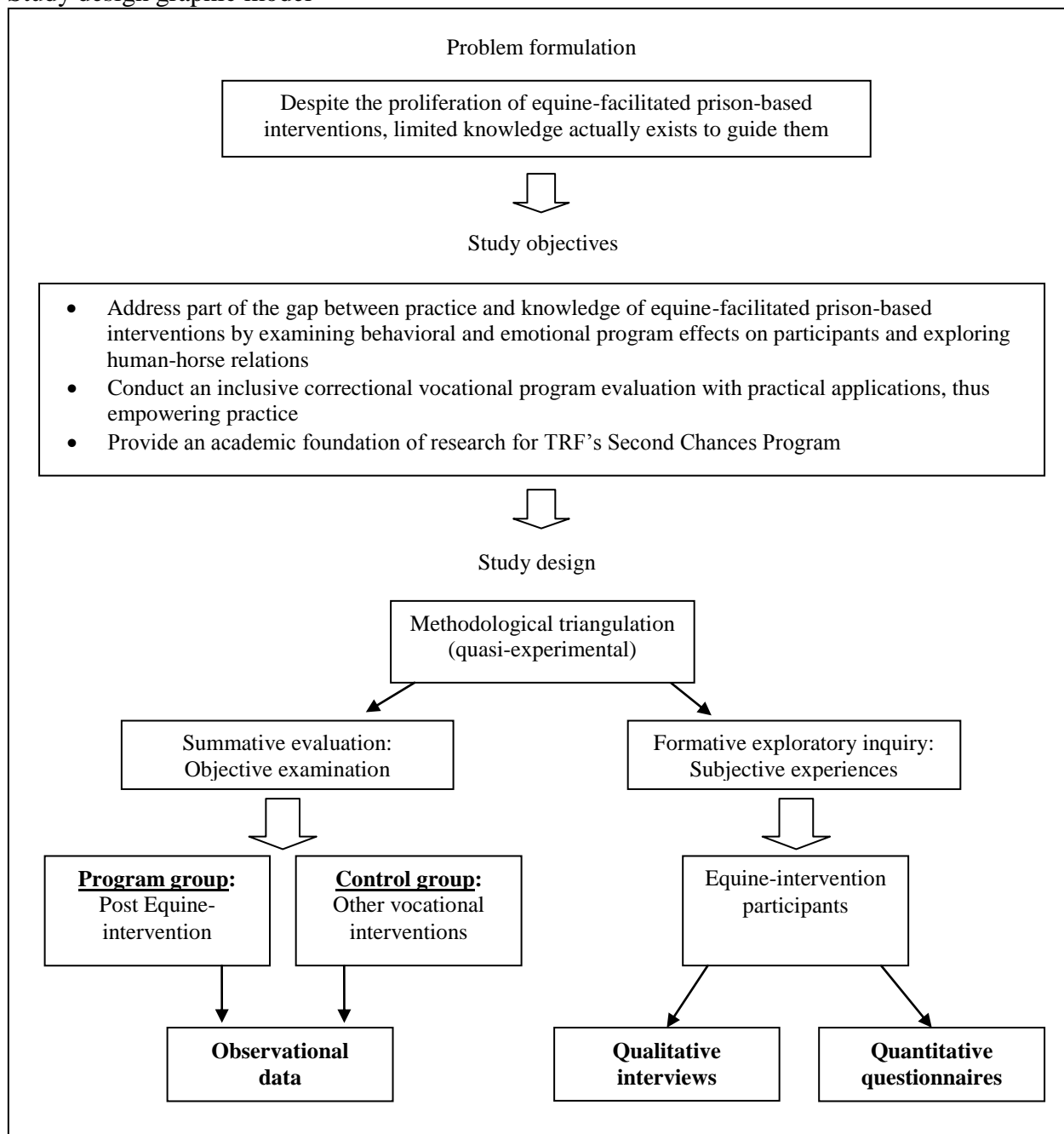
Study design and rationale

This inquiry is based upon methodological triangulation, which involves three methods to gather data, as illustrated in Figure 1. **The first stage** of the study is a formative exploratory study about the change that participants experience and about how the program impacts participants. This stage consists of exploring participants' perceptions of program features, such as human-horse relations and its contribution to participants. As well, it examines participants' experiences via self-administered quantitative questionnaires and qualitative interviews conducted during the program. **The second stage** is a summative evaluation study based on comparison of program and control groups. This stage relies on data that is routinely collected, by the state DOC and the correctional facility. This stage is composed of CDM methodology analyzing and correlating demographics and behavioral variables of recidivism and disciplinary misconduct. The design includes comparison between program (with data of prior and post intervention) and a matched randomly-assigned control group. While it is not a randomized controlled trial, the study makes use of experimental logic in creating a randomly assigned *counterfactual*, composed of inmates who have not participated in this program but have participated in other correctional vocational programs and have similar characteristics concerning DOC's classification level.

As indicated earlier, the phenomenon of equine-facilitated prison-based programs is empirically underexplored. Therefore, the rationale for this study design is informed by the value of mixing methods, which will potentially offer the depth of qualitative understanding with the reach of quantitative techniques (see Creswell, 2009). One approach looks at it as an intellectual and practical synthesis based on qualitative and quantitative research; it is the third methodological or research paradigm (along with qualitative and quantitative research) (Johnson, Onwuegbuzie, & Turner, 2007). It recognizes the importance of traditional quantitative and qualitative research but also offers a powerful third paradigm choice often providing the most informative, complete, balanced, and useful research results (Johnson et al., 2007).

The point of mixing methods is to see the analytic implications of linking data derived from different methods. This combination should stem from creative innovation and a conceptual framework rather than from a pragmatic approach (Fielding, 2012). The sum and synthesis of various methods and findings could provide a comprehensive depiction of the intervention, while each methodology plays a unique role in this inquiry.

Figure 1
Study design graphic model



The purpose of the qualitative inquiry in this study is to render the subjective and lived experiences of participants. It aims to look for the meaning and perspectives of participants' experiences with horses, within a prison context. It concerns experiences, emotions, reactions, behaviors, fantasies, irrationalities, non-verbal communication and the interpretation of it.

Naturalistic frame of inquiry fits it best since it brings the study of human beings as human beings to center stage (Bogdan & Biklen, 1983). Furthermore, it represents a fundamental rejection of the quantifying of all aspects of human belief and experiences. The transactional relationship between researcher and respondents is essential to access this subjective, complex and dynamic data, which is central to this part of the study's purpose. Flexibility in design and method, inductive driven inquiry and the development of necessary transactional relationships are essential in order to access complex, rich anecdotal data. This requires some degree of closeness and trust between researcher and respondent. By establishing trust and a good rapport, the researcher is better able to capture the nuance and the meaning of the phenomenon from each participant's unique point of view. This would enable respondents to "open up", allowing for observations and the sharing of deep and meaningful experiences, thoughts and emotions. For example, the question, "*how is the isolation and alienation of prison, affected by the alter experience of caring for a horse?*" could elicit complex emotions that arise when being incarcerated. Therefore, use of quantitative questionnaires or a "disinterested" researcher with a formal and distant approach to respondents would not be able to access the data for this inquiry. Rather, personal contact, proximity and trust between researcher and respondents would create an open atmosphere that is necessary for this data collection. Furthermore, being incarcerated adds a layer of complexity to a respondent's position. Parts of the experience with the horses may relate to sensitive issues, such as past relational histories, being separated from their loved ones, and present relational experiences within prison. These issues can be reflected in the exchange between the respondents and the horses in various ways. For example, the experience of taking care of another being (the horse) may be associated with past experiences of parental care which may have been lacking or traumatic. Or, the dimensions of power and control, as

experienced in the exchange with the horse, may relate to issues of power and control that respondents experience as being part of a criminal culture. Proximity and rapport are necessary in order to enter the worldview of the respondents and explore these sensitive issues, which are specific to prison life, power and gaining the trust of prisoners.

The quantitative questionnaires regarding attachment and closeness to horses are approached as emotional variables concerning the methodological integration of this study. They are expected to provide information that may offer insights into some of the underlying processes for change that may occur during the intervention. The primary objective of using this methodology is to examine human-horse relations guided by attachment theory, as previously employed in a study examining attachment to dogs (Kurdek, 2008). This study of attachment to dogs demonstrated that it is possible to evaluate the well established construct of attachment as identified by Ainsworth (1991) by a relatively straightforward measure. Based on anecdotal reports and literature (see Dalke, 2008; Hallberg, 2008; Kurdek, 2008; Phillips Cohen, 2002, 2007), it is assumed that the relationships between program participants and the horses will result in experiences of attachment. These experiences of attachment may then be utilized in synthesis between findings from other methodologies as intervening emotional variables to explain a causation relation to behavioral change, such as reduced recidivism or improvement of disciplinary variables.

Finally, clinical data-mining (CDM) (Epstein, 2010) may be the most pragmatic way to determine this program's impact on recidivism and disciplinary misconduct. This methodological choice follows the conclusion from the literature review of PAPs research that data of recidivism and disciplinary misconduct should be collected from objective sources that are not affiliated with the program studied. The DOC requires extensive, systematic and

standardized documentation of prisoners' actions and characteristics as part of the organizational routine, not necessarily generated for research purposes. These data are used for this part of the study, which consequently enhances the methodological rigor of this examination. Furthermore, CDM is most suitable to retrieve large amounts of quantitative data and is relatively inexpensive to conduct since it uses available data and offers the possibility of an efficient sampling of a large numbers of cases (Epstein, 2010). In this instance, the examination concerns program participants since the inception of a systematic computerized database created by the DOC. In addition, a matched-randomly assigned control group was allocated for comparison. This group has equivalent characteristics to the program participants group who participate in other correctional vocational programs.

This combination of methods and data is intended to illuminate the responses to the research questions better than mono methods, which would not be able to capture the richness and complexity of the questioned phenomena. Furthermore, mono methods would not provide the opportunity to integrate between different points of views and contradictions in findings. In addition, mixing methods systematically is very important to data integration. It can reveal weaknesses in sampling strategies, methods, and analysis and prompt the researcher to make explicit assumptions and be precise about limits of generalization. Hence, mixing methods places findings from different methods into dialogue (Fielding, 2012). This does not happen in mono methods studies.

In conclusion, mixing methods offers benefits for sophisticated analytic conceptualization, which could provide the best platform to address this study's purpose.

Variables, purpose, and hypotheses for quantitative methods

This study is comprised of exploration as well as verification inquiries. The first stage of this study concerns participants' perceived gains from human-horse relations via qualitative interviews and quantitative questionnaires. The second stage of this study involves testing hypotheses concerning program participation and recidivism and disciplinary misconduct.

Variables, purpose, and hypotheses to be examined via these two study stages are presented in Table 3.

Table 3
Variables, purpose, and hypotheses according to study stage

	Stage of study	
	First	Second
Dependent variable	<i>Attachment to horses</i> , according to attachment features: Secure Base (SB), Separation Distress (SD), Safe Haven (SH), Proximity Maintenance (PM) <i>Closeness to horses</i>	DV for Disciplinary misconduct: <i>Violation penalty</i> DV Recidivism: <i>Recidivism events</i>
Independent variable	<i>Attachment to humans</i> , according to human figures (mother, father, sibling, best friend, & significant other) and attachment features (SB, SD, SH, PM) <i>Closeness to humans</i> , according to human figures	IV for Disciplinary misconduct: <i>Violation timing & group assigned; Race; Age at time of violation; Sentence length; Duration of observation per event; and repetition sequence of violation.</i> IV for Recidivism: <i>Race; Group assigned; Repeated recidivism; Duration of observation per event; Age at release; and sentence length</i>
Control variable	<i>Prior experience with horses; Repeated Questionnaire; Duration in Program; Demographics: Age, race, education</i>	
Purpose and hypotheses	To explore whether variation in attachment or closeness to human figures accounts for variation in attachment or closeness to horses; To explore whether variation in attachment features to humans explains or accounts for variation in attachment features to horses	Participants after completing the program will improve in severity of violations (e.g. severity of violations will decrease), as compared with pre and during program and the control group; Participants will have fewer events of recidivism after completion of the program, as compared with the control

The conceptual framework underpinning the quantitative questionnaire in the first stage utilizes features of an attachment figure model identified by Ainsworth (1991), as aforementioned. Based on anecdotal reports and literature, it is expected that the relationships

between program participants and their horses will result in experiences of attachment.

Therefore, the first purpose of the quantitative questionnaires is to explore whether variation in attachment to human figures accounts for variation in attachment to horses. The second purpose of the quantitative questionnaires is to explore whether variation in perceived closeness to human figures associates with variation in perceived closeness to horses.

The examination of closeness accounts for a general perception of the relationship with a specific figure as perceived by participants, whereas the exploration of attachment to figure centers on characteristics of a relational exchange concerning a specific psychological need (e.g. Attachment questionnaire: “*When I am feeling bad and need a boost, I turn to my horse to help me feel better*”; Closeness questionnaire: “*I feel close to my horse*”).

In addition, previous studies show that adults develop attachments to multiple figures and that the strength of adults’ attachments to these figures depends on the feature of attachment (Doherty & Feeney, 2004; Kurdek, 2008). Thus, the third purpose of the quantitative questionnaires is to explore whether variation in attachment features to humans accounts for variation in attachment features to horses. This could reveal differences in specific psychological functions (conceptualized as attachment features) that are attributed to a certain human attachment figure as compared with attachment to horses. For example, does viewing a mother as a dependable source of comfort (secure base) influence the variation in experiencing the physical presence of horses provide enjoyment (proximity maintenance), and have their physical absence engender some distress (separation distress)? Because of limited work in this area, there are no advanced predictions regarding how well caring for horses, relative to humans, promotes each attachment feature or closeness. Consistent with the work of Kurdek (2008), however, ratings are

expected to be influenced by an interaction between type of figure and feature of attachment or closeness.

Following empirical findings of PAPs, the second stage of this study examines and compares improvement in misconduct of the research group versus the control group as well as post-release recidivism. The hypotheses for this stage are: First, participants after completing the program will improve in severity of violations (e.g. severity of violations will decrease), as compared with pre and during program and the control group. And second, participants will have fewer events of recidivism after completing the program, as compared with members of the control group.

Population and sampling

This inquiry is conducted with participants of the TRF's Second Chances program, which is one of two equine-facilitated prison-based programs. The reason why this particular program was chosen for this study is that this equine-facilitated prison-based program is implemented in most states that utilize such programs. In addition, participants are selected by specific criteria, and this program is composed of a structured curriculum and a standard program plan that is implemented in all program sites. While program participants are exposed to horses, they do not ride and the intervention is not incorporated into a psychotherapeutic intervention process. Possible intervening variables as the excitement and adrenaline that accompany riding, or psychotherapy that focuses on relational aspects, are excluded. Thus, intervening variables that could have influenced emotional variables such as the attachment to the horses are excluded from this study. Therefore, this choice enhances the possibility that any findings will be an outcome of the "pure" emotional attachment to the horses themselves. Ultimately, this enhances the rigor of this inquiry and the clarity about possible causal elements.

TRF's Second Chances program operates in the correctional facilities of ten different states. Approximately 30 to 45 inmates participate in each program annually. Typically, 15 to 20 participants are involved in the program at each facility at a given time. In 1999, the DOC and TRF opened a farm at the Blackburn Correctional Complex for men in Lexington, Kentucky and today it is among the TRF's largest farms. This site was chosen for this study because of its population and size. It is a men's facility, and most of TRF's Second Chances programs (eight of the ten facilities) consists of male participants. Also, it has a large number of program participants. Due to feasibility issues and limited resources this site may be the only potential location with a sufficient number of prospective participants for the study. This could also provide an opportunity for variation in the sample in a way that could yield rich data. Another reason for choosing this site was that KY DOC has a well-established Information Technology department, which operates a comprehensive computerized system to aggregate data about prisoners in its custody. This is a valuable resource for ample data for the CDM part of this study.

Ultimately, if there would be no limitations in terms of feasibility or resources and trade-offs of breadth versus depth, it could be interesting to have samples of program participants from facilities of men, women and juveniles. This would provide information about the phenomenon within various populations as well as its universality. However, for our purposes, this study is conducted with a sample of men, solely.

The specific type and number of cases selected depends on study purpose and resources (Patton, 2002). Thus, the sampling for this study is purposeful, combining criterion, intensity, and agency-determined sampling strategies. They are presented according to their stage,

methodological aim, and study circumstances. Some sampling choices are also limited due to feasibility issues (e.g. limited resources and matters of flexibility of sampling within DOC).

Overall sampling for the study's first stage (questionnaires and interviews)

The sampling for the first stage of this study consists of program participants who match study criteria and volunteer to participate. The logic of criterion sampling is to explore all cases that meet some predetermined criterion of importance (Patton, 2002). The sampling criterion employed was program participants who have been in the TRF's Second Chances program for at least three months assuming that these participants would have established some basic relationship with the horses they care for. Furthermore, it could provide an array of cases that could yield rich data about human-horse relations and program gains for the qualitative interviews.

It should be noted that participants are selected by specific criteria for this program to begin with. They must apply for the program and only inmates who are nearing the end of their sentence will be considered since this program aims specifically to promote employment possibilities. Additionally, sex offenders are not admitted to the program due to security reasons. Applications are usually accepted when the inmate has exhibited an ability to work well with others. In some cases, however, inmates may be accepted because they present more of an emotional need than others, and it is assumed that this program can be of particular help to them (Thoroughbred Retirement Foundation, 2010). Feedback from participants who have been in the program at least three months would enrich findings of interviews, as well as quantitative questionnaires. It is assumed that this period would enable participants to have some experiences in the program and form at least a basic relationship with the horses. They could reflect upon

these experiences and relationships during the course of an interview or in questionnaire responses.

Sampling for the attachment and closeness questionnaires

Sampling for the quantitative portion of the first stage consists of program participants who match the aforementioned criteria and volunteer to participate in the study. Therefore, the sample is treated as a population. The sample size was determined to be up to 100 participants, as approved by Hunter College Institutional Review Board (IRB) and by KY DOC. The ultimate sample size for this part of the study was 91 program participants who volunteered to complete the questionnaires. These participants were recruited over the course of nearly three years, according to the predetermined criteria.

Sampling for the qualitative interviews

In addition to the aforementioned criterion sampling intensity sampling was employed to select information rich cases strategically and purposefully. Intensity sampling consists of information rich cases that manifest the phenomenon of interest *intensely*, but not *extremely*. Using the logic of intensity sampling the researcher seeks excellent or rich examples of the phenomenon of interest, but not highly unusual cases. The sample consists of cases that manifest sufficient intensity to illuminate the nature of success or failure, but not in the extreme. This strategy involves some prior information and considerable judgment. The researcher needs to explore the nature of variation in the situation under study, and then sample intense examples of the phenomenon of interest (Patton, 2002). Intense examples of the phenomenon could include people who demonstrate mastery of horse care and handling. Such participants might demonstrate independence in their communication with horses, reveal deep and meaningful exchanges with the horses, or convey emotional and behavioral relationships with the

phenomenon. Interviews with such people could help fulfill this study's explanatory objective because they should provide rich information and bring the researcher closer to the essence of the phenomenon. Guided by this logic and following an interview with the program director about program participants, the nature of their participation and their psycho-social characteristics, suitable cases were hand-selected.

The validity, meaningfulness, and insights generated from qualitative inquiry have more to do with the information richness of the cases selected and the observational/analytical capabilities of the researcher than with sample size (Patton, 2002). Consequently, the sample size for interviews was determined after an initial analysis of interviews and available resources. The sample of 13 participants exhibited a deep and comprehensive experience of the studied phenomena. Interviews were carried with 11 current program participants, one graduate who was in another vocational program at the time of the interview, and one more graduate who was already released.

Sampling for recidivism and disciplinary misconduct inquiry

Sampling strategies for CDM are likely to be determined by voluntary involvement of partnering agencies that do not necessarily allow for strategies such as, prior power analysis to determine desirable sample size (Epstein, 2010). Hence, a combination of criterion and agency-determined sampling strategies were chosen for this part of the study, relying on available data by the KY DOC Information Technology department. The criteria for determining participation involved being a TRF's Second Chances program participant. The criterion for inclusion in the control group was participation in vocational correctional programming other than TRF's Second Chances. The matching criterion between participants of the two groups was having a similar custody classification as defined by KY DOC.

The KY DOC computer-based system began data collection in May 2008. Consequently, the program participants group includes 206 TRF participants who were in the program from the beginning of the computer-based system until transfer of data files for this study, which occurred in April 2011. Since no sampling was required for allocation of this group, therefore on the examined variables for this stage, we have a complete representation of this program's participants. The control group was composed of a random sample of 216 inmates whose last custody classification was 'minimum' or 'community' custody and had gone through various programs other than TRF. The random sampling was done by using a random function in Microsoft's SQL server, a relational database management system (RDBMS), and sorting the list by the random number in descending order and retrieving the first 216 inmates. Nevertheless, the original allocation to program and control groups was nonrandom to begin with; therefore the sample is treated as a population.

Ethical considerations and human subject protection

As indicated earlier, human subject reviews have been completed and approved by the IRB of Hunter College of the City University of New York and of KY DOC. The researcher has taken all measures to ensure the protection of the rights and wellbeing of the individuals involved in the study. The consent form for this study outlined matters of confidentiality, risks and benefits of participation. These forms were signed by each participating inmate and witnessed by a DOC staff person, as aligned with KY DOC policies. Furthermore, the researcher agreed to abide by the conditions of participation in cooperative research, as specified in KY DOC policies and procedures- CPP 5.1. In addition, since this study involves vulnerable research participants it needs to exhibit minimal risk to the participants. Therefore, the first stage of the study began with addressing staff and program participants with a voluntary recruitment letter

that describes the study and related terms. For example, it states that participation in the study will be completely voluntary, and with no impact on parole, incarceration terms or participation in the program. It clarifies that there will be no form of compensation, remuneration, or payment of any kind for participation in the study. Moreover, participants are allowed to drop out of the study at any stage. Considerations of ethical issues were also taken into account while designing the study, especially since it involves a vulnerable population. For example, the DOC and Hunter IRB require a detailed outline of the interview as provided in the guide to protect participants and to have control over the information that will be collected in the study. Therefore, a semi-structured interview was chosen since it addresses these issues but also provides space for exploration within a preconfigured subject area and core questions.

Furthermore, upon agreement between the researcher, the DOC and the correctional facility, the data for the second stage was transferred anonymously. Thus, the participants and DOC's records are protected and unidentified. The study report, executive summary, and any related publications will protect participants' privacy and confidentiality. Participants will not be identified.

Data collection methods (Measures)

The information for this study's first stage is obtained through quantitative questionnaires and qualitative semi-structured interviews, and the information for the second stage is gathered via CDM.

Measures of attachment and closeness

This part of the study's first stage looks at the participants' emotional process via quantitative questionnaires regarding attachment and closeness to horses as compared with humans (based on Kurdek, 2008), as shown in Appendices A and B. The items for measures of

features of an attachment figure and closeness were adapted from Kurdek (2008) (who adapted items from those used by Doherty & Feeney, 2004; Ryan, La Guardia, Solky-Butzel, Chirkov, & Kim, 2005; Tancredy & Fraley, 2006; Trinke & Bartholomew, 1997). Appropriate substitutions to suit this study were made to concern horses. The dependent variables are *attachment to horses*, according to attachment features of Secure Base (SB), Separation Distress (SD), Safe Haven (SH), Proximity Maintenance (PM), and *closeness to horses*. The independent variables are *attachment to humans*, according to human figures: mother (MO), father (FA), sibling (SB), best friend (BF) and significant other (SO) and attachment features (SB, SD, SH, PM), and *closeness to humans*, according to human figures.

The measure of attachment to figure is a self-administered questionnaire with 16 items, with each item being an indicator of the degree of attachment. The same items are used for horses (HR) and each of five human figures (MO, FA, SB, BF and SO) with appropriate substitutions made for the particular figure being rated. The items measure four features of attachment (SB, SD, SH, and PM), including four items each (see Appendix C). The participants are asked to choose only one response (from 1 to 7) for each item by circling the number which reflects level of agreement. If participants have more than one possible individual to rate within a figure category, they are asked to rate the one to whom they feel closest. The items are graded: “Strongly disagree” = 1; to “Strongly agree” = 7. The score is a sum of the ratings for the 16 items (range 16-112). The total sum is an index of the individual’s level of attachment, and the sum of four items of each feature is an index of the specific feature (range 4-28).

The measure of closeness to figure included five items, and followed a similar procedure as the measure of attachment to figure. The score is a sum of the ratings of the five items (range 5-35). The total sum is an index of the individual’s level of closeness.

Demographics of *age*, *race*, and *education* are measured by a self-report form (see Appendix D). *Race* was recoded into a dichotomous variable (0= White; 1= Black and others), since the variation in racial distribution of participants was limited.

The control variables are *prior experience with horses*; *repeated questionnaire* and *duration in program*. *Prior experience with horses* is measured by a self-report form, to indicate whether the participant had previous exposure and experience with equines (0= no prior experience; 1= yes prior experience). *Repeated questionnaire* is a dummy variable indicating whether the questionnaire was answered for the first time, or whether it is a repeated filling of the questionnaire (0= initial; 1= repeated). This variable was composed since the data-set includes participants who have been in the program for a long period and volunteered to participate in the study a few times over the duration of data-collection. *Duration in program* indicates the length of time a participant was in the program before filling a questionnaire. This variable was calculated by deducting program entry date from questionnaire filling date.

Qualitative interviews

The information for the first stage of the study is obtained through qualitative semi-structured interviews, as aforementioned. These interviews aim to explore human-horse relations and behavioral, social and emotional gains of participants from the program. Special attention is given to the fact that the program is located in a prison.

An open-ended interview guide that includes both semi-structured and narrative questions was chosen as the best fit given the purpose and circumstances for the inquiry into human-horse relations (see Appendix E). This guide is comprehensive and nuanced, and is composed of core questions followed by sub-questions and detailed probes. The study guide is composed of questions concerning various features of the phenomenon and their interrelations with behavioral

and emotional changes in participants' lives. It is structured to facilitate exploration of the complexity of human-horse relations within the prison context. The sequence of questions in this guide is important since it leads the interview through stages of "warm-up, exercises, and cool-down" (Janesick, 1994). The beginning and the end of the guide are composed of questions that are more general and removed from deeper and intimate issues, such as; "*What were your expectations prior to entering the program?*" The middle part of the guide is composed of questions that are at the heart of this inquiry. This part concerns the behavioral and emotional transformation that participants experience through their exchange with horses and the unique elements of the experience that characterize this relationship within the prison context. The "warm-up" questions are intended to promote the trust required for the middle part of the guide, which explores more intimate details of the experiences through narrative as well as more structured questions. An example of one of the narrative questions is: "*There could be a paradox between horses, which may symbolize freedom, and a prison; how does it feel to be in the open fields, and spend time with horses? What are your thoughts and feelings about this contradiction? (Does it confuse you? Does it empower you? Does it help to calm you? If so explain. Do these feelings last beyond the time you are actually with the horse? Explain/illustrate)*". An example for one of the structured questions is: "*What aspects of the program have had the greatest impacts? Explain, illustrate*".

In addition, the detailed and explicitly named probes are structured to yield rich data. Their structure was generated from observations of lived experiences with the phenomenon of human-horse relations. Critically, these probes may promote trust, showing the respondents that the researcher is close to the respondents' lived experience. In addition, having a structured

detailed guide promotes relative ease of later analysis (Patton, 2002). Importantly, this approach also allows for a degree of flexibility in formulating questions and consequent discovery.

This study focuses on human-horse relations and how it affects participants' lives. It looks at how this program is viewed by participants and aims to learn about their gains, and whether and how the program should be refined. The units of analysis for the current study are relationships and roles. The core questions for studying relationships and roles are: *What is its structure? What are its processes? What are its consequences?* (Lofland & Lofland, 1984). Accordingly, the core questions in this guide are lead by the study purpose and units of analysis and related core questions. The guide is composed of questions of structure and process, such as: *How would you describe your experience/relationship with the horse(s) assigned to you? How does it feel to be with horses within the context of a prison?* It also includes questions of consequences, such as: *In what way/ways has the program impacted your life?* The guide also includes program evaluation, questions, such as: *What were your expectations prior to entering the program? What is your evaluation of the program?* However, due to the study purpose and choice of best fit, detailed probes do not follow these questions and they are not at the heart of the inquiry. The choices of questions that are at the core of the inquiry versus questions that are secondary concerns are trade-offs of breadth versus depth. For example, the more questions one chooses to ask the more superficial the exploration if the variable of time is considered. The guide structure reflects a tension between these trade-offs. The core questions are addressed in detail as compared with the secondary questions.

Data collection for recidivism and disciplinary misconduct inquiry

The information for the second stage is gained through CDM and is composed of available data provided by KY DOC IT department. After the KY DOC and IRB approved this

study the researcher discussed the study purpose and described the required data with the IT department staff. Consequently, de-identified Excel data files were composed and transferred to the researcher according to two groups (program and control). The data files contain five main variables composed of sub-variables with a connector variable of offender DOC ID. The DOC IDs were recoded to protect research participants' identities. The first variable category is *Demographics* composed of *age, race, current location, incarceration start date, length of sentence, and charges*. The second variable category is *Classification* composed of various sub-variables, such as, *classification type* (initial or re-classification), and *Disciplinary Points* (*violence points, severity of current offense points, severity of other incarceration points, escape history points, drug or alcohol abuse points, stability points, current age points, administrative factor points, total score, date classified* etc.). The third variable category is *Disciplinary Misconduct* composed of *violation date, location of violation, and violation* (the violation itself). The fourth variable category is *Jobs* composed of *name of job program, last/current job status, program assignment date, and work assignment last updated*. The fifth variable category is *Recidivism* composed of *date of release, type of release, date recidivated* (date returned to KY DOC custody), and *reason*.

The operationalization of the variables for this stage is based on KY Corrections policies and procedures, which were transferred to the researcher with the data. These include a classification manual (Policy number 501 KAR 6:080 entitled "Inmate classification manual", effective July 15th, 2002), descriptions of rule violations and penalties defining disciplinary misconduct (Policy number 15.2 entitled "Rule violations and penalties", effective January 3rd, 2011), and inmate custody and security guidelines (Policy number 18.5 entitled "Custody and security guidelines", effective September 5th, 2008). These policies and procedures are

comprised of detailed definitions and guidelines concerning each of the aforementioned variables and sub-variables.

The Disciplinary Misconduct (DM) analysis examines the hypothesis that participants after completing the program will improve in severity of violations (e.g. severity of violations will decrease), as compared with pre and during program and the control group. Disciplinary misconduct is defined as a behavioral misdemeanor of an inmate while incarcerated according to KY DOC policy and procedures (number 15.2 entitled “Rule violations and penalties”, effective January 3rd, 2011). The policies and procedures of the KY DOC define uniform violation categories and penalties that have been divided into seven major categories, as presented in Appendix F. The DM data only includes inmates that have committed DM. Variables used for the DM analysis were composed from the raw data as follows: The categorical dependent variable of *violation penalty*, recoded from the original variable of *violation*, concerns the severity of committed violation by seven categories of maximum penalty. The categories are: 4; 5; 7; 8; 9; 10; and 12. The maximum penalty was chosen as an indicator for each of the seven categories, since the punishment and range of penalties are not linear. I believe that the maximum penalty for each violation category reflects how the DOC approaches severity of relative value of each violation. This is approached as a nominal variable (with multiple categories) rather than an ordinal variable. While the categories may be viewed as ordinal, their content as well as their frequencies in this study’s sample imply that approaching them as nominal is more accurate. Some of the violations of higher penalty may be viewed as "minor" and vice versa. In addition, the most frequent violations are of categories 7 and 8. These include violations that are more likely to occur in this institutional setting. For example, the category of 7 includes also violations that seem "minor" such as, "Bucking an inmate line" or "Refusing or

failing to carry out work assignment" though the maximum penalty is not the lowest in comparison to other categories (as opposed to other "more severe" violations that are categorized similarly such as "Inflicting injury to self").

The independent variables include two dichotomous variables of *violation timing and group assigned*, and *race* (0= White, 1= Black, Hispanic and other); and four interval variables of *age at time of violation*, *sentence length*, *duration of observation per event*, and *repetition sequence of violation*. A dummy variable of *violation timing and group assigned* indicates the timing of the violation in relation to program time and group assigned, as follows: anyone who committed a violation post program was assigned a 1. All the other violators whether pre or during the program or from the control group were assigned a 0. *Age at time of violation* was computed from the raw data of *age* and *violation date*. *Duration of observation per event* refers to months between incarceration start date and violation date. This variable addresses the issue of un-equal measurement interval of observation length per event. It was computed by deducting the *violation date* from *incarceration start date* per each event. And *repetition sequence of violation* indicates the sequential count of events per individual. This variable addresses the possible confounding influences of dependency among observations within each individual participant, since there are multiple events per person in the data-set. It was composed by identifying repeated events per each participant followed by their sequential count.

The setting of the data for the DM analysis is based on individual person-time points, since the raw data consists of the actual dates when violations occurred. As opposed to data-sets which are composed of periodic observation times (e.g. month, year), this data set has un-equal measurement intervals. The time-points in which participants contributed data differed. For example, one participant has committed violations every few weeks, whereas another participant

has committed violations every few years. Thus, it is impossible to determine a more specific time-unit, such as person-months. Consequently, each violation was a person-time point (e.g. if an individual had 15 violations he would contribute 15 time-points).

The recidivism analysis examines the hypothesis that participants will have fewer events of recidivism after completing the program, as compared with members of the control group. The dependent variable of *recidivism* is dichotomous, operationalized as an inmate's return to custody of KY DOC. The "dummy variable" was constructed to indicate whether or not the event of recidivism occurred post program among program group participants and among control group participants, during the observation period. Anyone who did not recidivate in the control group or in the program group was assigned a 0. Anyone who did recidivate in the control group or in the program group after completion of the program was assigned a 1. This variable includes only information about inmates who were at risk to recidivate (those who could potentially recidivate, even if they did not actually do so). Therefore, this variable does not include active inmates in their first incarceration (that have not been released), but does include inmates that were released and did not recidivate until observation end date. The independent variables include three categorical variables of *race* (0= White, 1= Black, Hispanic and other), *group assigned* (0=control, 1=program), and *repeated recidivism*; and three interval variables of *duration of observation per event*, *age at release*, and *sentence length*. The variable of *Repeated recidivism* indicates whether the event is a primary recidivism, or a repeated event. It was composed to address the possible confounding influences of dependency among observations within each individual participant, since there are multiple events per person in the data-set. Events that are the first time of recidivism per individual were assigned a 0; events that were repeated recidivism per individual (after the first event of recidivism per that individual) were

assigned a 1 (0=primary, 1=repeated). *Duration of observation per event* refers to the individual time-interval when participants were at risk to recidivate, including months between release and recidivism or end of observation. This variable addresses the issue of un-equal measurement interval of observation length per event. It was computed by deducting *date recidivated* from *date of release* for inmates that have recidivated, and *observation end date* was deducted from *date of release* for inmates that have not recidivated. *Age at release* was computed from the raw data of *age* and *release date*.

The setting of the data for the recidivism analysis is based on individual person-time points, since the raw data consists of the actual dates when recidivism and release of prisoners occurred. As opposed to data-sets which are composed of periodic observation times (e.g. month, year), this data set has un-equal measurement intervals. The time-points in which participants contributed data differed. For example, one participant has been released for three weeks, and then has recidivated. While another participant, has been released for a year, and then has recidivated. Thus, it is impossible to determine a more specific time-unit, such as person-months.

Procedures for ensuring validity and reliability

In this section I will describe procedures for ensuring the external and internal validity of the study design. I will then describe procedures for ensuring reliability and validity of quantitative measures according to the two study stages, as well as trustworthiness of the qualitative inquiry.

External validity of the study design

The program is implemented according to a set and structured curriculum. Consequently, this contributes to the strengthening of the external validity of this study. This inquiry is

composed of mixed-methods, which each has a different purpose and sample. Thus, they differ in considerations of external validity.

The first stage, which is composed of the quantitative questionnaires and qualitative interviews, is an exploratory inquiry aiming to describe emotional and behavioral experiences of participants. As such, it does not generate inferences to a broader population. Further inference is limited due to the sample not necessarily being random or representative.

In the second stage, which includes the recidivism and disciplinary misconduct inquiry, inferences are made about a causal effect within the sample, including TRF's Second Chances participants and participants of other vocational training programs at Blackburn Correctional Complex. The control group was matched and randomly assigned and the program group includes all program participants, since the beginning of the computerized system. Therefore, the whole population of participants that were in the program during the data collection period is represented in the data. Since allocation to the program is not random to begin with, a distinction between the program effect and sorting is not clear. Consequently, the external validity is restricted and inferences are done with regards to this sample solely.

Internal validity of the study design

Program attrition: Since the evaluated program takes place at correctional facilities, as part of a voluntary rehabilitation service during incarceration, program attrition was minimal. However, there was some program attrition in cases of participants being transferred to other correctional facilities. Another reason for attrition may relate to the program itself. For example, a participant may not adjust well to working with horses. In all cases, characteristics of the various groups were compared and attrition was tracked and examined as to who dropped out and why. Attrition was marginal and was taken into consideration in the analysis.

History: Since the evaluated program takes place at correctional facilities during incarceration it is assumed that outside events were relatively similar for all groups. Data concerning outside events, such as, any additional treatment that the subjects received, or other prison programs they may have been enrolled in were not available for this study.

Selection bias: This study is designed with a control group for the second stage. The control group is made up of people who are participants in various vocational programs within the correctional facility and have similar characteristics. They have been matched and randomly selected using the same criteria as the program group. This enhances the chance of comparability between the groups. Furthermore, Propensity Score Matching (PSM) was chosen as strategy for analysis of the quantitative data of the second stage to control for selection bias, since participants were not randomly assigned.

Testing/ Instrumentation: If a testing effect is occurring, then the control group should show as much improvement as the program group. As well, the way in which data are collected could affect findings and might suggest that something other than the program caused the effect (Smith, 2010). Thus, the issue of testing in the second stage is addressed by the control group. Furthermore, in order to address issues of instrumentation since this stage is composed of existing data, attention was paid to the consistency in measurements that have been used to collect data.

Hawthorne effect: The Hawthorne effect refers to a phenomenon in which participants alter their behavior and responses resulting from attention participants believe they are getting from the researcher (Smith, 2010). This was revealed by using informal debriefing at the end of the study. Program participants were asked how being tested may have affected them and whether they inflated their scores because they were being studied or wanted to please program staff,

researchers and so on. Thus, there were no concerns that Hawthorne effect may have affected the scores.

Validity and reliability of attachment and closeness questionnaires

Validity and reliability of original measures of attachment and closeness: The study conducted by Kurdek (2008) with college students used the original measure of features of an attachment figure and was reported with Cronbach's alphas scores ranging from .89 to .98, and measure of closeness was reported with Cronbach's alphas of above .93, indicating that excellent reliability exists. Since these two measures were modified for the purpose of this study and the populations differed, additional procedures were used to ensure reliability and validity as indicated below.

Cronbach's alpha for new measures: In order to determine degree of internal reliability, Chronbach's alpha was assessed with this study's original data as collected from participants of the TRF's Second Chances program, including "alpha if item deleted" (see Appendices G and H), "split-half" reliability, and correlation coefficients. The desired score for Chronbach's alpha is .80 or over. The Chronbach's alpha associated with the measure of attachment to HR is .98, which indicates that this measure has excellent reliability. The Chronbach's alpha associated with the measure of closeness to HR is .96, which indicates that this measure also has excellent reliability. Chronbach's alpha associated with all other measures of attachment by human figures (MO, FA, SB, BF, SO) indicated excellent reliability, with a score of .99 for each one of them. Furthermore, Chronbach's alpha associated with all other measures of closeness by human figures indicated excellent reliability, as follows: items referring to MO and SB scored .98, and items referring to FA, BF, and SO scored .99. The test of "alpha if item deleted" concerning all these measurements revealed that there is no single item, which if deleted, would remarkably change the reliability.

Findings of Chronbach's alpha among measures of attachment to human figures were similar and high. Therefore, further testing of whether there are differences within the sample in the approach toward each human figure was conducted. This examination aimed to determine whether the set of items for the various human figures measures a single uni-dimensional construct. I have performed a reliability test among the total scores of each figure, after imputation for missing data. This test resulted in a Chronbach alpha of .59, which indicates that the various items measure several latent constructs (e.g. participants do not approach all human figures in similar manner). Consequently, this implies that the differentiation between measurements for the various human figures is valuable and potentially informative.

Inter-item and item-to-total correlations: In both measures (of attachment and closeness) all items are thought to measure a specific concept, therefore items from each measure were tested as to what degree they correlate to other items within that measure, and to the total score of that measure. The findings exhibit excellent reliability, as aforementioned.

Face validity: The measures look like items relate to the concepts that they are supposed to measure ("on the face").

Content validity: In both measures there may be questions regarding content validity since they do not include items that measure, for example, physical dimensions of attachment or closeness. However, the measures are aimed at emotional concepts of attachment and closeness, which are relevant to the goals of this part of the study.

Construct validity: The measure of attachment figures is constructed according to Ainsworth's (1991) typology of features of attachment figures; therefore it seems that the theory is adequately represented in it.

Validity and reliability of recidivism and disciplinary misconduct data

In CDM studies, issues of validity and reliability are taken into account retrospectively, rather than prospectively, as in conventional research sequence. Since the data already exists it must be determined, often variable-by-variable, whether it measures what it claims to measure (validity), and does so consistently (reliability). The data has already been collected, but it should be determined whether it is reliable for research. How the data is collected and when will help determine if it looks clean so that there are no contextual reasons for responding in a particular way. Nonetheless, it is inexpensive data that is directly related to practice (Epstein, 2010).

General reliability of measures for the second stage: The data that was chosen for use in this study is collected by means that are subjected to limited interpretation. For example, the measure of disciplinary misconduct is defined according to an operationalization that reflects the correctional facilities' policies and procedures, as aforementioned. It is measured by the number of times a behavior that violates facilities' rules is recorded by staff, through the DOC live-computerized system, as part of the facilities' daily routine.

Face validity: Face validity is achieved by the operationalization that includes specific descriptions of the various variables to be measured by quantifiable means, as aforementioned. Furthermore, the items used to measure variables reflect the concepts the researcher wishes to measure.

Content validity: Since the second stage consists of CDM, there may be some issues of content validity. The measurements that are routinely used by the DOC and the facilities are constructed for their needs and may present a gap when comparing them with literature, or other standard measures. It is assumed, however, that since the data is collected to serve the routine needs of the

DOC and the facilities, they do encompass all items that are "thought" to measure the concept within the context that is relevant to the facility.

Strategies to evaluate the qualitative interviews

Validity in quantitative methods depends on careful instrument construction to ensure that the instrument measures what it is supposed to measure. In qualitative inquiry the researcher is the instrument. The credibility of qualitative methods, therefore, hinges to a great extent on the skill, competence, and rigor of the person doing the fieldwork (Patton, 2002). Hence, the researcher should constantly use reflexivity, the ability to examine one's self, throughout the research process (e.g. examining one's biases) (Kirk & Miller, 1986; Padgett, 2008). Accordingly, the qualitative parts of this study are composed of reflexivity of the researcher which is incorporated into the data analysis and reflected in the discussion and conclusions.

Furthermore, in addition to the logic described in the methods choices, the analysis and discussion considers evaluative criteria for this part of the inquiry. For example, *Credibility* (the degree of fit between respondent's views and the researcher's description and interpretation), *Transferability* (generalizability, not of the sample but of the study's findings), *Auditability* (the procedures are documented and traceable, having logic that makes sense to others), and *Confirmability* (demonstrating that the findings are firmly linked to data) (Lincoln & Guba, 1985; Padgett, 2008).

Finally, triangulation helps to counter all threats to trustworthiness, including reactivity, researcher bias, and respondent bias. Notably, when inconsistencies and contradictions occur, the researcher must decide whether to favor one source over another or view discrepancies as an opportunity for new insight (Padgett, 2008). Consequently, this study's use of methodical

triangulation contributes to enhancing the trustworthiness of all parts of this study, including its qualitative methods.

Strategies for data analyses

The strategies for data analyses are composed of separated strategies suiting each of the three methodologies which will also address synthesis with other methodologies. A strategy for bridging between methodologies and synthesizing between various findings will also be discussed.

Statistical analyses of attachment and closeness questionnaires

The first step of a statistical analysis is comprised of organizing, reducing, and cleaning the dataset. This included descriptive statistics, composed of measuring location and dispersion. In addition, the following transformations were computed: A total score was computed for each variable of closeness and attachment by summing up scores into a global score according to figure. Furthermore, a total score was computed by summing up scores into a global score for each sub-scale of attachment according to feature (SB, SD, SH, PM).

All scales of total attachment and total closeness by figures that scored as non-applicable (NA) were imputed. Assuming that data was missing completely at random, missing values were replaced with the most probable value using a regression procedure. The multiple regression produces the best predicting model for the missing variable based on other variables with non-missing observations. The missing values are then predicted by placing available observations of other variables in the model.

The second step of analysis re-examined the reliability of the new scales, as aforementioned. The third step included descriptive statistics that began with a preliminary multiple bivariate analyses. This step was comprised of multiple bivariate correlations of total

attachment and total closeness to the various figures. The fourth step included multiple linear regressions in order to further address this inquiry's purposes. A multiple linear regression was performed between the dependent variable of total attachment to HR and total attachment to all five human figures, in addition to demographics and control variables. Similar procedures were completed for the measure of closeness. These analyses address the questions of whether variation in attachment or closeness to human figures explains or accounts for variation in attachment or closeness to horses. In other words, are men who are very attached or close to human figures also very attached to horses (or possibly much less attached to horses), on average? As well, Pearson correlation coefficients between measure of attachment to MO and HR by attachment feature were conducted to explore whether variation in attachment features to MO explains or accounts for variation in attachment features to horses.

This strategy for analysis is based on estimation that does not assume parameterization due to generalizability restrictions (inferential framework was not possible).

Analysis of qualitative interviews

The Listening Guide (LG) (Gilligan, Spencer, Weinberg, & Bertsch, 2003) was chosen as the methods to analyze data. This is a method of psychological analysis that draws on voice, resonance, and relationships as ports of entry into the human psyche (Gilligan, et al., 2003). The LG provides a way of systematically attending to the many voices embedded in a person's expressed experience. It is designed to enable exploration by way of coming to know the inner world of another person. Furthermore, it is a relational method, for studying relationships and also for recognizing the relationship between researcher and research participant. Also, it is especially useful because it is a change in self that the LG can help identify. The listening guide is used for the central part of the analysis, since this study aims to explore emotional and

behavioral processes within relational context and their outcomes. The LG is comprised of a series of sequential listenings, each designed to bring the researcher into relationship with an individual's distinct and multilayered voices by listening to different aspects of an individual's experience within a particular relational context (Gilligan, et al., 2003). The LG distinctly differs from traditional methods of coding in that one listens to, rather than categorizes or quantifies the interview text (Tolman, 2001, p. 132). Furthermore, each step requires the active presence of the researcher and his engagement with the unique subjectivity of each interviewee. The voice of the researcher is explicitly brought into the process, making it clear who is listening and who is speaking in this analysis. This approach is centered on a set of basic questions about voice: *Who is speaking and to whom? Telling what stories about relationship? In what societal and cultural context?* With these larger framing questions in mind the researcher listens (reads the interview transcript) through multiple times, with each listening tuning into a particular aspect of the participant's experience (Gilligan, et al., 2003).

This approach is comprised of four steps. The first step is *listening for the plot*, which includes attending to what has been told in the story, or what is happening. This step also includes the listener's response to the interview. The second step is called "*I poems*", where the focus is on the voice of the "I" who is speaking. "I poems" are created by following the use of the first-person pronoun and subsequent verb as they appear throughout the text. The third step (usually comprised of multiple steps) is *listening for contrapuntal voices*, where the analysis is brought back into relationship with the research question through identifying the different strands in the interview that may speak to the research question. The contrapuntal voices defined as suitable to address the research question are emotional voice and behavioral voice. These voices are utilized to expose any change and processes that relate to emotions or behaviors in

participants expressed experiences. An example of an emotional voice is: *You don't get much enjoyment in a place like this... I really enjoy the horses*. An example of behavioral voice is: *I am definitely less agitated*. Lastly, the fourth step is **composing an analysis**. This step includes the synthesis and interpretation of what has been learned about the individual in relation to the research question (Gilligan, et al., 2003).

Strengths and resolutions of this strategy of analysis: This study's purpose concerns the exposure of relational processes, participants' experiences of phenomenon, and narratives for providing insights about human-horse relations and their benefits. Since an analysis by thematic coding might fracture the data in a way that could lead to the misplacement of parts of a participant's story, the listening guide was chosen as best fit for this study's purpose. The use of this analytical method contributes to achieving the desired information, rather than fracturing of data and loss of other dimensions such as the narrative, voices of the "self" and so forth.

Concerns that may arise during the LG analysis relate to the selectivity in this process. Though this selectivity could be viewed as part of the interpretive process, it may also affect the rigor and reliability of the analysis. For example, the selection of stories that I heard, the selection of "I poems" and so forth are given to my choice. The "I poems" that are extracted from the transcript may differ between various listeners and so do the associated interpretations of them. Therefore, such an analysis could be enhanced by work within interpretative communities that provide multiple listeners. The goal is not necessarily agreement, but rather the exploration of the different connections, resonances and interpretations that each listener brings to the analytical process (Gilligan, et al., 2003). This concern could also be resolved by providing a justification for the selection and interpretation process which is grounded in the

study aim and the lived experience of the participants. In any case, this highlights the subjectivity of a qualitative inquiry (and it can also highlight the subjectivity of all inquiries).

Statistical analyses of recidivism and disciplinary misconduct data

The data for this stage was organized by sequential details of events of recidivism and disciplinary misconduct according to participant code number in order to allow for a statistical analysis. *Event history analysis* is the most suitable strategy to address the questions at hand and it also best fits the nature of the available data. This strategy of special regression techniques is also known as event history models, hazard models, survival models, failure time models, and duration models (Tekle & Vermunt, n.d.). Event history analysis enables the researcher to examine events defined in terms of change over time, and their correlations (Allison, 1984). In its simplest form, an event history is a longitudinal record of when events happened to a sample of individuals or collectivities. The event history should also include data on possible explanatory variables. Some of these variables may be constant over time (e.g. race), while others may change (e.g. program participation). Although event histories are ideal for studying probability of events, they typically pose two features – censoring and time-varying explanatory variables. These features create major problems for standard statistical procedures, such as, multiple regressions. In fact, the attempt to apply standard methods can lead to severe bias or loss of information (there is not a satisfactory method of incorporating time-varying explanatory variables in a multiple regression predicting time of an event) (Allison, 1984).

Event history analysis is the appropriate choice for the CDM stage of this study since it aims to examine the events of recidivism and disciplinary misconduct, while utilizing time-varying explanatory variables such as *duration of observation per event*. This analysis fits the available data since it resembles the general data layout required for this analysis, while making

maximum use of the data, with no loss of information (e.g. which would occur by dichotomizing variables for other analyses) (see Kleinbaum & Klein, 2008).

The main distinction made in the field of event history analysis is between continuous-time methods (when the event time can take on any non-negative value) and discrete-time methods (when the event time can take on a finite set of values) (Tekle & Vermunt, n.d.). In this study, the events can only occur at regular discrete time points (e.g., daily, weekly, monthly or yearly) therefore, the analysis is composed of discrete-time methods.

Propensity Score Matching (PSM) was chosen as strategy for analysis of this data to control for selection bias, since participants were not randomly assigned in their allocation to program and control groups. It attempts to reduce the bias due to confounding that could be found in an estimate of the program effect obtained from simply comparing outcomes among individuals that participated in the program versus those that did not.

Finally, after performing the PSM for each analysis, binary logistic regression was chosen for the analysis of recidivism, since the dependent variable is dichotomous. Additionally, multinomial logistic regression was chosen for the analysis of DM, since the dependent variable is nominal with multiple categories.

Bridging between methodologies and synthesizing between findings

Looking at the phenomena of equine-facilitated prison-base interventions in general and TRF's Second Chances program in particular from the perspective of methodological triangulation could potentially provide an extensive and deep description of it. In addition, after conducting each of the analyses described above, I examine similarities and disparities between findings from different methods. These will be discussed in light of literature and relevant conceptual frameworks as presented in the literature review.

Furthermore, I integrate the findings by examining whether the various methodologies provide sufficient statistical findings and constructs, grounded in participants' lived experiences, to infer as to a model of causation.

Findings

Recidivism

Descriptive statistics

The recidivism analysis examines the hypothesis that participants will have fewer events of recidivism after completing the program, as compared with members of the control group. A description of the data collected for the examination of recidivism in the study sample constitutes measures of central tendency and variability, as presented in Table 4. The sub-sample for the recidivism analysis consists of 524 person-time points, with no missing values. 362 (69 %) person-time points were of no recidivism among control, program and pre-program events; 162 (31%) person-time points were of recidivism post-program and control. The program group consisted 294 (56%) person-time points, and the control group consisted 230 (44%) person-time points. 284 (54%) were events of primary recidivism, and 240 (46%) were events of repeated recidivism. The racial distribution among the inmates was: 401 White (76.5%); 120 Black (23%); two Hispanic (.4%); and one other (.2%).

Table 4
Descriptive statistics for interval variables included in the recidivism analysis

Variable	Mean / Mdn*	SD
Duration of observation (months)	13*	15.38
Age at release	35	10.29
Sentence length (years)	10.5*	12.06

* The median is used for variables that are skewed.

Inferential statistics

PSM was employed to control for selection bias (since participants were not randomly assigned to program and control groups). The first model of the PSM logistic regression included the dependent variable of *group*, and independent variables of: *race*, *repeated recidivism*, *age at*

release, *sentence length* (years), and *duration of observation per event* (months since last release). The predicted probabilities for group affiliation, based on the independent variables, from this model were saved. The second model included the dependent variable of *recidivism*, and independent variables of *group*, and the saved predicted probabilities.

PSM results indicated that the model correctly classified 76% of the cases. Yet, the model is constructed to test hypothesis rather than optimize group prediction. Regression coefficients are presented in Table 5. Wald statistics indicating that group membership significantly causes recidivism, with the odds ratio (effect size) of about .07 ($p < .001$). The odds of having events of recidivism for program participants are only 7% of the odds of the control group participants having recidivism events. In conclusion, controlling for all independent variables, program group participants, after completion of the program, have a statistically significant decreased risk to recidivate.

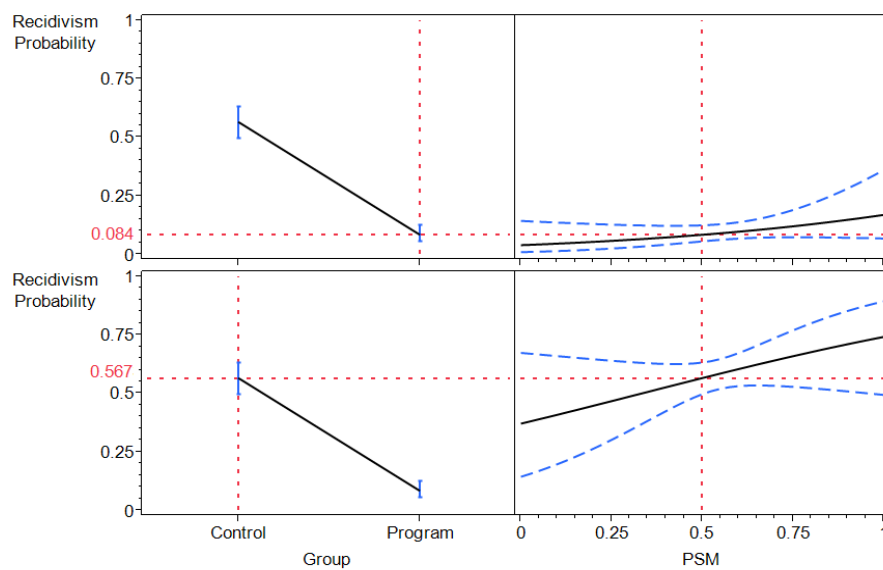
Table 5
Multiple regression for recidivism

	<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>df</i>	<i>p</i>	<i>OR</i>
Group	-2.652	.246	115.994	1	.000	.07
PSM	1.587	1.162	1.865	1	.172	4.890
Constant	-.523	.640	.667	1	.414	.593

Since parameter estimates of logistic regression are transformed and difficult to grasp, the prediction profiler in Figure 2 provides a graphical illustration of the predicted probabilities to recidivate based on the regression. The vertical axis shows the predicted probability to recidivate while the independent variables are presented on the horizontal axis. The red dashed lines reflect the intersection of predicted values for the specific levels of explanatory factors while the blue lines show the 95% confidence interval around the prediction. The difference between the top and bottom panels lies in the levels posted for the predictors. For example, the top panel predicts

that for a member of the treatment group with a PSM of .5 the probability to recidivate is about 8%. Meanwhile, in the lower panel the probability for a control group member is estimated at 56%. This illustrates quite clearly that the difference between the predictions for members of the two groups is not only large but also crosses the crucial threshold of 50% to recidivate.

Figure 2
Prediction profile for recidivism



Disciplinary misconduct

Descriptive statistics

The Disciplinary Misconduct (DM) analysis examines the hypothesis that upon program completion participants will improve in severity of violations (e.g. severity of violations will decrease), as compared with pre and during program and the control group. A description of the data collected for the examination of DM in the study sample constitutes frequencies, measures of central tendency and variability, as presented in Table 6 and Table 7. The sub-sample for the DM analysis consists of 1641 person-time points, with no missing values. 1439 (88 %) person-time points were of DM among control, program and pre-program events; 202 (12%) person-

time points were of DM post-program. The racial distribution among the inmates was: 1170 White (71.3%); 446 Black (27.2%); six American Indian (.4%); three Hispanic or Latino (.2%); and 16 other (1%). The distribution of severity of committed violation by seven categories of maximum penalty according to violation timing and group assigned is presented in Table 6.

Table 6

Distribution of severity of committed violation by categories of maximum penalty according to violation timing and group assigned

Category of maximum penalty	Violation timing & group assigned				Total	Total %
	Control	%	Post-program	%		
4	261	84	50	16	311	19
5	72	82	16	18	88	5.4
7	565	89	72	11	637	38.8
8	402	90	46	10	448	27.3
9	53	91	5	9	58	3.5
10	74	85	13	15	87	5.3
12	12	100	0	-	12	0.7
Total	1439	88	202	12	1641	100

Table 7

Descriptive statistics for interval variables included in the DM analysis

Variable	Mean / Mdn*	SD
Age at time of violation	33	8.96
Sentence length (years)	13*	11.13
Duration of observation (months)	36*	59
Repetition sequence	4*	6.72

* The median is used for variables that are skewed.

Inferential statistics

PSM was conducted to control for selection bias (since participants were not randomly assigned to program and control groups), as aforementioned. The first model of the PSM logistic regression included the dependent variable of *violation timing and group assigned*, and the

independent variables: *race, age at time of DM, sentence length, duration of observation per event, and repetition sequence*. The predicted probabilities for group affiliation, based on the independent variables, from this model were saved. The second model was estimated by a multinomial logistic regression, including the dependent variable of *violation penalty* using the lowest category (4) as reference to all others, and independent variables of *violation timing and group assigned*, and the saved predicted probabilities for group affiliation.

PSM results indicated that the group assignment is statistically insignificant across all categories of DM. Therefore, findings do not imply causality of change in violation severity between participants of different groups. Regression coefficients are presented in Table 8. Additional estimators for the second model of the multinomial logistic regression, using the most frequent category (7) as well as the highest category (10) resulted with similar findings. Consequently, in conclusion, controlling for all independent variables, program completers, did not manifest a statistically significant decrease in severity of committed violation as compared with pre and during program and the control group. Unfortunately, data was not sufficient to evaluate program effectiveness on reducing DM altogether, since only misconduct was recorded.

Table 8
Multinomial regression for DM (violation penalty)

Violation Penalty	<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>df</i>	<i>p</i>	<i>OR</i>
5 Intercept	-.563	.446	1.592	1	.207	
PSM	-3.891	2.332	2.784	1	.095	.020
Group = control	-.215	.320	.453	1	.501	.806
7 Intercept	1.335	.271	24.306	1	.000	
PSM	-6.646	1.342	24.514	1	.000	.001
Group = control	.281	.201	1.946	1	.163	1.324
8 Intercept	.790	.293	7.279	1	.007	
PSM	-5.965	1.425	17.524	1	.000	.003
Group = control	.404	.221	3.330	1	.068	1.498
9 Intercept	-.596	.608	.962	1	.327	
PSM	-12.041	2.855	17.791	1	.000	5.900E-6
Group = control	.436	.500	.760	1	.383	1.547
10 Intercept	-.468	.459	1.040	1	.308	
PSM	-6.000	2.344	6.552	1	.010	.002
Group = control	-.025	.342	.006	1	.941	.975

Attachment and closeness

Descriptive statistics

The quantitative questionnaires explore whether variation in attachment or closeness to human figures explains or accounts for variation in attachment or closeness to horses. Furthermore, these questionnaires measure whether variation in attachment features to humans explains or accounts for variation in attachment features to horses. Descriptive statistics are presented in Table 9. This sample consists of 91 participants, with some missing values for measures of human figures that were scored as non-applicable. All participants were non-Hispanics or Latinos, with a racial distribution of: 72 White (79.1%); 16 Black (17.6%); two American Indian or Alaska Native (2.2%); and one other (1.1%). Fifty-five (60.4%) inmates had

prior experience with equines, while 36 (39.6%) had no such experience. Seventy-one (78%) questionnaires were initial responses, and 20 (22%) were repeated filling of the questionnaires.

Table 9
Descriptive statistics for interval variables included in the attachment and closeness analyses

Variable	Mean / Mdn*	SD
Age	37	9.05
Education (years)	12	1.39
Duration in program (months)	3*	4.33

* The median is used for variable that is skewed.

Measures scored as non-applicable were imputed to complete the data set, as aforementioned. Multiple regression method produced imputations for total scales of attachment and closeness for all human figures. Imputed values were limited to range of original scales. The imputations did not change the distribution of scales substantially. The number of imputed values for each scale is presented in Table 10.

Table 10
Number of imputed values for total attachment and closeness to human figures

Figure	Total attachment (N)	Total closeness (N)
Mother	6	4
Father	9	10
Sibling	6	7
Best-friend	3	3
Significant other	20	20

Measures of total attachment and closeness present that horses ranked in-between scores of human figures, as presented in Table 11. For example, total closeness to horse is ranked third after MO and SO, while total attachment to horse is ranked fourth after MO, SO, and SB.

Table 11
Descriptive statistics for measures of total closeness and attachment by figure

	Horse	Mother	Father	Sibling	Best-friend	Sign.-other
Total closeness*						
Mean	25.81	28.43	22.36	25.04	24.01	26.27
<i>SD</i>	7.857	9.808	12.065	10.341	10.284	10.533
Total attachment**						
Mean	74.45	85.50	68.64	75.22	71.80	80.72
<i>SD</i>	25.102	30.058	36.920	31.358	31.922	35.553

Note. N=91. * Range: 5-35. ** Range: 16-112

Multiple bivariate correlations comprised of total attachment and total closeness to the various figures are presented in Table 12. Findings indicate that overall correlations are positive and strong. Among human figures, the strongest correlation of closeness to horses is of the closeness to MO ($r = .39$). Likewise, the highest correlation of attachment to horses is of the attachment to mother ($r = .38$). Otherwise, the strongest correlations are found between closeness and attachment to same figure ($.81 < r < .95$). Correlations of closeness among human figures are positive and moderate ($.28 < r < .42$), as correlations of attachment among human figures span similarly ($.27 < r < .42$).

Multiple linear regressions analyze the relationships between the dependent variable of total attachment to HR and total attachment to all five human figures, in addition to demographics and control variables. Similar procedures were completed for the measure of closeness. These analyses address the questions of whether variation in attachment or closeness to human figures explains or accounts for variation in attachment or closeness to horses.

Table 12
Pearson correlations of total attachment and total closeness by figure

		Total Closeness					Total attachment					
		HR	MO	FA	SB	BF	SO	HR	MO	FA	SB	BF
Total closeness	MO	.392										
	FA	.320	.419									
	SB	.271	.406	.288								
	BF	.008	.263	.042	.279							
	SO	.277	.280	.170	.325	.326						
Total attachment	HR	.811	.316	.252	.270	-.002	.123					
	MO	.415	.952	.393	.464	.270	.211	.378				
	FA	.338	.381	.942	.272	.045	.074	.295	.417			
	SB	.235	.306	.257	.862	.239	.149	.256	.407	.266		
	BF	-.024	.193	.025	.226	.863	.234	.000	.189	.034	.266	
	SO	.290	.257	.197	.379	.399	.926	.149	.203	.120	.183	.287

Note. N=91.

Table 13 presents four alternative models for attachment to horse. Model 1 includes all independent variables simultaneously showing the attachment to mother with the highest standardized estimate ($B = .23$, $\beta = .27$). The full model including all independent variables demonstrates multicollinearity among independent variables, indicated by a low increase in R^2 . Therefore, alternative models were estimated in order to identify the best predictive parsimonious combination of independent variables. Thus, Model 2 uses only the attachment to mother ($B = .32$) as a predictor before introducing the control variables. This model explains 14% of the variance of attachment to horse. Model 3 includes attachment to mother with all control variables, where it maintained its highest standardized estimate ($B = .33$, $\beta = .4$). Among the control variables, age has the highest standardized estimates ($B = .6$, $\beta = .22$). Model 4 explains 20% of the variance including only attachment to mother ($B = .35$, $\beta = .42$) and age ($B = .65$, $\beta = .24$) that had the highest standardized estimates in Model 3. These findings suggest that within

the sample higher levels of attachment to horses were present among older participants with stronger attachment to mother.

Table 13
Multiple linear regression models for total attachment to horse

	Model 1		Model 2		Model 3		Model 4	
	B	β	B	β	B	β	B	β
Constant	42.47		47.46		46.82		19.861	
Total attachment								
Mother	.228	.273	.316	.378	0.33	.398	.351	.420
Sibling	.097	.122						
Best-friend	-.089	-.114						
Sign.-other	.061	.087						
Father	.097	.142						
Control variables								
Age					0.60	.218	0.65	.238
Repeated questionnaire					1.99	.033		
Race					-1.03	-.017		
Education					-2.57	-.143		
Duration in program					.864	.149		
Prior experience w/ HR					7.57	.148		
R ²	.189		.143		.257		.198	
N	91		91		91		91	

Following a similar sequence of analysis, Table 14 presents four alternative models for closeness to horse. In Model 1 the closeness to mother shows the highest standardized estimate ($B = .23$, $\beta = .27$) among the independent variables. Model 2 shows that the closeness to mother ($B = .31$, $\beta = .39$) by itself explains 15% of the variance. Model 3 includes closeness to mother and all control variables simultaneously. Ranking by standardized estimates mother comes first ($B = .33$, $\beta = .42$) followed by age ($B = .23$, $\beta = .27$). Model 4 explains 24% of the variance while only including the top two influential independent variables from Model 3. Closeness to mother

shows the highest contributor ($B = .35, \beta = .44$) followed by age ($B = .26, \beta = .3$). Findings imply that higher levels of closeness to horses were evident among older participants with stronger closeness to mother.

Table 14
Multiple linear regression models for total closeness to horse

	Model 1		Model 2		Model 3		Model 4	
	B	β	B	β	B	β	B	β
Constant	14.61		16.87		14.354		5.897	
Total closeness								
Mother	.223	.278	0.31	.392	0.33	.418	0.35	.445
Sibling	.097	.149						
Best-friend	.074	.097						
Significant-other	-.124	-.162						
Father	.146	.195						
Control variables								
Age					0.23	.271	0.26	.302
Repeated questionnaire					-.310	-.016		
Race					-.180	-.009		
Education					-.798	-.142		
Duration in program					.271	.150		
Prior experience w/HR					3.269	.205		
R^2	.236		.154		.310		.243	
N	91		91		91		91	

Comparing the presented findings with the same models produced by the original data show the imputed data set to be more robust, while preserving original relationships between the variables.

In order to examine whether variation in attachment features to humans explains or accounts for variation in attachment features to horses, Pearson correlation coefficients estimated relationships between measure of attachment to MO and HR by attachment feature, as presented

in Table 15. Ranking the four features of an attachment figure by the correlation between horse and mother produces the following descending order: PM ($r = .39$), SH ($r = .39$), SB ($r = .34$), and SD ($r = .27$). Otherwise, the strongest correlations are found among various features of the same figure, such as, PM and SD of mother ($r = .953$). In summary, as findings show moderate to low correlations, they reveal that features of an attachment to horse vary in the same direction as features of an attachment to mother, while proximity maintenance is the most prominent.

Table 15

Pearson correlations coefficients between attachment to MO and HR by attachment feature

		Secure-base		Separation-distr.		Safe-haven		Prox-maint.
		HR	MO	HR	MO	HR	MO	HR
Secure-base	MO	.342						
	HR	.879	.250					
Separation-dist.	MO	.306	.890	.276				
	HR	.872	.300	.811	.235			
Safe-haven	MO	.434	.867	.348	.871	.386		
	HR	.834	.336	.904	.355	.753	.356	
Proximity-maint.	MO	.382	.905	.335	.953	.302	.922	.390

Qualitative interviews

Description of sample, and setting

The purpose of the interviews is to “lift the veil” concerning human-horse relations and their emotional and behavioral impact on program participants. It is about describing a relationship, the contextual dimensions that facilitate it and its consequences. This inquiry is about exploration of a dynamic and subjective experience. The information revealed by the interviews reflects the meaning and perspectives of participants’ experiences with horses within a prison context. They explore experiences, emotions, reactions, behaviors, fantasies, irrationalities, non-verbal communication and the interpretation of it. The transactional

relationship between researcher and respondents is required to access the subjective, complex and dynamic data, which is central to this part's purpose. The data was obtained through one to two-hour interviews that were transcribed verbatim. The description of the interviews includes details about the sample, and the setting.

The sample: As indicated earlier, the sample for this final portion of the study is composed of 13 men, with ages ranging from 19 to 50 years old and a racial distribution of two blacks and the rest white. One interviewee is a program graduate and released inmate, another is a graduate who is currently assigned to another correctional vocational program. All other interviewees are active participants in the program. There are differences in interviewees' past experience with horses. Some owned or worked on horse-farms, including three men who trained horses, one transported horses to slaughter, two had histories of gambling on race-horses, and others had no past experience with horses. Interviewees were incarcerated for various crimes, ranging from "white-collar" offences to burglary and murder. The detailed relational and personal histories of interviewees are not available, yet relevant relational context to situate evidence appears throughout the findings.

The setting: The program site was located a short walk from the facility, surrounded by fields of grazing cows. The program site (stable and fields) looks like any other horse farm and does not feel like it is part of a prison. The interviews took place in the program's classroom, which is located in the stable. This room had about 20 chairs, a desk, a blackboard, and some shelves with books and videos. It also had a few posters of horse anatomy and conformation and some models of a horse's leg. Though this was a classroom, it felt warm and was small and intimate. A staff member who was not associated with the program was present for all the interviews. I positioned the chairs for the interview so that the participant was with his back to the staff member. The

staff member sat quietly in the corner of the room, and it seemed that the participants were indifferent to his presence. I faced the study participant at a slight angle to allow for eye contact, but so as not to obscure his field of vision if he wanted to look straight ahead. The resident cat was also in the room. The big cuddly red-haired cat sometimes sat in the respondent's lap, sometimes came over to sniff the digital voice recorder, and sometimes just slept in the corner. Though I was not able to note exactly when the cat was being petted or held by the respondent, my impression was that her presence was soothing for participants. This may provide insight about the role animals' play in this environment and how they may help prisoners calm themselves.

New knowledge emerging from inquiry

New knowledge that emerges from the qualitative analysis concerns the themes and patterns I have identified in the interviews, what they look like (quotations, which are exhibited by italicized typeface) and my interpretation of them. The available personal, relational and situational contexts are the components that provide meaning and understanding of participants' expressed experiences. Thus, the qualitative analysis is composed of quotes that include evidence as well as descriptions of these contexts as participants view them. Additionally, findings are organized by four types of features including, emotional, behavioral, social, and program evaluation and vocational aspects. This division of findings into features is artificial, since often there is an overlap between them. For example, findings of emotional features, such as, issues with forming deep connections, concern also findings of social features, such as, relationships with other participants. Yet, this organization is done to create a sense of order in the findings.

The themes of emotional features that describe relationships of participants with horses are: Scared at the beginning; Words to describe the relationship; It's "me and you"; Issues with

forming deep connections; Exchange and reciprocity; Physical dimension. The themes of emotional features that refer to competencies enhanced and roles fulfilled by the program are: A brief getaway during confinement; Relationship emerges via caring and allows feelings to be felt; Special needs generate compassion; It fulfills what I lost.

The themes of behavioral features are: Responsibility and commitment; Calmness, patience and conflict.

The themes of social features are: Social learning via observation of herd dynamics; Relationships with other participants; Horses and the family unit.

The themes of participants' evaluation of the program and vocational features are: Motivation and expectations; Educational component; Program director; Participants' evaluations of program: advantages; Participants' evaluations of program: limitations; Program enhancing employability upon release; Vocational skills that may be transferable to other settings; Issues with working in horse farms upon release.

Emotional features

Findings of the program's effects on emotional features begin with a description of experienced relationships with horses. This is followed by an analysis of the emotional competencies enhanced and roles fulfilled by interactions with horses.

Description of relationships with horses

Scared at the beginning:

Being scared of horses upon program entry was common among those participants that had no prior experience with them, for example:

When I first started the program, I was nervous; I was pretty much scared to death of them, I've never been around the horses; The first three weeks, I was terrified with horses.

It appears that participants found their way to overcome this fear individually:

I got over that; I just kept working every day, I guess I just learned that they wouldn't try and hurt me, come to there and I really found love for them.

This emotional process is led by and intertwined with a behavioral process, as reflected by the contrapuntal voices, where bold typeface represents emotional voice and underlined typeface represents behavioral voice. The learning and its emotional results are illustrated in this quote:

*I first went in, I was actually just, **I was scared of being up close to the horse** ...then you learn about him and you learn the mood and all that, it wouldn't be long before you're picking up their feet and all that. So I mean **once you get comfortable around him and you want to know and you want to learn**, she [the program director] is going to teach you everything, just I learned a lot and I really liked the program.*

Yet, this emotional process is not explicitly acknowledged or worked with, since this program is designed to be educational and rather than psychotherapeutic. Nonetheless, such learned emotional and cognitive processes can be transferred to other life-experiences and contexts. Processing feelings of being scared of horses and examining emotions that surface when exposed to horses could be used to help participants reflect on issues of self-confidence, and find constructive ways to deal with fear. For some individuals, being in a position of admitting fear can have restorative impact, if processed. The exposure of fear and beginning of reflection that can raise self-awareness is evident in the following section of an interview:

C: At first I was kind of little frightened about...they are massive creatures, some are 1700 pounds, they are real massive...I think they are capable of definitely sensing your fear because your body language...you can tell when a person is frightened of something, like they will stay away from you

Interviewer: How is that for you to be in a position that another being senses your fear?

C: I don't know. I really don't like that. I don't like to be afraid of anything. So I don't like that. I didn't like when I first came there when I was afraid because I just, I don't like the feeling of being afraid of anything. So I got that real quick because I paid the attention to the other guys and how they were handling their horses and I mean I don't know if it's probably a couple of weeks, a couple of weeks, but I just I knew that I had to

get pass that...I had to get or acquire the respect of the horse. Whether at first it was challenging because I was like, I went from one point to like "okay I'm little frightened by you because you know, because I am still new" and then went to acting like I wasn't afraid of them

Interviewer: Pretending?

C: Yes, and then like really start to like acquire like more relationship, like more hands on, like "you just a big old baby"...it's really more so like "I respect you, you respect me" type deal so this let me out of fear a lot.

This example shows how this individual worked out his fear. Yet, his conclusion reveals a gradual movement toward and construction of mutual respect, which parallels inmate codes of conduct and mutuality. This could be further exposed and processed in order to evaluate optional alternatives.

Another example is of a participant who described his relationship with the horse as "stern" following fear that he felt when he started the program:

I say stern because you gotta show them "who's the boss". You have to show them you are, because they will indeed run off, because they sense your fear, so you gotta be stern, you gotta show him that you are "hey, I'm the boss." Because you got this massive being, this massive that you gotta be careful you have to be careful with. So I believe on top you gotta to be stern with him "hey stop there", "stop" because get to nipping at you and if you are scared of them, like they sense that, then they will walk around over you and if you don't be stern it is lot of time not being stern and get injured.

This experience, as well, could be used to reflection and processing of what such fear means in different contexts such as, criminal social norms versus normative social norms.

Words to describe the relationship:

Participants chose to describe their relationship with horses by words that express an array of feelings including "positive" and "negative", some of those are:

Nervousness; Anger; Comfort; Needy; Friendly; Stern; Prior understanding; Appreciative; Alert; Active; Friendship; Someone to talk to; Bond; Something to look forward to after this is over, after I'm released from here; Funny; Selfish; Smart; Appreciate; Powerful; One of a kind; Majestic; Relaxing; It teaches you responsibility; Therapeutic; It teaches you to bond with the people and at the same time it's caring;

Feeling; Peace; Happiness; Good; Sad; Childhood; Frisky; Honoree; Jumpy; Testing; Symbiotic; Compassionate; Aware; Buddy .

These words demonstrate the richness of the potential emotional and social exchange that could develop between participants and horses. Furthermore, attributes toward the horse are being connected to one's self:

He is majestic the horse, and with him being majestic, he has just got that aura about himself. And guess what? With him being majestic and the aura that he has about himself, guess what? It makes me feel like, I'm majestic, and I have their aura around me working with them. I have the privilege of working with them. That's a privilege to me, to be able to come and work with these horses.

Interaction with horses is viewed by some participants as playful, as follows:

I messed with Book a lot and I messed with several of them; Me and Kid went too cool, he lifted me up a couple of times, he wanted to play and cuddling in; We're kind of playing with each other...I'll start laughing.

Another reference to play is found in these words:

I have experienced some play in the snow. I mean the snow is deep in the field, we have got a lot of snow this winter here. The snow is deep in the field and they are interacting and playing in the field just like puppies, just like little babies and I have been able to experience all that.

Thus, being with horses allowed "playful" parts of the personality to emerge in a legitimate way. Perhaps fulfills needs for "teenagers rustling" or addresses emotional need to be like a child and play. Another interpretation could be related to experiences of "normal life" and expressions of stress within the emotionally difficult prison context.

In addition, interaction with horses in the program is approached as having a relationship with a companion animal:

I looked at him as being a big pet. I didn't look at him as being race winner and none of that. I assumed that must be like a big dog.

Parts of this exchange are non-verbal:

There is a lot of that can be said without saying any word. I think that that connection is really evident once you get involved with the animal.

Other parts include verbal communication, where horses are viewed as good listeners that “keep secrets”:

I feel like I can talk to a horse and you can tell him about anything. He cannot tell anybody what I said, so when I'm there alone I'll talk to him...just talk, I mean because he ain't going to say nothing.

And they do not challenge the talker by responding:

It's nice to be away from people, sometimes people get excessive, and it's nice to have an animal that's not going to talk back to you, they are great listeners.

Furthermore, animals (horses, dogs) are viewed as providing an emotional outlet and a source of peace since they are not judgmental, and help one cope with stressful situations:

There has been time when I've been fed up of one thing or another, people testing my patience in there [at the facility] and just needing to get away and come down here. I think that getting around the horses and everything, is the same kind of thing while I walked out [of home] and it was my dog...he is the best listener to my problems, because he does not have to give us to sentence.

Horses and dogs are approached here as providing an “open ear” and accepting, which are important experiences for people who are confined and detached from their natural social circle.

However, this feeling of acceptance is achieved after overcoming an initial mistrust and developing trust, as follows:

Trust is a thing that really don't trust no body...you can optimally overpower dog I believe can't overpower horse...to get someone so massive just like listen to you and come down to stand you and just trust you that I think that is worth of thousand words.

While another participant describes why this trust is required:

I believe that the recipe is a trust between you and the horse, I mean they are not going to let some random person come up and start brushing them or anything else, they trust you a certain amount and I think it exudes a certain confidence around the horse, it's like anyone else, if you are sitting there and you didn't know any better, some random person came up and was trying to clip your fingernails and wash your feet and everything else, it's kind of uncomfortable. So, I think you need to be comfortable around each other.

Nevertheless, one interviewee portrays his view of it as a “jumpy” or ambivalent relationship rather than a linear one:

It's love-hate relationship...we get along well enough but at times and it is kind of testing too. There are times that you really enjoy their company and have a good time out there and there are times when you can't stand being around him...honestly in a way, that says love-hate relationship than everything else, I think that's more of an honest relationship than I have with a lot of people.

These descriptions also point to challenges that some of these individuals face in communicating and forming relationships with people. They highlight the importance of providing inmates with alternative opportunities to develop connections, which can provide experiences of companionship and closeness. These opportunities may also help inmates work out and process their relational issues and eventually improve their competencies.

It's “me and you”:

An intimacy in the relationship was apparent in descriptions of experiences with horses.

Some participants viewed it as a dyadic unit:

It's “me and him” we are together...that gives me a sense of security too; He's my buddy.

These quotes corroborate with findings of gender characteristics of approach toward pets, in which men view them as companions whereas women approach them with more verbal communication and physical contact (Mallon, 1993; Prato-Previde, Fallani, & Valsecchi, 2006).

This intimacy was evident in special treatment that horses received, for example:

Ada-Slueth, my favorite, I spoiled him. I've spoiled him and he is selfish. He is selfish because I have cared to him more than others. So he expects more of me than the rest of them do. All of them expect something of me. All five of these expect something of me, but he expects more and when he doesn't get what he thinks he deserves, he pouts, he nudges, he nips, because he expects for himself to be first, first and sometimes he just acts up, he bites and kicks and run horses away, because he don't want one around me while he is longing for his attention. And that's, that is how Sleuth is selfish, but in a good way. I like for him to be selfish towards me because he is showing me that it's “me and you” regardless of these horses “I know you love them and I know this is my herd and they are

affiliated with me, but it's me and you." I give all of them attention, but I just give him so much more. So we have a selfish relationship.

Another view of this intimacy included references to it as a parenting relationship:

They are my babies and they are my children; That's my baby boy; He was like a baby to me, I mean that was pretty powerful to me; Our bond is inseparable, it can't be broke it's me and you, like similar with a child...with a child like you are his father you don't want him to grow closer to another man...I got a little girl. She is 10 and I got a son, he is 7. Yeah, I think the relationship is in a way similar to that.

Furthermore, the dialogue with the horse in the following example may reflect a parent-child dialogue, where the "parent" expects his "child" to behave properly in front of visitors:

Now, this program has actually changed me for the best because I understand a friendship...Ada-Sleuth, well, that's my friend. So, he taught me how to deal with him. See, a horse, he can't speak to you, but what he can do is that you understand what he's about. Okay? His body language lets you know what's going on. So, it's just is like, like yesterday I told Ada-Sleuth "we have visitors. I say do not show off in front of me. I said I want you to behave yourself." Well, when I brought him out and introduced him to you all, he let me to do everything I wanted to do with him. He let me pick mud off of his ears, as you see, he gives some type of resistance, but he let me do it. Because he understood where I was coming from and that's what I like. I understand these horses, but you must listen and you must understand.

In contrast, while most participants talked about having an emotional connection with horses, some did not refer to having such a relationship, in part because they do not "own" the horses:

I just don't feel that emotional attachment to these animals...I like them as a group, I like to take care of them, getting out there and dealing with them, but now I mean maybe if there was, if I own a horse, if that was my horse then it would be a different situation.

A majority of participants complete the formal course and continue to work with the horses until their release. Yet, this participant, as he explains, chose to go to another vocational program (after completing the minimum program time and assignments to be considered as a graduate):

I got kind of burnout dealing with horses after a while. I enjoy being around horses and everything else but when there are this many of them, it kind of gets it weighs on your patience and everything else and just that routine of day to day...and so with these horses yeah, I think it was good being out there and dealing with the horses, then again it's just like I need separation from people up there, I need separation from horses too, you know, everyone needs a little break.

This example suggests that having a meaningful relationship with a specific horse can invigorate interest and continuity in the program. This is another situation where a clinical intervention could explore the above social pattern: what circumstances raise the need for a break from horses as well as humans and its underlying reasons.

Issues with forming deep connections:

Alongside the sense of intimacy with horses, some participants raised issues about forming deep connections. They expressed separation distress with people as well as with horses. One example was the way participants talked about a program horse that was euthanized:

I got real close with Booker, he was almost like a human being. You could talk to him and meaning what you say, you could tell him...it was just a good horse. I got real close to him. Then we put him asleep [euthanized him]. I don't know for about two weeks, I didn't, I really wasn't able to stand down here.

For one participant, D, the emotional reaction to Booker's death may point to development of compassion. Coincidentally, this inmate had a personal history of being involved in transporting horses to slaughter. From his descriptions, prior to program involvement and Booker's loss he was emotionally indifferent to horses being slaughtered. Yet, D's reaction when he was told that Booker should be euthanized reveals an emotional involvement:

I didn't come out that day...just sad, made me sad. I felt like the barn was empty. I didn't want to put another horse in the stall in which he had met me. I wanted to keep this stall open all the time...I was upset.

I wondered if this apparent change in D's approach toward horses reflects an internal change, or if this is a one-time connection with a specific horse.

Another form of separation distress relates to the realities of being in a prison context. J raised the issue of becoming emotionally attached to a horse in prison, knowing that he could be transferred to another prison due to disciplinary misconduct:

You get attached to a horse...what I'm just saying, once you get attached to that horse, you can get into trouble or something, you don't know if you are going to shift here tonight, you don't know...you can be here today and gone tomorrow, really...I mean I still got to love a horse, I do. I love being around them all my life.

Another participant expressed his urge to connect to a specific horse, despite difficulties with forming connections and separations:

C: I hate to feel like it, but I do get attached...I hate it how like when we were, like all my friends that I grew with I hate that we apart, when separating life. And then friends I grew up with in the college I hate our separation too, after school. I just grow attached to people and I grow attached to things and I hate that very much suffer...because I don't feel like this is hard for other people, as it is for me. I've grown attached to several other horses like, like if something happens to one like [e.g. Booker that was euthanized]

Interviewer: Is it that similar parts in your soul or feelings, play out in this process of getting attached to horses similar as you get attached to people?

C: Yeah, very much, like I mean I think this is an individual thing...it's my own problem, it is like I just get attached to people, I get attached to certain things, as I get attached to cars. Like I have a car that wouldn't let go...I have gotten attached to the horses, I was really attached to Booker, I mean it is just like, I mean he was just a good horse and I got attached to one because I mean, it was, he is different than, he was different than any other horses...that still to this day I'm looking like for another horse that, I'm looking to build my relationship to another horse as much as I had with Booker, because I had really found that was just loving...I'm trying to get close to Benaski out there, like I'm looking to get closer to the horse...I'm trying to grow closer to him than anybody else...I'm looking to build the relationship, I really want a more of individual like relationship like "okay it's me and you".

This example shows an internal struggle around issues of forming relationships and dealing with separations. Here, relationships with horses are viewed in context of other relationships from childhood and early adulthood. Thus, during incarceration, interactions with program horses may provide opportunities to work on these issues by experiencing meaningful relationships.

Exchange and reciprocity:

Participants view their associations with horses as comprised of mutual exchange. This reciprocal process seems to relate to mutuality of emotional needs and responses for humans and horses. The emotional voice exposes the trend of emotional reciprocity:

Once we developed that relationship, I could tell that he cared for me too; I give him attention, which he loved and they give me friendship, which I loved; I have expressed my feelings and in return they have expressed theirs; I am bringing joy to some animal's life. That's what I am doing and in return it brings joy to mines.

Similar evidence appears in "I poems", for example:

*I was caring
Helping
I could tell
He appreciated.*

Another "I poem" illustrates how this reciprocal relationship has developed:

*I feel comfortable
I realize he's special
I can make him comfortable
He allows me to be comfortable
I go in
I first went; he tried to spin on me
I have seen him do it to several people
I developed a relationship
I became comfortable
I would just sit in the stall
He will be laying down
I will sit on his back
Lean up against him
I developed a comfort
I needed him
He was my buddy.*

Here, Y spells out how the exchange between him and the horse is based on mutual fulfillment of needs of comfort. There is mutual trust that is embodied in physical comfort. Y is talking about the horse's comfort but I hear he is actually talking about his feelings of comfort in the horse's company. Clearly, Y developed an awareness of the horse's body language communication.

Another participant demonstrated how the exchange with horses sustains or generates a sense of worthiness and may raise self-esteem:

*I get a great sense of pride
I am making a difference in these horses lives
Because they have been through it*

*I am making a difference
I am giving them
All that I have.*

The words *Because they have been through it* may also point to this participant's view of sharing similar fate with these horses, as unwanted by society or perhaps being abused in their past.

Another participant shared his view, while the verbal sharing is limited, there is an exchange of sensitivity to emotional state:

Well, I don't really share a lot about me, but what I do do for them is I tell them that I love them and I tell them that I care about them and if I'm having a bad day, I think they sense it, I don't have to tell them anything, it's just that they sense it and you can just look at them, you can just look at them when you are having a bad day and actually they'll, they'll, you can see that they feel down because you're down...they are not their perpi-self when you're down. If you go and do something they can sense it. So, therefore, they'll come up and nudge you a little bit like "you okay?", like I ask them if you are okay they'll nudge me little bit, I guess probably trying to pick my spirit up.

Though the dialogue is not extensive and K does not verbally share a lot about his emotional state, the relationship provides a platform for emotions to be displayed and felt. There is an element of projection of emotions and maybe "working out", reflecting emotional burden and processing it through the horses.

An additional example of exchange concerns the opportunity to love and be loved:

You get as much as you give...definitely...they might not know they're giving back to you but they are just about the feelings they put back into you...some people, locked up for eight or ten years straight, they need get cared and loved for nothing in a while, but when you go out with these horses, you get able to care for them and you going with, some of these guys really love these horses just like their pets and that's really something special you get back...unless your family really comes and sees you all the time, you lose that, you lose a lot of emotions up there, you have, its hard...you block all that and just serve time. Well when you start work down here, you start getting a feel like you're needed and start caring for stuff again.

This example illustrates how for some inmates this program can address emotional issues that can arise following imprisonment. Furthermore, another participant commented about this mutual reliance of needing and being needed:

It just makes me feel good, knowing there's someone dependent on you. Makes you feel like you're needed again. I'm sure it does.

Feeling that one is needed and has a purpose while in prison seems to be a rare occurrence. This could be healing because imprisonment sends a message to the individual from society that he is not wanted, that his presence is harmful. Feeling that you are needed is an important part of normal life. The horses provide opportunities to restore such experiences and thus, can remind the individual that he can be useful, despite being a criminal. He is still in a position to be “able to give”. Furthermore, there is a parallel process between these horses’ situations and that of participants:

It's been like back and forth. We have nurtured each other. I gave them so much but I think they know in return they gave me a lot as well. And guess what these horses have been thrown away, they no longer fit for racing, they end up in programs like this but it's a good thing. See everything has a reason. Okay, their racing days are over but look what they are able to do now. They are able to help people like myself.

Consequently, by caring for unwanted animals, participants are “giving back to the community”, since they are helping to address a broader social issue.

Physical dimension:

The relationship between participants and horses is composed of a physical dimension, including touch and body language. The depth and the long reach of this physical dimension are illustrated in the following “I poem”:

*When I hug them
I feel that life that they have in them
And I know I have life in me.*

Another way of approaching this experience provides direct access to emotional process:

*When I hug
I feel
I know
I have life.*

This “I poem” is short and powerful, where the “life in horses” reassures J of parts of his self. This expressed experience is so simple and so complex. The experience of hugging horses provides meaning to J’s existence. This provides J with the deep knowledge that despite the hard circumstances of being incarcerated his self is alive. The embrace, the interaction has the power to keep life going as stated, *I know I have life in me*, despite the experience that:

When we are incarcerated like this it’s like life has almost come to a squelching halt.

Another aspect concerns the physical embodiment of emotions, which further points to the complexity of the participant’s expressed experiences. This is addressed by the question of the emotional impact of touch within this relational context. This element may also be reframed as having the physical dimension with horses serve as a channel to express emotions, for example:

We all loved Booker. I can go up to Book and he would lay down his head on your shoulder.

In this quote, the horse is active physically; however, the participant cooperates and lends his shoulder to this interaction, which connotes to his emotions of love.

Asking questions about being physical with horses (by touching and hugging) is a sensitive topic, especially in prison, when participants do not have opportunities for experiencing such affection daily. This topic is multifaceted because it relates to a wide realm of a participant’s experiences of touch and the physical dimensions of relationships in general.

Another point of complexity is that this question highlights the physical touch that participants are missing when they are separated from loved ones. Some participants may also be offended or reject the idea that their “loved ones” can be compared to horses. Therefore, asking these questions requires a good foundation of trust and rapport. Furthermore, at times creativity is needed, where you are not asking directly but able to hear enough about the experiences with both to make connections analytically. For example, it appears that D has difficulties with touch

or physical intimacy, which may relate to past and present issues with humans relations. These are also expressed in the way he chooses to relate to horses. D distinguishes himself from others by saying that he is not physical with horses, *I don't hug a horse*, and views petting them in a negative way:

I will just hate to do it, it's just not good practice, not good action I'm afraid.

Furthermore, while grooming, D tries to relax but with no physical contact:

While I'm grooming him up, prefer to just relax but not try to reach around [to hug or stroke].

Interestingly, most participants did not express a desire to ride horses and they accepted the condition that they would not ride during the program, as expressed by K:

I would take one of these horses and just use him for a pet. I don't have to ride them, I always have to have something for your own benefit, I mean he will still be my benefit, he or she, but just when we got out and interact and have something to do with these horses. If the horse is not rideable then so be it, I could feel for so much to do with that horse groom, feed, talk, walk, you see some things, so many things you can do.

This participant sounds fulfilled from his emotional and caring experience with no desire to ride, or train horses. This finding is interesting because I would expect that especially among an inmate population riding would address physical needs for activity. Perhaps, being within prison, an environment which inherently is not associated with providing pleasurable activities, as well as being aware of the vulnerability of these specific horses limit such desires among participants.

One more characteristic that emerges is a physical and emotional reciprocal process that occurs simultaneously as, for example, the emotional and behavioral voices point out:

I like the feel I'm taking care of them and I think the horses enjoy it. They enjoy being brushed and handled too.

Furthermore, it appears that the physical intimacy with the horse fulfills an emotional need for intimacy, *He loves me when I cleanse him up*, and the physical expression of feelings provides a sense of wholeness in the self, *I am fulfilled*.

Emotional competencies enhanced and roles fulfilled by the program

A brief getaway during confinement:

The program is viewed as providing a “haven of safety” and a sense of escape from the prison context, as described by participants:

It's a getaway and like, I don't know in a confined way, it's just a brief getaway in a confinement; It was a safe haven to come down here and I think that freedom of being around those horses, watching them run and everything else I think that kind of takes away from a dark cloud accompanying us over...it's almost like you can pretend that you are free; It's just like you escape from being in there and having the prison mentality.

Furthermore, spending time out of the facility building, in the open environment generated feelings of freedom, as follows:

I wake up every morning and I know I'm not totally locked behind bars and then I got a job and I got a responsibility to come down here and work...that's a gratification itself...it's beautiful (laughs)...I'll get to walk out, I walk in the grass and listen to the birds sing, I hear the cats and horses running in the field and that takes you away from the prison life, oh yeah, that's an overwhelming feeling, you know you can come down here and do something...lot of people don't realize what they have here until it is gone.

It appears that the power of nature and having a job play fundamental roles in this participant's experience. Another interviewee emphasized his exchange with horses as central to the feeling of freedom:

It was definitely like an escape...I would be out in the field grooming horses and just talking to, like it's a person and then out there with the horses, it took me to another place where I wasn't, I wasn't locked up when I was working with the horses basically...it was almost like being free, because it felt like it was important what I was doing and I mean did not just groom him, but everything we were doing like taking caring of them, feeding and medicating and all that, it was just like, it felt like freedom.

The following “I poem” exposes psychological and social confinement when present at the dorm, and the experienced internal freedom when present with the horses. This poem reveals the process of moving between freedom and confinement and ways of coping with confinement:

*When I am up there
I am locked up
when I am down here
I'm free
I am going through this
locked up and free
when I am here
I walk into fields
I am interacting with nature
I don't have to listen to buzz cuss
I am interacting with horses
I am free
I am free to think
I am free to roam within my mind
I am free to collect my poetry
I am free to do
I am free to think
I am free to look
you don't hear all these 30 or 40 different voices
all talking altogether, everybody is talking
they talk to into each other
here, I don't hear all that
The horses are not talking
I am not talking
sometimes, I am out there by myself
Here, I get away through the horses
There, I get away through my rhymes and my poetry.*

This “I poem” exposes the tension between being locked up and being free. The internal abilities of this individual are illuminated by the way he copes with being incarcerated, by using creativity as well as nature to his advantage. Yet, the tension between being locked up and free could be quite confusing and emotionally charging.

Feelings of freedom or brief getaways in a confinement, helped participants cope with the emotional burden of incarceration in additional ways. The mental move away from prison by caring for horses helps F cope with longing for his family by autosuggestion when in bed:

I find myself going back to the dorm, right in the bed and later seeing my whole family, and stuff like it, out of bed a bunch of times, and then it comes in you: "well, you love the horses don't you?" Sure I do, I'm telling that for months. So that makes me happy, just taking care of something like that.

Another participant shared that caring for horses transports him mentally and cognitively out of the prison context and described how it helps him keep his sanity:

It's part of physical separation where there are a lot of people...a physical separation from the prison, you are not sitting there with the same view that you see all the time...we don't really have a fence around here necessarily but, there is these real things...there is an enclosure, we know where our limits are at, as I think that physical separation that little bit helps, you can expand your movements a little bit...I think that's peace...you hear the words institutionalize a lot...you hear the same conversation 20 times about the same thing. Coming down here just kind of gives you something else to talk about, it keeps you from that institutional mindset...I am somewhere little more normal, normal in some ways. It may not be normal for the institution, but it's normal for everyday lives.

One more participant describes his view of prison, the stress and commotion, and how even just looking at animals provides a break and calms him:

It's kind of a getaway. You get a lot of anxiety in being in a place like this and you're just building relationship with a horse and any kind of animal, can help you take that away. You keep things bottled up in here all the time...just like back in the dorm it's just howling all the time, its 24x7, its 2 or 3 o'clock in the morning and these guys are howling from bed to bed, I never liked that when I went to bed at around 8 or 9 o'clock at night, I didn't have to hear no howling or screaming and all that, and it's like living in the zoo, I mean there is an older guy in there, he's a lawyer and he's about to lose his mind because there's no just calm, and there's different types of people, I mean, the people that I meet are people I never...hate to say this because I'm in prison myself, but majority of the people that I meet in here I never wouldn't have any dealings with them on the street...it seems like they're constantly chasing after something...I'm not in here for drugs or anything like it, I'm in here on a white collar crime...these guys seem like they're constantly after something...it's like a mouse trying to get to the cheese. Sometimes it's easier to deal with animals than it is with humans: it's simpler dealing with animals, they don't change their minds or argue with you, I mean it's just stress free. I mean to me, even if you had problems with animals they still cut my stress and by me leaving that dorm and going outside and watching those cows with the horses out

there in the fields and stuff, I mean, it's my getaway, it's something I look forward to, it's the only way I can do it in here and I'm glad I learned it years ago, or I don't know what I'd be doing to relieve my stress.

This participant also compared his ability to cope in his current circumstances with his ability to cope when he was in a county jail that did not have animal programs:

When I'm sitting there in the county jail, I just had to look forward, that's all I could do, there was something beyond those walls I mean that's all I have in there, didn't even have a window to look out...you have to reach deep, I guess it has a lot to do with what's your maturity level is, I mean there was times you feel like crying, there was times you wanted to hit somebody but what good is that going to do, I mean you just got to reach down deep and just keep hoping...now I look forward to coming down here, I look forward to getting up in the mornings now, I mean, just wanting to be around these animals, it's rehabilitative.

These examples reveal that perhaps the program helps maintain participants' psychological well-being in the face of dire consequences of imprisonment. Thus, the experiencing of a brief getaway during confinement has a broad psychological impact as evident in participants' expressed experiences. However, a retributive approach to correctional policy would not favor that a correctional program provides "feelings of freedom" for inmates. Consequences of this psychological impact, such as better coping with the burden of incarceration, could enhance the social and mental well-being of inmates. These could sustain aspects of a stronger social order within the correctional facility.

Relationship emerges via caring and allows feelings to be felt:

The program offered an opportunity to express caring for another, as follows:

It allowed to be a caring person because I really am a caring person...being able to actually care about something and taking care of these. So that's, that's the part of me that really, that really got to come out in the program, is being a caring person.

And this caring created a sense of a relationship:

I'd treat them all with kindness and care and they, they bond to that; They come to me, all around, they know my voice, they'll come running to the entrance of the gate.

Being with horses also allowed for the expression of inner feelings that were otherwise difficult to express within the facility:

Being down here would allow you to escape and be the person that you're not up there, it just allowed me to be one on one with the horse and caring for the horse, it just allowed the in feelings come out.

Furthermore, authentic parts of the personality could be expressed in the program:

Out here the truth comes out, you got to have a certain ego up there, you got to be manly, ah, I guess you got to put on a pretty much, put on a show up, be somebody who really ain't, because you don't want somebody take advantage of you...down here you just be what you want to be, just be yourself...the shell comes off.

This could be viewed as providing another form of break from prison mentality, where inmates need to protect themselves constantly and “play tough”. Furthermore, another participant describes the role of this caring especially for inmates who are away from their families for long:

Most of these guys, they've never been around horses in their lives, so they're just like me...I guess it's being around something like that for the first time in our lives, this does something. They all love something. I'm sure they love their families, but in here, some of them been away from their families for 10 years or so...they ain't seen nobody and they can't strike down here and starting and getting out with the horses. You build up a, I guess you build up a bond between you and the horse that you'd take care of...you go out and check him every day. It's just like caring for a kid, you go home and check with kids, like your kids are doing fine everyday...you come out here for at least 6 months straight and check them every day, and so I guess that's where the bond comes in.

Additionally, this opportunity of “feelings being felt” could be restorative, as one participant shared:

It [being with horses] brings up feelings in you, you didn't know you ever had. Like I tell you, in dorms hearts get hard...you come down here, and you let all that go and start to feel caring in the end, like you're needed, wanted for real, you start to feel wanted. That's one thing, good thing this job does for you. Like you feel like you're wanted and needed. Like at the same time you can get a bond between you and a horse and love it, you just can love anybody and that's what you do down here.

Feeling “wanted and needed” could be powerful, especially for individuals who are unwanted by general society and are confined.

One more case of an emotional awakening is a story about a 27 year old horse that H took care of. She became sick and was euthanized, which had an emotional impact on H, as follows:

That's pretty hard sight to watch after taking care of something and that's, that bring up feelings in you, you ain't felt for a long time...and like I say some of them are bad feelings, but it makes you feel, yeah.

Feelings of pain or sadness are vital, because they also allow you to feel “alive”, to feel that your emotional system is lively.

Furthermore, such an emotional awakening could also address damage caused by substance abuse. Being detoxified and caring for horses serve as vehicles that enable feelings to arise:

I wasn't a real caring person; I cared about one thing, one thing out there, drugs. I did drugs everyday and that's why I forgot how to care, I didn't care, I was married 19 years but you couldn't tell I cared about her, but once you came back, and around drugs and you get that back. I guess that makes you think, it really makes you think, so, it's really not irrelevant to how you feel caring for these animals, because it brings the feeling that you love for somebody. When you're on drugs, you don't care for nothing and at least try to, all I cared about was how I'm going to get high, and then when you're trying to clear it up and start caring for something, all life comes back and you hope you don't do it anymore when you get home. You don't want to anymore, as a matter of fact.

This example also concerns practical implications related to the additional outcomes that may be achieved through a combination of substance abuse treatments during or prior to being in the program.

For another participant, with no history of substance abuse, caring for horses transported him to another emotional realm, as revealed by the following “I poem”:

*I would be
Out in the field
Grooming
Talking
Like it's a person
Out there with the horses
It took me to another place
I wasn't
I wasn't locked up
I was with the horses*

*Like being free
It felt like important
I was doing
Caring
Feeding
Medicating
It felt like freedom.*

Thus, it appears that caring facilitated the development of a meaningful relationship with the horses as well as sparked an internal shift by enlivening the participant's emotional system.

Special needs generate compassion:

Horses with special needs attracted special attention and generated compassion among some participants, as follows:

I was closer to the ones that we had to medicate, like take care of special needs; I cared the most about the "messed up the most"; By giving him the medicine everyday...it gives you a feeling for him, it made me happy to see that I could help out a horse.

One participant described how Double Man, who was abused and neglected, healed by the care he received:

He just absolutely looked pitiful, ribs showing, and all that ribs and just tore up looking and all we did was take care of him, like we would do with rest of them, we brought him all the way back to looking good...you can see what you can do and it's just gratifying.

I wonder what exactly attracts some of the participants to forming special relationship with horses with special needs; why them? Is it due to identification, as aforementioned, *because they have been through it?* There is an emotional process that occurs when one is exposed to injured or neglected horses and observing how caring for them can help them recuperate. This is a unique opportunity to experience within prison: being needed and having the power to improve the life of "another" living being. The immense improvement in a neglected horse's physical appearance has symbolic meaning and reflects how an inmate's effort is influential. This could be an empowering experience. Perhaps, individuals who care more for ill horses want to be in the

realm of the savior. This may relate to a role transformation process “from injured to survivor to rescuer, healer”.

It fulfills what I lost:

Caring for a horse reminds participants of present and past losses in their lives:

It makes you want to remember what you have, what you had and what you lost, there's something like “I could have been doing this at home instead of in a place like this” it just reminds me what I love.

I wonder where this internal dialogue is leading this participant; does it raise hope, anticipation, since there is something to look forward to and the connection with horses is like a bridge to those loved and lost? Does this memory increase depression following thoughts of loss?

In addition, inmates face multiple challenges within and outside prison walls, and the program provides some mental relief:

After doing two years I had to do another 36 months before my wife found that out and she divorced me. I haven't heard from my kids or anything in that time. So, there's a lot of stress you have to deal with in here, more than just walls and the people and the things you're losing on outside too and you just constantly have to find ways to relieve yourself...I see some people they take it out on other people...you got to be mature enough to find ways to relieve yourself. Most of the time it is mentally, just like with the cows and the horses, I can mentally relieve myself that way.

It appears that this mental relief may help an individual feel better internally as well as externally, to better tolerate his situation and surroundings.

Furthermore, as aforementioned, caring for horses fulfills the desire to parent and perhaps compensates to some extent for losses of family relations while in prison:

Being with the horses reminds of what I lost, being able to take care of my niece, because she ain't got a father to take care, but like I said I'm not comparing her to a horse but being able to be here and take care of them because I lost what I was able to do with her out there and I'm taking care of the horses to not block that out but keep my mind off that...it fulfills what I lost...I got no kids, she's perhaps she's my only, my even though she is one of my, even though she is sister's daughter, because my sister was in prison too but for five years, half her life, so but when I was there she looked up to me. So I'm trying to

fulfill this place with what I, what I lost. It fills the void, that empty space, like working here for that.

Behavioral features

Responsibility and commitment:

The program generated qualities such as responsibility and being alert, as participants portray:

You're totally out alert at all times. That's the baseline...you never drop your guard no matter what you're doing, leading them, feeding them, watering them, you're always alert; We have a lot responsibility, because they depend on us to care for them and that's what we are here for.

These experiences have an emotional effect and are intertwined with emotional and behavioral voices:

*I look forward to it. It **brings my moral high, my spirits and all that** and so I can handle or **accept a little responsibility** that I do have down here and **it makes me feel good. I'm learning something. So yeah, it makes me feel good.***

The following "I poem" shows how part of this responsibility is carried out and shows its outcome:

*I come down here
It's 2 degrees outside
I'm out there breaking water
So horses can drink
I'm caring for them
I'm checking them
I'm caring for them
It gives me a sense of pride
To care for something other than myself
Doing it day after day
Being committed to it
I'm committed
I look forward to coming
I am not here for the program
I am not here for me
I am here for them
That's caring*

Furthermore, one participant compared between the feelings of responsibility he experienced when caring for horses to his feelings when he cared for his niece:

It feels like it's a big responsibility to take care of the horses...that's not new, if you ask me the responsibility for anyone, like my niece, she had no father and I felt like I needed to be a father figure too, like I have no kids neither, so that was probably my biggest responsibility...so, it's got to be responsibility and that's a big one, but because she ain't got no daddy, so I could be there for her...so...yeah, so it's a big responsibility to make sure these horses are taken care of.

Interestingly, another interviewee shared how he exercised his responsibility as a parent by teaching his children to care for animals prior to his incarceration:

We tried to teach them what the goals were...values and morals...that was just part of the building...working with animals taught them responsibility how to take care of them and that they need to be fed three times a day, looked after.

These examples demonstrate how caring for horses can fulfill a parenting experience, which could be significant for inmates separated from their families. In addition, a few participants described how the responsibility acquired was important to them, in light of contradicting experiences within prison context. They compare being in the program with the realities they face in the facility. In the facility they feel guarded, constantly watched and bored:

You got to stand up at the end of your bed like you're a kid...it just takes your freedom; Up there you are just sitting up there doing nothing.

This contrasts with how they feel in the program:

When you're down there doing work with horses and being able to care about something and feel important...it's a big thing even though you have to leave down there and go back and get counted and all...it gives you not only a sense of being free but I felt important, because I felt like what I was doing was something needed to be done.

These contradicting experiences further show how the program plays a restorative role by creating opportunities for inmates to perform as mature individuals while being involved in meaningful activities. However, in contrast to most participants, one man differentiates himself

from all the others by saying he has no emotional connection or sense of responsibility towards the horses:

I'm not one of these people that sits up there [at the facility] and worries about them when I'm in my dorm, I'm not worried about the horses.

This voiced experience shows that not all individuals form meaningful relations with horses and perhaps, consequently, the commitment to the program is also limited. Perhaps the sampling strategy chosen for this portion of the study excluded those individuals who were not profoundly affected by the program.

Calmness, patience and conflict:

Being in the program generated additional behavioral changes such as calmness, patience and decreased involvement in conflict. Some participants talked about how working with horses creates patience. One described how he tried to clean a hoof of a horse that would not pick his feet up for a long enough time because he was unhealthy. This interaction made him realize how he needs to wait to achieve some goals. Another interviewee shared that:

It takes a lot of patience with animals, and understanding them, they [horses] bug you the hard way...and that's the type of patience...you don't just get frustrated and give up on him, you just got to keep working him until things work your way up and that was an enjoyment to me.

The patience is a result of an ongoing interaction which includes facing challenges, frustration, but is also rewarding when goals are met. Additionally, another man talked about how working with horses generates calmness, as presented in this "I poem":

*I've never worked with horses
I've never had this sense of calmness
When I'm here
I'm calm
When I'm here
I'm in a different world
When I'm here
I'm at ease*

*I'm at ease with myself, my emotions are settled
 I'm not as hyper
 When I'm here with them
 They bring about calmness at least for me
 This is what I experience
 I get a sense of calmness
 I've never had to this extent
 I've had calmness, but not to this extent
 This is what the horses do for me*

It remains unclear what parts of the dynamic between this participant and the horses bring out this extended calmness. These are parts of self-awareness and reflective functioning that may be too complicated to express in words.

Quite a few participants talked about how being in the program helps them with better anger-management and having greater self control. It keeps them from getting into conflicts and reduces violence. V provides his view of the context for his behaviors:

When you get locked up as long as I have, we had to fight; I mean this is place where people have to fight.

V talks about his disciplinary actions within prison before entering the program:

I got in trouble quite a lot...once every two to three weeks, for a couple of fights.

He compares it to his behavior in the past five months, since entering the program:

Given my circumstances and my situation, TRF is like almost like a life saver for me to an extent. Definitely keeping me out of trouble definitely on that aspect, I mean I ain't never been held up on nothing [disciplinary] since I have been here.

Furthermore, V provides an explanation of how the program brings about this change:

It is helping me retrain my thoughts...I definitely think this made me think before I say a lot.

An example of how being with horses reduces V's violence, as he shares:

These horses help me out tremendously, more than you could ever imagine...I mean the way they do to take my actions a whole lot...it alters my actions...it alters my actions with inmates and everybody; here there's a whole lot of snitches racks, people telling people these...these people, normally you beat him up, you do something, if they told, well I know a couple there I just don't fool with them and I know a couple down here I try not to

have no conversation for, avoid him but I don't do nothing, no comments, they go tell something on me and I just try to make sure I try to be above the line, where they can go tell, where they want to tell, but I'm not doing nothing that will really get me in trouble...in the past I would not tolerate people telling on me or talking about me...I'd probably beat somebody up, yes. I'm not really violent but to people that tell on people.

Another example of reduced violence is present in the following part of an interview:

V: Someone even called me the B word the other day, like bitch which is hoodoo, like he was playing, but I don't care playing or not, and I did understood, look, but if he didn't mean it, I would, I don't care.

Interviewer: If he didn't?

V: If he didn't mean like telling me I'm...prior, like don't call me that and we're fine and he said, ha ha, so it's all good, but he tell me, I don't know just don't do that and he and I came to understand without violence

Interviewer: That's a big thing. Do you relate it directly to the horses?

V: Absolutely, because for four months what's going through...I got something to lose, I got something to lose, this way I feel about it.

Thus, V and others explained that their behavioral change is linked to their motivation to stay in the program and the fear of what they would lose if they were violent, for example:

Before I react sometimes I think about the situation I'm in because of what it could get to do...and what I might lose if I react in the wrong way, then I might be gone and Samsung don't get bad, these horses are going to be fine. I'm not worried about them, don't get me wrong that I'm not doing this because I'm afraid [about the] horse farm, this care and that horse...I know that if I leave here, that the horses will be the same...but I know that I won't be able to come out and go up there in the fields...[where I] get a peace of mind.

Yet, another underlying reason for change may be fear of losing status by the parole board:

I look for parole in July and I'm, I'll be working in July and go to parole board. I'll try to go home in July. I'm on track...the horses are helping me because sometimes when I didn't want blood I relate to my situation, I don't want to mess things up.

These “external” incentives for such a behavioral change raise questions about the internal process that follows. Are these changes long-lasting? Have internal perceptions and skills that relate to facing conflict changed as well?

Some clue about such an internal process could be found in the words of one participant who owned horses and other animals, prior to incarceration. He referred to an internal process of how exposure to animals mellowed his tendency toward violence:

Probably it [being with horses] made me more stable mentally...when I was younger before I ever had the opportunity to be around horses and I had a temper, that's one thing my wife always told me...we knew each other ever since we were in high school and she said I changed after I started messing with animals and the horses, I mean, like in my teens and my early 20s if somebody said something to me, I mean, it didn't matter. I didn't try to work the situation out. The only way I knew how was just physically being violent...and that's not the way to be...it mellowed me up being around them over the years. I mean it didn't happen instantly. You know just being with them and showing them love that they needed and everything and sometimes you don't get a lot of love back, but they're always there for you, I mean when they see you coming they know you're coming to do something for them they need.

Conversely, one interviewee observed that there were frequent changes in the group, due to disciplinary infractions, as follows:

The class, the participants are always changing up because, certain individuals will get shift away for whatever reasons, whether it is disciplinary or for simple fact that their number came up and it was time to go or mainly disciplinary though. So, it, it switches around a lot.

Though, disciplinary infractions as defined by DOC (see Appendix F) include various behavioral misdemeanors, obviously, they also include those related to violence. This poses questions concerning the extent and nature of the change participants undergo.

Social features

Social learning via observation of herd dynamics:

The program provided opportunities for social learning through observation of interaction among the herd. When horses are roaming free in the fields, participants can watch the dynamics among horses. For example, one participant described how he saw gestures of mutual help when one horse that had no tail was helped by another horse to chase flies off him, while they stood aside each other and faced opposite directions. Furthermore, the formal program course covers

knowledge about social hierarchy in the herd of horses. Some participants interpreted their observations with issues pertaining to their own lives, while others had no such insights. In one such case, being in the field with horses makes S feel like the leader, “the alpha”. He experiences being in control, when he is present among the herd:

With me coming into the fields with them, I become “the alpha” because they are all domesticated and they have been around humans all their lives. So, with me in the field that makes me “the alpha”. And when I leave, he can pursue his position once more and then I move forward to next field.

For this respondent the internal effect of such an experience appears to provide a sense of control over his present situation in which so much of his life is controlled by external forces. Such an experience could be psychologically empowering especially when in prison, where by and large an individual lacks control over his daily reality.

K reveals another example of opportunities for social growth via herd observation. He describes a “frisky” situation with horses in the field, where he is using metaphor from “criminal social codes”:

It rained real bad and we were up there feeding the horses, and checking all of them and I was just kind of thrown into, my buddy, Steve, was up there with me and he kind of does everything and let me out there...at that point it’s like a gang mentality...yeah, it’s like a gang in that the horses have, they kind of can spot the weak in the ones or hesitant and they pick on him...and the rainier and muddier it gets, the crazier they get...

This description reveals how K is interpreting the dynamic in the herd by projecting human interactions on horses. Such an understanding could be further discussed to enhance K’s social awareness, as well as developing alternative conceptual approaches toward social situations. For example, what alternatives could be given to viewing a gang social dynamic?

Another participant explained how the theoretical knowledge that he learned in the course is displayed in the field. This participant also makes a connection between the order of the herd and the learning of order in the world and order within himself:

Once you understand pecking orders you are able to interact with these horses and go in and out of a move as they move in the herd...well, he may start to feed a horse out in the field that is at the very bottom of the pecking order. Everybody else is looking at him "what are you doing feeding him this, when I deserved this because I'm at a higher status than he is "and that creates confusion in the order of things. See, everything is in the order of things; nature is about order of things. It's a 360 degree order. So once you understand the order of things you are better equipped for situations, awareness in those fields or those herds...and in that, guess what, I collect, I understand order within myself. See this is helping me because I understand the order of things. You know that's why they have institutions because we have lost the order of things. Our society is of order. The majority of us, the majority of every one that is in here got the order of things confused at one time or another in their lives. It would help me. It really helps me because I need to work in the order of things when I get back to the world. This is what these horses have taught me, the order of things.

Relationships with other participants:

Some participants did not have unique relationships with other program participants. For example, W isolates himself socially:

I would try to stay to myself and just stay in my dorm and come down here and work.

I assume the role of horses in this limited social reality is important, because they can fulfill some social needs. The emotional voice helps to characterize the respondents in terms of their relational histories and emotional needs. It exposes the emotional burden in participants' expressed experiences. The theme of "I stay to myself", which I heard repeatedly, raises thoughts about how hard it must be to be so isolated, and how they feel that they must protect themselves from social interactions that may harm them in prison. This shows how important it is to offer an emotional and social alternative, which could be provided by horses. "I poems" may expose the internal dialogue that participants experience, while trying to understand their experience. The following "I poem" exposes the internal dialogue that occurs around the issue of isolation and lack of social support. It points out how W is questioning his responsibility to his isolation: Is he

the cause of his own isolation? The poem exposes a wave of “up and down” between his wishes and what he could do to change his situation given the realities that he experiences.

*I bring on myself
I just don't have anything in common
I just kind of stay to myself
but then again
I could say
I think it's why
I enjoyed coming out here
like a piece of home
I come out here and work with the horses
I enjoyed being around somebody else
I wish
I would say
I think there are a couple
but then I just had never seen common
I just pretty much don't
don't feel like a connection
with anybody I have here.*

This poem demonstrates how horses and participation in the program may alleviate feelings of isolation by providing opportunities for emotionally supportive relationships. It also shows how W is “working out” his emotional situation and how being with the horses enables that process.

Another participant who described himself as “distant” shared how the program helped him better tolerate people:

It has opened me up a little as far as with people because I wasn't a people person. I was not. I was elusive. I was at a distance but with in-sight but it has opened me up. I was a loner. I mean yeah, I love my children, I love my relationship, but I just didn't have many friends and it's just because I chose not to and I'm not saying that this opened me up to a lot of friends but it opened me up to better tolerate people...just opened me up to interact with people more...I have a lot more understanding for situations and people.

Other interviewees revealed that relationships with other program participants provided an emotional and social break from prison and a safe social context:

I used to be in a 30 man dorm and you deal with all those personality types and different people, people being loud, disrespectful or just, just being weird and it means different people walk and talk differently, sometimes it is offsetting, but well, there is about having

some kind of clash and that situation, but so it's nice to get away and kind of separate oneself from all that...we are kind of separated from the facility it is like a little safe haven where we can come and get away from the regular visits of the yard up there, so you kind of get out of all that crap.

As well, special relationships evolve among program participants, because “horse talk” facilitates closeness among them. I assume such closeness contributes to addressing loneliness while in prison. It can enhance emotional well being and positive social interactions by providing common interest that is normative, non-criminal:

We are here together and I mean, it is always “horse talk”, like it is, like we get to talking about what Kid did as the stallion, he is the stallion we have on the yard. We will get to talk about that, or we talk a lot about what needs to be done around here and like what would be, we have a lot of conversations about what would be better to make the transitions down here, to run more smoothly, and...a lot of hands on stuff...that brings us together because like they show me how to do this...a lot of helping each other out.

People that have been in the program for a long time and those with prior horse-knowledge teach the newcomers. This provides an opportunity to develop skills of mentoring and taking responsibility:

A teaching role; I teach them the things that she [the program director] has taught me. I teach them how to be safe up there, because you've got to be safe, and they are inexperienced and that's not a place in herds to be inexperienced. So she [the program director] sends out to people that are more knowledgeable and that's a great thing.

In addition, the program has another social benefit. Those who have been in the program a long time have a special relationship and call themselves “the weekend crew”. This crew takes care of the horses over weekends and holidays in addition to during the week. Being on the weekend crew has a special status since its members have been in the program longer and have more responsibility. These friendships are also extended from program to facility:

I am part of the veterans now...we developed our friendship through the work place...we have got a closeness about us...it is more relative down here for us than it is for the other guys in the yard because we spent a lot of time together. We spend from 8 o'clock in the morning to 3 o'clock in the afternoon, we really are here. We venture off when we go back, but I see these people every day and I see the people in the dorms everyday and not

so, because I am close to but we are more like, we describe each other, co-workers over horse farms, because we just, I don't know, it is like it singles us out like. I like that, I like the closeness, I like the group thing, I like. I have grown to like these guys.

This example illustrates how the program has a social role which is extended also to the facility.

Horses and the family unit:

Being with horses eased loneliness by having “someone to talk to”, as aforementioned. For participants who are parents, horses also eased moments of longing to be with their own children to some extent:

I would be out in the field talking to them, I would be talking to horses, telling him I was missing my kids and...I missed out a lot of my kids' life...I can't go back and all that, you know, it hurts me up to this day.

This description is touching. It taps into the many consequences of being incarcerated, such as the immense emotional burden that occurs if a parent is absent when their children are growing up. I imagine that these are extremely painful feelings that are difficult to share. Perhaps horses, as non-humans, are “less threatening beings” with whom to share such an emotional burden.

One participant reflected on the role horses played in his family unit, prior to his incarceration:

The moments I enjoyed the most were with my kids...it built such a family bonding and everything, and I mean when the kids were young...they enjoyed, they looked forward to those horse rides every weekend and to them it was like, it was just enjoying and entertainment to them, but to me it was therapeutic and that's how I looked at it...it helps, bring a bond again with the family...you get out in the weekends and you go on your rides...it's a unity between animal, yourself, your family...they [horses] work like a good bridge.

Furthermore, another participant talked about his expectations of how horses could help him reconnect with his children:

My main reason for coming down here is to get my kids into it when I get home...so I know something about a horse and be able to maybe help my kids; give them a couple of horses, teach them riding and whatever, take care of them.

This expressed motivation to joining the program is interesting especially because this participant had no prior experience with horses. Obviously, it shows how this participant is occupied with thoughts about ways to restore family unity upon his release.

Participants' evaluation of the program and vocational features

Motivation and expectations:

The majority of participants say “work time credit” and “good time” are the main incentives for choosing this program. “Work time credit” is time off the sentence for every day of work in the program. As well, participants receive a graduation certificate after the successful completion of a stable management test and after being six months in the program. This grants “good time” which provides an extra 90 days off one’s sentence. Most interviewees revealed that after beginning the program they realized that there are other benefits. For example, J, a graduate, who worked on a horse farm the first year after his release talked about a shift in his expectations. J entered the program because he wanted to earn “good time” and has learned that:

That’s the best thing I ever did, because if it wasn’t for that, who knows, I might not even have a job now.

Other participants mentioned additional reasons for joining the program. Some wanted to expand their horse-farming knowledge in order to find jobs on horse farms upon release. Some identified their love of animals as the reason for choosing the program. One participant stated his motivation as follows:

I’m not looking at this as a monetary gain or anything like it. I mean I came because of the enjoyment of it and I like being outdoors... to me it’s more therapeutic.

Two interviewees revealed that their underlying motivation for entering the program was to learn more about horses so that they could hone their knowledge of horses for the purpose of

gambling. At the beginning of the interview S's intentions were latent when he was talking about how he was developing an expertise in horses:

I am able to go around look at them, look at their eyes, look at their body, look at their confirmations and while I am out here I study confirmations.

Later in the interview, this motivation was spelled-out clearly, alongside a shift in his approach toward horses:

S: I had been gambling horses all my life; all my life since I was 11 years old...that was my addiction...gambling was my addiction. I was very fond of horses, but I was actually more fond of the gambling as they call it. Like yeah, I would get frustrated when that horse didn't win that money for me, but that's all in gambling. But yeah, when I was gambling, I was not looking at horses the way I look at horses now, because now I am interacting with them. Will I gamble horses when I get out? Sure I would! because you know, I make no qualms about it. That is something that I enjoy and I like testing my skills. Maybe I can test my skills in a better way this time, but yeah, I would gamble on them. I have been doing this for long time, but I would have a different, how should I say, I would have a different feeling for them, because I have been around them. I mean, but I would still gamble, but I mean I just like them a little bit more now. I like them. So, but I would gamble. Anything pertaining to gambling I was there and that's how I ended up over here. But, I view them differently because I have been around them, but when I was gambling they were just an object, a tool, to my gambling, you know what I am saying? but yeah, I want to gamble, I know that maybe I need a program for it, but I don't know...I knew that if I knew more about them it would help me with my addiction. Okay? I got aware this would help me. I knew that will. You come down and you learn more about the horse, the confirmations and things, more to look for when you are doing your betting

Interviewer: Okay. So it would improve your gambling skills?

S: It would improve my handicapping skills, it will. So I came down to be here to enhance my skills, but I fell in love with the horses instead, you know what I am saying, because I hadn't been around horses but I fell in love with them. So I can't help the way I feel about them, but now, I had maybe some bad intensions of coming down and learning some things to help me along with what I do. I ate off this, you know, I ate off this. It was time I won an awesome amounts of money but it was time I lost large amounts of money as well...and that got me into trouble...but yeah that's why I came down to be able to better, to be able to do what I needed to do with my gambling aspect. Maybe it's vicious, but I fell in love with horses in the process.

I respect the honesty of this interviewee about his addictive behavior; yet, this mixture of instrumental approach toward horses as well as emotional connection is confusing and may also

reveal that S is in a vulnerable state. This description also raises an ethical and practical question. On many levels S views horses in an instrumental manner, as a tool for fulfilling an addiction despite the emotional connection with them. Furthermore, horse-gambling led S “into trouble” and prison and part of him is holding onto this criminal tendency. Thus, how can it be assured that participation in the program will not be misused? This finding suggests that participants should be screened. Those who have a history of horse-gambling should be evaluated for additional treatment. Perhaps modifying such a behavior could be accomplished by participating in treatment for addictive personality and behavior while they are participating in the program.

Educational component:

The class provided knowledge about horse care and included information about how work in various types of horse farms is carried out. Participants described the comprehensive training they acquired:

I had zero experience working with horses when I went to the program and by the time I left I was giving shots in the vein and trimming feet. I was doing basically everything; I never dreamed on learning much about the horses, I learned it for real, ah, that's the excellent part of it; Now I know a lot of stuff I never knew about before as far as problems they have, confirmations...she teaches, five-four times, four days a week.

Through the course D gained a deeper understanding and feel for horses and developed sensitive observations, as follows:

I was really becoming like a true horseman. I could look at the face, like a thoroughbred mare horse...I can tell just by the face, I could tell the difference of the gender by the facial features...that takes...I believe that takes a little paying attention... mares have more feminine features than colts and stallions do.

One interviewee shared how this learning experience is new to him:

What I have learned, I think that this have the most impact...I knew none of this, I didn't know anything...now I know about something, so it's something, you get actually something you know...we could watch something about the horses and I tell them about this is for that reason, this is for that and rest of the reasons...it's something that we

could share, I think it's something that...I add something and I can give him a answer. I will do my research to find out what I can come up with, but I mean this is new.

Acquiring learning skills such as how to research a topic of interest and find answers to questions could be empowering, especially for individuals with little or no education. I assume such experiences could contribute to the enhancement of psychological elements such as self-esteem. Yet, apparently some participants are not as motivated to do the course work. As some participants stated, inmates need motivation and desire to learn in this the program:

If people want to learn something they've got the opportunity to do that, but you can lead a horse to the water but you can't make him drink.

On the one hand, this finding may suggest that participants should be screened concerning their approaches toward structured learning. Furthermore, clinical conditions such as depression may affect one's motivation toward learning. This could maximize use of the program, because resources would be devoted to eager individuals who are capable of benefiting from it. On the other hand, some participants talked about how their interest and motivation to learn grew only after they spent time in the program. In any case, attention should be paid to those who are in the program and do not utilize it properly.

In addition, the course provided other gains, beyond learning. Participation kept inmates busy, which in turn helped them better cope with prison life. Some examples are:

Just to stay busy and keep my mind occupied and then out of trouble; I like to stay busy, keep my mind occupied. So it keeps me going through it in here; It kept my mind off things at home. My dad just went through a pretty serious surgery and I was worried death by him, but I come down here and learn and didn't seem to, I didn't seem to think about it as much as I did when I was at room; It is kind of a crash course, veterinary health for the horse (laughing) then there is a lot of maintenance, I mean there is a lot of labor which is nice because it gets you out of the house. One of the biggest problems here is there is a lot of laying around so it is kind of nice to get out, walk and just getting to deal with stuff that we don't get chance to deal with, while we are in this situation.

These examples reveal a strategy of coping with incarceration, which highlights the importance of keeping busy while serving prison time. This could help them avoid pit-falls and conflict with other inmates due to boredom and stressful dynamics in the dorm setting. Thus, this point could lead one to the conclusion that it does not really matter whether it is horses or any other type of program. Providing a program that is away from the situation inside the facility could be helpful.

Program director:

Participants attributed strength of the program to positive attributes of the director, Ms. L, and the manner in which she guides the program. It appears that they respect the director's knowledge and way of teaching and approach her as a teacher, a mentor and as a boss. Some examples are:

The strength of this program is having somebody experienced teaching this; She sets the foundation for me to work in a good environment, she is my mentor; She is a real thorough and takes the time with you; I think she runs a good program and she treats us good as long as we do what we're supposed to do, she rewards us.

Interviewees expressed their appreciation for the director's humane approach in multiple ways:

Ms. L was the boss or whatever but she was also a friend, she was real down to earth and talk to you about your life and your family and get to know you, like a friend. So she was real friendly and knowledgeable about what she was teaching. So, I consider her my friend.

Another example further describes the professional as well as personal qualities of the director:

One of the best people I ever met. Ms. L is one of the best people I ever met in life. She is a very good person, good teacher, good person who loves these horses like no other (laughs)...we get along real good...she just want you to come down here and learn, gave her good days work...Ms. L would have whatever you need to have it...whether you have something going on home, she, she'll give a time to sit down talk to you about it.

Furthermore, E, the youngest of program participants (19 years old), describes how the director is concerned about his future:

She'll make sure I'm here for class. She'll, she'll...I'm usually the one she will howl for more so I get in the class, and I think she wants me to learn it so I can do right, when I

get out of here. She wants me to do it right when I get out on the street, because she asked me what I'm going to do with my life when I get out...and I told her I'll go to school probably, but I think she just wants me to stay out of here...she gives me good support and that's what I'll need to do, to not be back here.

Having good rapport with correctional staff is important, because it can provide a sense of “normality” in prison. Moreover, it can have restorative effects and provide an experience being nurtured by an authority figure. Yet, advocates of “tough on crime” approach would view having a humane approach toward inmates as non-desirable. This relates to the question of the role of prison programs and the broader debate on retributive versus rehabilitative approach to corrections.

Ms. L's style of guidance allows inmates to take responsibility, develop independence and problem solving skills, as voiced by V:

Ms. Linda, the coordinator, she is very straight forward and feels it's kind of manage ourselves for most part. She gives us general directions, kind of we work our own way around it which kind of problem solving skills there...she gives you the general guidelines: “go fix the fence”. You know she is not sitting there to give you exact directions of how to nail the fence on, which is not complicated, but just getting out there and being able to use your mind and kind of work out the measurements and everything else to yourself, it is just it's nice to be involved that way as we certainly have lesser directions.

This “free style” that encourages independence may be unique in a prison context and contradicts the experience of constantly being watched and guarded. In addition, V has the ability to transfer these experiences into other settings in his imagination:

If you are in the job in the regular world, you need to go to work, you have to go be able to do kind of, makes you more self sufficient in that way.

This identification of acquired vocational skills that may be used in other situations is not expressed by most respondents. Consequently, developing an intervention that would help bridge between experiences in the program (e.g. vocational skills such as self-sufficiency, problem solving) and other vocations after release could enhance the program's broad impact.

Participants' evaluation of program: advantages:

All interviewees greatly appreciated the program and said they *liked everything about it* and that *this is a lovely program*. Participants were very positive in their evaluation and avoided criticizing it, for example:

It's a great great program, for me it is. In fact, I utilize it in a way that benefits me...I would never say nothing negative about TRF, Thoroughbred Retirement Farm. I think I should ever never would. It's a great program.

After participating in various programs during six years in prison, J evaluates the program as follows:

To me the TRF program is far and away the best thing going in the justice system. The strengths to me are like the education part of it, we got great teacher. No weaknesses. I think it's a good program...to me there are no dislikes.

Furthermore, one participant viewed being in the program as a privilege:

If I was somewhere else than here, I wouldn't be able to do nothing like this. I feel like someone should be lucky to get this job because lot of people in the yard try to get this job. There are 600 people here and 18 of us who got the job. So you got to take it as a privilege.

Another viewed being in the fields with horses as a blessing:

Days and years I have spent out in the fields...with horses and that's what I did for living and then now I'm locked up and I get to go till death, it's a blessing for real...I realize it.

The overwhelming positive evaluation by interviewees may suggest that they do not take it for granted to have such a program provided by the DOC. It may also show that participants have meaningful experiences in the program. Alternatively, this tendency may reveal that as an inmate it is difficult to criticize a program provided by the DOC. Yet, when participants evaluated the program, I felt that they were genuine in their responses.

Participants' evaluation of program: limitations:

Interestingly, the few limitations that participants raised related mainly to improvement in the quality of lives of the horses, for example:

The weaknesses are like we need more room for the horses...we got 22 horses in one field...we need more area, and bigger financial budget to get the things that we need for the horses; just in order to really be able to take care of them better, because I don't think right now it's really adequate...as far as what we are doing now is just satisfactory.

Similar criticism was expressed in comparing inmates to the horses in the program. They are both locked up with not enough space to roam:

I think we are both locked up, because horses are meant for to be on the wild...I don't think they have enough space, I think it's similar because I know this farm is not big enough for them...as far as there is pecking orders I mean they are meant to be, but I think they need big space so they can be their own order...too many horses proud, just like too many male egos here, too many, like too many people too many bosses, too many thieves and robbers...I just think they need more space, I think who else been that way locked up, because not enough area to roam.

I wonder if this identification or projection generates feelings of intimacy since they are sharing a similar fate. Another interviewee talked about physical improvements that would benefit the horses as well as participants:

Like we're trying to build a shed back here in the big field because you got no shelter out there. I hate to be out there when it's 10 degrees or even snow...so we got to first build that this summer.

The fact that participants were mainly concerned about improving conditions for the horses provides further evidence of the meaningful relationship they have developed with them. This is remarkable considering that incarceration limits the quality of their-own lives.

A few mentioned that some participants were not sharing the burden of labor and were not motivated learners, as aforementioned. Consequently, one participant suggested that having a period of trial for new participants would improve the program, because it would guarantee that only serious and motivated inmates would remain.

Program enhancing employability upon release:

Interviewees believe the program has an instrumental role of enhancing employability and view it as a source of vocational hope upon release. One participant talked about his future vocational expectations, especially as a released inmate living in Kentucky:

I can go out there and think about what I'm going to do when I leave here, how I'm going to support myself...I may be able to get out there and get a job working with horses...it's difficult to get a job when you are released from somewhere like this, but when you're taking care of horses...there's a lot of horses especially in Kentucky, there's a lot of jobs with horses...and I feel like something like it, I could benefit from it...and that's why I'm learning what I'm learning down here...that's probably why I picked up this one, to get out to know about horses and get a job with a little bit of experience, not a whole lot, but enough, good enough.

Another talked about his professional aspirations as a horse groom as a personal dream:

I hope to get on with a racing stable one day. I hope to travel the world grooming horses for racing stake, the world, you know, being able to get out of here, not being on probation, going to the post office applying for a passport and being able to work with a racing stable that will take me all over the world with horses attending them in their groom...so, that's where I am hoping to go with these.

One more participant shared his desire to eventually become a horse trainer, where he would apprentice first with a trainer as a second trade:

I want a job working with a trainer. I don't need a lot of money because I'm trying to get the experience that he has. So, I may take the job for free if I have another job that will support me to take this. I want to be a trainer of race horses.

In contrast, some interviewees expressed that they do not see the program's vocational impact and said they do not intend to work in the equine industry:

There are a lot of other paths that will be more economically viable.

Besides future aspirations, interviews revealed actual vocational roles that were fulfilled by the program. For example, J provides his perspective as an employment seeker after release:

When I got out, I must have filled out I don't even know how many, a whole lot of applications and the horse farm was the only place to call me back for even an interview.

Furthermore, the program facilitated J's way to employment, as follows:

The greatest impact of the program was being able to give me a job when I get out so that, that's the most important thing that the program did for me, because without that I wouldn't have been able to find work...with that experience from the program, I was able to put that experience down on resume and have Ms. L as a reference.

Having a reference upon release is extremely important, because it may open the door to an interview. I assume it is rare for newly released inmates to have such a reference. This exemplifies one of the vocational roles of the program as a link between prison and “integration into a job market”.

Another vocational role of the program is providing a “safety net”. Perhaps, it can help individuals refrain from re-offending when seeking financial income:

Sometimes it takes something illegally to get money, because it's hard to find a job...so to me, now that I've been to this program and I got knowledge about horses, there's something that I can always fall back on.

Some graduates are assigned to work at the “Kentucky Horse Park”, a work place within the community, as part of additional preparation for their release. Others do not request to work at the Horse Park. For example, D expects to stay in the program until release because he feels comfortable and it fills his days:

It's probably the routine of taking care of the horses and being out in the fields with the horses because the days, they just make days go by.

It may be that urging individuals like D to work at the Horse Park would challenge them since it is a new environment, where they would face the experience of being an inmate among non-inmates workers. However, it could also offer excellent vocational and social preparation for reintegration.

Vocational skills that may be transferable to other settings:

Along vocational gains pertaining to the equine industry, acquired skills may be transported to various work settings. Interviewees mentioned additional vocational gains, such as:

[It] teaches you management skills...to take the initiative; The attitude that I use towards this... I could use that in another job...just look back and like I did seven days a week, why can't I do this in five days a week...[that's] commitment to work; Taking care of so many horses, it's a responsibility and you're going to have lot of responsibilities when you get out and I feel like being here and assigned everything to do every day and her giving me the seven days a week, that's big responsibility, so something that I need to take with me when I'm released from here.

One participant explained how responsibility and work ethics were developed:

Just to know that these horses need you...you start feeding horses, if you don't feed him, if you don't feed him, then there are other guys that you think are feeding, but you get certain horses, that's the ones you take care of, these other guys that they don't care of them, you do, so that's where the responsibility comes out in you. You share a lot of responsibility down here and they install good parts of ethics in me down here too, because I love coming here and be able to work.

Another described how the emotional process helped him address fear of the unknown and the learning generated curiosity and believing in himself:

I was scared to death of them and I don't know to define that feeling. Yes, I guess it's getting over the fear...I guess it's getting over the fear of unknown...and what I carry on for me is if I can do that and never been around the horse, really horse and that what I came down here to learn, if I come down here to learn that much about a horse then I can just about do anything...it opened me up to want to learn about a whole lot more.

Some of the gains concern interactions with others. For example, the building of teamwork skills via training horses in a round pen is expressed in the following dialogue:

Interviewer: What happens between you and the horse while training in the round pen?

S: Me and the animal well...we are interacting. We become as one. We are a team. I am asking him to do something and he is willing to do it. He is willing to do it and we interact with one and another and sometimes they give resistance, but then when they give resistance what you do? You don't get angry with them. You stop what you are doing. You reassure them that everything is okay...I'm petting their necks. I hug horses. I hug their necks and let them know this is okay. This is okay.

Thus, it appears that earning the cooperation of a horse requires various abilities such as, social awareness, negotiation skills, and patience.

In addition, the program makes participants face challenges with co-workers, which could occur in the "real world":

There is always a percentage of people, they are just lazy not wanting to do anything and they are trying to avoid work at all costs. I don't think that...just dealing with that kind of situation allows you to deal with that in the real world too.

Understanding such an occurrence can be found in the words of another participant. He views the program and prison context as a microcosm that reflects issues within broader society, and sees the program as providing tools to better cope with challenges he faces:

It's just kind like a little subsection of society where you have to take a pie piece out of the regular society and throw on the closed setting; it's just exaggerated and jam packed. It's like its own little society within a society within a society, kind of matrix effect...it [the program] gives you a more direct view of what you know and how to deal with certain situations. It may not run all along at nearly as much out as it would here, but kind gives you the tools necessary to do with that. So I think it's time well spent.

This description reveals the program's instrumental role in tending to social challenges as part of preparation for integration into the community.

Issues with working in horse farms upon release:

The program provides a "vocational safety net", as a released graduate stated:

The program provides something I could always fall back on and apply to horse farms.

But, the low pay for stable-workers in the equestrian industry is challenging:

I really planed on staying in horse business when I got out, but I got to be pretty discouraged, because you're making little pay...I was working six days a week, 54 hours, I have all "straight time" and hourly pay is not that good, and there's really not that much room for advancement...I can work less hours and make more money now and plus the horse industry in Kentucky I think is being really hard, due to stud fees and all that.

These limitations create a real barrier to long-term employment in this industry, since released inmates need to earn enough money to support their families. As a result, this interviewee left his job at the horse farm due to low pay.

Furthermore, one interviewee left the program after graduation to enter another vocational program, masonry. He viewed masonry as a more practical option for employment upon release:

I went to masonry now...I thought if I needed a very good trade or something that goes on where I live, there's not a whole lot of thoroughbred horses right there. I've never seen one in my life.

This interviewee compares his reasons for choosing these two programs and the resulting vocational and employment opportunities. The marking of the various voices exposes the different roles of the programs as M views them:

*I use them for totally opposite reasons. **I use this program** [with horses] **to pretty much keep my mind occupied and get to feel like I was needed down here, get to...I care for these horses and stuff. It's more emotional down here by far.** The program up there [masonry] is just about money to me, it's something I would like to take home with me and be able to just walk up should I say "look, I know how to do this and make money" I mean that is what that's about, just when I get out to make money. **This was a whole lot emotional, definitely. This had nothing to do make money.** Where I live, I know for fact, that I'm not going to make no money, but it was still real good experience, sure it was.*

Another participant said he does not plan to work with horses upon release because of limited work opportunities with horses:

I don't figure I'll be working with horses because at home where I'm from, there's one race track, but they're there one time a year, it's not like they're a lot.

Therefore, this participant is hoping to work in construction, which was his previous vocation. This participant does not see anything from the experience in the program that will contribute to future employment when released.

One more reason for looking to other vocational opportunities when released is because of personal dislike of farm work:

I just really don't like farm work as much some more...if I can list this as something I do now, so I think that's cool thing...not say that I am going to do this ever again, but I have the experience now and the education about that, so I will definitely list that.

These findings of various issues pertaining to employment in the equine industry highlight the importance of exposing the additional gains that participants obtain from the program that could be useful in other vocations.

Reflexivity and evaluation of analysis process

The first step for analysis through the listening guide method required configuring worksheets, since having a technically comfortable format can make the analysis more approachable. I experimented with various ways of organizing the listening guide worksheets (one versus multiple sheets, with or without a transcript) and eventually found a configuration that suited my needs. The listening guide was a powerful analytical method as it revealed participants narratives in light of various dimensions of voice of “self”, voice of the researcher, and the multiple relations to the research question. This method also facilitated my attunement to a lot of data in a structured manner that did not compromise its richness. Repeatedly listening to the story from different angles facilitated the deep exploration of the relational process and its complexity. Furthermore, this method suited my background as a clinician since it requires clinical skills. Yet, one issue relates to the selectivity in this analysis process. The selected parts of interviews, the structuring of the “I poems” and their interpretation are subject to individual influences, as aforementioned. Available resources did not allow for the inclusion of an interpretative community. However, the selections and interpretations are accompanied by numerous examples from interviewees’ own words in order to ground the analysis in participants’ lived experiences in relation to inquiry’s aim.

Another issue concerns the contrapuntal voices of emotional and behavioral voices. These voices were chosen to address the research question. The core finding which results from use of these voices is that the emotional voice was vastly evident, while the behavioral voice had a relatively modest appearance. This may point to a greater influence of the program on emotional features. Yet, it should be noted that the interview guide as well as the interviewer’s free probes may have facilitated a greater presence for the emotional voice. In addition, in

different parts of interviews these voices were intertwined, reflecting how emotional and behavioral processes foster each other.

Lastly, the detailed personal and relational backgrounds of respondents were not available, which limits the context for understanding findings. Yet, during the interviews I sensed that many of the participants had an urge to share and reflect about their experiences in the program and they also provided descriptions of their backgrounds if they felt it was relevant.

Limitations

Despite the complexity of conducting a study within a correctional institution, this study was only possible due to the generous assistance of the KY DOC which approved it and was extremely cooperative with the researcher (e.g. the transferring of data for CDM, and enabling researcher's access to program participants and staff). Furthermore, the program director was especially helpful by contributing required information for this study.

Yet, there are limitations to consider when reviewing the findings. The broader context of research of inmate reentry and reintegration requires longitudinal, life-course framework that considers pre-prison circumstances, in-prison experiences, immediate post-prison experiences, and post-release integration experiences (Visher & Travis, 2003). This study focuses on behavioral and psychological changes following in-prison experiences and pre-release preparation programs. Consequently, findings should be considered with caution because this study examines specific dimensions that are part of larger patterns of behaviors and circumstances.

Some explicit limitations concern the data-mining part of the study. The first issue is inherent in the definition of recidivism used here, where it is narrowly defined as an inmate's return to custody of KY DOC. Participants who may be reported as not recidivating, may have

been reincarcerated in local prisons or jails outside of KY. Nevertheless, it should be noted that the possibility of incomplete recidivism data is equally present for all members of the program and control samples. Thus, it is reasonable to assume that whatever underreporting might have occurred would be similarly underreported for each sample group. In addition, the resources and timeframe for this study allowed examining recidivism of inmates that were monitored in the computerized system during a period of three years. However, available data did not enable the examination of whether inmates recidivated in a timeframe of three years since their release date (which is the conventional timeframe for recidivism follow-up). Therefore, findings regarding recidivism may be viewed as inconclusive.

Allocation of program and control group participants was nonrandom to begin with. Therefore, PSM was conducted in an attempt to proxy prior biases in selection in order to estimate the effect of the program with some reduction of the sorting influence. Yet, PSM is restricted to the observed (and observable) covariates. If there are other factors that affect assignment to treatment but that cannot be observed, then they cannot be accounted for in the matching procedure. Consequently, the effect of sorting has not been completely deducted from the effect of the program itself.

In addition, the nonrandom sampling of the program group limits the possibility of inferences to a broader population.

Another issue concerns the control group data. Data reflecting the beginning and end dates of their vocational programs could not be included in the analysis. Therefore, the comparison intervals between the program and control were unequal. The comparison was between post-program results and pre-program, as well as during-program as one continuous time interval for the control group, whether they were pre, during, or post vocational program.

To address this limitation I created a dummy variable of duration of observation per event, which included the time interval of observation length per event in the model. Including beginning and end dates of the control group's vocational programs would allow for a broader comparison between the groups, considering the differences between groups after completion of the various vocational programs.

Another explicit limitation concerns the quantitative questionnaires. Reliability of measurements of attachment and closeness to human figures as obtained from this study's sample were excellent, comparable to reports of the initial study that used them (Kurdek, 2008). The high scores of Cronbach alpha may indicate that the questions were too similar to capture nuances within the sample. The richness of the questionnaires was not reflected by the participants' answers, where Cronbach alpha indicated lack of variance within each questionnaire and the various features. Another reason for these findings may be that the differences between features were not clear enough for participants to distinguish between them. Consequently, a more simplistic form of these questionnaires could perhaps be sufficient in future studies with a similar population.

The responses to the questionnaires included some missing data. The literature on missing data and how to deal with it is vast and there is not one best practice (see Allison, 2009). In order to address the issue in this data set, imputations were used and findings were compared with the missing data set. An ultimate solution is not yet available. Therefore, comparing the findings of the more conservative listwise exclusion with fully regression-based imputed data provides a range of findings. Since data was not used within an inferential framework, the biases regarding standard errors were avoided.

Additional limitations concern the design of mixed methods. Literature reveals various issues that require further consideration in future methodological work concerning mixed methods studies (Johnson et al., 2007). Some of these issues include: First, can researchers reach broad agreement about at what stage mixing can occur during the research process? Second, what are effective strategies for integration at different stages of the research process? Third, what philosophy of science, or set of philosophical positions, will best partner with mixed methods research? And fourth, do mixed methods need a particular, detailed set of philosophical and methodological positions? (see Johnson et al., 2007).

Furthermore, mixing methods effectively requires a profound appreciation of the threats to validity inherent in the methods being combined. For instance, one of the inherent problems of convergent validation is that the triangulation logic must negotiate the fact that one cannot measure precisely the same thing twice. The social world is dynamic, and validating an analysis by replication is misguided because social phenomena do not “keep still” and are recursive. It is possible to construct mixed methods research designs that address such problems, but the broader point is that responding to complexity by using mixed methods always requires epistemological clarity and sophistication (Denzin, 2010; Fielding, 2012). Thus, the reason for using multiple methods aims to address this study’s purpose of exposing a broad depiction of the examined intervention (rather than for validation). Each method was chosen because it was the most suitable means to reveal the specific required information, as aforementioned. While the synthesized sum of information attained from each of the methods provides the desired knowledge.

In addition, effective data integration requires a well-considered approach that knows when to synthesize some findings (because they are equivalent and commensurate) and when to

respect and investigate contradictory findings (because the contradiction reflects epistemologically-based differences that cannot be resolved empirically, only conceptually) (Fielding, 2012). Thus, in order to achieve epistemological and theoretical clarity, the theories of desistance (Maruna et al., 2004) and attachment (Ainsworth, 1991) guide interpretation of findings while keeping the lived experiences of participants at the center of inquiry, as well as bridging between various methods.

Discussion

A quiet revolution has been brewing over the past few years in the criminal justice arena, in which questions of effectiveness of incarceration and how sustainable or humane the current system is, are gaining more consensus among lawmakers and policy advocates across the ideological spectrum (Gupta, 2013). For example, recent changes in Justice Department policy (e.g. Federal prosecutors would no longer invoke the sentencing laws) and others at the state level (e.g. Texas passed its comprehensive corrections reform package in 2007, investing in a variety of local prison-alternatives designed to reduce recidivism; A judge found that stop-and-frisk practices in New York were unconstitutional racial profiling) may reflect a shift in criminal debate, since reactions among opponents were relatively minor (Gupta, 2013). These changes mirror a transformation of approach toward crime and punishment at the highest levels of government. Tough-on-crime, the prevalent approach for the last four decades, is giving way to soft-on-crime policies. As such, the recent reforms call also for the enhancement of alternatives to prison, such as drug treatment programs, and directs prosecutors to redouble efforts to reduce recidivism, which remains a complex problem nationwide (The Editorial Board, 2013). Thus, this study is important in light of the recent changes in criminal debate since it provides knowledge about ways to use prison time as a source of effective preparation for release and reintegration.

Findings are discussed in relation to hypotheses and purpose, including a dialogue between findings from each methodology, and with regards to literature and theories. This research suggests that the examined equine-facilitated prison-based program has broad emotional and behavioral effects on participants. The CDM inquiry revealed that the odds of having events of recidivism for program participants are only 7% of the odds of the control group participants

having recidivism events. Thus, aligned with the hypothesis, controlling for all independent variables, program group participants, after completion of the program, have a statistically significant decreased risk to recidivate. This finding points to association of the program with decreased risk to recidivate, and supports reports from previous equine-facilitated and other PAPs studies (Chianese, 2010; Moneymaker & Strimple, 1991; Cushing & Williams, 1995). Nevertheless, additional inquiry with an experimental design could provide broader generalizability of findings.

Conversely, findings of DM examination showed that controlling for all independent variables, after completion of the program, participants did not have a statistically significant decrease in the severity of committed violations as compared with pre- and during-program and the control group. This finding was contrary to the hypothesis, and shows that pre-release behavioral influences of the program may be limited. Unfortunately, data was not sufficient to evaluate program effectiveness on reducing DM altogether since only misconduct was recorded. This finding confirms information in a previous PAP study (Katcher, Beck, & Levine, 1989) and contradicts findings from an earlier study of equine-facilitated prison-based program (Cushing & Williams, 1995). Consequently, the current findings enhance the conclusion from the literature review in which the association between PAPs and DM should be further examined.

Additional findings may provide some explanations for change or lack thereof, as revealed by participants' expressed experiences in the program and examinations of emotional mechanisms of attachment. These findings support and supplement the literature of PAPs' emotional, psychological and socio-behavioral effects (e.g. Britton & Button, 2005; Burger et al., 2011; Cushing & Williams, 1995; Currie, 2008; Fournier et al., 2007; Lee, 1987; Merriam-Arduini, 2000; Moneymaker & Strimple, 1991; Nef, 2004; Richardson-Taylor & Blanchette,

2001; Stetina, Gegenhuber, et al., 2009; Stetina, Kuchta, et al., 2009; K. Turner et al., 2011; W. G. Turner, 2007; Walsh & Mertin, 1994). The qualitative findings reveal a wide range of themes concerning emotional, behavioral, social, and vocational and program evaluation features. Findings highlight the richness of the exchange between participants and horses, and their ample gains from the program. The themes of emotional features portray the relationship participants experience with horses (Scared at the beginning; Words to describe the relationship; It's "me and you"; Issues with forming deep connections; Exchange and reciprocity; Physical dimension), and the ways it benefits participants (A brief getaway during confinement; Relationship emerges via caring and allows feelings to be felt; Special needs generate compassion; and, It fulfills what I lost). Emotional features highlight the importance of providing alternative opportunities to experience companionship, which may help inmates process their relational issues and improve competencies. Additionally, the program helps inmates to cope with psychological impact of imprisonment. Clearly, themes of the emotional features were most often expressed, as compared with others. This finding may mean that emotional features are perceived by participants as most affected by the program and exchange with horses. Nevertheless, this observation should be addressed carefully, considering the inherent subjectivity of this methodology, including questions asked and the entire analysis.

The themes of behavioral features (Responsibility and commitment; and, Calmness, patience and conflict) demonstrate how the program allows inmates to perform as mature individuals while being involved in meaningful activities, which can generate pro-social skills. The behavioral features corroborate with DM findings. Though interviewees expressed some behavioral effects of the program, the changes they reported were not extensive. It may be that behavioral effects such as taking responsibility are more evident in the long-term, rather than in

daily institutional behavioral requirements. If so, this could be part of an explanation for the program's impact on recidivism, while having no effect on severity of DM. Yet, since only change in severity of DM was recorded, conclusions are limited.

The themes of social features (Social learning via observation of herd dynamics; Relationships with other participants; and, Horses and the family unit) teach us about how relations with horses can improve inmates' quality of life, while incarcerated. Social learning exhibit how participants interpreted herd dynamics by projecting human interactions on horses. These could be further discussed to enhance social awareness and develop alternative approaches toward social situations. These findings may also relate to the post-release influences of the program, where social features enhanced by the program, may be internalized and help inmates better integrate upon return to their families and communities. Such correlations and causations should be further explored.

Lastly, the themes of program evaluation (Motivation and expectations; Educational component; Program director; Participants' evaluation of program: advantages; Participants' evaluation of program: limitations) and vocational features (Program enhancing employability upon release; Vocational skills that may be transferable to other settings; and, Issues with working in horse farms upon release) reveal vocational skills that may be transferable to other settings, and mostly support the recidivism findings. Further investigation may confirm whether vocational gains, as perceived by participants, are part of the cause for recidivism findings.

Additional underlying psychological mechanisms for change were examined by the attachment and closeness questionnaires. Findings suggest that horses are approached as attachment figures, while higher levels of attachment to horses were achieved among older participants with stronger attachments to their mothers. As well, higher levels of closeness to

horses were evident among older participants with stronger closeness to their mothers. Furthermore, as findings show moderate to low correlations, they reveal that features of an attachment to horses vary in the same direction as features of an attachment to mothers, while proximity maintenance is the most prominent. Though these findings show that these variables are correlated, the reasons for these relations have yet to be exposed. Horses may be fulfilling the same psychological features of an attachment figure, and as such, may contribute to the psychological well-being of incarcerated inmates. Yet, other processes may be happening. For example, perhaps extremely sensitive men are inclined to feel close to horses, mothers, flowers, or other living things. Such an interpretation shows that it is not that working with horses results in a bond. Rather, it is the predisposition of some men, who are especially sensitive, that causes them to form a bond with almost anyone or any living thing. This inquiry adds an innovative course to literature of psychological mechanisms that occur during PAPs. Further examination could provide knowledge that allows for the building of a model of causation.

Findings and the theory of desistance: The theory of desistance accounts for the ability of long-term offenders to abstain from criminal behavior, while labeling plays a central role in breaking the cycle of reoffending (Maruna et al., 2004), as aforementioned. An individual's move from primary desistance (any crime-free gap in criminal behavior) to secondary desistance (the movement from the behavior of non-offending to the assumption of the role or identity of a "changed person") is attributed to societal reaction. When the desisting person's behavioral change is recognized by others and reflected back to him by a "de-labeling process", secondary desistance is more likely to occur. Such a process involves various elements, such as, affirmative reinforcement and rewarding positive achievements. These may be rare in the context of prisons, which are designed to detect and punish offences. However, PAPs create opportunities for

contradicting these patterns since prison administrators and the affiliated non-profit organization demonstrate to participants that they are reliable enough to be entrusted with caring for valuable living beings (Furst, 2007a). In addition, successful desistance from crime might involve the negotiation of a reformed identity through a process of pro-social labeling. Nevertheless, there are other processes that facilitate the desired change. These include transformations, such as, redressing past crimes, and moral and social reintegration (Maruna et al., 2004).

The recidivism findings suggests that participation in the program may contribute to secondary desistance, since program group participants are at lower risk to recidivate, as compared with control group participants. In addition, the qualitative findings shed light on the ways in which secondary desistance can be enhanced by the program. For example, evidence points to multiple opportunities for participants' positive reward and reinforcement. Participants' expressed experiences of positive reactions from the horses are most apparent in participants' view of this relationship as reciprocal and mutually rewarding. This observation is aligned with a previous PAs study (Furst, 2007a), which suggests that animals' positive regard for people may make them uniquely able to contribute to the reinforcement of program participants' new, positive label and pro-social sense of self. Furthermore, the feedback from the program director, a law-abiding identity, was perceived frequently as nurturing. The director's endorsement in the form of serving as a reference upon program graduation and release are fundamental because she is part of the same social control establishment involved in the process of conviction and sentencing. Furthermore, the reinforcement of program director for successful participants can be viewed as a "personal voucher", which can contribute to sustaining the reformed behaviors and characters (Maruna et al., 2004).

The structure of the program includes concrete milestones that could facilitate the internal change process. Some examples are veterans who serve as mentors for novice participants, participants who excel in their program appearance are promoted to be part of a “weekend crew”, and having a test and graduation. These can be perceived as forms of “status elevation ceremonies” (Maruna et al., 2004) in which the program director and other staff members publicly recognize an inmate’s achievements. The development and acquisition of responsibility via the program, as findings indicate, is another element that may promote secondary desistance since participants are proven trustworthy and are given power and authority to expand their role in the program. The feeling of being trusted could be means for encouraging self-change (Maruna et al., 2004). Similar processes of increased responsibilities as participants advance in the program are also reported and are attributed to promotion of secondary desistance in an earlier PAP study (Furst, 2007a).

Both reactions from others as well as personal experience are needed for secondary desistance (Maruna et al., 2004). In addition to the above prospects for societal reaction, the findings show how being in the program facilitated internal as well as external opportunities for reflection of change in self. These are evident through various behavioral and emotional themes, such as: Calmness, patience and conflict; A brief getaway during confinement; Relationship emerges via caring and allows feelings to be felt; Special needs generate compassion; and It fulfils what I lost.

The disparity between the recidivism and DM findings raises a question, in contrast to the numerous ties evident between the qualitative data and its potential promotion of secondary desistance. Considering the theory of desistance, it would be reasonable to assume that change in either recidivism or DM would be in similar direction, while expecting that improvement in

severity of DM would be a step toward decreased recidivism. Understanding the current findings within this framework may suggest that while participants are in the program, they have not yet attained the required internal transformation for desisting. Furthermore, notably, the recidivism findings show that program graduates who were released may be on a promising path toward secondary desistance. Yet, since available data did not allow for the examination of whether inmates have recidivated in a timeframe of three years since their release, they cannot be considered to have achieved secondary desistance overall.

Findings and attachment theory: Theory and research point to the great importance of attachment relationships, whereby humans have a primary “need to belong”. Evidence shows that this need is met only by relationships that involve both regular contact and a strong sense of attachment, intimacy, and commitment (Baumeister & Leary, 1995). As well, attachment relationships play a unique role in meeting needs for comfort and security and in providing a secure base that allows individuals to engage in independent activities (e.g. work and leisure pursuits) with confidence (Ainsworth, 1989). In addition, adult attachments are diverse as they need not to involve a sexual component, therefore relationships with parents, children, siblings, and friends have the potential to be attachment bonds (Ainsworth, 1989; Weiss, 1982, 1991). Numerous studies demonstrate that various figures could fulfill attachment functions in adulthood including, romantic partners (Ainsworth, 1989; Weiss, 1991; Feeney, 1999), siblings (Feeney & Humphreys, 1996; Trinke & Bartholomew, 1997), best friends (La Guardia, Ryan, Couchman, & Deci, 2000), parents (Ainsworth, 1989) and children (Doherty & Feeney, 2004). Furthermore, adults rely on a network of people for attachment-related purposes, while these figures differ in order of importance, which changes in response to aging and life events (Doherty & Feeney, 2004).

Following theory and research (Bachi, 2013; Kurdek, 2008; Zilcha-Mano et al., 2011a, b) the application of attachment theory in this study aims to expose whether the psychological mechanisms of attachment and closeness exist between humans and horses, and their comparison with five human figures, within a prison context. Furthermore, it seeks to articulate what features of an attachment figure constitute this relationship. Findings indicate that horses have a privileged emotional status in participant's emotional scheme. Horses were preferred attachment figures over some human figures for older participants with strongest attachment to their mothers. Likewise, higher levels of closeness to horses were found among older participants with stronger closeness to their mothers. Furthermore, all four features of an attachment figure were evident in participants' relationships to horses. Though findings show moderate to low correlations, these four features vary in the same direction as features of an attachment to mothers, while proximity maintenance is the most prominent.

Although multiple attachments are common in adulthood, attachment figures are not treated equivalently (Doherty & Feeney, 2004). Rather, individuals are likely to differ in their strength of attachment to particular figures. This reflects the extent to which specific figures are relied on for comfort and security (Doherty & Feeney, 2004). Multiple attachments are thought to be arranged hierarchically, with a primary attachment figure at the top (Bretherton, 1985; Collins & Read, 1994; Doherty & Feeney, 2004). This primary source of emotional security is the target of most attachment behavior (Doherty & Feeney, 2004). Thus, current findings indicate that participants viewed their mothers as the primary attachment figure. This finding contradicts a report that a partner (followed by mother, father, sibling, friend and child) is the most commonly attachment figure among a diverse sample of adults with normative life events (Doherty & Feeney, 2004). Thus, the questions of correlation of attachment and closeness to

mother and age draw attention to characteristics' of this sample and its unique life circumstances. It has been proposed that attachment to parents continues throughout life, although in a modified form (Bowlby, 1980; Cicirelli, 1991). Most adults maintain meaningful relationships with their parents, despite parents being less involved in the day-to-day lives of their adult offspring (Ainsworth, 1989). Further, most adults depend on parents during stressful times (Cicirelli, 1983). Adult children can also maintain attachment to parents on a symbolic level, perhaps having a "mental conversation" with them (e.g., imagining parents' advice in a stressful situation), thus sustaining the attachment bond during long separations (Cicirelli, 1995). Consequently, perhaps older participants in this sample might have weaker attachments to other human figures, such as significant others. Therefore, while limited in relational opportunities, they turn to horses as an emotional resource to help them bear the stressful impact of incarceration. One explanation for how and why attachment develops between participants and horses relates to this program's nature, which provides opportunities for attachment bonds to develop during routine caregiving tasks. The relationships between participants and horses in this program, center on caregiving, trust and dependability, as apparent in the program's goals and the interviews findings. Aligned with literature, these elements form attachment formation in infancy, and similarly promote attachment in adult relationships (Doherty & Feeney, 2004; Fraley & Davis, 1997). Yet, the underlying personal reasons for these findings should be explored. Research should evaluate whether attachment to horses buffers feelings of loneliness, depression and social isolation associated with confinement. The current findings have implications for utilizing the program as an emotional enhancing resource for particular individuals.

In addition, the four features of an attachment figure were apparent in attachments to horses, despite the weak correlations. Support for this finding is demonstrated throughout participants' expressed experiences in the interview data. For example, descriptions of relationships with horses as comforting and emotionally meaningful can be interpreted as horses being dependable sources of comfort, which derives a sense of security and confidence (secure base); A brief getaway during confinement can be viewed as horses being sought out in times of distress (safe haven); The physical dimension of relationships with horses is stated as providing enjoyment (proximity maintenance); And the anxiety expressed around the possibility of not being able to continue in the program may reflect how the physical absence of horses can engender some distress (separation distress). These findings may imply that participants relate to horses in a parallel manner to how parents relate to their children. The possibility of children fulfilling attachment needs for their parents has received less attention but has some empirical support (Doherty & Feeney, 2004). A study of the transition to parenthood (Feeney, Hohaus, Noller, & Alexander, 2001) revealed that roughly half of parents named their baby as the person they missed most during separations (separation protest) and most liked to spend time with (proximity seeking). Similarly, 15% of adults in another study named a child as the person who was most missed during separations (Hazan & Zeifman, 1994).

In absence of opportunities to maintain relationships that involve regular contact and a strong sense of bond during incarceration, this study's findings indicate that horses are approached by various participants as attachment figures, while attending to all four attachment features. Thus, this unique relationship can contribute to meeting needs for comfort and psychological security for these participants.

Practical implications

The primary goals for the studied program are educational and vocational, while also providing service to the community by rescuing unwanted horses. Nevertheless, this study's findings suggest that the program and interaction with horses carry psychological and behavioral transformative benefits for participants, as aforementioned. Consequently, correctional policy and decision makers should consider further assessment of its value utilizing causality analysis. Findings support sustaining the operation of the examined program, because this prison-based equine-program offers a low risk (no riding involved) and low cost (most costs are covered by the TRF) option to reduce prospects of recidivism.

During the interviews, participants had an urge to share, articulate and understand their experiences within the program. As a result of the findings and clinical experience, I proposed that adding a clinical group intervention in parallel with the program could further elevate the impact on participants' behavioral change and employability potential. Led by equine professionals, the examined program is educational and vocational. As such, it focuses on knowledge acquisition, which has broad rehabilitative gains, as is apparent in the findings. Yet, the DM and the qualitative findings indicate that there are instances in which a clinical intervention may compliment the program's impact and result in greater transformations in participants. The qualitative findings include multiple descriptions of emotional and behavioral experiences that could be further processed by a mental health professional. The lived experiences with horses help participants deal with the emotional weight that they carry while incarcerated. A clinical intervention could facilitate the transport of these emotional processes to other settings, as well as look into possible behavioral and cognitive elements that could be further influenced. For example, a brief getaway during confinement shows how participants

cope with stressful situations. These could be acknowledged and reflected upon to discover adaptive coping strategies during stressful situations. In addition, findings of social features demonstrate how some participants approach interactions with horses within criminal-behavioral codes. Contained by a safe environment, such approaches could be further examined while looking at where they stem from and exploring normative alternatives. Furthermore, an intervention that would encourage discussion and reflection on how vocational gains from the program could be transferred to other contexts could help participants with reintegration upon release. Some examples include: Skills of achieving cooperation of horses could be translated into skills that are relevant for negotiation in the workplace; and, taking responsibility, commitment and dedication to a task could be reflected upon while discussing applicable issues to personal and vocational history. Such an intervention could be in the form of a weekly group meeting with a correctional social worker, where participants could be encouraged to reflect on their experiences in the program and process the issues that arise, while focusing on skills that can be implemented in other social and vocational situations.

In addition, following the qualitative findings, having the program in conjunction with substance abuse and addictive personality treatment would generate further benefits for participants with these issues.

Future research

In addition to the aforementioned recommendations, future research could involve deeper investigations into the relationships between inmates' psychological mechanisms and psychological wellness and inmates' behavioral transformations. Using a cross-sectional data layout (e.g. observing participants at the same points of times; data organized on one file, with all events lined up per individual) could yield richer findings, allowing examinations of

relationships between and within psychological and behavioral aspects. For example, such data layout could enable researchers to examine correlations between recidivism and DM within and between groups. Furthermore, it can allow researchers to test whether attachment and closeness to horses serve as an emotional mechanism and as intermediate variables in an examination of recidivism rates and disciplinary misconduct. This could make it possible to synthesize between methodologies via statistical analysis.

Future examination of attachment between humans and horses should explore elements such as personal history and internalized attachment models. Other questions to examine are: What personality traits have a greater tendency to become emotionally attached to horses? What are the characteristics and nature of the practiced caregiving that contributes to attachment relations? What horse characteristics and behaviors attract attachment behaviors? Such exploration could be achieved by utilizing various methodologies. For example, the Adult Attachment Interview (George, Kaplan, & Main, 1996) could be used with consequent questions at the end focusing on the exchange with horses (e.g. What factors derive attachment experiences between humans and horses?). These would compliment this study's knowledge and would help determine a profile of individuals who are expected to develop an attachment to horses versus those who are less inclined to do so.

As well, this study's participants were all men, which make up the majority of the program's population. Yet, this population consists of women and juveniles as well. Thus, replicating this study to program sites with women and juveniles would provide information specific to these participants. In addition, race was a significant variable in the predicted probabilities of group affiliation in the examination of recidivism. Thus, race should be further considered when applying these findings to programs in other states, where the racial distribution

among inmates may differ. This would allow for greater generalizability of findings to the program's population.

Additionally, future studies should follow-up with program graduates after their release to monitor their vocational and social integration into the community.

Integrative summary and concluding remarks

Policy makers and correctional authorities are seeking ways to enhance effectiveness of incarceration and reduce recidivism rates. Equine-facilitated prison-based programs aim to rehabilitate prison inmates via a structured vocational program. The Thoroughbred Retirements Foundation's Second Chances Program is used in correctional facilities in ten U.S. states, and this is the first academic study to examine it. This study's purpose is to evaluate the emotional and behavioral effects of this program and provide a foundation of knowledge to guide it. Special attention is given to unique characteristics of human-horse relations within a prison context. This is a methodological triangulation study with a three-year duration conducted at the TRF's Second Chances Program of the Blackburn Correctional Complex, Kentucky Department of Corrections. Recidivism and disciplinary misconduct are examined by clinical data-mining of institutional computerized records with a sample of 422 participants (composing program and control groups). This data is approached as a discrete-time event history analysis, and is analyzed via Propensity Score Matching, as well as binary and multinomial logistic regressions.

The lived-experiences in the program are explored via semi-structured interviews with 13 participants. The interviews are analyzed via the Listening Guide (Gilligan et al., 2003) methodology. As well, emotional mechanisms of attachment and closeness to horses are evaluated via quantitative questionnaires, of which 91 participants responded. These questionnaires regarding attachment and closeness to horses were created for this study and

demonstrate excellent reliability as responded by this study's participants. Thus, they could be implemented in future studies of human-horse relations, which is a contribution to knowledge development of various equine-facilitated interventions. Data is analyzed by multiple linear regressions.

This program is successful because it may contribute to a reduction of recidivism and it enhances the psychological well-being of inmates. Findings of recidivism suggest that program participants have statistically significant lower chances for having events of recidivism, as compared with the control group. In contrast, no difference was found in the severity of disciplinary misconduct between the two groups. Yet, conclusions about disciplinary misconduct are limited. Since only misconduct was recorded, there was not sufficient data to evaluate program effectiveness on reducing disciplinary misconduct altogether. Structural characteristics of the program, the supportive and nurturing role of the program director and the reciprocal and dialogical nature of human-horse relations that evolved are some of the elements that enhance secondary desistance (Maruna et al., 2004) for participants.

Additional findings shed light on the change or lack thereof, as revealed by participants' expressed experiences in the program and examinations of emotional mechanisms of attachment. The qualitative findings show the roles of human-horse relations within prison-context and how they benefit participants. The themes of emotional features depict the relationship participants experience with horses (Scared at the beginning; Words to describe the relationship; It's "me and you"; Issues with forming deep connections; Exchange and reciprocity; Physical dimension), and the ways it benefits participants (A brief getaway during confinement; Relationship emerges via caring and allows feelings to be felt; Special needs generate compassion; and, It fulfils what I lost). Emotional features highlight the importance of providing alternative opportunities to

experience companionship, which may help inmates process their relational issues and improve competencies. Additionally, the program helps inmates to cope with psychological impact of imprisonment. Clearly, themes of the emotional features were most expressed, as compared with others. This finding may mean that participants perceive the emotional features as most impacted by the program and their interaction with horses. The themes of behavioral features (Responsibility and commitment; and, Calmness, patience and conflict) demonstrate how the program allows inmates to perform as mature individuals while being involved in meaningful activities, which can generate pro-social skills. The behavioral features corroborate with DM findings. Though interviewees expressed some behavioral effects of the program, the changes they reported were not extensive. It may be that the behavioral impacts, such as taking responsibility, are more evident in the long-term (as opposed to during the daily behavioral requirements in prison). If so, this could be part of the explanation for the recidivism findings, while having no effect on severity of disciplinary misconduct. Yet, since only change in severity of DM was recorded, conclusions are limited. The themes of social features (Social learning via observation of herd dynamics; Relationships with other participants; and, Horses and the family unit) demonstrate how relations with horses can improve inmates' quality of life while incarcerated. Social learning exhibit how participants interpreted herd dynamics by projecting human interactions on horses. These could be further discussed to enhance social awareness and develop alternative approaches toward social situations. Last but not least, the themes of program evaluation (Motivation and expectations; Educational component; Program director; Participants' evaluation of program: advantages; Participants' evaluation of program: limitations) and vocational features (Program enhancing employability upon release; Vocational skills that may be transferable to other settings; and, Issues with working in horse farms upon

release) reveal vocational skills that may be transferable to other settings, and mostly support the recidivism findings.

Findings of the attachment and closeness questionnaires provide more information about the emotional mechanism that occurs during the program. Findings suggest that horses are approached as attachment figures, while higher levels of attachment to horses were achieved among older participants with stronger attachments to their mothers. As well, higher levels of closeness to horses were evident among older participants with stronger closeness to their mothers. Furthermore, as findings show moderate to low correlations, they reveal that features of attachment to horses vary in the same direction as features of attachment to mothers, while proximity maintenance is the most prominent. This inquiry adds an innovative course to literature of psychological mechanism that occurs during PAPs. While limited in relational opportunities, perhaps participants turn to horses as an emotional resource to help them bear the stressful impact of incarceration. The relationships between participants and horses in this program center on caregiving, trust and dependability, which are known as attachment-enhancing elements in adulthood (Doherty & Feeney, 2004; Fraley & Davis, 1997). Further examination such as exploration of relational histories could provide knowledge that allows for the building of a model of causation. Future research using cross-sectional data design methodologies, would allow for integration of methodologies via statistical analysis.

Findings provide preliminary support for the current program, because this prison-based equine-program offers a low risk (no riding involved) and low cost (most costs are covered by the TRF) option to reduce prospects of recidivism. As well, adding a clinical group intervention parallel to the program could further enhance its transformative impact. A group led by a mental health professional could allow for the processing of the emotions that surface during the

program. It could also facilitate the transport of cognitive and behavioral skills onto other vocational and social contexts.

Knowledge gleaned from this study shows that advocating for rehabilitative rather than punitive approaches toward corrections can contribute to a more humane treatment of this population while also benefiting society. Obviously, reduction in recidivism rates benefits participants as well as bring greater safety to the community at large. Furthermore, the exploration of human-horse relations in this program shows that they can contribute to emotional enhancements of participants. Programs are being implemented without the appropriate evaluation and determination of whether best-practices are chosen to treat this population. Thus, this study fulfills the ethical and practical obligation of evaluating programs for prison-inmates and helps promote accountability as well as best-practices for this vulnerable population.

Appendix

Appendix A. Questionnaire of attachment to horse

Research participant code number: _____ Date: _____

Please indicate how strongly you agree (1=strongly disagree, 7=strongly agree) with the following statements regarding the horse you take care of.

1. I can count on my horse to be there for me.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2. I miss my horse when I am away from him or her.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
3. When I am feeling bad and need a boost, I turn to my horse to help me feel better.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
4. It is important that I see my horse regularly.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
5. I can depend on my horse to care about me no matter what.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
6. I don't like to be away from my horse for extended periods of time.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
7. When I am disappointed, I turn to my horse to help me feel better.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
8. I like having regular contact with my horse.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
9. I can count on my horse's trustworthiness.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
10. If I am away from my horse, I think about him or her.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
11. When something bad happens to me, I turn to my horse to help me feel better.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
12. I like having my horse near me.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
13. I can count on my horse for comfort.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
14. I would be upset if I had to be away from my horse for a long while.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
15. When I am upset, I turn to my horse to help me feel better.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
16. I like when my horse is with me.	(1)	(2)	(3)	(4)	(5)	(6)	(7)

Appendix B. Measure of closeness to horse

Please indicate how strongly you agree (1=strongly disagree, 7=strongly agree) with the following statements regarding the horse you take care of.

1. I feel close to my horse.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2. I have an emotional tie with my horse.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
3. I have a special bond with my horse.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
4. I feel attached to my horse.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
5. My horse holds a special place in my heart.	(1)	(2)	(3)	(4)	(5)	(6)	(7)

Appendix C. Subscales of features of an attachment figure by attachment functions

Secure Base: 1. I can count on my horse to be there for me. 5. I can depend on my horse to care about me no matter what. 9. I can count on my horse's trustworthiness. 13. I can count on my horse for comfort.

Separation Distress: 2. I miss my horse when I am away from him or her. 6. I don't like to be away from my horse for extended periods of time. 10. If I am away from my horse, I think about him or her. 14. I would be upset if I had to be away from my horse for a long while.

Safe Haven: 3. When I am feeling bad and need a boost, I turn to my horse to help me feel better. 7. When I am disappointed, I turn to my horse to help me feel better. 11. When something bad happens to me, I turn to my horse to help me feel better. 15. When I am upset, I turn to my horse to help me feel better.

Proximity Maintenance: 4. It is important that I see my horse regularly. 8. I like having regular contact with my horse. 12. I like having my horse near me. 16. I like when my horse is with me.

Appendix D. Data gathering of demographics and control variables

Research participant code number: _____ Date: _____

1. Date of Birth: ____/____/____
MM – DD – YY

2. Ethnicity: (please mark an X)

Hispanic or Latino Not Hispanic or Latino

3. Race: (please mark an X)

American Indian or Alaska Native

Asian African American White

Native Hawaiian or other Pacific Islander

Other, specify: _____

Multiracial, specify: _____

4. Educational Level: _____

5. Date of entering TRF's second chances program: ____/____/____
MM – DD – YY

6. Date of ending TRF's second chances program: ____/____/____
MM – DD – YY

7. Prior experience with horses: Yes / No (Please circle)

8. If yes, please describe: _____

Appendix E. Interview guide

Hello, I'm Keren Bachi, a doctoral student studying the "Second Chances" program. Thank you for agreeing to participate in this study. Participation in this study is voluntary and I'd like to assure you that your answers will be kept completely confidential. In accordance to the consent form that you signed, your responses will be de-identified and will be used only for the purpose of this study. The study report, executive summary, and any related publications will protect your privacy and confidentiality with no identification or any way that would reveal your identity.

This study looks at how "Second Chances" is viewed by program participants. This study aims to learn about participant's gains from the program and whether and how it should be refined. It focuses especially on the unique feature of this program, the human horse relations and how it affects your life. The interview is expected to take approximately 1.5 hours.

1. What were your expectations prior to entering the program?

- Before entering the program, what were your images of this service? What were your understandings of the services provided by the program?
- What kind of experiences did you have with horses before entering this program? (Actual, fantasy, etc) describe, illustrate. How did these experiences influence your expectations of the program?
- What motivated you to volunteer with the program? (Who motivated you?) What parts of your history or personal needs caused you to join this program? (Vocational training history, employment history, emotional needs?)
- Does the relatively meager financial incentives offered by the program influence your expectations? (How did it influence your participation over time?)

2. How would you characterize the program? (perception, understanding of parts of the program)

- Please describe:
 - The course
 - Relationships with staff (farm manager/instructor)
 - Peer relationships (peer relationship in the program versus other peers in prison)
 - Spending time in a natural surrounding ("time-out" from the facility building)
 - Relationships with horses

3. How would you describe your experience/relationship with the horse/s assigned to you?

- The horses in this program are in a rehabilitation process, as retired race-horses; how does/did that shape your relationship with them?
 - What were your reactions to the horses, being in a rehabilitation process? (Do you feel empathy, compassion, and connection towards their condition?) Describe/illustrate. Did those feelings influence your relationship to parts of the service/program?
 - How are the special conditions of these horses relevant to issues in your life at this time?

- Characterize or describe the experience of grooming and taking care of your horse; Take me through a moment (emotionally). Do your feelings, mood change when you are working with the horse in this way? describe, illustrate what you are feeling
- Describe how you feel when you lead your horse? (emotionally) Do your feeling, mood change when you are working with the horse in this way? describe, illustrate what you are feeling
- Describe what is going through your mind when you feed your horse? (How do you feel?) Does it affect the way you think about yourself in that moment? Has that had larger impact overtime? If so, explain; Compare to any other experiences, with humans and the impact of it
- How is the exchange between you and the horses reciprocal? Do you get back as much as you give? Explain, illustrate
 - What do you experience when you caress a horse?
 - How does the horse feedback or express its reactions for what you are providing? Describe some of what it is expressing (physical feedback; dimensions of touch, non-verbal communication) and your interpretation
 - What happens to you, when you spend more time with horses? (less time) How does it affect your mood, the way you respond or interact with humans, explain? Do you notice a discernable change, if so explain?
- Horses are social herd animals who display a range of social and emotional behaviors (e.g., companionship & trust, dominance & submissive horses in hierarchy, competition for a particular resource, anxiety over separation, communication & body-language). What have you learned while observing herd interaction that is relevant to your interactions with other people? Has this affected your social awareness overtime? Has it in turn influenced the way you develop trust/ express hard feelings / form friendships, etc? Have these behaviors been pointed out to you by the program? If so, how?
- How does your experience with the horses remind you of other relationships from your past or present? Please identify, and describe the association.

4. How does it feel to be with horses within the context of a prison?

- There could be a paradox between horses, which may symbolize freedom, and a prison; how does it feel to be in the open fields, and spend time with horses?
 - What are your thoughts and feelings about this contradiction? (Does it confuse you? Does it empower you? Does it help to calm you? If so explain. Do these feelings last beyond the time you are actually with the horse? Explain/illustrate)
 - Do you identify with the horses when you are with them? If so how. (e.g., with the freedom horses symbolize)? How does it affect your feelings?
 - How does being with the horses differ from being within the prison facility?
 - How does it feel to return to the prison facility, after being with the horses?

- How is the isolation and alienation of prison, affected by the alter experience of caring for a horse? In what ways does this program affect the quality of your life in prison? In what ways does it affect the quality of your life in prison when you are away from the horse?
 - What about your experience helps you cope with your time in prison?
 - Thinking about your time in prison before and after entering the program, what has changed in the way you deal with being in prison?
 - How has your attitude change? (Towards peers, staff, significant others), How did this experience impact your relationships in prison with peers etc.?
 - How did your strategies of coping with difficult situations change? (e.g., coping with conflict), How have your problem solving strategies changed?

5. In what way/ways has the program impacted your life?

- What aspects of the program have had the greatest impacts? Explain, illustrate
- How do you expect your experience with horses will help you in the future or after you are released from prison?
- What are your expectations regarding the impact of this program on your vocational future? (vocational aspiration and how the program contributes to its fulfillment)

6. What is your evaluation of the program?

- Explain for example, what were its
 - Strengths, weaknesses
 - Things liked, things disliked
 - Things that should be changed

Appendix F. Categories of offenses and penalty range

KY DOC policy and procedures entitled “Rule violations and penalties” (number 15.2, effective January 3rd, 2011) defines the following uniform categories and penalties. Violations are divided into seven major categories with specific penalty ranges for each category unless otherwise stated.

	Violation	Minimum penalty	Maximum penalty
Category I (Minor violations)			
1.	Faking illness or injury	1	4
2.	Improper or unauthorized use of or possession of state equipment or materials	1	4
3.	Possession of money less than \$20 in excess of amount authorized	1	4
4.	Illegal possession of canteen tickets	1	4
5.	Littering	1	4
6.	Improper or unauthorized use of a telephone	1	4
7.	Improper use of a pass	1	4
8.	Illegal possession of any item or quantities not on an authorized property list	1	4
9.	Failure to have and display I.D. card as required by institutional policy	1	4
10.	Failure to abide by any published institutional schedule or documented rule	1	4
11.	Unauthorized removal of food from any food service area	1	4
12.	Abusive, vulgar, obscene or threatening language, gestures or actions	1	4
Category II (Minor violations)			
1.	Possession of contraband	2	5
2.	Disruptive behavior	2	5
Category III (Major violations)			
1.	Interfering with an employee in the performance of his duty	2	7
2.	Refusing or failing to obey an order	2	7
3.	Violation of mail or visiting regulations	2	7
4.	Breaking or entering into another inmate’s locker, room, cell or living unit	2	7
5.	Unexcused absence from assignment	2	7

	Violation	Minimum penalty	Maximum penalty
6.	Refusing or failing to carry out work assignment	2	7
7.	Bucking an inmate line	2	7
8.	Involvement in the writing, circulating or signing of petitions which may lead to disruption of institutional operations	2	7
9.	Failure to clean bed area or pass bed area inspection	2	7
10.	Unauthorized changing of bed assignment	2	7
11.	Physical action or force against another inmate if no injury has occurred, including horseplay	2	7
12.	Inflicting injury to self	2	7
13.	Charging another inmate for any service	2	7
14.	Violation of the Furlough Code of Conduct	2	7
15.	Being a restricted or unauthorized area	2	7
16.	Unauthorized communication between inmates	2	7
17.	Forgery	2	7
18.	Violating a condition of nay outside work detail	2	7
19.	Failure to abide by penalties imposed by Adjustment Committee, Adjustment Officer or Unit Hearing Officer	2	7
20.	Abusive, disrespectful, vulgar, obscene or threatening language, gestures or actions directed toward or about an employee, visitor, or non-inmate	2	7
21.	Lying t an employee	2	7
22.	Unauthorized communication with any member of the public or staff	2	7
23.	Violating the institutional dress code or as provided in CPP 17.1	2	7
24.	Violation of institutional telephone rules	2	7
25.	Use or possession of tobacco products in an unauthorized area	2	7
Category IV (Major violations)			
1.	Physical action resulting in injury to another inmate	2	8
2.	Unauthorized use of drugs or intoxicants	2	8
3.	Failure to appear, without prior approval, at a classification hearing, orientation meeting, medical appointment or any other scheduled meeting	2	8
4.	Interfering with the taking of a drug urine-analysis test, breathalyzer or search	2	8
5.	Smuggling of contraband items into, out of or within the institution	2	8
6.	Engaging in extortion or blackmail	2	8

	Violation	Minimum penalty	Maximum penalty
7.	Refusing or failing to comply with institutional count or lockup	2	8
8.	Nonviolent demonstration or inciting a nonviolent demonstration that may lead to disruption of institutional operations	2	8
9.	Unauthorized absence from the institution	2	8
10.	Negligent or deliberate destruction, alteration or defacing of state, personal, or community property of less than \$100 in value	2	8
11.	Obtaining money, goods, privileges, or services under false pretenses	2	8
12.	Inappropriate sexual behavior	2	8
13.	Gambling or possession of gambling paraphernalia	2	8
14.	Stealing or possession of stolen personal, state, community, or another's property under \$ 100	2	8
15.	Unauthorized transfer of money or property	2	8
16.	Possession of tattoo or body-piercing paraphernalia	2	8
17.	Indecent exposure	2	8
18.	Misuse of authorized or issued medication	2	8
19.	Making threatening or intimidating statements	2	8
20.	Refusing to submit to a breathalyzer or search	2	8
21.	Pursuing or developing a relationship that is unrelated to correctional activities with a non-inmate	2	8
22.	Possession of drug paraphernalia, including any recipes, directions and descriptions for producing unauthorized drugs	2	8
23.	Stalking	2	8
24.	Cruelty to animals	2	8
25.	Placing personal ads in any publication or with any internet provider that includes false, deceptive or misleading personal information, photographs, or drawings	2	8
26.	Possession of unaccountable canteen items	2	8
Category V (Major violations)			
1.	Negligently or deliberately destroying, altering or defacing of state, personal, or community property valued at \$ 100 or more	4	9
2.	Destroying or tampering with life safety equipment, locking or security devices	4	9
3.	Eluding or resisting apprehension	4	9
4.	Loan sharking, collecting or incurring debts	4	9

	Violation	Minimum penalty	Maximum penalty
5.	Stealing or possession of stolen personal, state or community property over \$ 100	4	9
6.	Bribery	4	9
7.	Tampering with physical evidence or hindering an investigation	4	9
8.	Using mail to obtain money, goods or services by fraud	4	9
9.	Possession of or displaying gang paraphernalia	4	9
10.	Involvement in gang activity	4	9
11.	Physical action against another inmate if three (3) or more inmates are involved	4	9
12.	Violent demonstration	4	9
Category VI (Major violations)			
1.	Escape	6	10
2.	Deliberately or negligently causing a fire	6	10
3.	Possession or promoting of dangerous contraband	6	10
4.	Possession of money \$ 20 or more in excess of authorized amount if possession of money is authorized	6	10
5.	Possession of tokens or money if not authorized	6	10
6.	Possession of staff uniform clothing or uniform related items	6	10
7.	Taking property by force or threat of force	6	10
8.	Using an authorized object as a weapon or to facilitate escape	6	10
9.	Refusal to submit to medical testing	6	10
10.	Creating or causing a health hazard	6	10
11.	Enforcing or threatening gang activity	6	10
12.	Inappropriate sexual behavior with another person	6	10
13.	Tattooing or piercing self or others or allowing self to be tattooed or pierced	6	10
14.	Unauthorized use of drugs or intoxicants after testing positive a third time or more, after July 13, 1998	6	10
15.	Refusing or failing to submit to a drug urine-analysis test within three (3) hours	6	10
16.	Possession, creating or distributing any writing or photography of which child pornography, including violence, bondage and the likes, in the subject, whether factual or fictitious	6	10
17.	Prostitution as defined in KRS 529.010	6	10
Category VII (Major violations)			
1.	Physical action against an employee or non-inmate	11	11

	Violation	Minimum penalty	Maximum penalty
2.	Physical action resulting in the death or serious injury of another inmate	11	11
3.	Sexual assault	12	12
4.	Physical action resulting in the death or injury of an employee or non-inmate	12	12
5.	Hostage taking	12	12
6.	Concealing an item that punctures or penetrates the skin of an employee conducting a search	12	12
7.	Inciting to riot or rioting	11	12

Appendix G. Reliability of new scale of attachment to horses

Item of Attachment to horses	Corrected Item- Total Corr.	Cronbach's Alpha if item Deleted
I can count on my horse	.81	.97
I miss my horse when I am away	.85	.98
When need a boost turn to horse	.81	.98
Important see my horse	.84	.98
Depend on horse	.86	.98
Don't like be away from horse	.87	.98
When disappointed turn to horse	.88	.98
Regular contact horse	.77	.98
Horse's trustworthiness	.80	.98
W away from horse I think about	.86	.98
W something bad I turn to horse	.86	.98
Like horse near me	.85	.98
Count horse for comfort	.86	.98
Upset if away from horse	.87	.98
W upset turn to horse	.88	.97
Like W horse with me	.83	.98

Appendix H. Reliability of new scale of closeness to horses

Item of Attachment to horses	Corrected Item-Total Corr.	Cronbach's Alpha if item Deleted
I feel close to my horse	.84	.96
I have an emotional tie with my horse	.92	.95
I have a special bond with my horse	.93	.94
I feel attached to my horse	.91	.95
My horses hold a special place in heart	.85	.96

References

- Adams, K. (2001). 2nd chances. *Backstretch, March/April*, 32-37.
- Ainsworth, M. D. (1991). Attachment and other affectional bonds across the life cycle. In C. M. Parkes, J. Stevenson-Hinde & P. Marris (Eds.), *Attachment across the lifecycle* (pp. 33-51). New York: Routledge.
- Ainsworth, M. D. (1989). Attachments beyond infancy. *American Psychologist*, 44(4), 709–716.
- Allen, K., Shykoﬀ, B. E., & Izzo, J. L. (2001). Pet ownership, but not ACE inhibitor therapy, blunts home blood pressure responses to mental stress. *Hypertension*, 38(4), 815-820.
- Allison, P. D. (2009). Missing Data. In R. E. Millsap & A. Maydeu-Olivares (Eds.), *The SAGE handbook of quantitative methods in psychology* (pp. 72-89). Thousand Oaks, CA: Sage Publications Inc.
- Allison, P. D. (1984). *Event history analysis: Regression for longitudinal event data*. Beverly Hills, CA: Sage Publications Inc.
- Ascione, F. R., & Shapiro, K. (2009). People and animals, kindness and cruelty: Research directions and policy implications. *Journal of Social Issues*, 65(3), 569-587. doi: 10.1111/j.1540-4560.2009.01614.x
- Bair, R., & Osborne, S. J. (2003). Healing inmates' hearts and spirits with man's best friend. *Corrections Today*, 65(2), 122-124.
- Bachi, K. (2013). Application of Attachment theory to equine-facilitated psychotherapy. *Journal of Contemporary Psychotherapy*, 43(3), 187-196. doi: 10.1007/s10879-013-9232-1
- Baldry, E., & Sotiri, M. (2009). Social work and corrections. In P. Swain & S. Rice (Eds.), *In the shadow of the law: The legal context of social work practice* (3rd ed., pp. 360-375). Sydney, Australia: The Federation Press.

- Batiuk, M. E., Moke, P., & Rountree, P. W. (1997). Crime and rehabilitation: Correctional education as an agent of change-A research note. *Justice Quarterly*, *14*(1), 167-180.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*(3), 497–529.
- Bazos, A., & Hausman, J. (2004). Correctional education as a crime control program. *Correctional Education Association*. Retrieved June, 2010, from <http://www.ceanational.org/PDFs/ed-as-crime-control.pdf>
- Bogdan, R. C., & Biklen, S. K. (1983). *Qualitative research for education: An introduction to theory and methods*. Boston, MA: Allyn & Bacon.
- Bouffard, J. A., MacKenzie, D. L., & Hickman, L. J. (2000). Effectiveness of vocational education and employment programs for adult offenders a methodology-based analysis of the literature. *Journal of Offender Rehabilitation*, *31*(1), 1-41.
- Bowlby, J. (1980). *Attachment and loss: Vol. 3. Loss*. New York: Basic Books.
- Bretherton, I. (1985). Attachment theory: Retrospect and prospect. In I. Bretherton & E. Waters (Eds.), Growing points of attachment theory and research. *Monographs of the Society for Research in Child Development*, *50*, 3–35.
- Britton, D. M., & Button, A. (2005). Prison Pups: Assessing the effects of dog training programs in correctional facilities. *Journal of Family Social Work*, *9*(4), 79-95. doi: 10.1300/1039v09n0406
- Bureau of Land Management. (2011). Colorado Wild Horse Inmate program. Retrieved March, 2012, from

- http://www.blm.gov/co/st/en/BLM_Programs/wild_horse_and_burro/Wild_Horse_Inmate_Program_Colorado.html
- Burger, E., Stetina, B. U., Turner, K., McElheney, J., & Handlos, U. (2011). Dog-assisted therapy in prison: Emotional competences and emotional status of drug-addicted criminal offenders. [Abstracts from the 2010 Canine Science Forum, Vienna, Austria, 25-28 July 2010]. *Journal of Veterinary Behavior: Clinical Applications and Research*, 6(1), 79-80. doi: 10.1016/j.jveb.2010.09.011
- Chianese, N. M. (2010). *Girls, jails, and puppy dog tails: An evaluation of the New Leash on Life program*. California State University, Fullerton. Retrieved from <http://ezproxy.gc.cuny.edu/login?url=http://search.proquest.com/docview/305247439?accountid=7287>
- Cicirelli, V. G. (1995). *Sibling relationships across the lifespan*. New York: Plenum Press.
- Cicirelli, V. G. (1991). Attachment theory in old age: Protection of the attached figure. In K. Pillemer & K. McCartney (Eds.), *Parent-child relations across the life span* (pp. 25–42). Hillsdale, NJ: Erlbaum.
- Cicirelli, V. G. (1983). Adult children's attachment and helping behaviour to elderly parents: A path model. *Journal of Marriage and the Family*, 45(4), 815–825.
- Collins, N. L., & Read, S. J. (1994). Cognitive representations of attachment: The structure and function of working models. In K. Bartholomew & D. Perlman (Eds.), *Attachment processes in adulthood: Advances in personal relationships, vol. 5* (pp. 53–90). London: Jessica Kingsley.
- Crawford, E. K., Worsham, N. L., & Sweinehart, E. R. (2006). Benefits derived from companion animals, and the use of the term "attachment". *Anthrozoös*, 19(2), 98-112.

- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Currie, N. S. (2008). *A case study of incarcerated males participating in a canine training program*. Unpublished dissertation. Department of Special Education, Counseling, and Student Affairs College of Education. Kansas State University. Manhattan, Kansas.
- Cushing, J. L., & Williams, J. D. (1995). The Wild Mustang program: A case study in facilitated inmate therapy. *Journal of Offender Rehabilitation*, 22(3/4), 95-112. doi: 10.1300/J076v22n03_08
- Dalke, K. (2008). At the threshold of change: The inmates and wild horses of Cañon City, Colorado. *Reflections*, 14 (4, Fall), 12-16.
- Deaton, C. (2005). Humanizing prisons with animals: A closer look at "cell dogs" and horse programs in correctional institutions. *Journal of Correctional Education*, 56(1), 46-62.
- Denzin, N. K. (1978). *The research act: A theoretical introduction to sociological methods* (2nd ed.). New York: McGraw-Hill.
- Denzin, N. K. (2010). Moments, mixed methods, and paradigm dialogues. *Qualitative Inquiry*, 16(6), 419-427.
- Doherty, N. A., & Feeney, J. A. (2004). The composition of attachment networks throughout the adult years. *Personal Relationships*, 11(4), 469-488. doi: 10.1111/j.1475-6811.2004.00093.x
- Epstein, I. (2010). *Clinical Data-Mining*. New York: Oxford University Press.
- Esbjorn, R. J. (2006). *When horses heal: A qualitative inquiry into equine-facilitated psychotherapy*. PhD Dissertation, Institute of Transpersonal Psychology, Palo Alto, CA. Available from EBSCOhost psych database.

- Feeney, J. A. (1999). Adult romantic attachment and couple relationships. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 355–377). New York: Guilford.
- Feeney, J. A., Hohaus, L., Noller, P., & Alexander, R. P. (2001). *Becoming parents: Exploring the bonds between mothers, fathers, and their infants*. Cambridge, England: Cambridge University Press.
- Feeney, J. A., & Humphreys, T. (1996, November). *Parental, sibling and romantic relationships: Exploring the functions of attachment bonds*. Paper presented at the Fifth Australian Family Research Conference, Brisbane.
- Fielding, N. G. (2012). Triangulation and mixed methods designs: Data integration with new research technologies. *Journal of Mixed Methods Research*, 6(2), 124–136. doi: 10.1177/1558689812437101
- Fine, A. H. (Ed.). (2010). *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (3rd ed.). San Diego: Academic Press.
- Fine, A. H., & Mio, J. S. (2010). The role of AAT in clinical practice: The importance of demonstrating empirically oriented psychotherapies. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (3rd ed., pp. 563-578). San Diego: Academic Press.
- Fournier, A. K., Geller, E. S., & Fortney, E. V. (2007). Human-animal interaction in a prison setting: Impact on criminal behavior, treatment progress, and social skills. *Behavior and Social Issues*, 16(1), 89-105.
- Fraley, R. C., & Davis, K. E. (1997). Attachment formation and transfer in young adults' close friendships and romantic relationships. *Personal Relationships*, 4(2), 131–144.

- Frame, D. L. (2006). *Practices of therapists using equine-facilitated/assisted psychotherapy in the treatment of adolescents diagnosed with depression: A qualitative study*. PhD Dissertation, New York University, New York. Available from EBSCOhost psych database.
- Furst, G. (2007a). Prison-based animal programs: Self-reported effects of participation and implications for desistance. *Prison Service Journal*, 172(July), 38-44.
- Furst, G. (2007b). Without words to get in the way: Symbolic interaction in prison-based animal programs. *Qualitative Sociology Review*, 3(1), 96-109.
- Furst, G. (2006). Prison-based animal programs: A national survey. *The Prison Journal*, 86(4), 407-430. doi: 10.1177/0032885506293242
- George, C., Kaplan, N., & Main, M. (1996). *Adult Attachment Interview*. Unpublished manuscript (3rd edition). Department of Psychology, University of California. Berkeley.
- Granger, B. P., & Kogan, L. R. (2006). Characteristics of animal-assisted therapy/activity in specialized settings. In A. H. Fine (Ed.), *Handbook on Animal-Assisted Therapy: Theoretical Foundations and Guidelines for Practice* (2ed ed., pp. 263-285). San Diego: Academic Press.
- Gumz, E. J. (2004). American social work, corrections and restorative justice: An appraisal. *International Journal of Offender Therapy and Comparative Criminology*, 48(4), 449-460. doi: 10.1177/0306624x03262516
- Gupta, V. (2013). How to really end mass incarceration. *The opinion pages of The New York Times*. Retrieved August 14, 2013, from <http://www.nytimes.com/2013/08/15/opinion/how-to-really-end-mass-incarceration.html>
- Hallberg, L. (2008). *Walking the way of the horse*. New York: iUniverse, Inc.

- Harrell, F. E., Lee, K. L., Califf, R. M., Pryor, D. B., & Rosati, R. A. (1984). Regression modelling strategies for improved prognostic prediction. *Statistics in Medicine*, 3(2), 143-152. doi: 10.1002/sim.4780030207
- Harkrader, T., Burke, T. W., & Owen, S. S. (2004). Pound Puppies: The rehabilitative uses of dogs in correctional facilities. *Corrections Today*, 66(2), 74-79.
- Hazan, C., & Zeifman, D. (1994). Sex and the psychological tether. In K. Bartholomew & D. Perlman (Eds.), *Attachment processes in adulthood. Advances in personal relationships* (vol. 5, pp. 151-177). London: Jessica Kingsley.
- Humphries, B. (2008a). Ethical research and social justice. *Social Work Research for Social Justice* (pp. 19-32). Basingstoke: Palgrave Macmillan.
- Humphries, B. (2008b). Evaluation research. *Social Work Research for Social Justice* (pp. 169-188). Basingstoke: Palgrave Macmillan.
- Jasperson, R. A. (2010). Animal-assisted therapy with female inmates with mental illness: A case example from a pilot program. *Journal of Offender Rehabilitation*, 49(6), 417-433. doi: 10.1080/10509674.2010.499056
- Jensen, E. L., & Reed, G. E. (2006). Adult correctional education programs: An update on current status based on recent studies. *Journal of Offender Rehabilitation*, 44(1), 81-98.
- Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, 1(2), 112-133. doi: 10.1177/1558689806298224
- Katcher, A. H., & Beck, A. M. (2006). New and old perspectives on the therapeutic effects of animals and nature. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy* (2nd ed.). San Diego: Academic Press.

- Katcher, A. H., Beck, A. M., & Levine, D. (1989). Evaluation of a pet program in prison: The PAL project at Lorton. *Anthrozoös*, 2(3), 175-180.
- Katcher, A. H., Friedmann, E., Beck, A. M., & Lynch, J. (1983). Looking, talking and blood pressure: The physiologic consequences of interaction with the living environment. In A. H. Katcher & A. M. Beck (Eds.), *New perspectives on our lives with companion animals*. Philadelphia, PA: University of Pennsylvania Press.
- Kellam, L. (2009). *2004 Releases: Three year post release follow-up*. Retrieved August 20, 2013, from http://www.doccs.ny.gov/Research/Reports/2009/2004_releases_3yr_out.pdf
- Kirk, J., & Miller, M. L. (1986). *Reliability and validity in qualitative research*. Newbury Park, CA: Sage Publications Inc.
- Kleinbaum, D. G., & Klein, M. (2008). *Survival analysis: A self-learning text* (2nd ed.). New Delhi, India: Springer.
- Kochersperger, K., & Heger, L. (2010). Tucker gets a second chance: Learning important life skills while in prison and being rescued from a life of homelessness. *Palaestra*, 25(2), 33-35.
- Kurdek, L. A. (2008). Pet dogs as attachment figures. *Journal of Social and Personal Relationships*, 25(2), 247-266.
- La Guardia, J. G., Ryan, R. M., Couchman, C. E., & Deci, E. L. (2000). Within-person variation in security of attachment: A self-determination theory perspective on attachment, need fulfillment, and well-being. *Journal of Personality and Social Psychology*, 79(3), 367-384.

- Lai, J. (1998). *Pet facilitated therapy in correctional institutions*. Paper prepared for Correctional Services of Canada by Office of the Deputy Commissioner for Women. Retrieved Feb 11, 2012, from <http://www.csc-scc.gc.ca/text/prgrm/fsw/pet/pet-eng.shtml>
- Lamm, W. (2010). Prison horse training programs: The incomplete success story. Retrieved March 10, 2012, from http://www.aowha.org/documents/prison_programs01.pdf
- Lee, D. (1987). Companion animals in institutions. In P. Arkow (Ed.), *The loving bond: Companion animals in the helping professions* (pp. 229-236). Saratoga, CA: R & E Publishers.
- Levinson, B. M. (1969). *Pet-oriented child psychotherapy*. Springfield, Ill: Charles C. Thomas.
- Levinson, B. M., & Mallon, G. P. (1997). *Pet-oriented child psychotherapy*. Springfield, Ill: Charles C. Thomas.
- Lichtenberger, E., & Ogle, J. T. (2008). Utilizing post-release outcome information to measure the effectiveness of correctional education programs. *United States Department of Education: Office of Safe and Drug-Free Schools*. Retrieved June 7, 2010, from http://www.ceanational.org/PDFs/Post_Release_Outcomes.pdf
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage Publications Inc.
- Lofland, J., & Lofland, L. (1984). Thinking units and asking questions *Analyzing social settings*. Belmont, CA: Wadsworth.
- Mallon, G. P. (1993). A Study of the interactions between men, women, and dogs at the ASPCA in New York City. *Anthrozoös*, 6(1), 43-47.
- Mallon, G. P., Ross, S. B., Jr, Klee, S., & Ross, L. (2010). Designing and implementing animal-assisted therapy programs in health and mental health organizations. In A. H. Fine (Ed.),

- Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (3rd ed, pp. 135-148). San Diego, CA: Academic Press.
- Maruna, S., Lebel, T. P., Mitchell, N., & Naples, M. (2004). Pygmalion in the reintegration process: Desistance from crime through the looking glass. *Psychology, Crime & Law*, *10*(3), 271-281.
- Merriam-Arduini, S. (2000). *Evaluation of an experimental program designed to have a positive effect on adjudicated violent, incarcerated male juveniles age 12-25 in the state of Oregon*. Unpublished doctoral dissertation. Pepperdine University.
- Moneymaker, J. M., & Strimple, E. O. (1991). Animals and Inmates. *Journal of Offender Rehabilitation*, *16*(3-4), 133-152. doi: 10.1300/J076v16n03_09
- Murnane, R. J., & Willett, J. B. (2011). *Methods matter: Improving causal inference in educational and social science research*. New York: Oxford University Press.
- Murray, D. M. (1998). *Design and analysis of group-randomized trials*. New York: Oxford University Press.
- Nef, N. (2004). *The Cat programme, an animal-assisted therapy at Saxierriet prison for men: Its effects and results in a correctional establishment*. Paper presented at the The 10th International conference on human-animal interactions, people and animals: A timeless relationship, October 6-9, The International Society for Anthrozoology, Glasgow, Scotland.
- Padgett, D. K. (2008). *Qualitative methods in social work research* (2nd ed.). Thousand Oaks, CA: Sage Publications Inc.
- Painz, M. J. (2010). *Gender inequality in prison programming and the benefits of prison animal programs in women's facilities*. Paper presented at the Annual meeting of ASC, Nov

- 17th, 2010, San Francisco Marriott, San Francisco, California. Retrieved August 14, 2013 from http://www.allacademic.com/meta/p432448_index.html
- Patton, M. (2002). *Qualitative evaluation and research methods* (3ed ed.). Newbury Park, CA: Sage.
- Pedulla, T. (2001, October 17). Inmates get a helping hoof. *USA Today*, C3.
- Phillips Cohen, S. (2002). Can pets function as family members? *Western Journal of Nursing Research*, 24(6), 621-638.
- Phillips Cohen, S. (2007). *Applying theories of attachment to the human-animal bond*. Paper presented at the Convention Notes of the 144th American Veterinary Medical Association Annual Convention, O'Fallon, IL.
- Pike, J. (2008). National Crime Information Center (NCIC). Retrieved March 7, 2012, from <http://www.fas.org/irp/agency/doj/fbi/is/ncic.htm>
- Prato-Previde, E., Fallani, G., & Valsecchi, P. (2006). Gender differences in owners interacting with pet dogs: An observational study. *Ethology*, 112(1), 64-73. doi: 10.1111/j.1439-0310.2006.01123.x
- Richardson-Taylor, K., & Blanchette, K. (2001). *Results of an evaluation of the Pawsitive Directions Canine Program at Nova Institution for women*. Retrieved August 16, 2013 from http://www.csc-scc.gc.ca/text/rsrch/reports/r108/r108_e.pdf
- Risley-Curtiss, C. (2008). Human-other animal bond. In T. Mizrahi & L. E. Davis (Eds.), *Encyclopedia of Social Work* (20th edition, pp. 422-425). New York: NASW Press and Oxford University Press.

- Ryan, R. M., La Guardia, J. G., Solky-Butzel, J., Chirkov, V., & Kim, Y. (2005). On the interpersonal regulation of emotions: Emotional reliance across gender, relationships, and cultures. *Personal Relationships, 12*(1), 145-163. doi: 10.1111/j.1350-4126.2005.00106.x
- Sherwin, P. J. W., Burns, J. E., Doyle, V. E., Kamins, B., Lewis, D., Lindenauer, S. B., . . . Wagner, J. (2006). "Re-entry and reintegration: The road to public safety" report and recommendations of the Special Committee on Collateral Consequences of Criminal Proceedings. *New York State Bar Association*. Retrieved June 12, 2010, from <http://www.nysba.org/AM/Template.cfm?Section=Home&CONTENTID=11415&TEMPLATE=/CM/ContentDisplay.cfm>
- Simon, S. (2001, February 20). Program mends the spirits of broken men, broken horses; hope is abundant in prison barn. *Los Angeles Times, A5*.
- Smith, M. J. (2010). *Handbook of program evaluation for social work and health professionals*. New York: Oxford University Press.
- Stetina, B. U., Gegenhuber, B., McElheney, J., Handlos, U., Kuchta, B., Gindl, B., . . . Kryspin-Exner, I. (2009). Health promotion with the animal assisted training (MTI) for drug offenders. *Psychology & Health, Sep; 24*(Supplement 1), 376-377.
- Stetina, B. U., Kuchta, B., Gindl, B., Maman, T. L., Handlos, U., Werdenich, W., & Kryspin-Exner, I. (2009). Changes in emotional competences of drug offenders during dog-assisted group training (MTI). *Journal of Veterinary Behavior: Clinical Applications and Research, 4*(2), 99-100. doi: 10.1016/j.jveb.2008.10.030
- Stevens, J. P. (2009). *Applied multivariate statistics for the social sciences* (4th ed.). New York: Routledge.

- Strimple, E. O. (2003). A history of prison inmate-animal interaction programs. *American Behavioral Scientist*, 47(1), 70-78.
- Suthers-McCabe, H. M., Van Voorhees, E. E., & Fournier, A. K. (2004). *The human-animal bond in an American prison: Inmate trainer outcomes*. Paper presented at the The 10th International conference on human-animal interactions, people and animals: A timeless relationship, The International Society for Anthrozoology, October 6-9, Glasgow, Scotland.
- Tancredy, C. M., & Fraley, R. C. (2006). The nature of adult twin relationships: An attachment-theoretical perspective. *Journal of Personality and Social Psychology*, 90(1), 78-93.
- Tekle, F. B., & Vermunt, J. K. (n.d.). Event history analysis. Retrieved March 11, 2012, from <http://spitswww.uvt.nl/~vermunt/tekle2010.pdf>
- The Editorial Board. (2013). Smarter Sentencing. *The opinion pages of The New York Times*. Retrieved August 13, 2013, from <http://www.nytimes.com/2013/08/14/opinion/smarter-sentencing.html>
- Thoroughbred Retirement Foundation. (2010). *TRF's Second Chances program*. Fact sheet. TRF. Saratoga Springs, NY.
- Thoroughbred Retirement Foundation. (2012). Farms and facilities. *TRF's Second Chances program*. Retrieved March 2, 2012, from <http://www.trfinc.org/Farms-and-Facilities-c10.html>
- Tolman, D. L., & Szalacha, L. A. (1999). Dimensions of desire. *Psychology of Women Quarterly*, 23(1), 7-39.
- Trinke, S. J., & Bartholomew, K. (1997). Hierarchies of attachment relationships in young adulthood. *Journal of Social and Personal Relationships*, 14(5), 603-625.

- Turner, K., Stetina, B. U., Burger, E., Glenk, L. M., Kothgassner, O. D., & Handlos, U. (2011). Dog-assisted intervention (MTI) with mentally disordered prisoners: Enhancing empathy – a pilot study. [Abstract from the 2010 Canine Science Forum, Vienna, Austria, 25-28 July, 2010]. *Journal of Veterinary Behavior: Clinical Applications and Research*, 6(1), 97. doi: 10.1016/j.jveb.2010.08.010
- Turner, W. G. (2007). The experiences of offenders in a prison canine program. *Federal Probation*, 71(1), 38-43.
- Van Wormer, K., & Boes, M. (1998). *Social work, corrections, and the Strengths approach*. Paper presented at the The Canadian Association of Social Workers, National Social Work Conference, Edmonton, Alberta, Canada. Retrieved March 13, 2012 from <http://www.uni.edu/vanworme/canada.html>
- Visher, C. A., & Travis, J. (2003). Transitions from prison to community: Understanding individual pathways. *Annual Review of Sociology*, 29(1), 89-113. doi: 10.2307/30036962
- Wade, B. (2007). Studies of correctional education programs. *Adult Basic Education & Literacy Journal*, 1(1), 27-31.
- Walsh, P., & Mertin, P. (1994). The training of pets as therapy dogs in a women's prison: A pilot study. *Anthrozoös*, 7(2), 124-128.
- Weiss, R. S. (1991). The attachment bond in childhood and adulthood. In C. M. Parkes & J. Stevenson-Hinde (Eds.), *Attachment across the life cycle* (pp. 66–76). London: Tavistock/Routledge.
- Weiss, R. S. (1982). Attachment in adult life. In C. M. Parkes & J. Stevenson-Hinde (Eds.), *The place of attachment in human behaviour* (pp. 171–184). New York: Basic Books.

- Wilson, D. B., Gallagher, C. A., & MacKenzie, D. L. (2000). A meta-analysis of corrections-based education, vocation, and work programs for adult offenders. *Journal of Research in Crime and Delinquency*, *37*(4), 347-368.
- Young, D., & Mattucci, R. (2006). Enhancing the vocational skills of incarcerated women through a plumbing maintenance program. *Journal of Correctional Education*, *57*(2), 126-140.
- Zilcha-Mano, S., Mikulincer, M., & Shaver, P. R. (2011a). An attachment perspective on human-pet relationships: Conceptualization and assessment of pet attachment orientations. *Journal of Research in Personality*, *45*(4), 345–357.
- Zilcha-Mano, S., Mikulincer, M., & Shaver, P. R. (2011b). Pet in the therapy room: An attachment perspective on animal-assisted therapy. *Attachment & human development*, *13*(6), 541–561.